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Intensive Care Unit Nurses' Work Life Balance, Job Attraction and Retention

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Abstract

Background: Intensive care units (ICUs) nurses face many challenges stem from complexity of patient care, work overloads, limitation of time, working environment and administrative duties which would affect their work life balance, job attraction and retention. **Aim** of this study was to explore the relationship between work life balance, job attraction and retention among ICUs nurses. **Methods:** Descriptive – co-relational design was used. The study was conducted at ICUs at Tanta University Main Hospital on all the available (190) nurses. Three tools for data collection were used. Tool (I): Work Life Balance Questionnaire. Tool (II): Job Attraction Assessment Scale and Tool (III): Job Retention Assessment Scale. **Results:** More than half (59%, 55%) of ICUs nurses' perceived a- low level of work-life balance and job retention respectively. Beside, more than half (61%) of them perceived a moderate level of job attraction. **Conclusion:** It was concluded that the work life balance was positively correlated with job attraction and retention. Therefore**, it was recommended that** hospital administrators and nurse managers need to adopt strategies for promoting ICUs nurses' work life balance so their job satisfaction, attraction and retention will be improved.

Key words: Intensive care units, Job attraction and retention, Nurses, Work life balance.

Introduction

In today's knowledge economy, retaining the competitive nursing staff and maintain their competitive advantages is one of the major challenges for health care organizations particularly in ICUs to provide safe and quality care to acute and critically ill patients [(1)]. High workloads in ICUs can lead to high rate of absenteeism and turnover which would affect nurse's job productivity and consequently affect their work life balance, job attraction and retention [(2)]. Turnover rate have been increasing among ICUs nurses for many reasons, including search for better work environment, increasing job autonomy, more salaries and benefits, career advancement, better job opportunities and retirement [(3)]. However, another key reason for nurses and in particular women leave their job is to find a better work life balance [(4)]. To decrease turnover, attract and retain highly qualified nurses, nurse managers need to improve the working environment which consequently maintain their work life balance [(5)].

Work-life balance is the degree to which a person is equally involved and satisfied with their work and family role. It refers to a particular balance between work life and personal life which consequently result in work and personal life enhancement [(6)]. This work-life balance requires both job and family real demands which are must be effectively fulfilled with appropriate resources [(7)]. This satisfactory balance results in employee's job satisfaction, commitment to the organization, retention and family functioning[(8)]. Whereas, the perception of work-life imbalance causes tension escalation within the person as either work or family demands become unsatisfied. This negative imbalance results in nurses' stress, lower commitment with organization, job dissatisfaction, turnover, domestic violence and lower productivity[(9)].

Work life interference with personal life tends most often to impact upon ICUs nurses and results in increasing difficulty in managing a balance between work and family responsibilities. Factors shown to impact the most upon ICUs nurses trying to balance work and life include; required hours of work, a lack of flexibility in being able to alter their working hours, time off or leave arrangements, a lack of access to suitable childcare arrangements, and excessive stresses and tensions in the ICUs which make working life more difficult and/or even unpleasant [(9)]. These unsatisfied interferences and demands potentially affect nurse's work and social life and become a serious cause of psychological discomfort for organization's and families [(10)]. Therefore, work life policies should permit nurses to balance their work life by giving more time

to different activities such as leisure, family care duties, training courses, resting or social life[11]. Such practices when adopted can reduce work related stresses, increase satisfaction and performance [12].

Another competitive advantage associated with work-life balance benefits is the ability to attract and retain ICUs nurses. The attraction and retention of ICUs nurses are more important today than ever before. Some of the trends like globalization, increase in knowledge work and technological advancement make it essential that hospitals acquire and retain high competent ICUs nurses [13]. Therefore, many hospitals are desperate to find qualified ICUs nurses to fill job openings and are working to make it appear more attractive to candidates by adding various options and benefits. Nurses' attractiveness usually starts by launching a job, and finished with new employments and the work and hospital become attractive if a nurse is interested to apply for it, wants to stay and engaged in it [14].

Job retention and attraction strategies are an important means for attracting and retaining skilled nurses particularly in areas where there is a high staff turnover, difficulties in recruiting and retaining skilled staff, a competitive job market, and labor and skill shortages. In attraction process, ICUs nurses need to find the useful information about the hospital that ultimately influence the final choice of employment which this information presented to the candidates nurses and they balance everything they know about the jobs from similar positions to those of the hospital that wants to attract them and certainly marks its decision on employment[15].

Also, hospitals need to consider the factors that may affect ICU nurses attraction into their employment to identify their shortcomings, make improvements and increase the ability of finding potential staff nurses. These factors are involving working environment that must be safe, healthy and well-equipped to attract the right nurses to their employment mainstream and human resource development which hospitals provide opportunities for professional growth to allow ICUs nurses to manage their own careers. Also, recruitment strategies that are activities in human resource management used to attract sufficient job candidates who have the necessary potential and competencies to fill job needs to assist the hospital to achieve its objectives. Finally, hospitals image is necessary element to attract and retain qualified ICUs nurses as it influences them for evaluation of the hospital and its employment opportunities, and attitudes towards the hospital [15, 16].

Most researchers identify the job attractiveness scale that comprises five attributes to assess to what extent the hospital offers the following values to attract ICUs nurses: interest value, social value, economic value, development value and application value. Interest value assesses attraction to an employer that offer an exciting work environment, with creativity and forward-thinking and the hospital produce innovative, high-quality products and services. Social value assesses attraction to a fun and happy work environment and good relationships with superiors and colleagues. Economic value assesses attraction regarding salary, compensation, promotion opportunities and job security. Development value assesses attraction to employment that provides career-enhancing experience, recognition, self-worth and confidence. Finally, application value relates to acceptance, opportunity to apply and share knowledge and the environment that is humanitarian and customer orientated [17, 18].

Nurses' job retention is a process by an organization to create an environment which involves them within their jobs for longer period of time [19]. A more comprehensive definition of retention is to prevent the loss of proficient employees from leaving productivity and profitability [20]. ICUs nurses' job retention is critical for hospital as it provides the driving force to achieve the development and achievement of the hospital's goals and objectives [21]. It is the process of physically keeping ICUs nurses within their jobs for longer period of time for hospital success and prevents the loss of proficient ICUs nurses from leaving productivity and profitability [19].

Early investigations should be undertaken to determine factors that affect retention of ICUs nurses to enable hospital to develop interventions that can address this challenge. These factors are involving nursing staff in decisions that affect them and increase their autonomy and control over their work lives to be more motivated, committed to the hospital, productive and satisfied with their jobs. Also, another factor that might have an influence on retention of ICUs nurses is the state of wellness which is a holistic approach of looking after the physical, psychological and social state of well-being. As unhealthy ICUs nurses can affect hospital performance and increase its costs because of low productivity owing to illness, medical care, and production disruption as a result of absence and turnover [22].

Compensation and appreciation of the performed work and leadership style are considered the key factors that affect job attraction and retention of the best nurses, promote their commitment and influence them to enthusiastically direct their efforts

and abilities towards attaining a hospital goal [23]. Beside, training and development that are given by hospital are necessary to facilitate ICUs nurses to master their knowledge, skills and apply them to their day-to-day activities and help them to prepare for the future and relationship with supervisor and co-worker are also the major reason for staying with a particular job for having many of the same values, attitudes and philosophies that supervisors and co-workers have [24].

Significance of the study

ICUs nurses face a challenge balancing between personal life and work especially who have babies and other demands such family, home and children needs as well as family members with health problems. Additionally, nurse's work in intensive care units which are a stressful work environment because of caring for sick and dying patients has different feelings of sadness, depression, pain and emotional stress which negatively affect their personal lives. Also, most of nurses work rotating shifts which disrupt their family lives. On other hand, nurses who are able to balance their work, family and life commitments have been shown to be happier in their job and are more likely to stay and work towards a- rewarding and productive career. Therefore, creating a balance between work-life is found as one of the suitable practices that when adopted can reduce work related stresses, increase attraction and retention.

Aim of the study

This study aimed to exploring the relationship between work life balance, job attraction and retention among intensive care unit nurses.

I.2 Research question

1. What is the level of work life balance among intensive care units nurses?
2. What is the level of job attraction and retention among intensive care units nurses?
3. Is there a relationship between work life balance, attraction and retention among ICUs nurses?

II. Subjects and method

II.1.Subjects

Research Design

Descriptive -correlation research design was used.

Setting

The study was conducted in intensive care units at Tanta University Main Hospital included Medical, Cardiac, Neuro, Anesthesia, Pediatric, Neonate and Chest ICUs.

Subjects

The subjects included all available (190) ICUs nurses were working in the previously mentioned settings and willing to participate in the study.

Tools of the study: the researchers prepared a structured questionnaire to

collect data of this study. It consisted of three tools as follow;

Tool (1): Work Life Balance Questionnaire

This tool was developed by researchers guided by **Jensirani & Muthumani (2017)** [25] **and Banu & Duraipandian (2014)** [26] to assess the level of work life balance among ICUs nurses. The tool included two parts: **Part (1):** personal characteristics including age, years of experience, marital status, level of education and work unit. **Part (2):** Work life balance items to assess the level of work life balance among ICUs nurses through (17) items distributed into three subscales: work life interference with personal life (6 items), personal life interference with work (6 items), and work/personal life enhancement (5 items).

Tool (2): Job Attraction Assessment Scale

This tool was developed by the researchers guided by **Puri (2018)** [27] and **Larsson (2014)** [17] to assess the level of job attraction among nurses through (38) items distributed into five factors: Interest value (8 items), social value (14 items), Economic value (6 items), development value (6 items), and application value (4 items).

Tool (3): Job Retention Assessment Scale

This tool was developed by the researchers guided by **Theron (2015)** [28] and **Kyndt (2009)** [29] to assess the level of job retention among nurses through (35) items distributed into three factors: Compensation and recognition (8 items), relationship with supervisor/manager (11 items), and job satisfaction (16 items).

Scoring system: ICUs nurses' responses were measured in three points Likert Scale ranging from disagree =1, uncertain= 2, and agree=3 with some items with reverse scored. The respondents' total scores were classified into three levels, high level > 75%, moderate level 60 - 75%, and low level < 60%.

Method:

Validity and Reliability

The tools were translated into Arabic and reviewed by 4 experts in nursing administration and 2 experts in psychiatric nursing from Faculty of Nursing- Tanta University. The tools were modified based on experts' comments. A pilot study was conducted on (19 ICUs nurses) were excluded from the actual study sample; to ensure the clarity of the tools and to estimate the required time for completing the tools. Reliability of the tools was tested using Cronbach's alpha coefficient test, its value was (0.815) for tool 1, (0.804) for tool 2 and (0.856) for tool 3 respectively.

Fieldwork

The data was collected by researchers from ICUs nurses included in the study. The researchers met the subjects during their

work shifts to distribute the questionnaires. The subjects recorded the answer in the presence of the researchers to ascertain all questions were answered. The questionnaire sheets were taken 20-30 minutes for each nurse to be filled. The data was collected in a period of two months.

Ethical consideration

The researchers obtained an official permission from Tanta University Main Hospital responsible authorities to carry out the study. Researchers met the participant ICUs nurses and explained the purpose of the study to them to gain their cooperation for participation in the study. Informed consent was obtained from each participant nurse. The confidentiality of their responses, and right to withdraw from the study at any time were emphasized.

Statistical analysis:

Statistical analysis is performed by statistical Package SPSS in general (version 20), also Microsoft Office Excel is used for data handling and graphical presentation. Data was collected, coded and organized into tables, and then analyzed using number and percent. Pearson's R was used to verify the correlation. Significance level is considered at $P \leq 0.05$.

Results

Table (1) shows distribution of ICUs nurses according to their personal data. The ICU nurses' age ranged between 22 up to 53 years, and the highest percent (42.1%) of them had from 30 to 40 years old with mean 34.56±6.3 and the most (63.2%) of them were married. As regard to education level, more than half (55.3%) of ICUs nurses had a bachelor degree. About half (50.0%) of them had from 10 to 20 years of experience with mean scores 14.57±6.32 and range from 1-30 years. 18.9% and 16.8% of ICUs nurses worked in pediatric and anesthesia ICUs respectively.

Figure (1) shows level of work life balance, job attraction and retention as perceived by ICUs nurses. More than half (59%, 55%) of ICUs nurses' perceived a low level of work-life balance and job retention respectively beside, more than half (61%) of them perceived a moderate level of job attraction. While, 20%, 12% and 11% of ICUs nurses' perceived high level of job attraction, job retention and work-life balance respectively.

Table (2) illustrates ICUs nurses' perception of work life balance. The table shows that there was a-statistically significant difference between ICUs nurses' perception of work life balance. The most (77.9% and 71.1%) of ICUs nurses agree that work life interfere with personal life and personal life interfere with the work with mean 14.02±2.34 and 12.80±3.12 respectively while, more than half (63.2%)

of them disagree with work/personal life enhancement with mean 9.48±2.76.

Table (3) illustrates ICUs nurses' perception of job attraction. The table shows that there was a-statistically significant difference between ICUs nurses' perception of job attraction. The most (75.8%, 74.7%, 74.2%, 73.2% and 70.0%) of ICUs nurses disagree with development value, interest value, application value, social value and economical value with mean 13.64±3.04, 17.93±3.08, 8.90±2.14, 30.74±5.16 and 12.60±2.45 as factors that enhance job attraction respectively.

Table (4) illustrates ICUs nurses' perception of job retention. The table shows that there was a-statistically significant difference between ICUs nurses' perception of job retention. The most (77.4%, 75.8%, and 73.6%) of ICUs nurses disagree with compensation and recognition, relationship with supervisors and job satisfaction with mean 18.58±3.60, 25.01±4.04 and 35.38±6.80 as factors that enhance job retention respectively.

Table (5) illustrates correlation between ICUs nurses' work life balance, their job attraction and retention. The table shows that all the work life balance subscales was statistically significant and positively correlated with job attraction and retention at ($p \leq 0.05$).

Table (6) illustrates correlation between ICUs nurses' characteristics and their work life balance, job attraction and retention. The table shows that there was a highly statistically significant positive correlation between ICU nurses' work life balance subscales and job attraction with their age and years of experience at ($p \leq 0.001$). Also, there was a statistically significant positive correlation between ICUs nurses' job retention and their age and years of experience at ($p \leq 0.05$).

Table (1): Distribution of ICUs nurses according to their personal data

Tanta University Main Hospitals (N=190)					
ICUs nurses' personal data	**N**	**%**	**ICUs nurses' personal data**	**N**	**%**
Age (years)			**Experience (years)**		
<30	62	32.6	<10	50	26.3
30 – 40	80	42.1	10 – 20	95	50.0
> 40	48	25.3	> 20	45	23.7
Mean±SD	**34.56±6.3**		**Mean±SD**	**14.57±6.32**	
Range	**22-53**		**Range**	**1-30**	
Marital status			**Working Unit**		
Single	62	32.6	Anesthesia ICU	32	16.8
Married	120	63.2	Cardiac ICU	36	18.9
Divorced	3	1.6	Chest ICU	27	14.2
Widow	5	2.6	Medical ICU	23	12.1
Education level			Neuro ICU	31	16.3
Diploma in nursing	30	15.8			
Technical Institute of nursing	55	28.9	Neonate ICU	20	10.5
Baccalaureate degree	105	55.3	Pediatric ICU	21	11.1

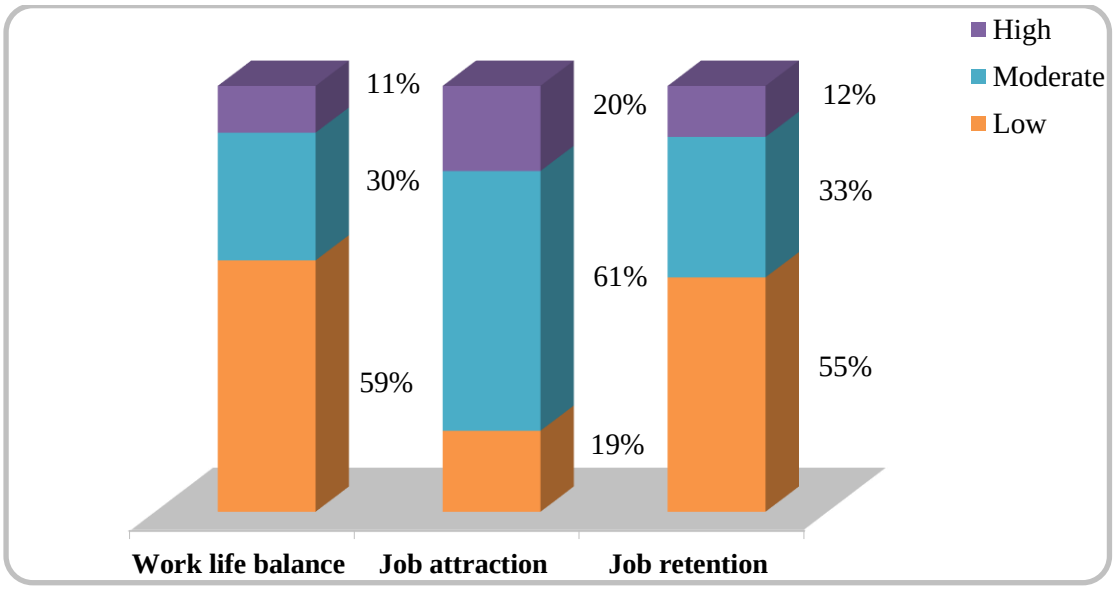

Figure (1): Level of work life balance, job attraction and retention as perceived by ICUs nurses

Table (2): ICUs nurses' perception of work life balance

Work life balance subscales	perception			Mean ± SD	X^2	P-value
	Agree	Uncertain	Disagree			
	%	%	%			
-Work Life Interference with Personal Life	77.9	14.2	7.9	14.02±2.34	256.374	<0.001*
- Personal Life Interference with Work	71.1	15.3	13.6	12.80±3.12	182.574	<0.001*
-Work/Personal Life Enhancement	14.7	22.1	63.2	9.48±2.76	116.400	<0.001*

Statistically significant at $p \leq 0.05$

Table (3): ICUs nurses' perception of job attraction

Job attraction factors	Perception			Mean ± SD	X^2	P-value
	Agree	Uncertain	Disagree			
	%	%	%			
- **Interest value**	11.1	14.2	74.7	17.93±3.08	220.279	<0.001*
- **Social value**	10.0	16.8	73.2	30.74±5.16	205.405	<0.001*
- **Economical value**	12.1	17.9	70.0	12.60±2.45	173.858	<0.001*
- **Development value**	8.9	15.3	75.8	13.64±3.04	232.879	<0.001*
- **Application Value**	10.0	15.8	74.2	8.90±2.14	215.732	<0.001*

Statistically significant at $p \leq 0.05$

Table (4): ICUs nurses' perception of job retention

Job retention factors	Perception			Mean ± SD	X^2	P-value
	Agree	Uncertain	Disagree			
	%	%	%			
- **Compensation and recognition**	7.9	14.7	77.4	18.58±3.60	250.689	<0.001*
- **Relationship with supervisors**	4.7	19.5	75.8	25.01±4.04	240.458	<0.001*
- **Job satisfaction**	11.1	15.3	73.6	35.38±6.80	209.574	<0.001*

Statistically significant at $p \leq 0.05$

Table (5): Correlation between ICUs nurses' work life balance, their job attraction and retention

Work life balance subscales	Job attraction		Retention	
	R	P-value	r	P-value
- **Work Life Interference with Personal Life**	0.427	<0.001**	0.284	<0.001**
- **Personal Life Interference with Work**	0.384	<0.001**	0.433	<0.001**
- **Work/Personal Life Enhancement**	0.298	<0.001**	0.169	0.035*

Statistically significant at $p \leq 0.05$

Table (6): Correlation between ICUs nurses' characteristics and their work life balance, job attraction and retention

Factors	ICUs nurses characteristics			
	Age		Years of experience	
	R	P-value	r	P-value
Work life balance subscales	0.425	<0.001**	0.356	<0.001**
Job attraction	0.394	<0.001**	0.332	<0.001**
Retention	0.375	0.002*	0.230	0.004*

Statistically significant at $p \leq 0.05$

Discussion

The need for critical care services and competent ICUs nurses is becoming a huge challenge for health care organizations. At the same time, health care facilities are experiencing difficulty in recruiting and retaining health care professionals. Issues include complexity of patient care, intense patient needs, nursing shortage, limitation of time, working environment, administrative duties and family needs are most common among nurses [30]. However; high work life balance is essential for organizations to achieve high performance and growth in profitability and to continue to attract and retain nurses. Therefore, to retain the existing staff and to attract potential new entrants, healthcare organizations have to adopt strategies that would help in promoting the work life balance and consequently enhancing nurses' attraction and retention [6, 7].

The present study points that, more than half of ICUs nurses had low level of work life balance. This result could be related to most of ICUs nurses agreed that work life interfere with their personal life and personal life interfere with their work. Beside, high percent of them disagreed with work/personal life enhancement. This result may be due to unsuitable working hours, lack of facilities for nurses, poor relationship with supervisors, inability to balance work with family needs, inadequacy of vacations time for nurses and their families and an inappropriate working environment. Beside, work related duties make ICUs nurses to change their plans for family activities and cause work family conflict and incompatibility between work and family roles. Also, the time of their job takes up can make them difficult to fulfill their family responsibilities and after work, they come home too tired to do some of things they would like to do. At the same time most of ICUs nurses agreed that their personal life take up time that they would like to spend at work and their personal demands are so great that it takes away from their work as well as most of them had personal problems. So, ICUs nurses need to prepare them to cope with these challenges and hospital authorities must implement family-friendly approaches to encourage

them to balance their work-family challenge.

The current study result was in line with **Gamal (2019)** [31] who found that most of nursing staff had high level of work interfering with family life and cause work family conflict. At the same line, **Aroosiya (2018)** [32] and **Almaki et al. (2012)** [33] found that majority of nurses reported they were incapable of balancing between the work home lives due to poor staffing, management and supervision practices, lack of professional development opportunities, and an inappropriate working environment in terms of the level of security, patient care supplies and equipment, and inadequate salary. Also, present result was confirmed by **Dawnes and Kackemore (2016)** [34] whose showed that work cause lots of stress and pressure to nursing staff and other health issues due to work life imbalance. Beside, **Suguna and Franco (2017)** [35] revealed that most of the nursing staff was dissatisfied with work-life balance. This result was contraindicated with **Al-Momari (2017)** [36] who's found that almost all nursing staff had low level of family interfering with the work and majority of nursing staff had moderate level of work-life balance as total.

The present study results reveled that, more than half of ICUs nurses' had moderate level of job attraction. This result may be due to most of ICUs nurses disagreed with development value, interest value, application value, social value and economical value as factors that enhance job attraction. Actually, those nurses perceived that their work is not interested to them; they have no flexible work schedule and their working environment not safe and comfortable. Besides, the hospital not provides good promotion opportunities, compensation and benefit and satisfactory salary. As well as, hospital provides limited opportunities for improvement, to enhance their creativity and innovation, to teach others what they learned, to receive enough training to do their job in best manner and independence decision making.

Really ICUs nurses' always experienced being uncomfortable, confused and loss of control, emotionally drained, and incompetent as a result of facing uncertain

situations in ICUs and the most of patients were critically ill and majority of them were mechanically ventilated and their health status is unstable and unpredictable. Therefore, nurse supervisors should support those nurses by ensuring that they receive appropriate motivation, in addition to guidance and regular follow-ups. Nurse supervisor should display fairness and consistency in recommendations and decisions affecting nurses; communicate clearly with nurses, give and receive feedback and provide them with recognition and supportive work environment. Beside, **Haile et al (2017)** [37] added that nurse supervisor as a good leader should show concerns to all nursing staff, help them to manage any work risks, solve their problems, and demonstrate how to work and live by values and beliefs. Empower and give them a sense of responsibility and accountability coupled with recognition and rewards, demonstrate concern about their needs, develop and provide them with the necessary tools to continue to improve and achieve success in the work place.

Confirming to our study results **Larsson (2014)** [17] who found that social value had the lowest mean followed by development value, interest value, application value and finally economic value for nurses attraction. **Eger et al. (2019)** [38] also found that majority of nurses identified the highest importance to social value. Interest value, economic and development value were the second-most important for employee attraction to jobs. They pointed out that factors are important for building a positive firm reputation, which will enhance intentions to apply among potential nurses.

Current study result revealed that more than half of ICUs nurses' perceived a low level of job retention. Actually, most of ICUs nurses disagreed with compensation and recognition as factors that enhance job retention. This result may be due to lack clear system of compensation at work and recognition leading to the feeling that salary and incentives distribution is not fair compared to their colleagues. In addition, those ICUs nurses perceive that benefits they received are not adequate to fulfill

their basic needs and the salary they received isn't equal with their performance. Thus, recognition and reward for better performance of the staff should be made. This is motivate the staff for better performance and will help them to have sense of belongingness towards the organization. Along with the present study, **El Shoroky (2016)** [39] found that more than fifty of nursing staff had low level of response about salaries and incentives as dimensions of job retention.

The current study also demonstrated that the most of ICUs nurses disagreed with their relationship with supervisors as factors that enhance job retention. This result may be due to bad management and supervision, and ineffective leadership style who don't know important of recognition and respect and how to deal with problems of nurses effectively. Present study result supported by **Hussain et al. (2018)**[40] who found that majority of the study sample were not satisfied with the supervisory style and their non-participation in the decision making process in the organization. These findings disagreed with result of **Morsy and Sabra (2015)** [41] whose showed that the highest mean scores of the dimensions of work context to job retention were management and supervision.

Current study result revealed that the most of ICUs nurses disagreed with job satisfaction as factors that enhance job retention. This result may be due to those nurses had imbalance between the professional and personal life with more duties at work place that interfere with their personal life without promoting rest time during work and had more family and child care responsibilities. Above all, they perceive dissatisfied with relationship with supervisors, lack of compensation and appreciation of the performed work and chances to be promoted and to learn. Therefore, allowing adequate breaks during the working day and improving salary and fringe benefits, relationship with co-workers, degree of respect and fair treatment from supervisors, followed by promotional opportunities and training and development are important benefits to improve workforce satisfaction and retentions and thus ensure meeting organizational goals and objectives. **El**

Sayed (2016) [42] **and Park et al. (2012)** [43] support our study finding and reported that nurses were least satisfied with their job in comparison with other professionals like allied. **Jayakumar (2012)** [44] reported that proper feedback mechanisms, effective communication, supportive leadership, recognition and rewards and support from the nurse supervisors were an integral part of job satisfaction and retention. Contrasting findings were reported by **Morsy and Sabra (2015)** [41] whose found that more than two thirds of nurses were satisfied with their work. This is might to improvement in the salary of nurses and increases chances of nurses to work immediately after graduation.

Results of the current study clarified that work life balance was positively correlated with job attraction and retention. Actually, creating a balance between family and work life could result in greater satisfaction at home and at work, which results in greater nurses' performance and reduced turnover which consequently enhance nurse's attraction and retention. Present result was confirmed by **Sindhuja and Subramanian (2020)** [45]**, Singh and Dubey (2016)** [46] and **Eley et al. (2014)** [47] whose revealed that the work-life balance has a direct impact on employee's retention and it also helps to improve the employee's job satisfaction. Also, **Burns et al. (2014)** [4] identified high workload resulting in long working hours and poor work–life balance as well as the responsibility of care for complex patient populations as the primary reasons nurses were not attracted to the field of health care organizations.

Aamir et al. (2016) [12] have highlighted that positive relationship between work-life balance and nurses' job retention in hospitals in which the organizations work-life balance policies can decrease the work and family conflict results increase in job attraction, satisfaction and lower intention to leave. Beside, **Ollier-Malaterre (2010**) [9] mentioned work-life balance positive result is related to staff' job satisfaction, commitment to the organization, retention and family functioning. Whereas, the negative imbalance results in staff' stress, lower commitment with organization, job dissatisfaction, turnover, domestic violence and lower productivity.

Current results revealed that there was statistically significant positive correlation between ICUs nurses' characteristics (age and years of experience) and their work life balance, job attraction and retention. This might be explained by the fact that old ICUs nurses with more experiences able to deal with personal problems and fulfilling personal life with adequately perform their work responsibilities in addition they advanced in their career and had higher job status, more participation in decision making and autonomy and increase their income, they had a positive reflection on their work life balance, attraction and retention. Therefore, health care organizations need to enhance the development of oneself, support family needs and flexible work culture with management support to enhance nurses' work life balance. In agreement with these study findings, **Abdirahman et al. (2018)**[48] highlighted that mature nurses have greater job satisfaction, productivity and organizational commitment and had less burnout and intention to leave. This was contraindicated with result of **Rao (2017)**[49] who showed that there is negative significant correlation among age and years of experiences of nursing staff and their work life balance. **Hayes (2015)** [50] also indicated a significant relationship between age, income, and turnover intentions; however, the relationship between length of tenure was not statistically significant. As well as, **Emiroğlu et al. (2015)** [51] found that there is a significant relationship between demographic factors such as marital status, age, educational level and factors such as tenure and working department and turnover intentions.

In fact, work-life balance is necessary for ICUs nurses attraction and retention by offering them more flexible working options, access to a range of domestic services, determining correct staffing levels so that those nurses are not overloaded, allowing adequate breaks during the working day, having provision for various types of leave such as career leave and time-out sabbatical types of leave, providing child and elder (parent) care facilities and involving spouses and children in certain recreational, fitness and other social activities and facilities of the

hospital. Also, the health care providers must be work collaboratively to improve the nurse practice environment and to ensure work life balance for the reason that when the nurses work life improved, nurses can feel more satisfied and more committed to their profession and will reduce the rate of burnout and turnover in all health care sectors [52].

Conclusion

Findings of the current study concluded that there is a low level of work-life balance and job retention with moderate level of job attraction among ICUs nurses at Tanta University Main Hospital. Also, the work life balance was positively correlated with job attraction and retention. The data from this study may be used to highlight identifiable level of work life balance, attraction and retention within the professional subgroups. As the creation of healthy work environments is increasingly emphasized to improve quality care and decrease costs, these findings should be used by health care leadership to develop interventions that enhancing work life balance and in turn promote attraction and retention of health care providers. Further work should address how to remediate these experiences, provide resources to ameliorate their consequences, and identify how to foster work environments in which professional and personal boundaries are well established to promote a healthy and flourishing workforce.

Recommendations

Based on the findings of the present study, key suggestions for nurse managers and hospital administrators to improve the quality of nurses working life who are working in intensive care units so that nurses retention will improves and subsequently nursing attract the new staff nurses through:

- Nursing managers need to consider the family aspect of their ICUs nurses. Childcare facilities, convenient working hours, and sufficient vacations should be made available for nurses. These advantages will help ICUs nurses to balance work with their family requirements.
- An equitable distribution of the current nursing workforce is needed to reduce workload, and to ensure adequate nursing

services for patients, families and the community.

- Giving an opportunity to ICUs nurses to make decisions related to their work so increase their feelings of control at workplace.
- Managers and nursing leaders should consider partnerships with relevant departments and educational organizations to offer part-time and distance-learning opportunities to enable ICUs nurses to further their education and develop their nursing knowledge and skills.
- For the comfort of ICUs nurses, they should be provided with a furnished break area where they can rest and be able to place their private belongings securely.
- Hospitals must be supported with the required materials and equipment for health care services.
- Hospitals managers should work with the media to demonstrate the vital role of ICUs nurses in the care of the community, in the provision of health care services and in the advancement of the health of the population.
- The salary of ICUs nurses should be increased commensurate with the tasks performed.
- More social, managerial, professional and organizational support should be directed to young and novice nurses as well as older nurses to increase satisfaction.
- **Further research studies** needed to confirm the current study results in different health care sectors such as private, governmental and health insurance hospitals.

References

1. Alameddine M, Katie N, Deber R, William J, Sibbald M. The intensive care unit work environment: Current challenges and recommendations for the future. Journal of Critical Care. 2019; 24(1): 243–8.
2. Lakshmi k, Ramachandran T, Boohene D. Analysis of work life balance of female nurses in hospitals - comparative study between government and Priphevate Hospital in Chennai, TN., India. International Journal of Trade, Economics and Finance. 2012; 3(3): 213-8.

3. Abdallah S. Study of clinical nurse's specialist shortage in intensive care units. Unpublished Master Thesis. Faculty of Nursing. Tanta University. 2011. 3.
4. Burns L, Gajewski J, Majhail N. Challenges and potential solutions for recruitment and retention of hematopoietic cell transplantation physicians: the national marrow donor program's system capacity initiative physician workforce group report. Biol Blood Marrow Transplant. 2014; 20(1): 617-21.
5. Sulaiman, N, Choo A, Yassim D, Laar K, Majid H. Assessing quality of working life among Malaysian workers. Asia Pacific Journal of Public Health. 2015; 27(8_suppl): 94-100.
6. Ferguson M, Carlson D, Zivnuska S, Whitten D. Support at work and home: The path to satisfaction through balance, Journal of Vocational Behavior. 2012; 80(2): 299-307.
7. O'Brien-Pallas L, Baumann A, Villeneuve M. Research unit probes quality of work life. Regist Nurse Journal. 2014; 6(1):14–6.
8. Moen P, Kelly L, Tranby E, Huang Q. Changing work, changing health: can real work-time flexibility promote health behaviors and well-being?. Journal of Health and Social Behavior. 2011; 52(4): 404-29.
9. Ollier-Malaterre A. Contributions of work-life and resilience initiatives to the individual/organization relationship and human relations. Journal of Nursing Education and Practice. 2010; 63(1): 41–62.
10. Neumann L, Mau L, Virani S. Burnout, moral distress, work–life balance, and career satisfaction among hematopoietic cell transplantation professionals. Biol Blood Marrow Transplant. 2018; 24 (2018): 849-60.
11. Shujat S, Cheema F, Bhutto F. Impact of work life balance on employee job satisfaction in private banking sector of Karachi. Journal of Management and Social Sciences. 2011; 7(2): 8–15.
12. Aamir A, Hamid A, Haider M, Akhtar C. Work-life balance, job satisfaction and nurses retention: moderating role of work volition. International Journal

of Business Excellence. 2016. 10(4): 488-501.

13. Sumanarathna B, Samarakoon S. The effect of work-life balance policies on the retention intention of executive women employee in information technology (IT) industry in Sri Lanka. Journal of Human Resource Management. 2019; 14(1): 1-16.
14. Akhtar C, Aamir A, Khurshid M, Abro M, Hussain J. Total rewards and retention: Case study of higher education institutions in Pakistan. Procedia-Social and Behavioral Sciences. 2015; 210(1): 251-9.
15. Boswell W, Cook A, Horner M, Payne S, Shaub M. The relative influence of total rewards elements on attraction, motivation and retention. World at Work Journal. 2011; 20(1): 1-45.
16. Sánchez J, Torres T, Navarro A, Losada R. Investing time and resources for work–life balance: The effect on talent retention. International Journal of Environmental Research and Public Health. 2020; 17(6): 1-14.
17. Larsson S. Employer attractiveness, corporate reputation, and job application intentions. Published Master Thesis. Faculty of Business and Economics. Lulea University of Technology. 2014; 83. [cited 2020 December 29] Available from: https://www.unizwa.edu.om/content_files/01029-2594.pdf
18. Askary S, Kakunuru S. An assessment of employee commitment to work among UAE nationals, International Journal of Business Excellence. 2014; 7(1):1–15.
19. Chiboiwa W, Samuel O, Chipunza C. An examination of employee retention strategy in a private organization in Zimbabwe. African Journal of Business Management. 2010; 4(10): 2103-9.
20. Das B, Mukulesh B**.** Employee retention: A review of literature. IOSR Journal of Business and Management. 2013; 14(2): 8-16.
21. Gomathi S, Mba G. A review on the non-monetary factors that contribute towards employee retention. Journal of Critical Reviews. 2020; 7(12): 351-3.
22. Shikongo J. Staff attraction and retention: A model for a Namibian state department. Published Master Thesis.

Faculty of Business. Cape Peninsula University of Technology. 2011; 9-40. Available from: https://www.semanticscholar.org/paper/Staff-attraction-and-retention-%3A-a-model-for-a-Shikongo/4eabc4bd1dd417e1b81b6493e7ad0571a1e6c23a

23. Dorothée U, Dickson M, Bally K. The influence of compensation system on employee attraction and retention. International Journal of Advanced Academic Research, Social and Management Sciences. 2018; 4(11): 91-110.
24. Makondo O, Makondo L. Lessons on attraction and retention of health staff. Journal of Sociology and Social Anthropology. 2014; 5(3): 361-7.
25. Jensirani M, Muthumani A. A study on work life balance of nurses in Kovilpatti Town. International Journal of Science Technology and Management. 2017; 6(2): 114- 21.
26. Banu A, Duraipandian K. Development of an instrument to measure work life balance of it professionals in chennai. International Journal of Management (IJM). 2014; 5(11): 21-33.
27. Puri D. Developing the scale to measure employer attractiveness. Fascicle I. Economics and Applied Informatics. 2018; 23(3): 99-123.
28. Theron M. The development of a scale for talent retention. Published PHD Thesis. Faculty of Economic and management sciences. University of Pretoria. 2015; 423-429. [cited 2020 December 29] Available from: https://www.unizwa.edu.om/content_files/01029-2594.pdf
29. Kyndt E, Dochy F, Michielsen M, Moeyaert B. Employee retention: Organizational and personal perspectives. Vocations and Learning. 2009; 1(1): 1-21.
30. Islam Z, Siengthai S. Quality of work life and organization performance: Empirical evidence from Dhaka Export Processing Zone issues in nursing in Queensland: 2001 and 2004. Journal of clinical Nursing. 2012; 1(1): 81-102.
31. Gamal N. Relationship between nursing staff job characteristics and their work-life balance. Unpublished Master Thesis. Faculty of Nursing. Tanta University. 2019; 76-77.

32. Aroosiya M. A study on work-life balance of working women with special reference to government school and dvisonal secretarial in Nintavure. Journal of Management and Business Research. 2018; 18(6):1-9.
33. Almalki, M, FitzGerald G, Clark M. The relationship between quality of work life and turnover intention of primary health care nurses in Saudi Arabia. BMC Health Services Research. 2012; 12(314): 1186-1472. Available at: https://bmchealthservres. biomedcentral.com/articles/10.1186/1472-6963-12-314
34. Dawnes C, Kackemore E. work life balance policies, challenges and benefits associated with implementing flex time. Journal of Human sources Management. 2016; 9(1): 13-27.
35. Suguna G, Franco C. A study on work-life balance of nursing staff working in private hospitals in Palayamkottai. International Journal of Research – Granthaalayah. 2017; 5(8): 106-09.
36. Al-Momari H. The mediating effect of organizational commitment on the relationship between work-life balance and intention to leave. Journal of Business Research. 2017; 10(6):164-77.
37. Haile T, Engeda E, Abdo A. Compliance with standard precautions and associated factors among healthcare workers in Gondar University comprehensive specialized hospital, Northwest Ethiopia. Journal of Environmental and Public Health. 2017; 21(1): 1-8.
38. Eger L, Mičik M, Gangur M, Řehoř P. Employer branding: Exploring attractiveness dimensions in a multicultural context. Technological and Economic Development of Economy. 2019; 25(3): 519–41.
39. El Shoroky M. Quality of work life among nursing staff at Tanta University Hospitals. Unpublished Master Thesis. Faculty of Nursing. Tanta University. 2016; 59.
40. Hussain J, Saeed M, Ibrahim Mm Iqbal M. Impact of Motivation on Employee Performance and Turnover in Pakistani Educational Institutes. Journal of Education and Practice. 2018; 9(16): 87-95. Available at: https://core.ac.uk/download/pdf/234641696.pdf.

41. Morsy S, Sabra H. Relation between quality of work life and nurses job satisfaction at Assiut University Hospitals. Al-Azhar Assiut Medical Journal. 2015; (13) 1: 163:71.
42. El Sayed N. Motivational factors affecting nurses' job satisfaction. Unpublished Master Thesis. Faculty of Nursing. Tanta University. 2016; 54.
43. Park M, Lee J, Cho S. Newly graduated nurses job satisfaction: Comparison with Allied Hospital professionals, social workers, and elementary school teachers. Asian Nursing Research. (2012); 6(3): 85-90.
44. Jayakumar A, Kalaiselvi K. Quality of work life-an overview. Asian Journal of Management Research. 2012; Oct: 1(10): 140-151 Available from: http://indianresearchjournals.com/pdf/IJM. FSMR/2012/October/12.pdf
45. Sindhuja K, Subramanian S. Impact of work-life balance on employee retention- a study on banking sector. Shanlax International Journal of Management. 2020; 7(3): 78–81.
46. Singh R, Dubey K. An analytical study on work life balance in employee retention with special reference to it and BPO Sectors. Journal of Applied Management Science.2016; 2(8): 22-34. Available from: https://www.ijrdo. org/index.php/ams/article/view/945/884
47. Eley R, Francis K, Hegney D. Nursing and the nursing workplace in Queensland, 2001–2010: What the nurses think. International Journal of Nursing Practice. 2014; 20(4): 366-74.
48. Abdirahman H, Najeemdeen I, bidemi B, hmad R. The relationship between job satisfactions, work-life balance, and organizational commitment on employee performance. IOSR Journal of Business and Management.2018; 20(5): 76-81. Available from: https://www.researchgate.net/publication/325483699_The_Relationship_between_Job_Satisfaction_Work-Life_Balance_and_Organizational_Commitment_on_Employee_Performance
49. Rao M. Work-life balance for sustainable human development: Cultural intelligence as enabler. Journal of Human Behavior. 2017; 27(7): 706-13.
50. Hayes T. Demographic characteristics predicting employee turnover

intentions. Published PHD Thesis. College of Management and Technology. Walden University. 2015; 91- 93. Available from: https:// scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=2537&context=dissertations

51. Emiroğlu D, Akova O, Tanrıverdi H. The relationship between turnover intention and demographic factors in hotel businesses: A study at five star hotels in Istanbul. Procedia - Social and Behavioral Sciences. 2015; 207 (1), 385-97.
52. Turnea E. Attraction and retention of the employees. A study based on multinationals from Romania. Procedia - Social and Behavioral Sciences. 2018; 238(1): 73-80.

Compliance of Elderly with Preventive Behaviors Regarding COVID-19 at Rural Areas in El Gharbia Governorate

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Abstract

Background: COVID-19 is a novel and highly contagious disease that has worse and serious side effects among all age groups, but elderly are the most affected. COVID-19 increases the risk of elderly for hospitalization and dying, as the elderly has multiple chronic condition and low immunity. Thus, compliance with preventive behaviors is very essential to save elderly life. **Aim of the study**: to determine compliance of elderly with preventive behaviors regarding COVID-19 at rural areas in El Gharbia Governorate. **Subjects and method: Study design:** A descriptive cross sectional research design was utilized in this study. **Setting:** This study was conducted at rural villages in El Gharbia Governorate at Bolkina, Shndalat and Elgaafaria rural villages through home visits. **Study subjects**: A convenience sample of 400 elderly was utilized in this study. **Tools:** One tool was used to collect the necessary data. It consisted of three parts as follows: Part (1): Socio-demographic characteristics of rural elderly people and health history. Part (2): Knowledge of rural elderly about COVID 19. Part (3): Reported practices of rural elderly regarding preventive behaviors of COVID 19. **Results:** It was found that, nearly one third (30%) of the studied elderly had poor knowledge regarding COVID 19. Also, most of them (70%) had unsatisfactory practice score. There was significant positive correlation between total knowledge score and total practice score of the studied elderly**. Conclusion and recommendations:** Based on our study findings, we can conclude that, compliance of most rural elderly regarding preventive behaviors of COVID 19 is unsatisfactory and need improvement. So, we can recommend that: health education programs about preventive behaviors of COVID-19 should be conducted for elderly in rural areas.

Keywords: Compliance, COVID-19, elderly people.

Introduction

Corona viruses (CoVs) have been associated with significant outbreaks in East Asia and the Middle East. Severe acute respiratory syndrome (SARS) and the Middle East respiratory syndromes (MERS) emerged in 2002 and 2012, respectively. At present, a novel corona virus, the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), causing the Corona virus Disease 2019 (COVID-19), has emerged in late 2019. The novel corona virus disease 2019 (COVID-19), originated in Wuhan city of China, has spread rapidly around the world including Egypt, sending billions of people into lockdown [1, 2].

As declared by the World Health Organization (WHO), corona virus is a pandemic. Many countries responded to COVID-19 through inward and outward travel restrictions to prevent the spread of the epidemic. Several measures were taken by public health experts and government officials, including social distancing, asking people to work at home (self-isolation or quarantine), strengthening health facilities to control the disease as well as the closure of places with large gatherings such as gyms, museums, movie theaters, swimming pools and educational institutions [3].

Elderly people are more getting affected by the virus than adults and children. According to the Central Agency for Public Mobilization and Statistics (CAPMAS) (2019), there are 6.5 million elderly in Egypt. Older people are very vulnerable to infectious diseases due to several factors including; deterioration of their health status, decreased immunity and having multiple chronic conditions. Compared with other age groups, respiratory infections including COVID 19 are more likely to lead to serious consequences in older people due to the risk of morbidity and mortality from complications. About 90% of all in-deaths occur in elderly population [4- 6].

Corona viruses can cause clinical diseases in humans extending from the common cold to more severe respiratory diseases that are characterized by high fever, severe inflammation, cough, and internal organs dysfunction that can even lead to death. COVID-19 patients reported also atypical clinical manifestations in which the only reporting symptom was fatigue. These patients may lack respiratory manifestations such as fever, cough, and sputum. COVID-19 can occur or be transmitted through direct contact with patients, droplets, and fomites. Recent studies demonstrated that aerosol and fomite transmission of SARS-CoV-2 is feasible, as the virus can remain viable in aerosols for multiple hours and on surfaces up to days [2,7,**8**].

It is very important to improve compliance of elderly people with preventive behavior regarding COVID-19. Compliance can be defined as the extent to which a person's behavior coincides with medical or health care advice. Preventive behaviors to COVID-19 focus mainly on hand washing, cough etiquette, and oral hygiene in addition to that well balanced diet including excessive amount of fluids, adequate period of rest and sleep and practicing exercise such as walking (healthful life style). Compliance of elderly people can be enhanced through the assistance of community health nurse and the elderly people family [9-11].

Community health nurse has a challenging role in prevention and control of COVID-19 through encouraging elderly people to improve their compliance with preventive behaviors. These preventive behaviors include: implementing personal hygiene and public health behaviors such as hand washing and social distancing are necessary to curb the spread of coronavirus. Personal hygiene is considered the most effective preventive measure including hand washing effectively for 20 seconds or using alcohol before touching mouth, eyes and nose and taking shower after return to home, covering mouth and nose with tissue during coughing or sneezing or using elbow [12-15].

Wearing a mask during getting out of home or presence of gatherings is an essential preventive measure. Also, disinfecting surfaces frequently with alcohol or chlorine 5% as well as avoiding large gatherings including specific cultural and faith practices such as mass prayer gatherings and large weddings, keeping distance at least 3 feets (1 meter from others) [9, 16].

Elderly are the most exposed to destructive consequences of COVID-19. Up till now, there are no proved pharmaceutical measures for treating COVID-19 such as medications and vaccines. Thus, compliance with preventive measures is very important especially for the elderly. These measures can save elderly's life. Additionally, preventive measures help to reduce cost of hospitalization and treatment needed in case of COVID-19, especially for elderly as their condition becomes deteriorated and need ventilators, while it may not be available to all [6, 16]. So that, the aim of this study is to determine the compliance of elderly people with preventive behaviors regarding COVID-19 at rural areas in El Gharbia Governorate.

Aim of the study

The aim of this study was to determine compliance of elderly with preventive behaviors regarding COVID-19 at rural areas in El Gharbia Governorate.

Research Questions

What is the degree of compliance of elderly with preventive behaviors regarding COVID-19 at rural areas in El Gharbia Governorate?

Subjects and Method

Study design:

A descriptive cross sectional research design was utilized in this study.

Study setting:

This study was conducted at rural villages in El Gharbia Governorate at Bolkina, Shndalat and Elgaafaria rural villages through home visits.

Study subjects

A convenience sample was utilized in this study. The sample size and power analysis was calculated using Epi-Info software statistical package created by World Health organization and center for Disease Control and Prevention, Atlanta, Georgia, USA version 2002. The sample size was found at N > 383. The sample increased to 400 elderly, meeting the following criteria:

- Aged 60 years and above,
- Included both sexes.
- Don't have communication problems and accept to participate in the study.

Tools of the study

Interview questionnaire was used in order to collect the needed data. It consisted of three parts as following:

Part (1): Socio-demographic characteristics of rural elderly people and health history:

- **Socio-demographic data** included data about age, sex, marital status, level of education, occupation before retirement, family size, number of sleeping rooms and family income.
- **Health history of the elderly** as number and causes of previous hospitalization, types of chronic diseases, history of previous attack with respiratory tract infection, its types, previous immunization, history of annual influenza and pneumococcal vaccination and history of smoking.

Part (2): knowledge of rural elderly people about COVID 19 [2-8].

This part was developed by the researchers based on related literature to assess rural elderly people knowledge about COVID 19. It covered the following area: definition, causes, risk factors, signs and symptoms, mode of transmission, complication, treatment and prevention of COVID 19.

The scoring system: The items of the questionnaire were checked with a model key answer, which prepared by the researchers. Correct answer was given score one while incorrect or don't know answer was given score zero.

- These scores summed up and the total score converted into a percent score

The total score of knowledge was calculated by summation of the score of all questions related to knowledge about COVID 19 and it equaled (31) points.

The scoring system for knowledge will be as following

- Poor knowledge < 50 % of the total score.
- Fair knowledge 50 - < 70 % of the total score.
- Good knowledge ≥ 70 % of the total score.

Part (3): Reported practice of rural elderly people regarding preventive behaviors of COVID 19 [9-16]:

It was developed by the researchers to assess rural elderly compliance with preventive behaviors regarding COVID 19 and included the following items:

Hand washing, cough etiquette and oral hygiene. **Compliance of hand washing**, included ways, techniques, time, frequency, indication and duration of hand washing **while compliance of cough etiquette** included cover the mouth and nose with tissue or with elbow during coughing or sneezing and **compliance to oral hygiene** included care of the mouth and using tooth brush. In addition to that compliance of healthful life style (nutrition, exercise and adequacy of sleeping period)

The scoring system for practices

- A three point Likert Scale was used as follows: rarely or not done was scored (0), sometimes done was scored (1) and always done correctly was scored (2).
- These scores were summed up and the total score equal (38) points then converted into a percent score. The higher score indicates a greater level of rural elderly people compliance.

The scoring systems for practices were as follow:

- Unsatisfactory practice < 60 % of the total score.
- Satisfactory practice ≥ 60 % of the total score.

Method

1- **An official permission** to conduct the study was obtained from the dean of the faculty of nursing directed to Mayors of the villages to facilitate data gathering.

2- Ethical and legal considerations:

- An informed consent was obtained from all studied elderly people after providing appropriate explanation about the purpose of the study.
- Each studied elderly subject was informed that she/he can withdraw from the study at any time she/he wants.

- The study was safe and did not cause any pain or risks for the studied elderly people.
- Privacy and confidentiality were put into consideration regarding the collected data.

3- Developing the tools:

The tool of the study was developed by the researcher based on literature review.

4- The study tool was tested for its reliability by using Chronabach's alpha test, it was computed and it was found to be = (0.735) for all the study parts.

5- The pilot study:

A pilot study was carried out by the researcher on 10% of the sample for testing the tool/s for its clarity, applicability and to identify obstacles that may be encountered with the researcher during data collection. Accordingly, the necessary modification was done. This sample wasn't included in the study.

6- The actual study:

- The data were collected over a period of 3 months starting from first of June to the end of August 2020. Home visit was used to reach the study subject.
- The researchers introduced themselves to each elderly people and explained the purpose and importance of the study.
- At the beginning of the interview confidentiality of the elderly information were considered. This helped to gain the elderly people cooperation.
- The structured interview was done individually to each elderly in their homes.
- The average time spent for collecting data from each elderly was approximately 20-25 minutes.

7- Statistical analysis of the data:

The statistical data were organized, tabulated and statistically analyzed using statistical package for social studies (SPSS) version 23. The mean, standard deviation and range were calculated for quantitative data. Pearson's correlation coefficient r was used to identify correlation between variables. A significance was adopted at $P<0.05$ for interpretation of results of tests of significance.

Results

Table (I) shows the distribution of the studied elderly people according to their socio- demographic characteristics. It reveals that, the age of the studied elderly ranged from 60-90 years with a mean of 66.63 ± 6.989 , and most of them (70%) their age was 60 < 70 years and they were married. About one half of the studied elderly were males and they were working. Nearly two thirds of them were illiterate or read and write. Also, family income was just enough for the majority of them (80%), and the pension was the source of

income for more than three quarters of elderly. This table also, showed that the vast majority of the studied elderly (93%) were living with their family, and nearly three quarters of them have family members that help them in buying preventive services against corona. The crowding index was 0.3- 1.9 for more than two fifth of them.

Table (2) shows the distribution of the studied elderly people according to their past and current medical history. It reveals that, nearly one half of the studied elderly had previous hospitalization, most of them (71.4%) have been admitted hospital from 1-2 times. Only one fifth of them have no chronic diseases, while nearly one third of them (31%) had hypertension, one quarter (24%) had DM, and (23%) had osteoarthritis disease. Regarding vaccination with influenza or pneumococcal vaccine, the majority of the studied elderly (91%) were not vaccinated, and more than three quarters (78%) were not smokers.

Table (3) shows the distribution of the studied elderly people according to their history of respiratory disease in the past year. It shows that the majority of the studied elderly (80% & 89%) had influenza and bronchial asthma in the past year, and about one third of them (34%) had acute bronchitis, while only 4% had pneumonia and 2% had COPD.

Table (4) shows the distribution of the studied elderly people regarding to their level of knowledge regarding COVID 19. It illustrates that, only one quarter of the studied elderly had good knowledge score regarding COVID 19, while more than two fifth (45%) of them had fair knowledge score and 30% had poor knowledge score regarding it with a statistically significance difference between them.

Table (5) shows the distribution of the studied elderly people regarding to their practices about preventive measures for COVID 19. It reveals that, slightly more than two thirds of the studied elderly people (71% & 69%) always wash their hands with soap and water and discard tissue papers after coughing and sneezing respectively while only one quarter (26%, 27%, 25% and 27%) always wash hands for 20 seconds and avoid touch hands to eyes, nose and mouth and sometimes use alcohol to disinfect hands respectively and change and disinfect their clothes after returning their homes.

It was also observed that slightly less than half of the studied elderly people (47%, 44%, 49%, 45% and 47%) were always wash their hands with soap and water after coughing and sneezing, avoid hand shaking, practice exercise such as walking, practice oral hygiene such as brushing the teeth and sometimes keep at least one

meter between themselves and other people respectively.

Furthermore, slightly more than half (57% and 61%) of the studied elderly people were always avoid overcrowding places and drink adequate amount of water/day (6-8 cups of water/ day) respectively. While, slightly more than one third of them (39%) were sometimes use upper arm for coughing and sneezing when tissue papers weren't available.

In addition to, most of the studied elderly people (77%, 79% and 80%) were always avoid contact with infected people, eating healthy diet and take adequate period of rest and sleep respectively. on the other hand, only 29% of them were always change and disinfect their clothes after returning your home.

Table (6) shows correlation between total knowledge score, total practice score and socio-demographic data of elderly people. It was found that, there was significant positive correlation between total knowledge score, job before retirement, level of education and total practice score of the studied elderly. In addition to that level of education was positively correlated with job before retirement.

Figure (1) shows the distribution of the studied elderly people regarding to their total practice score about preventive measures for COVID 19. It reveals that, most of the studied elderly (70%) had unsatisfactory practice score, while only 30% of them had satisfactory practice score.

Table (I): Distribution of the studied elderly people according to their socio-demographic characteristics

Socio- demographic characteristics of the studied elderly	The studied elderly people (n=400)	
	N	%
Age in years		
60 < 70	280	70.0
70 < 80	96	24.0
More than 80years	24	6.0
Range	60-90	
Mean ± SD	66.63 ± 6.989	
Sex		
Male	204	51.0
Female	196	49
Marital status		
Single	0	0.0
Married	280	70.0
Widow	120	30.0
Occupation before retirement		
Not working or house wives	164	41.0
Working	236	59.0
Education		
Illiterate or read and write	248	62.0
Basic education	48	12.0
Secondary education	80	20.0
University education& more	24	6
Family income		
Just enough	320	80.0
Not enough	80	20.0
Source of elderly income#		
Pension	308	77.0
Property and land	116	29.0
Family support	100	25.0
Social support	20	5.0
With whom do you live		
With my family	372	93.0
Alone	28	7.0
Family members help you in buying preventive service against corona		
Yes	292	73.0
No	108	27.0
Crowding index		
0.3-1.9	180	45.0
2-2.9	152	38.0
3-4	68	17.5
Mean ± SD	1.720 ± 0.739	

(# More than one choice)

Table (2): Distribution of the studied elderly people according to their past and current medical history

past and current history of the studied elderly	The studied elderly people (n=400)	
	n	%
Previous hospitalization		
Yes	196	49.0
No	204	51.0
If yes, number of admission to the hospital	n= (196)	
1-2	140	71.4
3 or more	56	28.6
# Chronic diseases		
Not have chronic disease	80	20.0
Osteoarthritis diseases	92	23.0
Hypertension disease	124	31.0
Diabetes mellitus disease	96	24.0
Respiratory diseases	28	7.0
Heart diseases	48	12.0
Liver diseases	24	6.0
Digestive system diseases	8	2.0
Kidney stones	4	1.0
Osteoporosis	28	7.0
Previous vaccination with influenza vaccine or pneumococcal vaccination		
Yes	36	9.0
No	364	91.0
Are you smoker?		
Yes	88	22.0
No	312	78.0

(# More than one choice)

Table (3): Distribution of the studied elderly people according to their history of respiratory disease in the past year

History of respiratory disease in the past year of the studied elderly	The studied elderly people (n=400)	
	n	%
Influenza		
Yes	320	80.0
No	80	20.0
Bronchial asthma		
Yes	356	89.0
No	44	11.0
Pneumonia		
Yes	16	4.0
No	384	96.0
Chronic obstructive pulmonary disease		
Yes	8	2.0
No	392	98.0
Acute bronchitis		
Yes	136	34.0
No	264	66.0

Table (4): Distribution of the studied elderly people regarding to their level of knowledge about COVID 19

level of knowledge about COVID 19 of the studied elderly	The studied elderly people (n=400)	
	n	%
Good	100	25.0
Fair	180	45.0
Poor	120	30.0
Mean ± SD	1.95 ± 0.744	
t	26.22	
P	0.001*	

***Significant at (p < 0.05)**

Table (5): Distribution of the studied elderly people regarding to their reported practices regarding preventive measures for COVID 19

Reported practices regarding preventive measures for COVID 19 of the studied elderly	The studied elderly people (n=400)					
	Rarely		Some times		Always	
	N	%	N	%	N	%
Hand washing with soap and water	20	5.0	96	24.0	284	71.0
Hand washing with soap and water for 20 seconds	92	23.0	204	51.0	104	26.0
Use alcohol to disinfect hands	248	62.0	100	25.0	52	13.0
Avoid touching hands to eyes, mouth and nose.	72	18.0	220	55.0	108	27.0
Using upper arm for coughing and sneezing when tissue papers aren't available.	92	23.0	156	39.0	152	38.0
Discard tissue papers in the basket after coughing and sneezing.	48	12.0	76	19.0	276	69.0
Wash hands with soap and water after coughing and sneezing.	72	18.0	140	35.0	188	47.0
Avoid hand shaking relatives and other people	52	13.0	172	43.0	176	44.0
Avoid overcrowding places	40	10.0	132	33.0	228	57.0
Keep at least one meter between you and other people.	84	21.0	188	47.0	128	32.0
Wear mask outside home and in crowding areas.	136	34.0	96	24.0	168	42.0
Avoid contact with infected people	20	5.0	72	18.0	308	77.0
Eating healthy diet contains fruits and vegetables.	20	5.0	64	16.0	316	79.0
Drink adequate amount of water/day (6-8 cups of water/ day)	40	10.0	116	29.0	244	61.0
Practice exercise such as walking	76	19.0	128	32.0	196	49.0
Take adequate period of rest and sleep (6-8 hrs.)	20	5.0	60	15.0	320	80.0
Change and disinfect your clothes after returning your home.	176	44.0	108	27.0	116	29.0
Practice oral hygiene such as brushing the teeth.	80	20.0	140	35.0	180	45.0

Table (6): Correlation between total knowledge score, total reported practice score and socio-demographic data of elderly people

Variables	Job before retirement	Age	Level of education	Total knowledge score	Total practice score
	r p	R p	r p	r p	r p
Job before retirement	-	.039 .732	.706** .000	.325** .000	.104 .302
Age	.035 .732	-	-.183- .069	-.056 .578	.030 .763
Level of education	.706** .000	-.183- .069	-	.325** .000	.134 .183
Total knowledge score	.325** .000	-.056- .578	.325** .001	-	.325** .000
Total practice score	.104 .302	.030 .763	.134 .183	. 553** .000	-

**** Correlation is significant at the 0.01 level (2-tailed)**

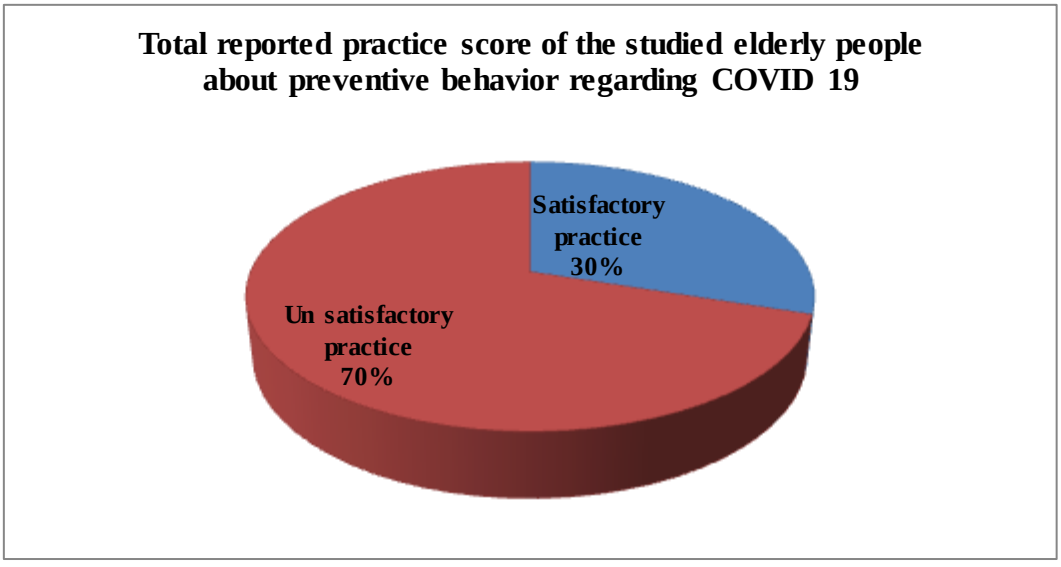

Figure (I): Distribution of the studied elderly people regarding to their total reported practice score about preventive measures for COVID 19

Discussion

COVID-19 is a new disease and highly contagious infection that has a worsening and serious side effect among all age group. But the seriousness of COVID-19 increases with age, especially among elderly. COVID-19 increases the risk of elderly for hospitalization and dying, as the elderly has multiple chronic condition and low immunity [17, 18]. So, the aim of this study was to determine the compliance of rural elderly people with preventive behaviors regarding COVID-19.

Regarding socio – demographic characteristics of the studied elderly people, the results of the present study revealed that more than two thirds of the studied elderly people their age was 60 < 70 years and they were married and the mean age of studied elderly people were 66.63 years. Also half of them were male **table (1)**. This result is in contrast with **Yeon-Hwan et al. (2018)** who conducted a study to examine compliance with respiratory infection preventive behaviors and its related factors in older adults using a senior center and found that less than half of the participants were 65~74 age group, and the mean age of the participants were 76.11 years. The majority of participants were women and more than one quarter of them were married [19].

Concerning medical history of the studied elderly the present study revealed that, about one third of the studied elderly suffer from hypertension, about one quarter suffer from diabetes mellitus and only 6% suffer from liver disease **(table 2)**. This is in agreement with **Guo et al. (2020)** who conducted a study to assess clinical characteristics of elderly Patients with COVID-19 in Hunan Province, China: a multicenter, retrospective study and found that nearly half of the studied elderly patients suffer from hypertension, one quarter of them suffer from diabetes mellitus and only 4.8% suffer from chronic liver disease [20].

Regarding vaccination with influenza or pneumococcal vaccine, the majority of the studied elderly were not vaccinated **(table2)** this may be due to lack of awareness of rural elderly about available vaccination and also about two thirds of them were illiterate or read and write (table 1). This is in the opposite of **Cho et al. (2015)** who conducted a study to assess Association between Living Arrangements and Influenza Vaccination Rates among Elderly South Korean People: The Fifth Korea National Health and Nutrition Examination Survey (KNHANES V-2) and revealed that the majority of the studied elderly people received seasonal influenza vaccine [21] . Also **Yeon-Hwan et al. (2018)** reported that 83% of the studied elderly people were taken influenza vaccine [19].

Concerning history of smoking about three quarter of the studied elderly people weren't smokers **(table2)**, this may be as with advancing age the person become more recognizable about side effect of smoking on health. This is in the line with **Yeon-Hwan et al. (2018)** who reported that 88% of the studied elderly people were never smokers [(19)].

In relation to history of elderly people about respiratory infection most of them reported that they had influenza and asthma in the previous year while the minority of them had pneumonia and chronic obstructive pulmonary disease **(table 3)**. This may be due to lack of awareness of elderly people about preventive behavior of respiratory infection and respiratory hygiene and may be also due to about two thirds of them were illiterate or read and write (table 1). This is in the opposite with **Yeon-Hwan et al. (2018)** in relation to history of influenza and asthma while they were in agreement of our study regarding history of pneumonia and chronic obstructive pulmonary disease [(19)].

Regarding levels of knowledge of the studied elderly people about COVID 19. It was observed that, only one quarter of the studied elderly had good knowledge regarding COVID 19, while more than two fifth of them had a fair knowledge score and about one third had a poor knowledge score **(table 4).** This may be due to lack of awareness of the rural elderly people about COVID 19 and its seriousness as about two thirds of them were illiterate or read and write as well as it's a novel disease (table 1). This is in agreement with **Akalu et al. (2020)** who conducted a study to assess knowledge, attitude and practice towards COVID-19 among chronic disease patients at Addis Zemen Hospital, Northwest Ethiopia and revealed that the prevalence of poor knowledge was 33.9%, 37.4% of study participants had good knowledge while the remaining 28.7% had moderate knowledge [(22)].

Also our results regarding levels of knowledge of the studied elderly people **(table 4)** are in contrast with **Agarwal et al. (2020)** who conducted a study to assess knowledge, attitudes, and practices (KAP) about COVID-19 among Indian population: A cross-sectional study and reported that the majority of the participants were knowledgeable about COVID-19, especially the participants above 60 years of age [(23)].

Concerning reported practices of elderly people regarding preventive behaviors to COVID 19. It was observed that about one quarter of the studied elderly people always washing their hands with soap and water for 20 seconds **(table 5)**. This may be due to lack of awareness of the studied elderly people about importance of

washing hands for 20 seconds in removing most of microorganisms on hands. This result is in contrast with **Akalu et al. (2020)** who reported that about 65.5% of the studied people were washing their hands frequently with soap and water for at least 20 seconds [(22)].

In addition, our results revealed that more than two thirds of the studied elderly people were discarding tissue papers in basket after coughing and sneezing **(table 5)**. This is in the same line of **Akalu et al. (2020)** who reported that about 73.1% of the studied people were cover mouth and nose with tissue paper then discard it in trash[(22)].

In relation to, total practice score of the studied elderly people about preventive measures for COVID 19, it was observed that, most of the studied elderly had unsatisfactory practice score, while one third of them had satisfactory practice score **(figure 1).** This may be due to lack of awareness of the studied elderly people about COVID 19 and only one quarter of the studied elderly people had a good knowledge score regarding COVID 19 as in **(table 4)**.This is in the same line with **Akalu et al. (2020)** who reported that the prevalence of poor practice regarding COVID 19 among chronic disease patients was 47.3% and only 25.9% of study participants had a good practice [(22)].

Regarding correlation between total knowledge score, total practice score and socio-demographic data of elderly people, it was found that, there was significant positive correlation between total knowledge score, job before retirement, level of education and total practice score of the studied elderly **(Table 6)**. As it is normally when the level of knowledge, level of education and type of job improve, the result will be improve the level of practice as well. This is in the same line with **Akalu et al. (2020)** who reported that age, marital status, residence, occupation, monthly income, and poor knowledge were crudely associated with poor practice of COVID-19 prevention [(22)].

Conclusion and recommendation

Based on our study findings, we can conclude that, compliance of most elderly with preventive behaviors regarding COVID 19 at rural areas was unsatisfactory and need improvement. So, we can recommend that: health education programs about preventive behaviors of COVID-19 should be conducted for elderly in rural areas. Community health nurse should advocate for access of the rural elderly to hygienic and protective equipment. The government should promote availability of hygienic and protective equipment as alcohol, chlorine, mask and gloves with low prices.

References

1. Cvetković V, Nikolić n , Nenadić U, Öcal A, Noji K, Zečević M. Preparedness and preventive behaviors for a pandemic disaster caused by COVID-19 in Serbia. Int. J. Environ. Res. Public Health. 2020 June; 17(11): 4124. DOI https://doi.org/ 10.3390/ijerph1711414
2. Dhama K, Sircar S, Khan S. Corona virus Disease 2019 – COVID-19. 2020. DOI: 10.20944/preprints202003. 0001.v2. Available at: https://www. researchgate.net/publication/340608951
3. Sahu P. Closure of universities due to Corona virus Disease 2019 (COVID-19): Impact on education and mental health of students and academic staff. Cureus. 2020; 12(4): e7541. DOI 10.7759/cureus.7541

4.Central Agency for Public Mobilization and Statistics (CAPMAS). Elderly population in Egypt. 2019. Available at:www.capmas.gov.eg › News › 202011915519_A Egypt

5. World Health Organization (WHO). UNFPA Global Technical Brief: Implications of COVID-19 for Older Persons: Responding to the Pandemic Guidelines. Georgia 24 April, 2020. Available at:
6. https://reliefweb.int/report/world/unfp a-global-technical-brief-implications-covid-19-older-persons-responding-pandemic.
7. United Nations. Executive summary: Policy brief: The impact of covid-19 on older persons. 2020. Available at: https://www.paho.org/en/documents/ policy-brief-impact-covid-19-older-persons
8. Zhong B, Luo W, Li H, Zhang O, Liu3, Li W, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: A quick online cross-sectional survey. International Journal of Biological Sciences. 2020; 16(10): 1745-1752. DOI: 10.7150/ ijbs.45221.
9. Shahid Z, Ramgobin D, Kalayanamitra R, Vunnam R, McClafferty B, Kepko D, et al. COVID-19 and older adults: What we know. The American Geriatrics Society Journal. 2020; 68(1):926-929. DOI: 10.1111/jgs.16472
10. American College Health Association. ACHA Guidelines Preparing for COVID-19. 2020. Available at: https://www. prnewswire.com/news-releases/acha-releases-new-guidelines-on-preparing -for-covid-19-301017041.html
11. Center for Disease Control and Prevention (CDC). Corona virus

disease: Protect yourself. 2020 Nov. Available at: https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html.

12. Yıldırım M, Geçer E, Akgül Ö. The impacts of vulnerability, perceived risk, and fear on preventive behaviours against COVID-19. Psychology, Health & Medicine Journal. 2020. DOI:10.1080/13548506.2020.1776891 https://doi.org/10.1080/13548506.2020.1776891
13. Rios P, Radhakrishnan A, Williams C, Ramkissoon N, Pham B, Cormack G, et al. Preventing the transmission of COVID-19 and other coronaviruses in older adults aged 60 years and above living in long-term care: A rapid review. BMC Journal. 2020; 9:218 Available at: https://doi.org/10.1186/s13643-020-01486-4
14. WHO. Mental health and psychosocial considerations during the COVID-19 outbreak. 2020 March. Available at: https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.
15. Holmes E, O'Connor R, Perry V, Tracey I, Wessely S, Arseneault L, et al. Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. Lancet Psychiatry. 2020; 7 (6): 547–60 Available at: https://doi.org/10.1016/S2215-0366(20)30168-1
16. Pakpour A, Griffiths M. The fear of COVID-19 and its role in preventive behaviors. Journal of Concurrent Disorders 2020 Vol. (TBD) No. (TBD), (pp. TBD). Available at: https://www.researchgate.net/publication/340789243
17. Cheng V, Wong S, Chuang W, Yung-Chun S, Chen J , Sridhar S, et al.,. The role of community-wide wearing of face mask for control of coronavirus disease 2019 (COVID-19) epidemic due to SARS-CoV-2. Journal of Infection. 2020; 81 (1): 107–114. Available at: https://doi.org/10.1016/j.jinf.2020.04.024
18. Center for Disease Control and Prevention. Older adults. 2020. Available at: https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/older-adults.html
19. Gandhi RT, Lynch JB, Carlos Rio. Mild or moderate Covid-19. The New England Journal of Medicine.2020;. 383:1757-66
20. Yeon-Hwan P, Hyeon LS, Mi YY, Young LC, Hye LM. Compliance

with respiratory infection preventive behaviors and its related factors in older adults using a senior center. Korean Academy of Community Health Nursing Journal. 2018; 29 (3): 322-34. Available at: https://doi.org/ 10.12799/jkachn.2018.29.3.322

21. Guo T, Shen O, Guo W, He W, Li J, Zhang Y, et al. Clinical characteristics of elderly patients with COVID-19 in Hunan Province, China: A multicenter, retrospective study. Gerontology Journal. 2020; 66(1): 467–475. DOI: 10.1159/ 000508734

22. Cho HM, Kim JY, Hwang SE, Kim JC, Kim MY, Lee SH. Association between living arrangements and influenza vaccination rates among elderly South Korean people: The Fifth Korea National Health and Nutrition Examination Survey (KNHANES V-2). Korean Journal of Family Medicine. 2015; 36(4): 186–190. Doi: 10.4082/kjfm.2015.36.4. 186PMCID: PMC4515512

23. Akalu Y, Ayelign B, Molla MD. Knowledge, attitude and practice towards COVID-19 among chronic disease patients at Addis Zemen Hospital, Northwest Ethiopia. Infection and Drug Resistance Journal. 2020; 13(1): 1949-60. DOI: https://doi.org/10.2147/IDR.S258736

24. Agarwal P, Imtiyaz BS, Raunaq MS, Jamwal C. Knowledge, attitudes, and practices (KAP) about COVID-19 among Indian Population: A cross-sectional study. 2020; Electronic copy. Available at: https://ssrn.com/abstract=3658195 or http://dx.doi.org/10.2139/ssrn.3658195

Effect of Educational Program on Head Nurses Negotiation Skills for Resolution of Conflict among Nurses in Intensive Care Units

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Abstract

Background: Negotiation skills are qualities that allow two or more parties to reach a compromise. It includes abilities such as communication, persuasion, planning, and cooperating. Head nurse who understand the basic principles and skills of negotiation will be ready to deal successfully with conflicting situations and become strong negotiators. **Aim:** Determine effect of educational program on head nurses' negotiation skills for resolution of conflict among nurses in intensive care units. **Method:** Include all ICUs of Tanta University Main Hospitals and Emergency Hospital. **Subjects:** All (N=35) head nurses and nurses (N=300). **Tools: Tool I:** Head nurses knowledge about negotiation skills for resolution of conflict among nurses' questionnaire. **Tool II:** Existence of conflict among ICU nurses' questionnaire. **Tool III:** Head nurses self-assessment about practice of negotiation for resolution of conflict among nurses. **Results:** High percent (76.3%) of ICU nurses existed high level and 13.7% and 10.0% had moderate and low levels of conflict respectively. Pre-program head nurses 74.3% showed poor level of total knowledge about negotiation skills, changed to 82.9% of them showed good level of knowledge post program. Head nurses 25.7% showed satisfactory level preprogram significantly changed to 88.6% at satisfactory level of total practice of negotiation skills for resolution of conflict among ICU nurses post program. **Conclusion:** Head nurses knowledge and practice about negotiation skills for resolution of conflict among ICU nurses were at low level at Tanta University Main Hospital and Emergency Hospital. Head nurses knowledge and practice improved significantly after attendance of program sessions. **Recommendation:** Conduct periodical training programs, workshops and seminars for head nurses to refresh their knowledge, and practice of negotiation skills for resolution of ICU nurses conflict.

Key words: Conflict, Intensive care units, Negotiation, Negotiation skills.

Introduction

An Intensive Care Unit (ICU) is a specially staffed and equipped, separate and highly complex area of hospital dedicated to the management and monitoring of patients with life-threatening illness and provide them with needed critical care [(1)]. Nurses working at ICUs are professional nurses with academic preparation, give care for each shift and deal with high technological and sophisticated equipment's. They have to cooperate with other members of health care team to provide high quality of patient care [(2)]. While, head nurse should be prepared with technical, conceptual, human and leadership skills for motivating nurses to achieve ICU goals. They should have the ability to manage time effectively and conducting efficient negotiation during nurses' discussions, team building and dealing with conflict [(3)]. Conflicts are inevitable part of daily life in ICU and it can be viewed as a negative and harmful phenomenon if not well managed [(4,5)]. Dealing with sophisticated equipment's, limited resources, over workload, and nursing shortage at ICU lead to stressful conflicting environment. Beside structure administrative policies and interaction with head nurse and physician can contribute to conflict [(6,7)]. Nurses conflict results from differences in values, ideas, goals or feeling of forced and perceives blockage and starts to resist it [(8,9)] . Conflict among nurses emerges from verity of sources including personal factor due to difference in age, experience, opinions and values, inappropriate personal estimation, errors in communication, lack of work justice and unclear job description [(10)].

Conflict among nurses can be well managed through negotiation process by which two or more parties with different interests or perspectives attempt to reach agreement, resolve problem and produce desirable outcome using knowledge, time and power [(11,12)]. Negotiation is a powerful process affect nurses' decision aiming to send a message through head nurse to influence each other [(13)]. Head nurses at ICU need periodically to develop their negotiation skill to get the best deal, facilities problem solving, gain support and build nurses co-operative relationships [(14)]. Negotiations processes includes three phases: planning and preparation, bargaining phase and closing the deal phase.

Planning and preparation is the first step in the negotiation process. Head nurse gather information as possible regarding the issue to be negotiated, understand the issue from different perspective, discuss a lot with people for getting more clarity about the problem [(15)]. While at, bargaining phase head nurse and

conflicting nurse sharing information and start building the relationship. The basic strategy in this phase is to convince the other party of the appropriateness of demands and then persuading the other party to concede to those demands. It require the head nurse to have skills in active listing, emotional control, verbal communication, collaboration and team work, problem solving, decision making, and interpersonal skill [16].

Active listening and communication skills depend on ability to pay attention to what a person is saying, listening carefully, showing interest and not interrupting. Head nurses active listening skill requires listening for the content, intent, and feeling of the other. As well as, head nurse to listen carefully to each party during negotiation, remain calm in difficult situation, encourage the other person to talk and promote their willingness to communicate. Also, provide clear and direct feedback and encourage information sharing by creating climate of trust and support [17, 18].

Collaboration and team work skill refer to ability to encourage nurses to act and work together as a team, foster collaborative atmosphere and reach on agreeable solution. Beside head nurse should encourage good performance between team nurses, accept new suggestions from others and maintain enthusiastic soul for all team nurses [19]. Supervision and appraisals skill enhance good understanding of team boundaries and the difference between nurses to rich their work team strengths and treat weakness points of nurses and maintain supportive work team environment [20,21]. Head nurses should keep emotion under control and follow the patience to create calm, supportive environment for the resolution of difference, resolve problems and reach to successful agreement [22].

Closing the deal is the last step in negotiation process; both parties achieve what they wanted. Head nurse restate what has agreed on verbally and in writing and thanks all participants for their contribution to successful negotiation [23]. The skillful head nurse in negotiation process who knows the basic principles of conflict resolution will be ready to deal successfully with these inevitable situations and has the ability to reach an agreement. Mastering negotiation skills are crucial to maintain quality of patient care, improving staff moral and patient safety. So, the designed education program is important for head nurses to improve their knowledge and practice of negotiation skills for resolution of existed conflict among nurses at ICUs.

Aim of the study

Determine effect of educational program on head nurses' negotiation skills for

resolution of conflict among nurses in intensive care units.

Research hypothesis

After implementation of the educational program for head nurses, it is expected that head nurses' knowledge and negotiation skills for resolution of conflict among nurses will be improved.

Subjects and Method

Study design

Quasi experimental research design was used to achieve the aim of the present research. Such design fits the nature of the problem under analysis and investigation. A quasi – experimental is an empirical intervention study used to estimate the causal impact of an intervention on its target population without random assignment.

Setting

The study conducted in all ICUs of Tanta university Main hospital at Neurology, Cardiology, chest, General Medical, pediatric and neonates. Also, Emergency hospital Anesthesia and Medical Emergency ICUs were included in the study. The capacity of Main University Hospital contain (103) beds. Neurology contain 17 beds, cardiology 22 beds, chest 8 beds, General Medical 18 beds, pediatric 18 beds and neonates 20 incubators. The capacity of Emergency Anesthesia contains 24 beds and Medical Emergency contains 12 beds.

Subjects

The study subject consisted of all (N=35) head nurses and nurses (N=300) working at mention ICU.

Tools

The data of the study collected using three tools:

Tool 1: Head Nurses Knowledge about Negotiation Skills for Resolution of Conflict among Nurses Questionnaire. This tool developed by the researcher guided by Mc-Clendon (2010) [24], Torabi et al. (2010) [25] and related literature [26-28] to assess head nurse knowledge about negotiation skills for resolution of conflict among nurses . It included two parts:-

Part one: Characteristics of head nurses such as age, sex, marital status, number of children, residence, name of ICU, level of education, and years of experience.

Part two: Question (60) about head nurses knowledge of negotiation skills for resolution of conflict among ICU nurses inform of multiple choice, true & false and match. These questions were classified into 6 categories as follows:-

- Negotiation process aspect, include 10question.
- Negotiation process phases, include 10question
- Conflict aspects include 10question
- Strategies for resolution of conflict, include10 question

- Factor affecting existence of conflict include10 question
- Skills required for head nurses at phases of negotiation include10 question.

Scoring system:

Head nurses answer scored by correct answer =1 and incorrect answer =0.

Levels of head nurse knowledge

Good level knowledge > 75%

Fair level knowledge 60 – 75%

Poor level knowledge < 60%

Tool II: Existence of Conflict among ICU Nurses Questionnaire.

This tool developed by the researcher guided by Obied and Ahmed (2016)[29] and related recent literature [30,31]. This tool used to assess existence of conflict among nurses in ICU. It included two parts as follows:-

Part one: Characteristics of nurses such as age, sex, marital status, number of children, residence, name of ICU, level of education, years of experience.

Part two: Questionnaire to assess existed conflict among nurses at ICU, divided into five subscales as follows: -

- Personal conflict.
- ICU work environment conflict.
- Administrative policies conflict.
- Nurse –Head nurse interaction conflict.
- Nurse –physician interaction conflict.

Scoring system

Nurses' responses rated by scoring of always exist= 2, often exist= 1 and not exist=0.

Levels of existence of conflict

High conflict >75%

Moderate conflict 60-75%

Low conflict <60%

Tool III: Head Nurses Self-Assessment about Practice of Negotiation for Resolution of Conflict among Nurses.

This tool developed by the researcher guided by Ester and John (2010) [32] and related literature [33-35]. It included question related to head nurses' practice of negotiation skill at each phase of negotiation as follows:-

1-Planning and preparation phase before negotiation

2- Bargaining phase during negotiation it divided into six subscales as follows:

- Active listening skill subscale.
- Verbal communication skill subscale.
- Collaboration and teamwork skill subscale.
- Problem solving and decision making skills subscale.
- Interpersonal skill subscale.
- Emotion control skill subscale.

3- After negotiation and closing the deal phase.

Scoring system

Responses of nurses measured by

Always done=2

Sometimes done=1

Never done=0

Levels of head nurses' practice

Satisfactory practice >65

Unsatisfactory practice <65

Method

1. Official permission was obtained from Tanta Faculty of Nursing responsible authorities for Tanta University Main hospitals to obtain the approval and assistance in data collection.
2. **Ethical consideration:** the aim of the study was explained to staff nurses and head nurses to gain their cooperation, verbal consent for their participation in the study was obtained and they had the right to withdrawal. They were informed that their information was kept confidential.
3. Tools II and III were presented to a jury from the area of specialty to check tools content validity.
4. The jury responses were represented in four points rating scale ranging from (4-1); 4= strongly relevant and 1= not relevant. Necessary modifications were done included clarification, omission of certain questions and adding others and simplifying work related words. The content validity of tool II was 95.65% and for tool III was 95.42%
5. Reliability of tools was tested using Cronbach Alpha Coeffecient test, its value = 0.845 for head nurse knowledge about negotiation skills for resolution of conflict among nurses questionnaire 0.892 for existence of conflict among ICU nurses questionnaire and 0.886 for head nurses self-assessment about practice of negation for resolution of conflict .
6. A pilot study was carried out before starting the actual data collection. It was carried out on 3 head nurses and 48 nurses who are not from the study subjects. The estimated time needed to fulfill tools was approximately 15minutes.

7. Data collection phase

- Tool I head nurses' knowledge about negotiation skills for resolution of conflict among nurses questionnaire was used before and after implementation of the program.
- Tool II existence of conflict among ICU nurses questionnaire was used before the program
- Tool III head nurses' self-assessment about practice of negotiation for resolution of conflict among ICU nurses was used before and after implementation of the program.
- ICU head nurses were divided in 8 groups. The program time was 6 session; 1hours for each session. The program conducted for head nurses at their intensive care unit at Tanta University Main hospitals and

Emergency Hospital.

- The appropriate time for data collection was according the type of work and workload for each unit. The data collection started from October 2019.

Constructional of educational program

The first step was the statement of instructional objectives derived from the existence of conflict among nurses and needs of the head nurses and literature review.

Instructional objectives

The main objective of the program is to improve ICU head nurses knowledge and practice regarding negotiation skills for resolution of conflict among ICU nurses.

Specific objectives

At the end of the program the head nurses should be knowledgeable about negotiation skills for resolution of conflict among ICU nurses and successfully practice it at Tanta University Main Hospitals ICU through:

- Determine aspect related to negotiation process definition, causes, type, styles approaches and factor affecting it.
- Enumerate negotiation process phases of planning and preparation, bargaining and close the deal phases
- Identify aspect related to conflict definition, causes and types of conflict.
- Discuss strategies for resolution of conflict among nurses.
- Explain factor affecting existence of conflict at intensive care unit
- Apply negotiation skills at phases of negotiation process.

Program content

The content was designed to provide knowledge and application related to negotiation skills to resolve conflict among ICU nurses. The program includes six sessions as follows:-

- Session (1) Negotiation process aspects
- Session (2) Negotiation process phases
- Session (3) Conflict aspects
- Session (4) Strategies for resolution of conflict among nurses
- Session (5) Factors affecting existence of conflict at intensive care unit.
- Session (6) Skills required for head nurses at phases of negotiation process

Learning strategies

Selection of teaching method was governed by studying the subjects' needs and content of the program. The methods used were lecture, group discussion, case study, example from work and real life situation.

Teaching aids

The teaching aids used for attainment of program objectives were data show, handouts, flow sheets, pens and papers.

Implementation of program

The study was conducted on 35 head nurses divided into eight groups. The program time was 6 hours for each group. One session every day for 6 day, every session was 1hours .They preferred to start the session after finishing necessary work. The Program sessions' applications were held in the conference room and head nurses room at Tanta University Main hospital and Emergency hospital.

Head nurses were informed about the general objectives of program and each session .The researcher builds good relationship and gave a simple form of motivation to enhance their participation and more involvement in the program activities**.**

Statistical analysis

- Statistical presentation and analysis of the present study was conducted, using the mean, standard Deviation, paired student t-test, chi-square and Linear Correlation Coefficient [r]tests by SPSS V20.

Results

Table (1): Shows characteristics of head nurses. High percent (71.4%) of head nurses aged <40 years, with age range 35-46 years and mean 37.94±2.91. All head nurses were female. 94.3% of them were married, 91.4% had more than two children and 51.4% lived in rural area. Equal percent (20%) of head nurses worked at ICU for cardiology and neonates. At ICU of anesthesia 14.3%, general medical and pediatric 11.4%, 8.6% for neurology and chest and 5.7% for medical emergency. All head nurses not attend education program about negotiation skill before. Head nurses 33 had bachelor degree of nursing and 2 had master degree of nursing. Head nurses 60 % had 15- <20 years of experience with range 12-24 and mean 16.40±2.72.

Table (2): Represents characteristics of nurses. The age ranged 21to 56 years old with mean 33.19±6.70. Nurses 87.7% was female, 80% married, 66.3% had more than two children and 51.4% lived in rural area. Equal (14.7%) percent of nurses worked at neurology and cardiology, and equal (13.3%) worked at medical emergency and neonatal. While 16%, 11.7%, 8.3% and 8% of ICU nurses worked at anesthesia ICU, general medical, pediatric and chest ICU departments respectively. Nurses 72% had associate degree and 28% had bachelor degree of nursing, while 43 % had 5-< 15 years of experience with mean ± SD 12.04±7.34.

Figure (1): Shows levels of existed conflict among ICU nurses .High percent of ICU nurses had high levels of conflict and low percent had moderate and low levels of conflict.

Table (3): Shows levels and mean ranking of existed conflict type among ICU nurses. High percent (76.3%) of ICU nurses had high level of conflict, and low percent (13.7%) and (10%) respectively had moderate and low levels of conflict. The first ranking (1) mean 1.71±0.61was for nurse physician interaction type of conflict followed by rank (2) ICU work environment conflict mean 1.70±0.62 .The personal conflict mean 1.68±0.61 ranked third followed by administrative policies conflict mean1.63±0.65 ranked (4) and the last (5) ranked mean 1.61±0.68 was for nurse –head nurse interaction conflict.

Figure (2): Shows level of head nurses' total knowledge about negotiation skills to resolve ICU nurses conflict pre and post-program. Pre- program high percent of head nurses showed poor level of total knowledge about negotiation skills changed post program and they showed good level of knowledge.

Table (4): Represents levels of head nurses knowledge of each dimension of negotiation pre and post program. There were highly statistically significant improvement of levels of head nurses total knowledge for each negotiation dimension post program at ($p<0.001$). Preprogram majority (82.9%) of head nurses showed poor knowledge level for negotiation aspects, Equal (80%) of head nurses had poor knowledge level for conflict aspects and skills required for head nurse at phases of negotiation process. Head nurses 77.1%, 71.4%, and 68.6% showed poor knowledge level of strategies for resolution of conflict among nurses, negotiation process phases and factor affecting existence of conflict at ICUs respectively.

While, post program majority (88.6%) of head nurses showed good knowledge level for negotiation aspects, Equal (85.7%) of head nurses also showed good knowledge level for negotiation process phases and skills required for head nurse at phases of negotiation process. High percent (82.9%), (77.1%) and (74.3%) of head nurses post program showed good knowledge level for items of strategies for resolution of conflict among nurses, conflict aspects and factor affecting existence of conflict at ICUs respectively.

Figure (3): Shows head nurses' levels of total practice of negotiation for resolution of nurses' conflict pre and post program. Preprogram minority of head nurses had satisfactory level changed to be have satisfactory level of total practice of negotiation for resolution of nurses conflict post program.

Table (5): Shows levels of head nurses of total practice of negotiation phases for resolution of nurses' conflict pre and post program. There were highly statistical significant improvement of head nurses

level of total practice of negotiation phases at (P=<0.001). Preprogram head nurses 71.4 % showed unsatisfactory level for practice of planning and preparation phase changed post program to be 85.7% showed satisfactory level . Beside, head nurses 77.1% showed unsatisfactory level for practice of bargaining phase preprogram changed post program to be 91.4% showed satisfactory level . About two third (65.7%) of head nurses showed unsatisfactory level for practice of closing the deal phase preprogram changed post program to be 88.6% showed satisfactory level .

Figure (4): Shows correlation between head nurses total knowledge and total practice about negotiation for resolution of conflict among ICU nurses pre and post program. There was statistically significant positive correlation between head nurses total knowledge and practice about negotiation for resolution of conflict among ICU nurses.

Table (1): Characteristics of head nurses (n= 35)

Variables	N=35	%
Age		
<40	25	71.4
≥40	10	28.6
Range	35-46	
Mean ±SD	37.94±2.91	
Sex		
Female	35	100
Marital Status		
Married	33	94.3
Single	1	2.9
Divorced	1	2.9
Number of children		
0	1	2.9
1	2	5.7
>2	32	91.4
Residence		
Urban	17	48.6
Rural	18	51.4
Name of ICU		
Neurology	3	8.6
Cardiology	7	20.0
Chest	3	8.6
General Medical	4	11.4
Pediatrics	4	11.4
Neonates	7	20.0
Anesthesia	5	14.3
Medical Emergency	2	5.7
Level of education		
Bachelor Degree of Nursing	33	94.3
Master Degree	2	5.7
Program attended about negotiation		
Not attend	35	100
Years of experience		
<15		
15- <20	21	60.0
≥20	6	17.1
Range	12-24	
Mean±SD	16.40±2.72	

Table (2): Characteristics of ICU nurses (n=300)

Variable	N=300	%
Age		
<25	24	8.0
25- <35	146	48.7
35- <45	110	36.7
≥ 45	20	6.7
Range	21-56	
Mean±SD	33.19±6.70	
Sex		
Female	263	87.7
Male	37	12.3
Marital status		
Married	240	80.0
Single	56	18.7
Divorced	4	1.3
No. of children		
0	69	23.0
1	32	10.7
>2	199	66.3
Residence		
Urban	145	48.3
Rural	155	51.7
Name of ICU		
Neurology	44	14.7
Cardiology	44	14.7
Chest	24	8.0
Pediatric	25	8.3
General Medical	35	11.7
Anesthesia	48	16.0
Medical Emergency	40	13.3
Neonates	40	13.3
Level of education		
Associate Degree of nursing	216	72.0
Bachelor Degree of nursing	84	28.0
Year of experience (years)		
<5	62	20.7
5- <15	129	43.0
15- <25	97	32.3
25 or more	12	4.0
Range	1-37	
Mean±SD	12.04±7.34	

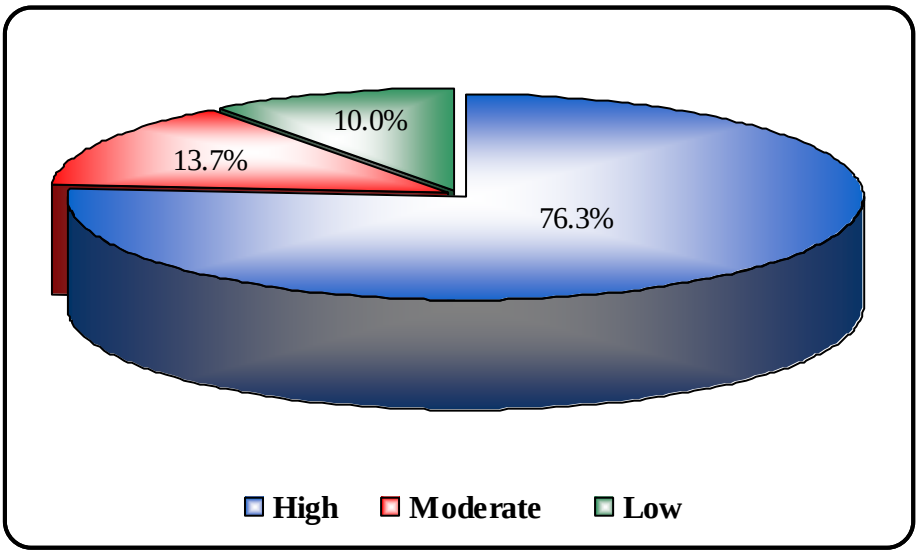

Figure (1): Levels of existed of conflict among ICU nurses (n=300)

Table (3): **Levels, means and ranking of existed conflict type among ICU nurses (n=300)**

Types of conflict	High		Moderate		Low		Mean ±SD	Ranking of mean
	N	%	N	%	N	%		
Personal conflict	232	77.3	41	13.7	27	9.0	1.68±0.61	3
ICU work environment conflict	238	79.3	35	11.7	27	9.0	1.70±0.62	2
Administrative policies conflict	220	73.3	49	16.3	31	10.3	1.63±0.65	4
Nurse –Head nurse interaction conflict	218	72.7	44	14.7	38	12.7	1.61±0.68	5
Nurse –Physician interaction conflict	239	79.7	36	12.0	25	8.3	1.71±0.61	1

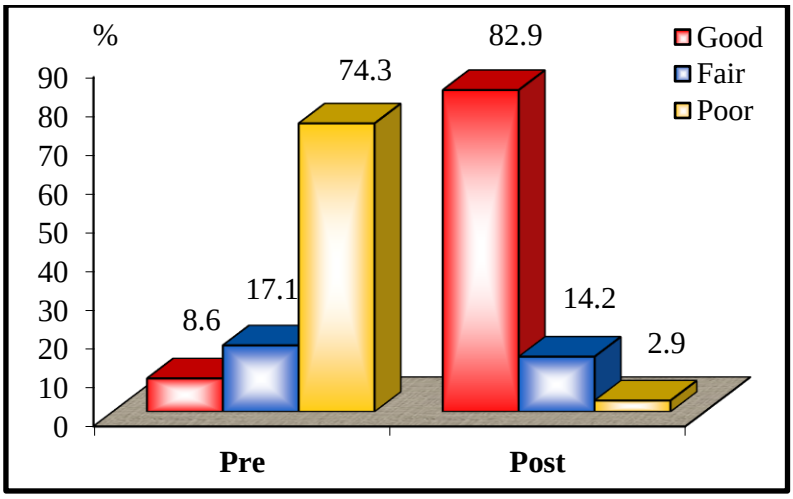

Figure (2): Levels of head nurses' total knowledge about negotiation to resolve ICU nurses conflict pre and post program (n=35)

Table (4): Levels of head nurses knowledge of each dimension of negotiation pre and post program (n=35)

Levels / Dimension knowledge	n=35												X^2 P-value
	Pre						Post						
	Good		Fair		Poor		Good		Fair		Poor		
	N	%	N	%	N	%	N	%	N	%	N	%	
Negotiation	2	5.7	4	11.4	29	82.9	31	88.6	3	8.6	1	2.9	51.761 <0.001**
Negotiation process	5	14.3	5	14.3	25	71.4	30	85.7	4	11.4	1	2.9	40.122 <0.001**
Conflict	0	0.0	7	20.0	28	80.0	27	77.1	8	22.9	0	0.0	55.067 <0.001**
Strategies of resolution for conflict	3	8.6	5	14.3	27	77.1	29	82.9	6	17.1	0	0.0	48.216 <0.001**
Factor for existence of conflict at ICUs	4	11.4	7	20.0	24	68.6	26	74.3	8	22.8	1	2.9	37.360 <0.001**
Skills for head nurse at negotiation process phases	2	5.7	5	14.3	28	80.0	30	85.7	4	11.4	1	2.9	49.749 <0.001**

**** Highly significant at p<0.001**

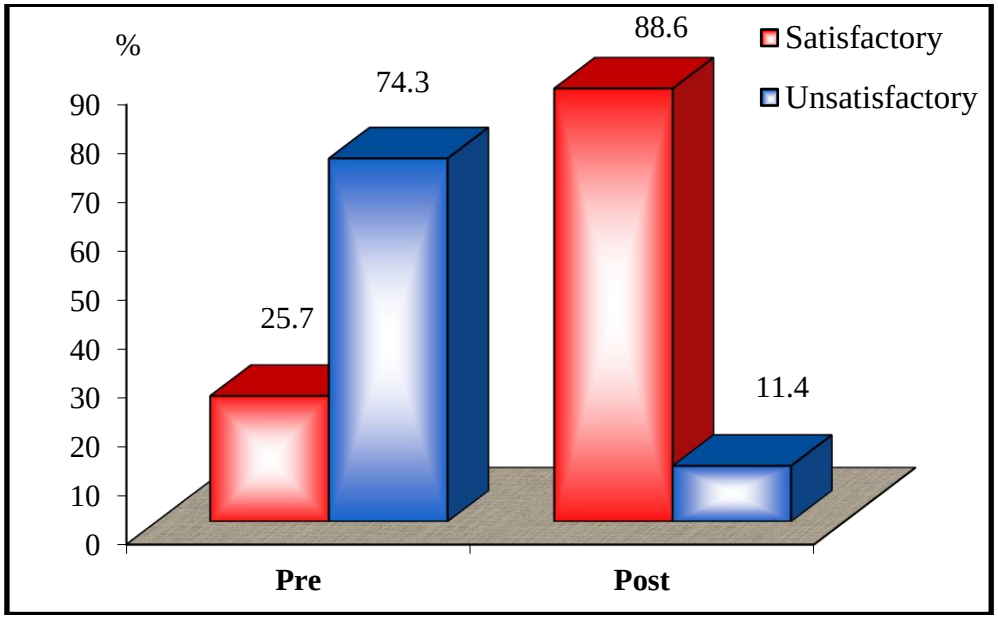

Figure (3): Head nurses levels of total practice of negotiation for resolution of conflict among ICU nurses pre and post program (n=35)

Table (5): Levels of head nurses total practice of negotiation phases for resolution of nurses conflict pre and post program (n=35)

Levels / Negotiation Practice phases	Pre				Post				X2 p-value
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		
	N	%	N	%	N	%	N	%	
1-Planning and preparation phase	10	28.6	25	71.4	30	85.7	5	14.3	23.333 <0.001**
2-Bargaining phase	8	22.9	27	77.1	32	91.4	3	8.6	33.600 <0.001**
3-Closing the deal phase	12	34.3	23	65.7	31	88.6	4	11.4	21.766 <0.001**

****Highly significant at p<0.001**

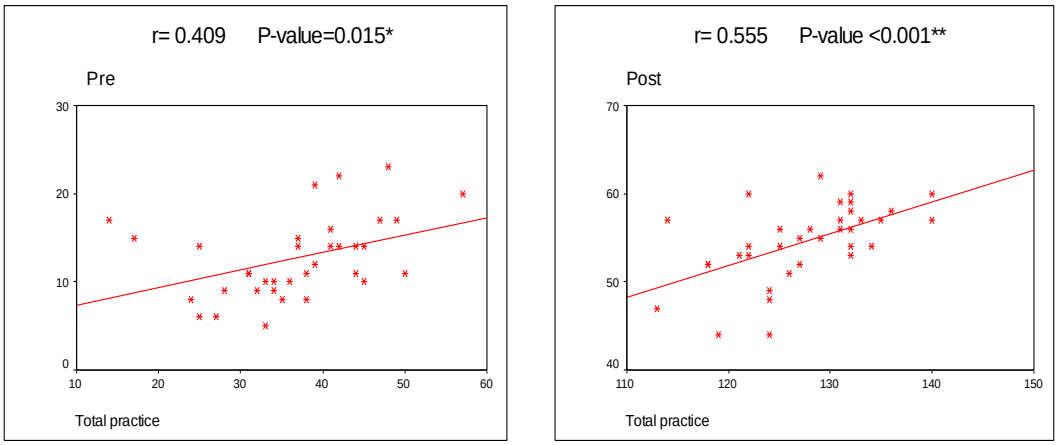

Figure (4): Correlation between head nurses total knowledge and total practice about negotiation for resolution of conflict among ICU nurse (n=35)

Discussion

Nurses at intensive care units play different roles such as care provider, educator, and manager. These many roles lead to various types of interactions among nurses and other health care team members, which significantly increase the probability for conflict to arise. Learning to manage conflict is one of the challenges ICU head nurses frequently face. Therefore head nurses need to be equipped with the necessary negotiation skills to manage nurses existed conflict. So, the designed education program is important for head nurses to improve their knowledge and practice of negotiation skills for resolution of existed conflict among nurses at ICU.

Study finding revealed that high percent of ICU nurses had high levels of conflict and low percent had moderate or low levels of conflict. Actually those nurses age, residence, level of education, years of experience and types of ICU showed significant impact on their level of conflict. In nursing profession conflict is natural and inevitable and arises as a daily challenge or contest between nurses with opposing needs, ideas, beliefs, values, or goals. Most properly their conflict to processes and contradictions brought about by their social changes, continued health system reforms, increasing demands and pressure to improve the productivity and quality of services provided. Sometimes conflict can inspire nurses to brainstorm ideas and examining problems from various perspectives.

Tosanolla et al. (2019) [36] study causes of conflict between clinical and administrative staff in hospitals and **Attia et al. (2019)** [7] study relationship between conflict and perception of professionalism among nurses working at Kafr Sakr General Hospital supported the present finding and showed that majority of nurses had high level of conflict due to nature and characteristics of work condition as heavy workload , resource shortage, inequalities in the organizational chart, remuneration and reward system, bureaucracy and poor management , poorly defined hierarchy relationship, different roles of a nurse and differences in goals among work groups and competition.

Also, **Palyouz and Tsiotras (2018)**[37] study analysis of determinant factors of conflict in Greek hospital, revealed high percent of nurses conflict due to lack of organizational support, resource allocation issues, poor communication, and lack of experience. In addition other factors including workload in the workplace, weaknesses in hospital, competition among nurses or attitudes adoption, style of management of hospital manager and problematic behavior of patients. While, **Mosadeghrad and Mojbafan (2019)** [38] study antecedents and consequences of

conflict among nurse managers of Tehran University hospitals, reported that nurse managers experienced acceptable level of conflict, and consider conflict prerequisite to their attitude for positive changes and work progress.

Present study result revealed that high percent of head nurses preprogram implementation showed poor level of total knowledge about negotiation skills. As well as those head nurses showed poor knowledge about all dimension of negotiation especially negotiation skills of head nurses at its process phases and conflict dimensions. But post program they showed good level of knowledge for all dimensions of negotiation process. The fact is that those head nurses knowledge affected by their none attendance of previous orientation or training program about negotiation skill. So, they were unequipped with enough knowledge about many aspects of negotiation skills and conflict resolution.

Yet knowledge of most of those head nurses had significantly improved in majority of negotiation skills items immediately post program due to their ability to gain knowledge easily due to their level of education. Really, attendance of present program sessions gave them the opportunities to understand negotiation skills and strategies for resolution of conflict existed among ICU nurses. Most probably well-designed program attracted their attention to recognize the giving and receiving of communication and evoked their sense of responsibility and attracted them to be effective negotiators. Specially that the program clarified to them the benefits and outcomes of appreciating nurses different opinions, respect their preferences and to have attention to value their participation in group decision making.

Kamal and Mahfouz (2017) [39] study effect of education program about negotiation skills for head nurses on their time management, revealed that preprogram most of head nurses had poor negotiation skill knowledge. But, post program high percent of head nurses had good negotiation knowledge. **Ahmed et al. (2016)**[40] study about developing and implementing an educational program about strategies of conflict resolution for the head nurses working at Main Assuit University Hospital , showed that about two third of head nurses knowledge regarding the role of negotiator preprogram were unsatisfied, but head nurses knowledge at post implementation of the educational program was satisfactory.

Present study revealed that preprogram majority of head nurses had unsatisfactory level of total practice of negotiation for resolution of nurses conflict. Apparently the lack of knowledge of those head nurses

about negotiation skills lead them to unsatisfactory level of practice. Actually they use improper communication technique and not use new technology for building effective work team. Indeed they have high need for education and training program for improving their negotiation skills.

Using of communication technique and technology in which head nurses teach their nurses to respect differences as an important part of team building and good communication ,prime their nurses for positive thought, avoid negative thought wastes a lot of energy and usually doesn't accomplish anything. Head nurses teach their nurses that instead of complaining, they should be proactive and take initiative by doing so, they can actually make improvements happens. Also head nurse teach their nurses to acknowledge and recognize co-workers and be sure to offer them praise and encouragement.

Kamel and Mahfouz (2017) [39] support the present finding and revealed that head nurses' had higher negotiation skill at post program and there was a positive correlation among head nurses' negotiation knowledge and skills and head nurses practice negotiation and its technique that assist in development of stronger communication skills as useful tool in the management of hostile , threating, and insulting behaviors in a peaceful manner. Also, those head nurses know the methods to balance between achieving own goals and respecting the need of others to improve clinical practice with better patient outcome. These finding supported by **Hojjat et al. (2016)**[41] found that head nurses skills about negotiation was improved after training program implementation. It leads to increase in communication skills, increase interpersonal interaction with express feeling comfortable and understand each other better.

Current result revealed that preprogram high percent of head nurses showed unsatisfactory level of practicing planning and preparation phase of negotiation. Actually, those, head nurse not give attention to determine other party nurses' interests and positions leading to failing to find the best alternative negotiated agreement (BATNA). Even they not discuss the root cause of the problem with conflicted nurses. They overlook gathering all relevant information about the problem or identifying the basic need and benefits of negotiation for each party. Indeed those head nurses not recognize the value of good preparation for planning phase of negotiation. Besides, they do not care to put timeframe or manage time properly.

The result of present study was congruent with **Zohar (2015)** [42] study the art of negotiation leadership skills required for

negotiation in time of crisis, stated that in preparing, planning, and practicing, head nurse negotiator should use imagination to anticipate and predict what is needed and set justifiable regarding the outcome. Also, **Ebrihim (2020)** [43] support the present finding and mentioned that head nurses in order to constructively negotiate and create win-win solution must be prepared well through making agenda for arranging ideas before negotiation begin. Moreover, the manner in which the head nurse manages the discussion and knows negotiation technique as well as understand each party's behavior and needs to deal is necessary for the success of negotiation process.

Results of current study clarified highly statistical significant improvement of head nurses level of practice of all skills of negotiation bargaining phase. Most probably after implementing the present program those head nurse become more knowledgeable to negotiate more effectively and express their feeling both verbally and non-verbally. They maintain balance between achieving goals, respecting need of others and creating win-win situation. **Qureshi et al. (2018)** [44] study is supervisors support matter in job satisfaction? A moderating role of fairness perception among nurses in Pakistan, stated that after implementation the program head nurses showed ability in leading ICU bring positive attitude and encourage climate of trust and respect.

The present study revealed that preprogram above one third of head nurses showed satisfactory level of total practice changed to be majority had satisfactory level of practice for closing the deal phase after negotiation post program. Preprogram head nurse, not follow principles of fairness with parties. They not sign the deal and not restate agreement verbally. They not offering solution and never recognize and thank all nurses participant for their contributions to successful negotiation. After head nurses attending present study educational program and trained to become effective in practicing negotiation skills, they succeed to be always to maintain good relationship with parties and reach the goal by offering suitable solutions.

Kamel and Mahfouz (2017) [39] support the present study and revealed that there were highly statistical significant improvement in the head nurses' negotiation skills at closing the deal phase after intervention both post and follow up program. Their total mean scores for negotiation skill was low at pre-program and it improved at post and follow up program.

Yet immediately post program head nurses showed a high knowledge and skill regarding all items of negotiation. This

indicated that education and training program has good effect on head nurses and helped them to manage existed nurses' conflicts at ICU. Apparently head nurses development of knowledge reflected on their practice for managing conflict and improving collaboration and good team work relations. They empowered to turn their negative behavior to positive one and maintain safe, satisfied, calm and enthusiastic work environment. They practice listening skills for understanding, reframing the causes of existed conflict among ICU nurses. Really head nurse understand how conflict develops and how to interact with all parties to discover effective solutions.

Conclusion

Most of nurses at Tanta Main and Emergency hospitals ICUs existed high level of conflict required the head nurses to resolve it using the negotiation skills. While the head nurses lacking knowledge of negotiation principles and cant satisfactory practice its skills preprogram. The present educational program explained to head nurses principles and skills of negotiation as well as trained them to be satisfactory practice it. The well designed and implemented program enforced their talents and significantly improving their knowledge and practice regarding negotiation skills for resolving the existed conflict among ICU nurses.

Recommendations

Based on the findings of the current study, the following recommendations can be suggested.

- Hospital administrator

1-Conduct periodical in-service training and -education programs for refreshing and developing head nurses knowledge and practice about the negotiation skills for resolution of conflict.

2-Encourage positive ICU work environment by providing of resources.

-Head nurses

3-Head nurses provide support and conductive clinical learning environment for ICU nurses.

4-Advertise posters containing tips about negotiation skills and principles at each ICU.

5-Head nurses promoting communication, cooperation and connection among ICU nurses.

6-Head nurses motivate nurses to express their opinions and personal rights.

7- Head nurses provide greater autonomy for nurses to participate in decision making.

8-Conduct educational program for nurses about causes of conflict and how to avoid it.

9-Encourage self-learning among ICU nurses to promote critical thinking and to use scientific methods to resolve conflict.

10- Motivate nurses to participate in the development of new ideas to improve their communication in ICU.

Recommendation for further research:

11-Investigate the impact for using preventive measures on ICU nurses existence of conflict.

12-Investigate other methods for resolution of conflict among nurses.

References

1. Lafi K, Salem A. Nurses perceptions & practices towards delirium in the intensive care units. Journal of Nursing and Health Science. 2018; 7(2):36-46.
2. Adam Sh, Osborne S, Welsh J. Critical Care Nursing. 3rd ed. United Kingdom. Oxford University Co.; 2017. 2.
3. Moghaddam N, Zarger S, Rafiei S, Sarem A. Managerial competencies of head nurses: A model and assessment tool . British Journal of Nursing. 2019; 28 (1):30-37.
4. Ika C, Novieastari N, Nuraini T. The role of a head nurses in preventing interdisciplinary conflicts. Enferm Clinical Journal. 2019; 29(2):123-127.
5. Bakova S, Raykova E. Sources of conflict in public hospitals. Trakia Journal of Sciences. 2018; 16 (1): 117-121.
6. Boothe A, Frasier N, Weaver C, White J. Resolving conflict: What does the giraffe say? Journal of Nurse Leader. 2018; 2(16): 21-22.
7. A ttia A, Elsayed S, Ata A. Relation between conflict and perception of professionalism among nurses working at Kafr Sakr General Hospital. Zagazig Nursing Journal. 2019 ; 15 (2): 35-51.
8. Piryani R. Conflict management in health care. Journal of Nepal Health Research Council. 2019; 16 (41): 481-482.
9. Mayfeild L. Effect of conflict resolution education on nurse - nurse collaboration in a community hospital setting. Nursing Health International Journal. 2018; 2(6) : 1-16.
10. Abdl-Elraman E, Ghoneimy A. The effect of conflict management program on quality of patient care. American Journal of Nursing Science. 2018; 7(5):192-201.
11. Heavatay V, Nandhini K. Managing conflict negotiation and consensus. Journal of Nursing and Patient Safety Care. 2015; 1 (1): 19-24.
12. Adkoli B, Pawar S. Conflict management strategies implications for health professions education. Journal of Basic Clinical and Applied Health Science. 2018; 2(3):132:138.
13. Monney J, Adoms D, Yeboah A , Owusu A. Efficient conflict management strategies adopted by some heads of educational institutions in Ghana. International Journal of Scientific Research. 2017; 6(7): 532-538.

14. Fleck D, Volkema R, Pereira S , Vaccari L. Factors affecting desire to negotiate again . Journal of Managerial psychology. 2017; 32(1): 16-29.
15. Tabassuma L. The importance of negotiation and conflict management. Journal of Management and Social Science. 2020; 2(4):15-19.
16. Azizollah A, Foroughameria G, Sarani H, Mahmoudi N. Assessment of head nurses' professional skills from head nurses' perspective. International Journal of Advanced biotechnology and Research. 2016; 7(5): 1836-1840.
17. Kohpeima V, Tabatabaee S, Abdar Z, Rajabi M. Active listening: The key of successful communication in hospital managers. Electronic Physician Journal. 2016; 8(3): 2123-2128.
18. Ibrahim Y, Ahamat A. Interpersonal communication skills of nurse managers and nursing performance. International Journal of Management Studies. 2019; 26(1): 99-145.
19. Wayne T, Mc-Cormac k. Using team building in a large inter professional Health Science Education Experience. Journal of Inter professional Education and Practice. 2016; 5(1): 19-21.
20. Shepared F, Stacey G, Aubeeluk A. The importance, impact and influence of group clinical supervision for graduate entry nursing students. Nurse Education in Practice Journal. 2018; 28(1): 296-301.
21. Basa V. Supervisor – supervisee relationship and alliance. European Journal of Counseling Theory, Research and practice. 2017; 1(10):1-5.
22. Mohamed M, Fekry N. Relationship between head nurses emotional intelligence and staff nurses' job satisfaction. Medical Journal Cairo University. 2018; 86(7): 4065-72.
23. Elfering A, Gerhardt C, Grebner S, Müller U. Exploring supervisor-related job resources as mediators between supervisor conflict and job attitudes in hospital employees. Safe Health Work Journal. 2017; 8 (4):19–28.
24. Mc-Clendon B. The art of negotiation: What the twenty first century business student should know Western Carolina University. Journal of Legal Studies Education. 2010; 27(2): 277-319.
25. Torabi A, Ebrahimi B , Haghighzadeh M. Survey on relation between negotiating styles and conflict management strategies among the nursing managers in Ahvaz Hospitals. Journal of Health Science. 2010; 2(3):1212-1230.
26. Waithaka A, Austin S , Gitimu P. Influence of conflict resolution training on conflict handling styles of college students. Research in Higher Education

Journal. 2015; 28(1):1-13.

27. Mick bin L. Conflict management important and implications. British Journal of Nursing. 2017; 26(2): 100-103.
28. Khalid S, Fatima I. Conflict types and conflict management styles in public and private hospital. Pakistan Armed Forces Medical Journal. 2016; 66(1):122-26.
29. Obied H, Ahmed S. Effect of utilizing conflict management strategies for ICU nurses on patient care. Journal of Nursing and Health Science. 2016; 5(2): 39-46.
30. Al shammari A, Dayarti R. Conflict and conflict resolution among the medical and nursing personnel of selected hospitals in Hilal City. Journal of Nursing and Health Science. 2017; 6(3): 45-60.
31. Zadeh M , Naderi M, Tafreshi M ,Zandi K. Factors affecting conflict among emergency nurses . Journal of Nursing Management. 2016; 5(2):18-25.
32. Ester L, John L. Communication skill work book: Self-assessment exercises & educational handout. 2010. Available at: http:www.wholeperson .com.
33. Rees L, Kopelman S. Logics and Logistics for Future Research: Appropriately Interpreting the Emotional Landscape of Multicultural Negotiation. Negotiation and Conflict Management Research. 2019; 12(2): 131–45.
34. Ebner N, Parlamis J. Weaving together theory, research, practice, and teaching: A four-dimensional approach to negotiation and conflict management work. Negotiation and Conflict Management Research. 2017; 10(4): 245–51.
35. Sebenius J. BATNAs in negotiation: Common errors and three Kinds. Negotiation Journal. 2017; 33(2): 89–99.
36. Tosanloo M, Adham D, Ahmadi B, Foroshani A, Pourreza A. Causes of conflict between clinical and administrative staff in hospitals. Journal of Education and Health Promotion. 2019; 8(1):191.
37. Polyzou M, Tsiotras G .Analysis of determinant factors of conflict in Greek Hospitals. International Journal of Caring Sciences. 2018; 11 (2): 935.
38. Mosadeghrad F, Mojbafan A . Antecedents and consequences of conflict among nurse managers of Tehran University hospitals. Journal of Medical. 2019; 20(4): 41-50.
39. Kamel F, Mahfouz H. Effect of education program about negotiation skills for head nurses on their time management. International Scientific Conference. 2017; 1-23.

40. Ahmed H, Ibrahim H, Yousef R, Morsy S. Developing and implementing an educational program about strategies of conflict resolution for the head nurses working at Main Assuit University Hospital. Journal of Nursing and Health Science. 2016; 5(4): 33-43.
41. Hojjat S, Golmakani A, Khalili M, Chenarani N. The effectiveness of group assertiveness training on happiness in rural adolescent females with substance abusing parents. Global Journal of Health Science. 2016; 8(2): 156-164.
42. Zohar I. The art of negotiation Leadership skills required for negotiation in time of crisis. International Conference Education, Reflection, Development, Social and Behavioral Sciences Journal. 2015; 209(20): 540 –8.
43. Ebrahim E. Negotiation as a management strategy for conflict resolution and its effect on enhancing collaboration between nurses and physicians. Egyptian Nursing Journal. 2020; 17(1):13-22.
44. Qureshi M, Hamid K, Heihoony P, Ali A, Brohi N, Magsi R. Is supervisor support matter in job satisfaction? A moderating role of fairness perception among nurses in Pakistan. Academy of Strategic Management Journal. 2018: 17(6): 1-10.

Knowledge and Attitudes among Tanta University Students Regarding to Genetic Disorders and Genetic Counseling

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Abstract

Background: Advancements in genomic sciences turned the focus of health care from the diagnosis and treatment of genetic diseases to genetic risk identification, genetic counseling and protective actions. This study **aimed** to assess perception of genetic disorders and genetic counseling among Tanta University students. **Design and Setting** a descriptive cross-sectional study design. The study was conducted at **four Faculties** (Faculty of Engineering, Arts, Nursing and Pharmacy) that were selected randomly from medical and non-medical fields in Tanta University. **Subjects**: A sample of 13.8% of students in the 4th academic year were selected (1005 students) by stratified random sample technique. **Tool (1)**: Structured interview schedule developed by the researchers to assess students' knowledge regarding genetic disorders and genetic counseling. **Tool (2)**: Attitude of university students towards genetic disorders and genetic counseling. **Results**: 77.6% of students had poor level of knowledge, while 87.2% of them showed positive attitude toward genetic disorders and genetic counseling. Three quarters (75%) of students hadn't any information source about genetic counseling. **Conclusion:** The majority of students had poor knowledge, most of them had positive attitude, and there was a marked lack in the different information sources of genetic disorders and genetic counseling which constituted a major cause behind the deficiency in knowledge. **Recommendation:** Integration of modern genetics and genomics into basic and advanced educational programs of Egypt, genetic carrier testing of prevalent genetic diseases in Egypt should made available for university students with accepted costs and adequate coverage.

Key words: - Genetic Disorders, Genetic Counseling, Awareness, University students

Introduction

A genetic disorder is an illness caused when a something goes wrong in the genes or chromosomes. It can be a result of small mutation in one single gene, adding or subtracting of an entire chromosome, or the addition or subtraction of asset of chromosomes. Other genetic disorders are multifactorial, in which many genes interact, and environmental influences are also elements in disease development [(1)].

One out of every ten adults have a genetic defect [(2)]. Genetic disorders affect about 5% of world's population with diseases [(3)]. Thirty percent (30%) of pediatric admission and 10% of adult admission in developed countries is due to genetic causes [(4)]. The disease may be rare but the total number of people with genetic diseases is substantial. There are approximately 30 million people are affected with rare diseases in the USA [(1)].

Genetic disorders are more prevalent among Arab population. Coronary arteries disease, arteriosclerosis, diabetes mellitus, hypertension, and obesity are common genetic disorders in Arab countries. Many of these disorders have assumed its epidemic proportion. Other diseases for example: Down Syndrome, Breast Cancer, Tetralogy of Fallot, Familial Mediterranean Fever, Deafness, Noonan Syndrome and Ankylosing Spondylitis, Thalassemia, Sickle Cell Disease, and Glucose-6-Phosphate Dehydrogenase Deficiency, are also highly prevalent diseases and occur at annual incidence of (> 100 cases per 100 000 live births) among Arab population [(5)].

The distribution of genetic disorders in the Arab world according to disease taxonomies indicates that over one-third of genetic disorders in Arab individuals result from congenital malformations and chromosomal abnormalities (more than 35%) [(6)].

In Egypt, genetic diseases remain a major cause of morbidity, mortality and handicaps. There are a high prevalence of genetic disorders and congenital mal formations among Egyptians, with frequencies comparable to other Arab populations. Central nervous system (CNS) anomalies are the most prevalent congenital malformations as confirmed by numerous epidemiological studies [(7,8)]. High rate of consanguinity, large family size, and low availability of public health measures directed at the care and prevention of these disorders are of the important predisposing factors that are founded in Arab populations [(5)].

Genetic disorders are chronic in nature, require lifelong management with no definitive cure and continue to negatively affect the health care system through increasing rates of neonatal deaths, morbidity and mortality in children as well

as in adults. These constitute a significant economic and psychosocial burden on patients, families, health care systems and the whole society [5]. In recent years, health economists have made significant advances in calculating generally accepted 'cost of illness' estimates for many common genetic conditions. Thus, it is estimated that billions of United States Dollars are spent annually to manage just a few of the most common genetic diseases in the Arab world. These makes it essential to improve the preventive strategies for controlling the prevalence of genetic diseases [9].

Genetic screening programs are effective in decreasing the impact of genetic disorders on families and societies and lead to early treatment and improvements in outcome and prognosis [5]. The main types of genetic screening include carrier screening, prenatal diagnosis, and newborn screening. Genetic carrier screening identifies asymptomatic carriers of common recessive conditions in the community, it allows health professional to intervene early to prevent disease occurrence in the offspring of detected carriers [10]. Prenatal diagnosis and newborn screening programs early detect genetic conditions and enable timely medical or surgical interventions to inhibit deleterious implication of a genetic condition on health [11, 12].

Family screening is another preventive approach and it seems to be more helpful in regions that have high level of consanguinity as in Egypt and many other Arab countries. Family screening is mainly effective for single gene disorders that represents more than half (56%) of the genetic disorders described among Arabs [13,5]. Family history, pedigree analysis and genetic counseling interventions helps individuals at risk for a genetic disorder to understand the consequences and nature of the disorder, the probability of developing or transmitting it, and the options open to them in management and family planning [14].

Other measures of prevention have approved its efficacy in decreasing the incidence of genetic and congenital disorders for example, discouragement of pregnancy at advanced ages, periconception folic acid supplementation or multivitamin fortification of basic foodstuffs, and avoidance of alcohol consumption and smoking during pregnancy [15]. Also, improving level of genetic literacy among the public and considering their demographic, cultural and religious characteristics while planning prevention programs offers more engagement and compliance from the public towards preventive measures of genetic diseases [13].

Genetic and genomic advances improve the ability to predict disease susceptibility, provide individualized preventive screening, risk reduction interventions, and target disease treatment. Understanding of genetic disorders, variability, mechanisms, their contribution to common diseases, and development of modern genetic testing capabilities have enabled people to assume greater responsibility towards their own health. Thus, the role of health professionals in providing non-directive counseling about inherited traits is one of the representative features of this new era [16].

The term genetic counseling means helping people understand and adapt to the medical, psychological, and familial implications of genetic contributions to disease [17]. Genetic counseling is the process by which patients or relatives who are at risk of an inherited disorder, are advised of the consequences and nature of the disorder, the probability of developing or transmitting it, and the options open to them in management and family planning [18,14]. Genetic counselors discussing genetic information with clients in an understandable and compassionate manner and ensure that clients understand the risks and benefits of healthcare choices, while maintains confidentiality of genetic information pertaining to their clients [18].

Adulthood is a period of qualitative change, of discontinuity, and of transformation of an earlier life pattern. Entering adult world begins in early 20s and extends until late 20s. The focus of this period is on exploration and provisional commitment to adult roles and responsibilities. First job, marriage, and birth of children are crucial life events which remarks this period, hence knowledge regarding genetic disorders and genetic counseling is essential for university students as they beginning their adulthood where important health related decisions are imposing themselves, that will have a desired impact on their personal health and on society as a whole over the next few decades [19].

Community health nurses are at the interface of translating genetic and genomic advances into effective health care options. They assess individual and family genetic risk factors, provide genetic education and counseling, facilitate referral to a genetic specialist when red flags of a genetic disease are identified. Work in collaboration with other health care providers to offer genetic health care services to individual, family or to the community as a whole [20, 21].

Significant of the study

With the explosive growth of genomic approaches into health care comes the

realization that the current genetic and genomic education do not adequately prepare community individuals to understand genomic health issues. Individuals understanding of the role of genetics and genomics in disease risk is the key to appropriate disease prevention and detection. Also, health professionals are challenged to translate genomic knowledge and applications into public health and clinical practice that promote health and prevent disease.

Aim of the study

The aim of this study was to assess awareness toward genetic disorders and genetic counseling among Tanta University students.

Research question

What is level of knowledge and attitudes toward genetic disorders and genetic counseling among Tanta university students?

Subjects and Method

Study design

Descriptive cross-sectional study design was used in this study.

Setting: This study was conducted in medical and non-medical Faculties of Tanta University. Four Faculties were selected randomly through simple random technique; Faculty of Nursing & Faculty of Pharmacy were selected from medical faculties and Faculty of Arts & Faculty of Engineering were selected from non-medical Faculties.

Subjects: Thirteen-point eight percent (13.8%) of students in the fourth academic year from each faculty was included in the study. They were selected through equal proportion allocation technique. Subjects of the sample were selected by obtaining lists of students' names admitted to fourth academic year from department of Students' Affairs in each Faculty. Stratified random sampling technique was used to select 1005 of students to be included in the study.

Tools of the study

Two tools were used by the researchers to collect required data for this study.

Tool (I): Knowledge of university students regarding genetic disorders and genetic counseling.

A structured interview schedule was developed by the researchers based on review of related literature [22-25]. It included the following four parts:

Part I: Socio-demographic characteristics of students:

The aim of this part was to collect socio-demographic data about university students such as age, sex, residence, field of study and marital status.

Part II: Knowledge of university students regarding genetic disorders:

Eleven questions were applied to students

in this part to collect essential assessment data about definition, types, examples, causes, risk factors, diagnosis, treatment and prevention of genetic disorders.

Part III: Knowledge of university students regarding genetic counseling:

Sex questions were applied to students in this part to collect essential assessment data about definition, process, importance, purpose, at risk group and providers of genetic counseling.

Scoring system of total knowledge scores:

Each question was scored 2 points for complete correct answer, 1 point for incomplete correct, and 0 point for don't know answer. The total score was classified as follow: -

- Good → >70% of total knowledge score.
- Fair → 60 - 70 % of the total knowledge score.
- Poor → < 60% of total knowledge score.
- **Part IV: Sources of university students' information regarding genetic disorders and genetic counseling such as** school, internet, friends, neighbors, media, health care providers, and relatives.

Tool (II): Attitude of university students towards genetic disorders and genetic counseling.

The tool was developed by the researchers based on review of related literature [88, 99, 107-112], it consisted of thirteen statements to assess students' attitude towards genetic disorders and genetic counseling. Scoring of attitude statements was done through a three-point Likert Scale (Agree (2), neutral (1), and disagree (0). Statements number 2, 4, 7, and 12 reflected negative attitude and scored (0) point for agree, (1) point for neutral and (2) points for disagree with the statement. The total score of attitude statements was calculated and equaled to 26 points and students' attitudes were classified into two categories: -

- Positive attitude → > 60% of total attitude score.
- Negative attitude → ≤60% of total attitude score.

Method

1- An official permission to conduct the study was obtained from deans of Faculty of Nursing, Faculty of Pharmacy, Faculty of Engineering, and Faculty of Arts to facilitate researcher work in collecting required data for the study.

2- Ethical consideration: -

- An approval of Ethical Committee, Faculty of Nursing, Tanta University was obtained to conduct this study.
- Confidentiality and privacy were put in to consideration regarding the data collected.

- The nature of the study caused no harm to the subjects under study.
- An informed consent was obtained from the selected students to participate in the study.
- Every student was informed about purpose, nature and benefits of the study at beginning of the interview.

3- The study tools were developed by the researcher based on review of related literature.

4- The study tools were tested for content validity by a jury of eight expertise in the field of Community Health Nursing (3 professors of Public Health at Faculty of Medicine, and 5 professors of Community Health at Faculty of Nursing in Tanta university) and was calculated to be equal to 95% for each of knowledge and attitude according to opinions of expertise.

5- A pilot study was carried out on 100 students of Tanta University to test clarity and feasibility of tools and to determine length of time needed to collect the data from each student. There were no required modifications for tools according to the pilot study. Those students were excluded from the actual survey.

6- Reliability of the tool was equal to 86.5 as calculated according to Cronbach's alpha test.

7- Tools were administered individually to all students to fill it in their Faculty according to the schedule of their lectures and sessions.

8- The average time spent for each student to fill the questionnaire was 20 to30 minutes.

9- Collection of the data took during period of 3 months, from October toDecember 2019.

10- **Statistical analysis**

The collected data were organized, tabulated and statistically analyzed using SPSS version 19. For quantitative data, the range, mean, and standard deviation were calculated and for categorical variables, numbers and percentages were calculated. The differences between subcategories were tested by chi square (X^2), when chi square was not appropriate Monte Carlo exact test was used. The correlation between variables was evaluated using Pearson's correlation coefficient (r) and the significance of results was adopted at $p < 0.05\%$.

Results

Table (1) Distribution of studied students by their personal socio-demographic characteristics. It shows that, the age of studied students ranged from 20 to 26 years with a mean of 21.91±0.96. Nearly two thirds (63.7%) of studied students were females, while males

represented slightly more than one third (36.3%) of the studied sample. Also, nearly two thirds (63.8%) of students had rural residence, while slightly more than one third (36.2%) of them urban residence.

In relation to field of study, Faculty of Arts represented nearly two thirds (63.1%) of studied students, followed by Faculty of Pharmacy represented (16.2%) of students, and Faculty of Engineering represented (12.3%) of students, while Faculty of Nursing represented the minority (8.4%) of students in the sample. As regard to marital status, more than two thirds (69.7%) of students were single, about one quarter (24.6%) were engaged, and the minority (5.2%, 0,6%) of students were married.

Table (2) Represents distribution of studied students by their responses to knowledge assessment of genetic disorders. It shows that, more than one third (36.7%) of students had correct answers on definition of genetic disorders while, about two thirds (63.3%) of them mentioned don't know answers. Regarding types and common examples of genetic disorders more than two thirds (67.2% and 66%) of them had incomplete correct answers respectively.

In relation to causes of genetic disorders, more than one third (37.7%) of students mentioned complete correct answers, near to one third (31.7%) mentioned incomplete correct answers and about one third (30.6%) don't know the answer. As regard to risk factors of genetic disorders, the minority (4.9%) of students reported complete correct answers, about two thirds (66.9%) reported incomplete correct answers and more than one quarter (28.2%) of them don't know the answer. In addition, only one fifth (20.2%) of students had correct answers on the meaning of a positive genetic testing results, and just about one third (34.8%) of them had correct answers on the time during which the environment can influence on gene expression. In relation to screening method of genetic disorders, a minority (4.6%) of students gave complete correct answers, while more than two thirds (67.2%) of them had incomplete correct answers. Regarding method used in treatment of genetic diseases, the minority (7.2%) of students mentioned complete correct answer and less than half (41.5%) of them mentioned incomplete correct answers while, more than half (51.3%) of students mentioned don't know. Concerning available newborn screening programs, more than half (52.9%) of students don't know about the mentioned programs.

More than one third (38.1%) of students gave complete correct answers about common preventive measures of genetic disorders, and also more than one third (38.6%) of them gave incomplete correct answers while, about one quarter (23.3%) of students reported don't know answers.

Table (3) Distribution of studied students by their responses to knowledge assessment of genetic counseling. It reveals that, in relation to genetic counseling, less than half (41.1%) of students gave correct answers on definition of genetic counseling while, more than half (58.9%) of them reported don't know. Regarding the cases that need genetic counseling, a minority (8.9%) of students mentioned complete correct answers, half (51.3%) of them gave incomplete correct answers and more than third (39.8%) reported don't know.

Regarding genetic counseling providers, more than half (60.3%) of students reported the correct answer, while more than third (39.7%) of them mentioned don't know answers. Concerning the role of genetic counselors, half (50.2%) of students mentioned incorrect or don't know answers, more than one third (39.7%) reported incomplete answers. As regards to importance of genetic counseling, half (50.4%) of students mentioned complete correct answer, more than one quarter (29.5%) had incomplete correct answers and one fifth (20.1%) of them reported don't know. As regard to purpose of genetic counseling, less than half (42.5%) of students reported complete correct answer, more than one third (34.9%) had incomplete correct answers and less than one quarter (22.6%) reported don't know.

Table (4) Distribution of studied students in relation to their levels of total knowledge scores of genetic disorders and genetic counseling. It shows that, the majority (77.6%) of studied students had poor total knowledge scores, while the minority (12.4%) of them attained fair total knowledge scores as well as a minority (10%) of students attained good total knowledge scores regarding genetic disorders and genetic counseling. More than three quarters (78.2%) of students had poor knowledge scores of genetic disorders, 60.3% of students had poor knowledge scores of genetic counseling, and the minority (8.5%, 11.1%) of them attained good knowledge scores regarding genetic disorders and genetic counseling respectively.

Table (5) Distribution of studied students in relation to their sources of information regarding genetic disorders and genetic counseling and their awareness about availability of genetic counseling clinics. It shows that, more than half (50.6%) of students reported that genetic counseling clinics are unavailable, and more than one third (36.7%) didn't know about these clinics. only the minority (12.7%) of students reported that genetic counseling clinics are available.

In relation to sources of information regarding genetic disorders, half (54.2%) of students reported internet, followed by more than one third (38.7%) reported school, and the minority (19.9%, 13.4%, 9.5%, 8.9%, 4.1%) of students reported media (Newspapers, magazines TV& radio), health care providers, friends, neighbors and relatives respectively. In relation to sources of information about genetic counseling, three quarters (75%) of students reported that they hadn't any source of information about genetic counseling.

Table (6) Distribution of studied students in relation to their attitude toward genetic disorders and genetic counseling. It shows that, the majority (74.5%, 83.2%) of students agreed to integrate genetic disorders and genetic counseling issues into university education, and they believed in genetic testing and genetic counseling for prevention of genetic diseases respectively. About two thirds (62.9%, 65.8%) of students accept to use genetic counseling service and assess their genetic risk when needed and agreed to inform relatives (brothers & sisters) in case of carrying an inherited disease respectively. More than half (59.2%, 56.8%) of students agreed that genetic counseling is online with

values of society and they refuse marriage if the partner was a carrier of an inherited disease respectively. In addition, about half (50.8%, 45.5%) of students agreed that genetic diseases cause chronic disability and can be prevented respectively.

It was observed from the table that, a sizable minority of students expressed their neutral opinions toward most of attitude statements. about one fifth (20%, 19.5%, 20.1%) of students were neutral toward attending genetic counseling session, disclosure of genetic information with their families and conducting predictive testing of chronic diseases respectively. One quarter (25.1%) of students were neutral toward completing marriage in presence of a genetic risk (I accept to marry a genetic disease carrier). Also, a number of students disagreed with many of attitude statements. About one fifth (19.6%) of students didn't prefer to know their genetic risk, less than one fifth (14.7%) of students disagreed to share genetic information with their relatives. Also, near to one quarter (23.4%) of students found conflict between genetic counseling and the values of their society and about one fifth (18.1%) of them accept completing marriage in presence of a genetic risk (I accept to marry a genetic disease carrier).

Table (7) Distribution of studied students in relation to their levels of total attitude scores toward genetic disorders and genetic counseling. It shows that, the majority (87.2%) of studied students had positive attitude toward genetic disorders and genetic counseling. The minority (12.8%) of students had negative attitude.

Table (8) Represents the relationship between personal socio-demographic characteristics of studied students and their total levels of knowledge and attitude scores regarding genetic disorders and genetic counseling. It shows that, there was a significant statistical relation between sex, field of the study and marital status of studied students and their total knowledge scores (p = 0.001). There was no significant statistical relation between residence of students and their total knowledge scores regarding genetic disorders and genetic counseling. (p=0.372).

In relation to the relation between socio-demographic characteristics of the students and their total attitude scores toward genetic disorders and genetic counseling. It shows that, there is a significant statistical relation between sex and field of the study of students and their total attitude scores towards genetic disorders and genetic counseling (p=0.001). while, there is no significant statistical relation between residence and marital status for studied students and their total attitude scores of students towards genetic disorders and genetic counseling, (p=0.593 and 0.413 respectively).

Figure (1) Correlation between total knowledge scores and total attitude scores regarding genetic disorders and genetic counseling. The figure revealed a positive correlation between total knowledge scores and total attitude scores (r = 0.295, p=0.001) of genetic disorders and genetic counseling.

Table (1): Distribution of the studied students by their personal socio-demographic characteristics

Socio-demographic characteristics students	The studied students (n=1005)	
	N	%
Age in years		
- 20 ≤ 22	753	74.9
- > 22	252	25.1
- Range	20-26	
- Mean+SD	21.91±0.96	
- **Sex:**		
- Males	365	36.3
- Females	640	63.7
Residence:		
- Urban	364	36.2
- Rural	641	63.8
Field of study:		
- Nursing	84	8.4
- Pharmacy	163	16.2
- Engineering	124	12.3
- Arts	634	63.1
Marital status:		
- Single	699	69.6
- Engaged	248	24.6
- Married	52	5.2
- Divorced	6	0.6

Table (2): Distribution of studied students by their responses to knowledge assessment of genetic disorders

Knowledge of genetic disorders	The studied students (n=1005)	
	N	%
Definition of genetic disorders:		
- Don't know	636	63.3
- Correct	369	36.7
Types of genetic disorders:		
- Don't know	284	28.3
- Correct and incomplete	675	67.2
- Correct and complete	45	4.5
Examples of genetic disorders:		
- Don't know	204	20.3
- Correct and incomplete	663	66.0
- Correct and complete	138	13.7
Causes of genetic disorders:		
- Don't know	308	30.6
- Correct and incomplete	318	31.7
- Correct and complete	379	37.7
Risk factors for genetic disorders:		
- Don't know	283	28.2
- Correct and incomplete	672	66.9
- Correct and complete	49	4.9
A positive genetic test of a mutation means:		
- Don't know	802	79.8
- Correct	203	20.2
Time when the environment influence expression of genes		
- Don't know	655	65.2
- Correct	350	34.8
Screening methods of genetic disorders:		
- Don't know	283	28.2
- Correct and incomplete	675	67.2
- Correct and complete	46	4.6
Methods used in treatment of genetic counseling:		
- Don't know	516	51.3
- Correct and incomplete	417	41.5
- Correct and complete	72	7.2
Available newborn screening programs		
- Don't know	532	52.9
- Correct and incomplete	195	19.4
- Correct and complete	278	27.7
Prevention of genetic disorders		
- Don't know	234	23.3
- Correct and incomplete	388	38.6
- Correct and complete	383	38.1

Table (3): Distribution of studied students by their responses to knowledge assessment of genetic counseling

Knowledge of genetic counseling	The studied students (n=1005)	
	N	%
Definition of genetic counseling		
- Don't know	592	58.9
- Correct	413	41.1
To whom the services of genetic counseling should be provided		
- Don't know	400	39.8
- Correct and incomplete	516	51.3
- Correct and complete	89	8.9
Provider of genetic counseling		
- Don't know	399	39.7
- Correct	606	60.3
Role of genetic counselors:		
- Don't know	505	50.2
- Correct and incomplete	399	39.7
- Correct and complete	101	10.0
Importance of genetic counseling:		
- Don't know	202	20.1
- Correct and incomplete	296	29.5
- Correct and complete	507	50.4
Purposes of genetic counseling:		
- Don't know	227	22.6
- Correct and incomplete	351	34.9
- Correct and complete	427	42.5

Table (4): Distribution of studied students according to their levels of total knowledge scores of genetic disorders and genetic counseling

Total scores of knowledge	Studied students' levels of total knowledge scores					
	Poor		Fair		Good	
	n	%	n	%	N	%
- Total scores of knowledge about genetic disorders	786	78.2	134	13.3	85	8.5
- Total scores of knowledge about genetic counseling	606	60.3	287	28.6	112	11.1
- Total scores of knowledge about genetic disorders genetic counseling	780	77.6	125	12.4	100	10.0

Table (5): Distribution of studied students according to their sources of information about genetic disorders and genetic counseling and their awareness about availability of genetic counseling clinics

Sources of information regarding genetic disorders and genetic counseling	The studied students (n= 1005)	
	N	%
Availability of genetic counseling clinics		
- Yes	127	12.7
- No	509	50.6
- Don't know	369	36.7
***Sources of information of genetic disorders:**		
- Internet	545	54.2
- School	389	38.7
- Friends	95	9.5
- Neighbors	89	8.9
- Health care providers	135	13.4
- Newspapers, magazines, TV& radio	200	19.9
- Relatives	41	4.1
- None	195	19.4
***Sources of information of genetic counseling**		
- Internet	179	17.8
- School	94	9.4
- Friends	16	1.6
- Neighbors	16	1.6
- Health care providers	47	4.7
- Newspapers, magazines, TV& radio	66	6.6
- Relatives	6	0.6
- None	754	75.0

*More than one answer.

Table (6): Distribution of studied students according to their attitude towards genetic disorders and genetic counseling

Attitude statements of genetic disorders and genetic counseling	The studied students (n= 1005)					
	Disagree		Neutral		Agree	
	N	%	n	%	n	%
Genetic disease causes chronic disability.	223	22.2	271	27.0	511	50.8
Genetic diseases are not preventable.	457	45.5	297	29.6	251	25.0
Genetic counseling and genetic testing are important to prevent genetic diseases.	64	6.4	105	10.4	836	83.2
I accept to marry a genetic disease carrier.	571	56.8	252	25.1	182	18.1
Provision of genetic testing service in health insurance hospitals will reduce the spread of genetic disorders in the community.	125	12.4	190	18.9	690	68.7
At some point in my life, I might consider having a genetic counselling to find out my risk of developing genetic diseases.	137	13.6	236	23.5	632	62.9
It is better that a person does not know whether he has the gene for a chronic disease or not.	606	60.3	202	20.1	197	19.6
If I had a family history of a serious genetic disease, I would definitely want to use prenatal genetic diagnosis.	68	6.8	143	14.2	794	79.0
I would inform my brothers and sisters of a DNA test result indicating, I carry an inherited disease.	148	14.7	196	19.5	661	65.8
I think that premarital genetic counseling and genetic testing are necessary in case of consanguinity	111	11.0	184	18.3	710	70.6
I accept to attend genetic counseling sessions and following advice provided for me.	109	10.8	201	20.0	695	69.2
Genetic counseling opposes the values of society.	595	59.2	175	17.4	235	23.4
It is better to integrate issues of genetic disorders and genetic counseling into university education.	103	10.2	153	15.2	749	74.5

Table (7): Distribution of studied students according to their levels of total attitude scores toward genetic disorders and genetic counseling

Levels of total attitude scores of genetic disorders and genetic counseling	The studied students (n= 1005)	
	N	%
- Negative attitude	129	12.8
- Positive attitude	876	87.2

Table (8): Relationship between personal socio-demographic characteristics of studied students and their total levels of knowledge and attitude scores regarding genetic disorders and genetic counseling

Socio-demographic characteristics of students	Levels of total knowledge scores						X^2 p	Level of Total Attitude Score				X^2 P
	Poor		Fair		Good			Negative		Positive		
	N	%	N	%	N	%		N	%	N	%	
- Sex							24.001 0.001*					17.200 0.001*
- Males	311	85.2	38	10.4	16	4.4		68	18.6	297	81.4	
- Females	469	73.3	87	13.6	84	13.1		61	9.5	579	90.5	
Residence:							1.976 0.372					0.285 0.593
- Urban	291	79.9	39	10.7	34	9.3		44	12.1	320	87.9	
- Rural	489	76.3	86	13.4	66	10.3		85	13.3	556	86.7	
Field of study:							50.015 0.001*					26.942 0.001*
- Nursing	20	23.8	25	29.8	39	46.4		9	10.7	75	89.3	
- Pharmacy	48	29.4	59	36.2	56	34.4		6	3.7	157	96.3	
- Engineering	117	94.4	7	5.6	0	0.0		30	24.2	94	75.8	
- Arts	595	93.8	34	5.4	5	0.8		84	13.2	550	86.8	
Marital status:							MCET 0.037*					2.865
- Single	550	78.7	80	11.4	69	9.9		97	13.9	602	86.1	0.413
- Engaged	177	71.4	40	16.1	31	12.5		26	10.5	222	89.5	
- Married	47	90.4	5	9.6	0	0.0		6	11.5	46	88.5	
- Divorced	6	100.0	0	0.0	0	0.0		0	0.0	6	100.0	

*Significant at ($p \leq 0.05$). MCET=Monte Carlo exact test

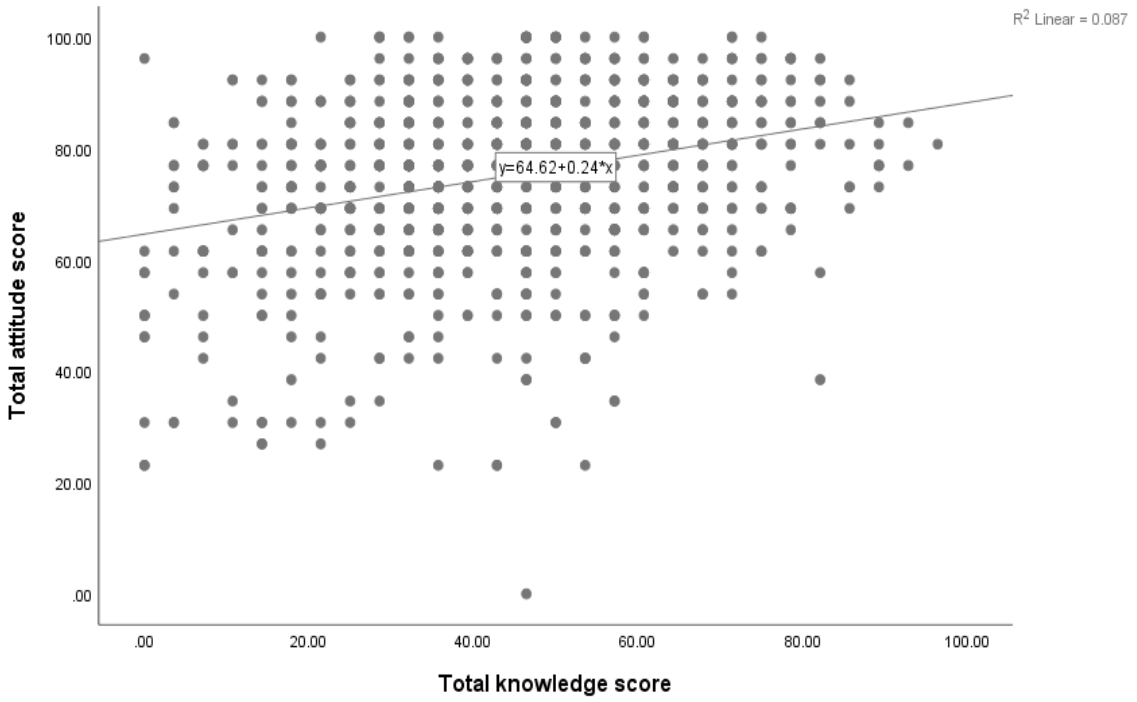

Figure (1): Correlation between total knowledge scores and total attitude scores

Discussion

Genetic and genomic sciences offering a new way to be followed in the management of human's health and in a near future it will be the magical option that resolves health problems. University students in early adulthood had the suitable time to make effective decisions in relation to employment, marriage, reproduction, offspring and even the followed lifestyle which all are affected by their health situations [19,26].

The aim of this study is to assess knowledge and attitude of Tanta university students regarding genetic disorders and genetic counseling.

The current study revealed that the majority of studied students' knowledge related to genetic disorders was generally poor. The deficiencies in knowledge were related to most items of assessment concerning definition, types, causes, risk factors, treatment, and prevention of genetic diseases. Results of the current study have come in agreement with **Ahmed et al. (2012)**[27], who found that, all the studied sample had poor knowledge regarding the reproductive health concepts, fertilization, risk of consanguineous marriage, causes of genetic disorders, transmission of genetic traits from parents to children, and also the primary prevention of genetic disorders.

A study by **Abd El Fattah et al. (2015)**[3] revealed that the majority of the students had lack of knowledge regarding premarital genetic screening, most of subjects were unaware of being at risk, didn't believe on early checkup, and didn't performed screening and early detection measures before a program on premarital genetic counseling were applied for them. However, a study conducted in Carolina by **Haga et al. (2013)** [28], revealed a high level of genetic knowledge among the studied participants. The study findings were attributed to an increase in reporting of genetic and genomic research and the permeation of genetics into public culture of this region.

The knowledge deficiency is a serious finding of the present study. Because a high level of genetic knowledge is needed to optimize the understanding of genomic risks, enable informed decision making and enhance individuals' ability to view genetic services as applicable to their own lives. Genomics are a rapidly expanding field. Overtime, new genetic and genomic applications are developed and integrated into clinical practices. This makes it clear that there is a need to support recent formal academic education with the required genetic and genomic information.

In assessing students' knowledge of genetic counseling, a large segment of the sample

(more than three quarters) in the present study didn't heard of genetic counseling and demonstrated poor level of knowledge. The observed knowledge deficiency revealed a huge gap between the available genetic counseling services and the provided care from this service (outcome of the service). When individuals in their early adulthood don't know about genetic risks and don't heard of genetic counseling, how they will connect themselves to these services. Clients will not request for the service even if a need is there there is no medical complain make them request care.

According to the study done by **Riesgraf et al. (2015)** [29], about 50 % of genetic counseling clients are self-referred which give clients and patients a substantial and important role in accessing genetic counseling services. In addition, health professional should be able to timely and appropriately make referral for genetic counseling clinics, but the current study revealed knowledge deficiency among medical students too and these involved future nurses. This lack of knowledge makes it difficult to expect adequate genetic nursing care from future nurses which involves genetic risk assessment (risk identification), counseling, and appropriate referral**.**

The deficiency in knowledge particularly about the scope and purpose of genetic counseling deter nurses from identifying health situations that requires referral for genetic counseling. For these reasons, it is apparent that at-risk individuals don't reach the available genetic services and missing their chance of escaping themselves or their offspring from the disease. The results were supported by **Goldberg (2015)** [17], who found that the perceived scope of genetic counseling is narrower than the actual field. They recommend increasing awareness about genetic counseling services among the public and allied health professional of various genetic counseling services.

It was obvious from the current findings in the present study that more than one third of students had misconceptions about the purpose of genetic counseling. This is because eugenic movements have no roots in Arabic or other Islamic countries. However, misunderstanding of Islamic rules or personal believes could interfere with seeking of genetic care and limits the expected benefits from genetic services. A study on Omani by **Al-Farsi et al. (2014)** [30], had the singles showed their willingness to perform the pre-marital carrier testing but they withdrew due to customs and traditions. In addition, most of them showed resistance to consanguineous unions, but other studies on Omani have shown that about half of Omani marriages are among relatives.

As found by **Al- Haddad et al. (2010)** [31], a few of students have negative attitudes towards premarital counseling and justify their refusal by the misunderstanding of Islamic rules. Religious and cultural issues should be addressed within the prepared educational initiatives. The results of the present study are in line with **Maio (2013)** [32], who revealed some area of misconceptions that were related to the perceptions that genetic counseling involves prevention of inheritable diseases, and helping couples to have children with desirable characteristics, but these findings were attributed to eugenic concepts.

Although majority of students had poor knowledge about genetic disorders and genetic counseling, the current results in the present study revealed that, most of students had an overall favorable attitude toward genetic disorders and genetic counseling. A positive correlation has been found between students' total knowledge and total attitude scores. These findings highlighted the students' interest in genetic testing and learning about genetics and genomics which promotes the success of any educational or health initiatives.

The study findings go with a study on Latinos by **Hamilton et al. (2016)** [25], who revealed the participants' high level of interest in genetic tests for cancer and other disease risks. In addition, a study by **Riesgraf et al. (2015)** [29] revealed an overall favorable attitude toward genetic counseling. Many of respondents expressed their trust in the information provided by a genetic counselor and saw genetic counseling as in line with their values. However, a study by **Abd El Fattah et al. (2015)** [3], didn't support the current results, they revealed the negative attitudes that most students had regarding premarital genetic counseling. The negative attitude of students was attributed to fear of unknown and absence of screening culture in Egypt.

The minority of students in this study showed negative attitude toward attitude statements. Issues surrounded unfavorable attitude toward genetic testing and genetic counseling often related to personal, social, and cultural barriers such as misuse of genetic information (genetic discrimination), fear of stigmatization, conflict with personal believes, expected adverse emotional responses to test results, and costs of genetic testing. **Riesgraf et al. (2015)** [29], found that a sizable minority of respondents would not trust genetic counselors or had conflicts with their own values in relation to using of genetic counseling services.

The current findings highlighted that about one fifth of studied students agreed to proceed with marriage regardless of incompatible test results and this was in addition to one quarter of students who had

neutral opinions. The results agree with a study on attitude towards premarital carrier screening by **Al-Farsi et al. (2014)** [30], they found that 15.3% of participants choose to proceed with marriage even in case of positive testing results. It was noted that, timing of the test had influence on these opinions.

The premarital carrier screening (PMCS) is usually done in the period between the engagement and marriage. An unexpected result may be ignored by couples or their families for various cultural, social, and emotional reasons. Thus, the test should be done at an early stage (school or university stage) so that both couples who decide to marry know the results prior to engagement. May be many of Tanta university students change their opinions if they receive their results of genetic carrier testing.

Furthermore, although the majority of students seemed to agree about prenatal genetic diagnosis, the fact that most of studied students were singles, not engaged, and not married makes them not confronted in reality with issues related to conception and pregnancy. May be their favorable attitude is changed later toward prenatal genetic diagnosis when they are confronted with hard choices regarding invasive diagnostic tests and termination of affected pregnancies.

The socio-demographic characteristics of studied students revealed a number of indicators that influenced their knowledge and attitude toward genetic disorders and genetic counseling. An increase in the level of knowledge and better attitude were observed in association with certain personal and characteristics of students. Higher genetic knowledge and more positive attitude were observed among students that were females and studying in the medical fields. Also, engaged students demonstrated better knowledge than singles students.

Nature of the study in medical fields entails on scientific health information that are directly linked to genetic knowledge, however medical students in the present study demonstrated insufficient level of genetic knowledge. As regards to marital status of students, engaged and married students are more likely to discuss issues related to conception, pregnancy, and healthy children with their families or health professionals.

These findings are in line with **Al-Haddad et al. (2010)** [31], who mentioned that medical students had higher knowledge and attitude scores than non-medical students regarding premarital counseling. Also, students of the present study who had rural residence demonstrated better knowledge about

genetic counseling. Perhaps this is because nearly two thirds of students in the studied sample had rural residence and also, the majority of students hadn't any source of information about genetic counseling**.**

It was observed in the results of this study that female students had better knowledge and attitude than male students. In despite that about two thirds of the studied sample were of female students, this finding reflects the success of efforts made in Egypt for the empowerment of the Egyptian women.

With regard to sources of students' information in the present study, Internet was the primary source of students' information about genetic disorders (more than half of students) and genetic counseling (less than one fifth of them). The school was the second source of students' information after the net, more than third of students mentioned school as their information source about genetic disorders and it was mentioned by the minority as a source of information about genetic counseling**.** These results agree with **Goldberg (2015)** [(17)], who found media the most common source of information about genetic counseling; news was the top source of media responses followed by the internet and television.

In the current study, information sources including friends, neighbors, and relatives were the least reported. These findings are supported by **Hamilton et al. (2016)** [(25)], who found that the social networks did not appear to be a common source of genetic testing information, given that this information was considered to be private or of a sensitive nature and were infrequently reported. Furthermore, it wasn't seeming from the present findings that health professional offered adequate genetic information support for the studied students, only a minority of students mentioned them as a source for their information about genetic disorders and genetic counseling**.**

Al-Farsi et al. (2014) [(30)], mentioned that health education efforts concerning premarital carrier screening at the primary health centers are carried out by medical and nursing staff while providing service for patients. There are no written policies or protocols that are standardized in practice which would identify the role of medical team members and expected outcomes of the process. These findings pointed at the empty chair of the genetic counseling profession in the health care facilities of Egypt and highlighted the vital role of genetic counselors that is to provide premarital, preconception, and prenatal genetic counseling and genetic counseling for individuals when indicated or even when they wish.

Conclusion

The study concluded that, the majority of Tanta University students had poor knowledge regarding genetic disorders and genetic counseling, the majority of them had not heard of genetic counseling. There was a marked lack in the different sources of information whether it was formal sources as schools and health professionals or informal sources as relatives and friends, which constituted the major cause behind the knowledge deficiency. Regardless of the deficient knowledge, most of studied students showed positive attitudes toward genetic disorders and genetic counseling.

Recommendations

The study recommended the following recommendations.

-Highlighting the importance of family history (a minimum of three generations & including 1st, 2nd, and 3rd degree relatives), genetic testing and genetic counseling as a mean that is used for prevention of genetic diseases in individuals and their offspring among university students through educational campaign, booklets and brochures.

-Besides, genetic carrier tests of prevalent genetic diseases among Egyptians should be made available for university students with accepted costs and adequate coverage.

- It was more urgent to study about genetic disorders and genetic counseling for all faculties in Tanta University.

-Time have come for the establishment of genetics and genomics nursing department at the faculties of nursing.

- Encourage more future researches in this topics to save the community health lifestyle.

References

1. Kelly EB. Encyclopedia of human genetics and disease. California: ABC-CLIO; 2013.15, 315-319.
2. Robin SD. Bridges: Genetic disorders, Guangzhou. China: Benchmark Education Company; 2011.2-8.
3. Abd El Fattah H, Soliman SM, Amin FM. Premarital Genetic Counselling among female adolescents students. Journal of American Science. 2015; 11(6):218-25.
4. Encyclopedia Britannica. Human genetic disease. 2019. Available at: https://www.britannica.com/science/human-genetic-disease.
5. Tadmouri GO. Genetic disorders in Arab populations. 2019. Available at: https://www.scribd.com/document/116140544/Genetic-Disorders-In-in-Arab-populations-pdf.
6. Tadmouri GO, Sastry KS, Chouchane L. Arab gene geography: At population diversities to personalized

medical genomics. J. Glob Cardiol Sci. Pract. 2014; 31(4): 394-408.

7. El-Gilany A, Yahia S, Shokeir M, El-mier H. Morbidity profile of children referred to Genetic Unit of Mansoura University Children's Hospital, Egypt. American Journal of Preventive Medicine and Public Health. 2017; 1(1):1-9.
8. Shawky RM, Elsayed NS, Ibrahim DS, Seif Eldin NS. Profile of genetic disorders prevalent in northeast region of Cairo, Egypt. The Egyptian Journal of Medical Human Genetics. 2012; 13(1): 623- 45.
9. KUNA Kuwait News Agency. Genetic diseases cost Arabs USD 13 bln a year. 2018. Available at: https://www.kuna.net.kw/ArticleDetails.aspx?id=1869979&language=en#.
10. Bajaj K, Gross S. Carrier screening: Past, present, and future. J. Clin. Med. 2014; 3(3):1033–42.
11. Tercyak KP. Handbook of genomics and the family psychosocial context for children and adolescents. USA: Springer; 2010. 222-23.
12. CDC. Newborn Screening Portal. 2016. Available at: https://www.cdc.gov/newbornscreening/.
13. Tadmouri GO. Genetic Disorders in Arabs - Center for Arab Genomic Studies. 2010. Available at: http://www.cags.org.ae/cb404c1.pdf.
14. Balobaid A, Qari A, Al-Zaidan H. Genetic counselors' scope of practice and challenges in genetic counseling services in Saudi Arabia. Int. J. Pediatr. Adolesc. Med. 2016; 3(1):1-6.
15. Kuliev A. Practical preimplantation genetic diagnosis. 2nd ed. USA: Springer; 2012. 1-3, 212.
16. Syurina EV, Brankovic I, Probst-Hensch N, Brand A. Genome-Based Health Literacy: A new challenge for Public Health Genomics. Public Health Genomics. 2011; 14(4-5): 201-208.
17. Goldberg D. Measuring awareness and identifying misconceptions about genetic counseling services and utilizing television to educate. Master Sc. Thesis. Faculty of Medicine, University of California, Irvine, 2015. https://escholarship.org/content/qt6dr4r4xx/qt6dr4r4xx_noSplash_21fb49c5a3aad9c15fb42e49b9fe19ec.pdf.
18. Robinson TR. Genetics for dummies. 2nd ed. USA: Wiley; 2010.173-203.
19. Encyclopedia Britannica. Development in Adolescence. 2019. Available at: https://www.britannica.com/topic/human-behavior/Development-in-adolescence.
20. Lancaster J, Stanhope M. Public Health Nursing: Population-Centered Health Care in the Community. 9th ed.

USA: Elsevier Health Sciences; 2015. 250-251.

21. Greco KE, Tinley S, Seibert D. Essential Genetic and Genomic Competencies. USA: American Nurses Association and International Society of Nurses in Genetics. 2011. http://www.nursingworld.org/MainMenuCategories/EthicsStandards/GeneticsCDC.
22. Temtamy SA, Hussen DF. Genetics and Genomic Medicine in Egypt: Steady pace. Mol. Genet Genomic Med. 2017; 5(1): 8–14.
23. Yang M, Kim J. Principles of genetic counseling in the Era of Next-Generation Sequencing. Ann Lab Med. 2018; 38: 291-295.
24. Hamilton GJ, Shuk E, Arniella G, Hay LJ. Genetic testing awareness and attitudes among Latinos: Exploring shared perceptions and gender-based differences. Public Health Genomics. 2016; 19(1):34-46.
25. Kaakinen JR, Coehlo DP, Steele R, Robinson M. Family health care nursing: Theory, practice, and research. 6th ed. USA: F.A. Davis; 2018. 213-29.
26. Ahmed HI, Elsayied AE, Girgis N. Primary prevention of genetic disorders among secondary school students in a Rural Area. Journal of American Science. 2012; 8(6): 630-39.
27. Haga SB, Barry WT, Ginsburg GS. Public knowledge of and attitudes toward genetics and genetic testing. genetic testing and molecular biomarkers. 2013;17 (4):327-333.
28. Riesgraf RJ, Le Roy BS, MacFarlane IM, Veach PM. Perceptions and attitudes about genetic counseling among residents of a Midwestern Rural Area. J Genet Counsel. 2015; 24(1):565–579.
29. Al-Farsi OA, Al-Farsi YM, Gupta I, A study on knowledge, attitude, and practice towards premarital carrier screening among adults attending primary healthcare centers in a region in Oman. BMC Public Health. 2014; 14(380)1-7.
30. Al- Haddad AM. Knowledge and attitude about pre-marital counseling among Hadhramout University Students. Zagazig Nursing Journal. 2010; 6(11): 46-65.
31. Maio M, Carrion P, Yaremco E, Austin JC. Awareness of genetic counseling and perceptions of its purpose: A survey of the Canadian public. J Genet Couns. 2013; 22(6): 762-70.

Barriers Facing Clinical Nurse Educators' and Nursing Students' Opinion Related to Teaching Critical Thinking

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Abstract

Background: Critical thinking and learning are interrelated as nursing students must think to gain knowledge to be able to add to the depth and breadth of their knowledge, to become more aware of the cognitive processes and adapt personally and professionally to change' demand in nursing fields. **Aim:** This study aimed to assess barriers facing clinical nurse educators and nursing students' opinion related to teaching critical thinking. **Subjects and Method: Research design:** Descriptive cross sectional research design was used in the study. **Setting:** The study was conducted at Faculty of Nursing, Tanta University. **The study subject**: Consisted of 85 clinical nurse educators working in all departments and 464 nursing students from all academic years. **Tools**: Two tools were used to collect the data. **Tool I**: Barriers Facing Clinical Nurse Educators Related to Teaching Critical Thinking Questionnaire. **Tool II**: Nursing Students' Opinion about Barriers of Teaching Critical Thinking Questionnaire. **Results:** Majority of clinical nurse educators had low opinion level regarding total teaching critical thinking barriers. Also, nearly half of nursing students had low opinion level regarding total teaching critical thinking barriers. But, above two fifths of nursing students had moderate opinion level regarding total teaching critical thinking barriers. **Conclusion:** Majority of clinical nurse educators had low level clinical nurse educator, educational policy and educational curriculum related teaching critical thinking barriers. But more than two fifths of nursing students had moderate obstacles level regarding educational curriculum and faculty environment as teaching critical thinking barrier **Recommendations:** Providing a comfortable learning environment that facilitates for clinical nurse educators to implement critical thinking strategies such as large classes, proper furniture and provide needed equipment and supply classroom with enough internet and access.

Keywords: Barriers of teaching critical thinking, Critical thinking, Nursing education, Nursing Student.

Introduction

Critical thinking (CT) is a fundamental component in nursing as it is essential for adaptation to the everyday personal, social, and professional demands of the 21st Century and thereafter. Rapidly changing world and the new global realities make a vital need for nursing students to develop skills to enable them to respond and adapt to these changes [(1)].

The United State National Council for Excellence in Critical Thinking defines critical thinking as an intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action [(2)].

Although, introducing the concept of critical thinking into nursing education is a turning point in the process of professionalization, there are many barriers to implement critical thinking teaching strategies in classroom. Those barriers include student-related barriers, clinical educator-related barriers, educational curriculum-related barriers, educational policy-related barriers and university environment- related barriers[(38)].

Student -related barriers include lack of respect for some students' opinions, ambiguity of the importance of critical thinking among students and students' weak ability to distinguish between information and inappropriate conclusions[(3)].

Clinical educator-related barriers include avoid asking questions that give rise to real thinking to prevent student argument regarding sustain problems. Also, heavy burden placed on clinical educators prevents them from preparing for critical thinking, lack of their knowledge of what critical thinking is and stop reading and seeing what is new in their work field [(4,5)]. Educational curriculum-related barriers encompass teaching strategies that don’t build on the basis of the integration of thinking skills in education. Curriculum design leads to memorization of knowledge not appropriate to develop critical thinking skills [(6)].

Educational policy-related barriers occur when faculty has traditional organization of the curriculum and quota and lack of a clear educational policy in the field of introducing thinking skills in education. Moreover, standards based assessment does not lend itself to the application of student' critical thinking skills [(5-8)]. Faculty environment-related barriers include non-attractive environment for learners such as inappropriate lighting, ventilation and quiet. Furthermore, these barriers include absence of means and technologies of modern education and internet, lack of suitable

places and lack of appropriate instructional material [6].

Critical thinking become a vital element in nursing education and nursing practice where nurses need to pass analysis, interpretation, inference, explanation, evaluation and self-regulation skills. These skills are required to use their holistic nursing knowledge base to think through each situation to provide individualized, effective care, not simply follow routine procedures[9]. So, it is hoped that this study will assess the barriers of teaching critical thinking from nursing students′ and clinical nurse educators′ opinion to overcome these barriers in the future.

Aim of the study

Assess barriers facing clinical nurse educators' and nursing students' opinion related to teaching critical thinking.

Research Question:

What are the barriers facing clinical educators and nursing students' opinion related to teaching critical thinking?

Subjects and Method

Study design

A descriptive cross sectional research design was used in present study to assess barriers facing clinical nurse educators and nursing students' opinion related to teaching critical thinking. It is a scientific method which involves assessment of barriers facing the subjects without influencing it at any way [10].

Setting

The present study was conducted at Faculty of Nursing, Tanta University, which constructed at 1982/ 1983 as the High Institute of Nursing, then converted officially to Faculty of Nursing at 29/4/2000 and added to faculties of nursing in Egypt.

The Faculty consisted of six academic nursing departments, namely medical-surgical nursing, obstetric & gynecological nursing, pediatric nursing, community health nursing, nursing services administration and psychiatric & mental health nursing. The capacity of the faculty was 1301 nursing students in 2019; the numbers were for first year 232, second year 292, third year 360, and fourth year 417[11]. The total number of clinical educators during time of data collection was (94) [12].

Subjects

All clinical nurse educators working in all departments at Faculty of Nursing -Tanta University (No.=85) who are responsible for students training in clinical areas as(52) nursing demonstrators and (42) assistant lectures.

Representative sample of nursing students (35%) at 95% confidence level and 90% power of the study from each academic

year included in the study from first year (n=81), second year (n=102), third year (n=126), and fourth year (n=155). Total sample was 464.

Tools

To achieve the aim of present study, the data was collected using the following tools:

Tool I: Barriers Facing Clinical Nurse Educators Related to Teaching Critical Thinking Questionnaire:

This tool was modified by the researcher to collect the data about clinical nurse educators' barriers of teaching critical thinking to nursing students depend on **Aliakbari and Sadeghda (2010)** [13], **Dickson Grosser (2012)** [14].

It consisted of two parts as follow:

Part one: Clinical nurse educator characteristic data included age, sex, years of experience, qualification, department, number of students per clinical session.

Part two: Barriers facing clinical nurse educators related to teaching critical thinking questionnaire. It consisted of 62 items classified into five dimensions;

1-Student - related barriers included (18 items).

2- Clinical educator- related barriers included (20 items).

3- Educational policy- related barriers included (10 items).

4- Educational curriculum- related barriers included (11 items).

5- Faculty environment- related barriers included (3 items).

Scoring system

Clinical nurse educators' responses for this part was measured on a three points Likert Scale ranging from (3) agree to (1) disagree. The total scores was calculated by summing of all categories where:

- High barriers level of teaching critical thinking≥75%
- Moderate barriers level of teaching critical thinking 60-75%
- Low barriers level of teaching critical thinking ≤60%

Tool II: Nursing Students' Opinion about Barriers of Teaching Critical Thinking Questionnaire:

This tool was developed by the researcher to collect the data about nursing students opinion about barriers of teaching critical thinking to nursing students guided by **Aliakbari and Sadeghda (2010)** [13]**, Dickson Grosser (2012)** [14]. It consisted of two parts as follow:

Part one: Nursing students' characteristic data included age, sex, academic year, previous year grade, nursing specialty currently enrolled in, residence, attending program or activity about critical thinking.

Part two: Nursing students' opinion about barriers of teaching critical thinking in classroom questionnaire. It consisted of 45 items classified into four dimensions:

1- Student – related critical thinking barriers included (18 items).
2- Clinical educator – related critical thinking barriers included (12 items).
3- Educational curriculum- related critical thinking barriers included (7 items).
4- Faculty environment- related critical thinking barriers included (3 items).

Scoring system

Nursing students' responses for this part was measured on a three points Likert Scale ranging from (3) agree to (1) disagree. The total scores was calculated by summing of all categories where:

- High level of perceived critical thinking ≥75%.
- Moderate level of perceived critical thinking 60-75%.
- Low level of perceived critical thinking ≤60%.

Method

1. Official permission was obtained from Dean of Faculty of Nursing, Tanta University to conduct the study.
2. **Ethical consideration**: subjects' consent for participation was obtained after explanation of the nature and the purpose of the study. Confidentiality of information's obtained from them and the right to withdrawal was reserved.
3. The study tools were developed and designed by researcher based on review of the related literature.
4. The tools were reviewed with the supervisors and then tools were presented to a jury of 5 experts to check content validity of its items. The experts were five;

   -Four assistant professors of Nursing Administration from Faculty of Nursing, Tanta University

   - One assistant professor of Nursing Administration from Faculty of Nursing, Elmonofia University.
5. The experts' responses were represented in four points rating scale ranged from (4-1); 4= strongly relevant, 3= relevant, 2= little relevant, and 1= not relevant. Necessary modifications were done including; clarification, omission of certain items and adding others and simplifying work related words.

   -The face validity value of **tool (I)** Barriers facing clinical nurse educators' related to teaching critical thinking questionnaire was **97.8%**. **Tool (2)** Nursing students' opinion about teaching critical thinking in classroom questionnaire was **96%.**
6. A pilot study was carried out on a

sample (10%) of 9 clinical nurse educators and 46 nursing students, and they excluded from the main study sample during the actual collection of data. A pilot study was carried out after the experts' opinion and before starting the actual data collection. The pilot study was done to test clarity, sequence of items, applicability, relevance of the questions, and to determine the needed time to complete the questionnaire. According to feedback from pilot study, the tool was modified by the researcher. The estimated time needed to complete the questionnaire items from clinical nurse educators was 15-20 minutes, while from nursing students10-15 minutes.

7. Reliability of tools was tested using Cronbach Alpha Coefficient test.
   Reliability of **tool (I)** Barriers facing clinical nurse educators' related to teaching critical thinking questionnaire 0.888, and reliability of **tool (II)** Nursing students' opinion about teaching critical thinking in classroom questionnaire was =0.865**.**
8. Barriers facing nursing clinical educators' related to teaching critical thinking questionnaire and Nursing students' opinion about teaching critical thinking in classroom questionnaire were used to collect data from identified subjects.
9. **Data collection phase**: the data were collected from clinical nurse educators and nursing students by the researcher. The researcher met the respondents' in groups consisted of ten per session during their work to distribute the questionnaires. The subjects recorded the answer in the presence of the researcher to ascertain that all questions were answered**.** The appropriate time for data collection was according the type of work and work load for each department; sometimes, it was in the morning before clinical day and other time after clinical day. The data was collected over period of three months started from February until April 2019.

Statistical analysis

The collected data were organized, tabulated and statistically analyzed using SPSS version 19 (Statistical Package for Social Studies) created by IBM, Illinois, Chicago, USA. For categorical variable the number and percentage were calculated and differences between subcategories were tested by chi square (X^2). When chi square was not appropriate, Monte Carlo exact test. The correlation between two variables was

calculated using Pearson's correlation coefficient. The level of significant was adopted at $p<0.05$.

Results

Table (1): shows personal characteristics of clinical nurse educators. Highest percent (45.9%) of clinical nurse educators fall in age group >25-30 years with mean age 28.93 ± 3.17. Nearly all (98.8%) of them were female.

With regard position, around half (50.6 %) of clinical nurse educators were demonstrators and more than half (54.1%) of them had between 5 to less than 10 years of experience, with mean score 5.14 ± 2.78 years of experience. Around quarter (23.5%) of clinical nurse educators were from medical and surgical nursing department. The clinical nurse educators in clinical sessions work with groups of nursing students ranged between 11.0-75.0 students, with mean scores 24.49 ± 11.34 and more than one quarter (29.4%) of them worked with students in groups more than or equal 30 students.

Table (2): Shows personal characteristics of nursing students. Highest percent (43.5%) of them fall in age group ≥22 years. Nursing students' age ranged between 19-23years with mean scores 21.02 ± 1.25. More than half (54.5%) of nursing students were female and one third (33.4%) of them were from fourth academic year.

More than one third (39.4%) of nursing students enrolled in medical and surgical nursing specialty, and the highest percent) 38.8 %) of them had very good previous year grade. More than half (58.2%) of nursing students were from rural area. Majority (90.3%) of them didn't attend any program about critical thinking before.

Figure (1): Illustrates clinical nurse educators' and nursing students' opinion about total levels of teaching critical thinking barriers. This figure shows that majority (84.7%) of clinical nurse educators and nearly half (46.3%) of nursing students had low opinion level regarding total teaching critical thinking barriers. But, above two- fifths (43.1%) of nursing students had moderate opinion level regarding total teaching critical thinking barriers.

Figure (2): Represents clinical nurse educators' and nursing students' opinion levels about student as teaching critical thinking barrier subscale. This figure shows that high percent (74.1%) of nursing students had low opinion level regarding student as teaching critical thinking barrier subscale. Although, more than half (54.1%) of clinical nurse educators had moderate opinion level regarding student as teaching critical thinking barrier subscale.

Figure (3): Represents clinical nurse educators' and nursing students' opinion levels about clinical educator as teaching critical thinking barrier subscale. This figure shows that majority (84.7%) of clinical educators had low opinion level regarding clinical educators as teaching critical thinking barrier subscale. Also, more than half (56.5%) of nursing students had low opinion level and one-quarter (25.2%) of them had moderate opinion level regarding clinical educators as teaching critical thinking barrier subscale.

Table (3): Reveals relation between nursing students' opinion about of teaching critical thinking questionnaire and barriers facing clinical nurse educators related to teaching critical thinking. This table shows that there is a positive statistical significant relation between nursing students' opinion about of teaching critical thinking and barriers facing clinical nurse educators related to teaching critical thinking questionnaire at (p=0.001) .

Table (4): Reveals relation between nursing students' opinion about of teaching critical thinking barriers and nursing students' personal characteristics data. This table shows that there is a positive statistical significant relation between nursing students' opinion about of teaching critical thinking barriers and nursing students' personal characteristics data. There is a positive statistical significant relation between all identified component of personal characteristics data except nursing students sex and residence at (p=0.001).

Around two- thirds (65.3%) of nursing students with age group ≥22 years old had high opinion level regarding teaching critical thinking barriers. Around half (53.1%, 46.9%) of nursing students were from 4th academic year and with a very good previous grade, respectively had high opinion level regarding teaching critical thinking barriers. Nearly thirty percent (28.6%) of nursing students were from administration department had high opinion level regarding teaching critical thinking barriers. Also, majority (95.9%) of them who not attending program or activity about critical thinking had high opinion level regarding teaching critical thinking barriers.

Table (1): Clinical nurse educators distribution regarding personal characteristics (n = 85).

Personal characteristics	N	%
Age		
20 – 25	17	20.0
>2٥ – 30	39	**45.9**
>30	29	34.1
Range	24.0 – 35.0	
Mean ± SD	28.93 ± 3.17	
Sex		
Male	1	1.2
Female	84	**98.8**
Position		
Demonstrator	43	**50.6**
Assist Lecturer	42	49.4
Years of experience		
<5	34	40.0
5 - <10	46	**54.1**
≥ 10	5	5.9
Range.	1.0 – 13.0	
Mean ± SD	5.14 ± 2.78	
Academic nursing department		
Administration	16	18.8
Pediatrics	13	15.3
Medical and surgical	20	**23.5**
Psychiatry	8	9.4
Community	12	14.2
Gynecology and obstetric	16	18.8
Number of student per clinical session		
10 - <20	33	**38.8**
20 - <30	27	31.8
≥30	25	29.4
Range	11.0 – 75.0	
Mean ± SD	24.49 ± 11.34	

Table (2): Nursing students distribution regarding personal characteristics of (n = 464)

Personal characteristics	N	%
Age		
<20	81	17.5
20 - <22	181	39.0
≥22	202	43.5
Min. – Max.	19.0 – 23.0	
Mean ± SD	21.02 ± 1.25	
Sex		
Male	211	45.5
Female	253	**54.5**
Academic year		
1st	81	17.5
2nd	102	22.0
3rd	126	27.1
4th	155	**33.4**
Nursing specialty currently enrolled in		
Administration	77	16.7
Pediatrics	72	15.5
Medical And Surgical	183	**39.4**
Communications	78	16.8
Gynecology and obstetric	54	11.6
Previous year grade		
No (1st year)	81	17.5
Excellent	128	27.6
Very good	180	**38.8**
Good	67	14.4
Fair	8	1.7
Residence		
Urban	194	41.8
Rural	270	**58.2**
Attending program or activity about critical thinking		
Yes	45	9.7
No	419	90.3

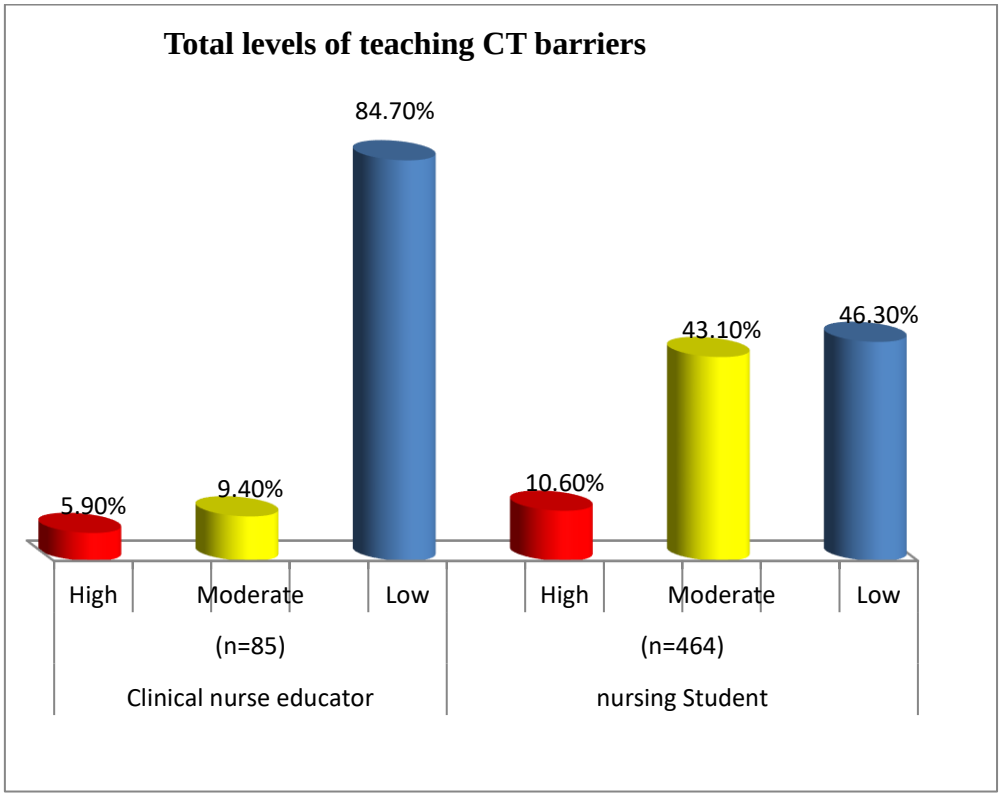

Figure (1): Clinical nurse educators' and nursing students' opinion about total levels of teaching critical thinking barriers.

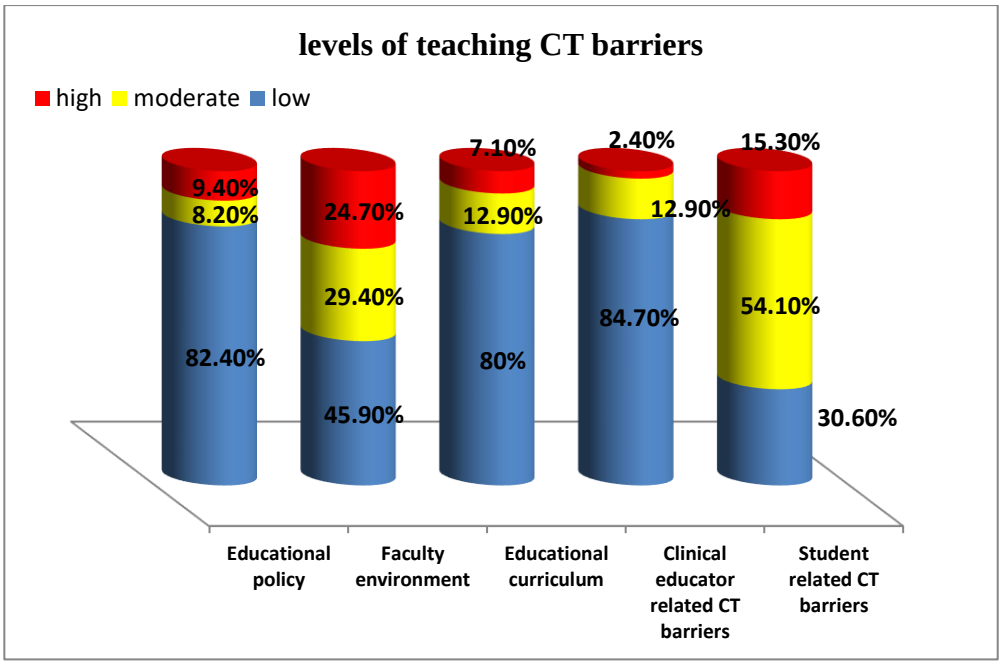

Figure (2): Levels of teaching critical thinking barriers facing clinical nurse educators (n = 85)

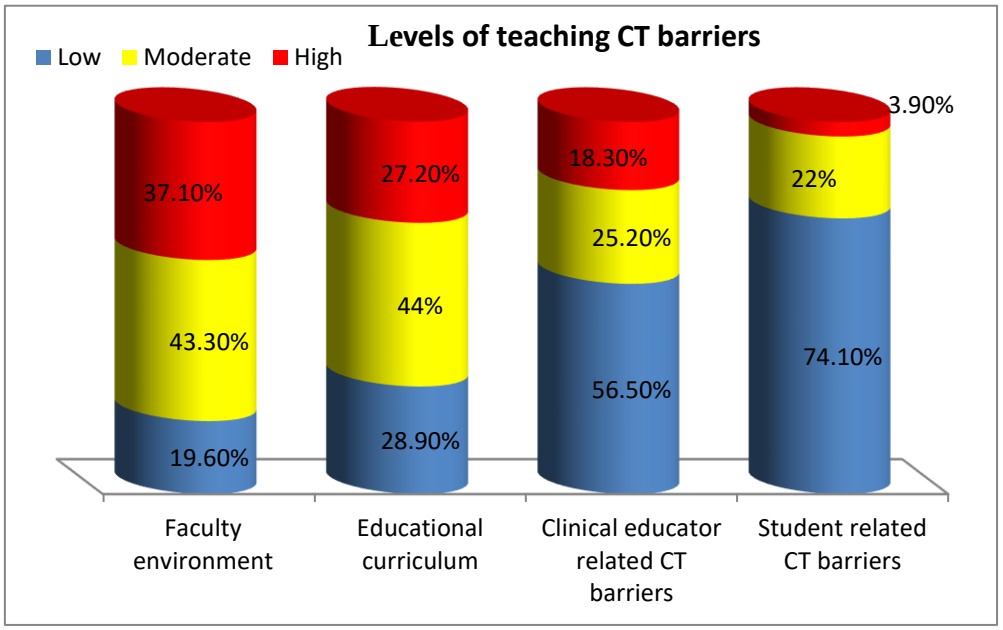

Figure (3): Levels of nursing students' opinion about teaching critical thinking barriers.

Table (3): Correlation between nursing students' opinion about teaching critical thinking and barriers facing clinical nurse educators related to teaching critical thinking

Nursing students' opinion / Barriers facing clinical nurse educators		Nursing students' opinion about teaching critical thinking barriers				
		Student related teaching CT barriers	Clinical educator related teaching CT barriers	Educational curriculum related teaching CT barriers	Faculty environment related teaching CT barriers	Total
Student related teaching CT barriers	r	0.148*	0.201*	0.153*	0.237*	0.173*
	p	0.001*	<0.001*	0.001*	<0.001*	<0.001*
Clinical educator related teaching CT barriers	r	0.119*	0.163*	0.119*	0.174*	0.138*
	p	0.010*	<0.001*	0.010*	<0.001*	0.003*
Educational curriculum related teaching CT barriers	r	0.009	0.025	-0.003	0.039	0.014
	p	0.851	0.588	0.947	0.400	0.767
Faculty environment related teaching CT barriers	r	0.100*	0.131*	0.098*	0.140*	0.114*
	p	0.031*	0.005*	0.035*	0.002*	0.014*
Total	r	0.139*	0.193*	0.137*	0.221*	0.163*
	p	0.003*	<0.001*	0.003*	<0.001*	<0.001*

r: Pearson coefficient *: Statistically significant at p ≤ 0.05

Table (4): Relation between nursing students' opinion about teaching critical thinking barriers and personal characteristics (n = 85)

Personal characteristics	Nursing students' opinion about						χ^2	P
	Low		Moderate		High			
	No.	%	No.	%	No.	%		
Age								
<20	34	15.8	39	19.5	8	16.3	18.732	0.001*
20 – <22	102	47.4	70	35.0	9	18.4		
≥22	79	36.7	91	45.5	32	65.3		
Gender								
Male	101	47.0	88	44.0	22	44.9	0.378	0.828
Female	114	53.0	112	56.0	27	55.1		
Academic year								
1st	34	15.8	39	19.5	8	16.3	45.352	<0.001*
2nd	74	34.4	28	14.0	0	0.0		
3rd	45	20.9	66	33.0	15	30.6		
4th	62	28.8	67	33.5	26	53.1		
Nursing specialty								
Administration	31	14.4	32	16.0	14	28.6	29.709	<0.001*
Pediatrics	29	13.5	36	18.0	7	14.3		
Medical	108	50.2	67	33.5	8	16.3		
Communications	31	14.4	35	17.5	12	24.5		
Obstetric	16	7.4	30	15.0	8	16.3		
Previous grade								
No (1st year)	34	15.8	39	19.5	8	16.3	16.931	0.026*
Excellent	72	33.5	47	23.5	9	18.4		
Very good	75	34.9	82	41.0	23	46.9		
Good	32	14.9	30	15.0	5	10.2		
Fair	2	0.9	2	1.0	4	8.2		
Residence								
Urban	83	38.6	87	43.5	24	49.0	2.178	0.337
Rural	132	61.4	113	56.5	25	51.0		
Attending program critical about critical thinking								
Yes	16	7.4	27	13.5	2	4.1	6.316	0.043*
No	199	92.6	173	86.5	47	95.9		

χ^2: **Chi square test** MC: **Monte Carlo**
p: p value for comparing between **the three categories**
*: Statistically significant at $p \leq 0.05$

Discussion

Critical thinking in nursing education is a means by which nurses can use analysis, questioning, interpretation, and reflection to resolve patient care issues. It helps students to learn tasks better and solve problems that they encountered in academic and nonacademic environments [(15)]. Critical thinking skills is regarded as an extra edge for nursing graduates these days as they will be able to keep up with the technological innovations and have better chances at employability and demonstrate more professionalism. It has been deemed as a skill that should be gained in order to meet the today's societal expectations such as quick thinking, competent, communication, and ability to resolve conflict and reconcile diverse perspectives [(16)].

Nursing education becomes increasingly focusing on teaching strategies that enhance critical thinking, decision making and problem solving skills [(17)]. So, this study aimed to study barriers facing clinical nurse educators and nursing students' opinion related to teaching critical thinking. This study's discussion will be categorized under barriers facing clinical nurse educators related to teaching critical thinking, nursing students' opinion about barriers of teaching critical thinking, relation between nursing students' opinion about of teaching critical thinking and barriers facing clinical nurse educators related to teaching critical thinking and relation between nursing students' opinion about of teaching critical thinking barriers and nursing students' personal characteristics data as mentioned below.

Barriers facing clinical nurse educators related to teaching critical thinking

The present study results revealed that majority of clinical nurse educators had low level regarding total teaching critical thinking barriers. Majority of them had low level of clinical nurse educator, educational policy and educational curriculum related teaching critical thinking barriers. This result may referred to majority of clinical nurse educator had knowledge about their role as a mastermind and facilitator of critical thinking and they had adequate time management skills to cover educational curriculum. Also, they had the ability to draw students' attention to the lesson and provide nursing students with ways to search for information to improve nursing students' critical thinking skills.

This result is supported by, **Lee et al. (2016)**[(18)] who stated that nursing students thrived in collaborative learning environment between all team members where the needs and goals were clear and acknowledged by clinical nurse educators and nursing students . As well as he stated the importance of clinical nurse educators

to guide nursing students through a process of developing an awareness of their ability to think critically. Therefore, to act upon it, clinical nurse educators act as facilitator and nursing students need peer assistance and collaborative efforts, contrary to the traditional teacher-centered practice of limiting classroom interaction.

On contrary, **Pitt et al. (2015)** [19] indicated in his study that there were many obstacles against nurses' learning of critical thinking by clinical nurse educators such as time constraints, financial constraints, the culture of the workplace that didn't accept ability to change, access to appropriate knowledge and matching of new technologies to acquire knowledge that prevent clinical nurse educators from teaching critical thinking to nursing students.

Also, Alfaro-Le Fevre (2015) [20] found that majority of clinical nurse educators don't have time to answer students' questions, as well as they do not want to receive any questions that they not answer it or have unclear answers for it as they don't have ability to think critically and make positive discussion and not prepared to practice critical thinking.

Nursing students' opinion about barriers of teaching critical thinking

The results of the present study showed that nearly half of nursing students had low level regarding total teaching critical thinking barriers. But, more than two fifths of nursing students had moderate level regarding educational curriculum and faculty environment as teaching critical thinking barriers. These results may be due to their opinion that they had ability to make a positive discussion, distinguish between information and inappropriate conclusions, clinical nurse educator enhance their ability to learn independently but course content is too loaded.

This result is supported by **DSouza et al. (2017)** [21] who indicated that nursing students stressed that large classes, time constraints, and large amount of content to provide to students preclude the teaching of critical thinking. On the other hand, **Ennis (2016)** [22] indicated that the most important obstacles against teaching of critical thinking in nursing education according to nursing students' opinion are conflict, lack of access to direct knowledge and experience about critical thinking and lack of interest to make positive discussion or think critically.

Finding of the present study results showed that there was a positive statistical significant correlational between nursing students' opinion about of teaching critical thinking and barriers facing clinical nurse educators related to teaching critical thinking. This may be interpreted that clinical nurse educators provide nursing students with ways to search for

information, educational curriculum focused only the acquisition of facts, ideas, and concepts. Also, they opinion that the main barriers facing them that the textbooks do not provide activities for improving critical thinking skills and non-attractive environment for students.

On the other hand, **Ahn and Yeom (2015)** [23]showed that students lack exposure to critical thinking and clinical nurse educators' lack responsibility to promote critical thinking skills in their students are main barrier of teaching critical thinking. As they didn't provide students ways to search for more information outside textbooks.

Relation between nursing students' opinion about of teaching critical thinking barriers and their personal characteristics data.

The present study results revealed that there was a positive statistical significant relation between nursing students' opinion about of teaching critical thinking barriers and nursing students' personal characteristics data. There was a positive statistical significant correlation between nursing student' age categories and teaching critical thinking barriers. High percent of nursing students with age group above twenty two years and were from fourth academic year had high obstacles level regarding teaching critical thinking barriers. This may be interpreted by their past experience as they rarely practice critical thinking in last academic years and focus mainly on how to achieve certificate.

These results were confirmed by **Manan and Mehmood (2015)** [24] who found that slightly more than half of nursing students aged more than twenty one years old who not interested enough to practice critical thinking skills as they not trained on how to make scientific decisions and solve problems . Also, **Coleman and Willis (2015)** [25] examination-based teaching puts clinical nurse educators under the pressure of the need for covering a pre-determined set of topics in a given number of lectures that allow nursing students to pass exams have a certificate of achievement and found that fourth year students achieve success than first year ones but didn't give importance to teach critical thinking.

Finding of the present study results showed that there was a positive statistical significant correlational between nursing student' previous year grade and teaching critical thinking barriers. Around half of nursing students with a very good previous grade had high obstacles level regarding teaching critical thinking barriers. These results may be related to those nursing students prefer memorizing more than understanding and they more oriented that most of educational exams based on recalling of information rather

understanding or thinking to achieve such high grades.

The present study results revealed that there was a positive statistical significant relation between nursing students' opinion about of teaching critical thinking barriers and previous attending of program or activity about critical thinking. Majority of them who not attending program or activity about critical thinking had high obstacles level regarding teaching critical thinking barriers. It may be related to they didn't have adequate knowledge about critical thinking and ambiguity of its importance.

The present study is supported by **Frazier (2017)** [26] which investigated critical thinking among undergraduate nursing students had indicated that the highest percentages of nursing students had a weak level of critical thinking skills as they had inadequate knowledge regarding critical thinking .

Conclusion

Based on the finding of the present study it was concluded that:

The majority of clinical nurse educators had low level of total teaching critical thinking barriers. Majority of them had low level of clinical nurse educator, educational policy and educational curriculum related teaching critical thinking barriers. Nearly half of nursing students had low level of total teaching critical thinking barriers. But more than two fifths of nursing students had moderate obstacles level regarding educational curriculum and faculty environment as teaching critical thinking barrier. In addition, there was a positive statistical significant correlational between nursing students' opinion about of teaching critical thinking barriers and barriers facing clinical nurse educators related to teaching critical thinking.

Recommendations

Based on the results of the present study the following recommendations were suggested for:

For nursing faculty administrators:

- Develop of nursing curriculum contents, which concentrates on improving thinking skills-in general and critical thinking skills-in specific and shouldn't be overloaded with trivial or duplicated materials.
- Transform nursing education from educator's teaching to students' learning.
- Provide adequate funding to provide training workshops, Conferences, on campus activities and materials for encouraging teaching of critical thinking in classrooms.
- Conduct in-service training programs and workshops for clinical nurse educators to enhance critical thinking skills practice education.

- Provide orientation programs and mentors for novice nursing educators about training on classroom management with different teaching strategies for enhancing their self-control.
- Conduct meetings with other faculty members and sharing their experiences for preparing group activities, assignments, exercises that can facilitate easier implementation of critical thinking.
- Provide a comfortable and enjoyable learning environment that facilitates for clinical nurse educators to implement critical thinking strategies including large classes, proper furniture and provide needed equipment and supply classroom with enough internet and access.

For clinical nurse educators:

- Create helpful classroom learning environments to encourage students actively participate in the learning process allow students interaction.
- Attending workshops and reading seminars to be proficient in implementing critical thinking strategies and other active learning activities.
- Encourage and persuade nursing students to accept and implement critical thinking in their classrooms through letting them know its benefits, group rewards.
- Relieving nursing students fear and threats regarding grading process.
- Develop more strategies for motivating students such as become a role model for nursing students, get to know students, use a variety of student active teaching activities.

For nursing students:

- Have willing and be patient about difficulty of critical thinking activities.
- Improve self-learning and ask for new ways to search information outside textbooks.
- Be aware that critical thinking skills are hallmark of effective patient care and become effective leaders.
- Maintain consistency between how to achieve high grades and improve critical thinking skills.

For further studies

- More future studies need to be encouraged for investigating efficacy of learning environment on developing critical thinking skills for the nursing students and the learning process as a general.
- Research needed to investigate relationship between teaching strategies and critical thinking skills among undergraduate nursing students in classroom as well as in their clinical

practice.

- Critical thinking dispositions and problem solving abilities among administration nursing students.

References

1. Elfatihi M. A rationale for the integration of critical thinking skills in EFL/ESL instruction. Higher Education of Social Science. 2017; 12 (2): 26-31.
2. Jones-Schenk J, Leafman J, Wallace L, Allen P. Addressing the cost, value, and student debt in nursing education. Nurs. Econ. 2017; 35(29): 7-13.
3. Boholano H. Smart social networking: 21st century teaching and learning skills. Research in Pedagogy. 2017; 7 (1): 21-29.
4. Kim M, Pollard V. A modest critical pedagogy for English as a foreign language education. Education as Change. 2017; 21(1): 50–72.
5. Mikkonen K, Elo S, Kuivila H, Tuomikoski A, Kaariainen M. Culturally and linguistically diverse healthcare students experiences of learning in a clinical environment: A systematic review of qualitative studies. Int. J. Nurs. Studies. 2016; 54 (1): 173-187.
6. Marin M, Pava L. Conceptions of critical thinking from university EFL teachers. English Language Teaching. 2017; 10 (7): 1916-4750.
7. Ok S. Autonomy in an EFL teacher training context: Trainee teacher perceptions of instructor expectations. Australian Journal of Teacher Education. 2016; 41 (3): 66-86.
8. Papak P, Vujicic, L, ZeljkaIvkovic Z. Project activities and encouraging critical thinking: exploring teachers' attitudes. C E P S Journal. 2017; 7 (3): 27-46.
9. Shahrebabaki M, Notash M. Teachers' and learners' attitudes towards critical thinking skills: A case study in the Iranian EFL context. Journal of Applied Linguistics and Language Research. 2015; 2 (2): 93-106.
10. Oliveira L, Rueda Díaz L, Carbogim F, Rodrigues A, Püschel V. Effectiveness of teaching strategies on the development of critical thinking in undergraduate nursing students: A meta-analysis. 2016; 50(2): 350-9.
11. Nursing Students Affairs. Faculty of Nursing. Tanta University. February 2019.
12. Nursing Teaching Staff Affairs. Faculty of Nursing. Tanta University. February 2019.
13. Aliakbari L. Science production in Iranian educational system by the use of critical thinking. International Journal of Instruction. 2010; 3(1): 61-76.
14. Dickson G, Flynn L. Nurses' clinical reasoning: Processes and practices of

medication safety. Qual. Health Res. 2012; 22(1): 3-16.

15. Swart R. Critical thinking instruction and technology enhanced learning from the student perspective: A mixed methods research study. Journal of Nurse Education Practice. 2017; 23 (1): 30-39.
16. McGrath L, Kathrin K. English for Specific Purposes and Academic Literacies: Eclecticism in academic writing pedagogy. Teaching in Higher Education. 2016; 21 (8): 933-947.
17. Ekholm E, Zumbrumm S, Conkli N. The relation of college student's self-efficacy toward writing self-regulation aptitude: Writing feedback perceptions as a mediating variable. Teaching in Higher Education. 2015; 20 (2): 197-207.
18. Lee J, Lee Y, Gong S, Bae J, Choi M. A meta-analysis of the effects of non-traditional teaching methods on the critical thinking abilities of nursing students. BMC Med Educ. 2016; 16(1): 240.
19. Pitt V, Powis D, Levett-Jones T, Hunter S. The influence of critical thinking skills on performance and progression in a pre-registration nursing program. Nurse Education Today. 2015; 35(1): 125-31.
20. Alfaro R. Critical thinking and clinical judgment: A practical approach to outcome-focused thinking. 2015; 3(5):320-360.
21. Dsouza S. The importance of academic literacy for undergraduate nursing students and its relationship to future professional clinical practice: a systematic review. Nurse Educ. Today. 2017; 60(1): 84-91.
22. Ennis R. Critical thinking across the curriculum: A vision. Topoi. 2016: 1-20
23. Ahn S, Yeom H. Moral sensitivity and critical thinking disposition of nursing students in Korea. International Journal of Nursing Practice. 2015; 20(5): 482-489.
24. Manan S, Mehmood T. Culture and critical thinking in classroom: Narratives from University Students in Pakistan. Asia Pacific Journal of Social Science. 2015; 1(3):110-34.
25. Coleman D, Willis D. Reflective writing: The student nurse's perspective on reflective writing and poetry writing. Nurse Education Today. 2015; 35(7): 906-911.
26. Frazier K. Humanities, Too: In new study, history courses in critical thinking reduce pseudoscientific beliefs. Skeptical Inquirer. 2017; 41 (4): 11.

Effect of Educational Guideline on performance and attitude of Blind Adolescent Students Regarding Acne Vulgaris

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Abstract

Acne is a chronic inflammatory disease known to occur in adolescent age group. There are many myths and misconceptions in patients as well as health care providers regarding the causes and treatment of acne **Aim:** The present study was aimed to evaluate the Effect of Educational Guideline on performance and attitude of blind adolescent students' regarding Acne Vulgaris. **Subjects and Method:** A quasi-experimental research design was utilized in this study that was conducted at Al-Nour and Al –aml School for the blind, preparatory and secondary of Beni-Suef and El Noor schools of visual handicapped at Tanta city. Convenience sampling of 100 blind adolescent students of the previously mentioned settings. The following study tools were used (pre/posttests): 1) Students' interviewing to assess their knowledge as regards acne vulgaris. 2) An observational checklist to evaluate studied students' practices such as skin care and face massage. 3) Attitude scale to assess adolescent students' attitude regarding acne vulgaris. **Results:** There were significant differences regarding knowledge, practices (face and skin care, skin massage, methods of drying, hand wash, drinking water, and changing diet, applying topical medications, warm compress and exercises) and attitude about acne vulgaris between pre, post and follow up educational guideline. **Conclusion:** The present study concluded that, the educational guideline had a positive effect on performance and attitude of blind adolescent girl students regarding acne vulgaris. **Recommendations:** An orientation program should be prepared for such group of students regarding acne vulgaris. Increasing awareness of blind adolescent students about physical and physiological changes and needs during this stage.

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Keywords: Performance, Acne vulgaris, Blind adolescent, Educational guideline.

Introduction

Adolescence is a transitional period from childhood to adulthood and characterized by a spurt in physical, emotional, endocrinal and mental growth with a change from complete dependence to relative independence. The stage of adolescence for a girl and a boy is a period of physical and psychological preparation for safe motherhood and fatherhood. (1.)

Blindness is a troubling physical condition with deep emotional and physical effects. It leads to major variations in lifestyle, habits which may cause problems in physical, psychological and social adjustment of blind adolescent. It reasons a serious effect on the adolescent girls and boys, family and community. it is considered the most traumatic sensory impairment(2.-4)**.** According to the World Health Organization (WHO), the incidence of vision impairment was 148 million worldwide and 110 million cases of low vision that could be at hazard of becoming blind. Around 90%, of the world visually impaired people, live in the developing countries, this means that 9 out of 10, who are visually diminished live in the developing countries as well **(6).**

Acne vulgaris is a chronic inflammatory disease of pilosebaceous glands caused by blockage of hair follicles with dead skin cells and oil from the skin (7.8). It affects mainly the face, neck, upper trunk, upper arms and back. It is characterized by seborrhea (red scaly skin), comedons (black white heads) papules, nodules and pustules which sometimes heal with scarring (9)**.** Acne vulgaris is almost a common skin disorder in western societies that disturbs 79 percent to 95 percent of the adolescent population. The incidence of acne in boys increased from 40 percent at age 12 to 95 percent at age 16 years old. It increases in girls from 61 percent at age 12 to 83 percent at age 16 years old (10). It is among the common dermatological conditions that affect up to 85 percent of adolescents.

Acne vulgaris has a multifactorial pathology that results from the interplay of genetic and environmental variables. Some foods high in carbohydrates, chocolate and some medications such as steroids that may predispose to acne of varying intensity or overproduction of oils in the skin's sebaceous follicles are concerned risk factors, (11).

Acne is not associated with extreme morbidity and mortality; it may, however, have major psychosocial effects (9)**.**

The acne has a considerable impact on emotional health, physical scaring and disfigurement and associated with behavioral difficulties in adolescents. Similar findings have been observed in several studies which concluded that acne is associated with psychological disturbances and depression. Acne has

been shown to have a profound effect on self-image and on the quality of life. The effects of this disorder are anxiety, depression and a decline in social functioning. [7.10.12]. In a multinational study, it was reported that teenagers' social functioning, vocational and even academic performance was disturbed by acne vulgaris [11].

Management of acne vulgaris includes various non-pharmacological and pharmacological methods. Before the initial pharmacological treatment, in order to cope with acne vulgaris symptoms, it is more important to provide accurate and sufficient information to make necessary arrangements in the life style of the adolescent. To support clinical practice, recommendations are made for three categories of acne severity: mild, moderate and severe [13]. The modification of the dietary habits, weight control, and stress management, gaining and maintaining exercise habit has positive influences on the problem. In addition, adolescent's commitment on responsibility and participation in own care take an important place in the reduction or prevention of health problems such as acne vulgaris [4]. In spite of, professionals' performance in lifestyle counseling is suboptimal, yet it is very important that healthcare providers promote healthful behaviors for adolescent with acne vulgaris problem [14].

Pediatric nurses play a key role in informing adolescents about acne vulgaris problem and providing consultations and educational guidelines on how to improve their quality of life, as well as encouraging the recognition of this common condition. In addition, helping them to cope with these symptoms through lifestyle change, nutritional supplement, herbal, and hypnosis therapy. Furthermore, encourage adolescent girls and boys to participate in aerobic exercise three times a week to promote sense of well-being, decrease fatigue, and reduce stress and pain. Behavioral counseling and stress management are integral part of management [10]. Furthermore, dietary recommendations to eliminate skin sensitivity include increasing fiber, calcium a complex carbohydrate, fat, red meat, dairy products, decreasing (caffeine, salt and sugar). Recent research suggests that, vitamin B supplements, primarily vitamin B6 in a complex, magnesium and fish oil supplements (omega-3 fatty acids) also, may help relieve stress and mode improvement [15].

Educational guidelines for acne vulgaris problem management should include: frequent face wash with warm water and face massage during washing, exercise (moderate exercise and deep breathing brings more oxygen to the blood which relaxes the body, walking alleviates irritability, tension and improve body`s blood circulation), rest, iron

supplementation, decreasing intake of caffeine (tea, coffee, coals and chocolate) to reduce anxiety. As well, decreasing intake of diets high in glycemic lead to reduce acne, and eating six small meals per day to prevent hypoglycemia, weight control and increasing fluid intake [16]**.** So, there is a very urgent need to focus on the importance of care for acne and its complication, however the opportunity of care is often missed [13]**.**

Significance of the study

Emotional health issues, physical scarring and disfigurement, behavioral challenges and increased medical costs have been associated with Acne vulgaris. It is expected to spend £ 100 million annually on over the counter acne products in the United Kingdom alone. Moreover, patients who experience side effects from drugs are treated longer [9]. There are various myths and misconceptions in patients as well as some of the health practitioners concerning the causes and treatment of acne. The awareness, attitude and behaviors regarding acne have many misunderstandings and multi-factorial causes. According to Allayali &, Asseri, et al., 2017 [11] study 80.8% of the 852 French people surveyed did not think that acne was a disorder, but rather a natural stage of adolescence. There are many incorrect beliefs and misunderstandings regarding acne vulgaris among individuals[7]**.** In Egypt, education about acne vulgaris problem for adolescents is very limited through the formal school system. Both national and subnational surveys have stated that Egyptian adolescent girls and boys need basic information on puberty associated changes because they often receive information from sources that may be misleading or inaccurate. Surveys have revealed that both adolescent girls or boys and their parents should get more information on these topics to promote healthier practices regarding these issues [6.17].

Visually, impaired girl or boy may be less likely than other girl or boy in her age to notice the changes in physical development that beginning to undergo for their bodies, and may need some more detailed explanations if adolescent can't see the pictures and diagrams in the typical books for teens and preteens. In addition, this group of adolescents may face lots of educational challenges and face difficulties in reaching the sources of correct information. Many girls and boys shy about asking for details, so for all these reasons, it is important to approach the subject especially for these sensitive population**.** The nurse can be supporter for blind adolescents meeting, their needs by designing programs to improve their healthy life style or even confining in teaching classes focusing on the targeted areas of nutrition, physical activity, stress management, personal hygiene, injury prevention and health protection from hazards [18]**.** Therefore, the

current study aimed to evaluate the outcomes of educational guidelines on performance and attitude of blind adolescent students regarding acne vulgaris problem.

Aim of the Study

This study was aimed to evaluate the e**ffect of educational guideline on performance and attitude of blind adolescent students regarding acne vulgaris.**

- This aim was achieved through the following:
- Assess adolescent students' knowledge and practices regarding acne vulgaris
- Assess students' attitude regarding acne vulgaris
- Develop, implement and evaluate educational guideline based **on performance and attitude of blind adolescent** students` regarding acne vulgaris .

Research hypothesis:-

After implementing educational guideline, it is expected that blind adolescent students' performance and attitude will improve regarding acne vulgaris.

Research design: A quasi-experimental design was utilized to conduct this study

Setting: The present study was conducted at Al-Nour and Al-aml School for the blind, preparatory and secondary of Beni-Suef.and El Noor schools of visual handicap of Tanta city.

Subjects and Method

Subjects

Convenience sampling was included 100 of blind adolescent students. A total number of students were 182 blind adolescent students, the studied blind adolescent students selected according to the following criteria:

-Blind adolescent aged from 11 to 18 years old.

-Blind adolescent students free from medical health problems.

Tools of data collection

I. Students` interviewing schedule (pre/post and follow up tests)

It was designed by the researchers after review of the relevant and related literatures [9.14], and written in simple Arabic language, to collect data related to:

- Characteristics of the participant blind adolescent students which included, age, sex, educational level and residence
- Blind adolescent 'students' knowledge about acne vulgaris such as; definition, causes, manifestations, common sites, and types, affecting factors, complications effect, and treatment and nursing management of acne vulgaris. As well as their source of information about acne vulgaris

Scoring system: Knowledge content was divided into 18 questions and each question was assigned to three score levels: Complete and/or correct answer was scored (3), while incomplete ،correct answer was scored (2), and don't know or wrong answer was scored (1).

The total score was categorized into either high level (from 70% and more) or low level (less than 70%) from total score (54).

II- An observational checklist (pre/post and follow up tests).

Adopted from; Academy of Dermatology 2016 [16], Allayali &, Asseri, et al., (2017) [11], Hazel et al., (2019) [15] and Hassan et al., 2019[8] . It was filled in by the researchers to evaluate blind adolescents' practices in relation to acne vulgaris as face and skin care, skin massage, methods of drying, hand wash, drinking water, and changing diet, applying topical medications, warm compress and exercises. Alpha Cronbach test = 0.87.

Scoring system: Each step was assigned to two score levels, which are: done was scored (2), and not done scored (1). The total score was categorized into either competent (from 70% and more) or incompetent (less than 70%) from total score as the following: face and skin care, skin massage, methods of drying (15 steps) and total score = 30; warm compress (5 steps) and total score = 10; and exercises (5 steps) and total score = 10. Alpha Cronbach test = 0.85.

III- Adolescent student's attitude (Likert scale): (pre/post and follow up tests). Adapted from **Suen et al. (2006)** [19]. It was used to assess adolescents' attitudes regarding acne vulgaris as cleansing, diet, sleep, stress, exercise, drinking water, face touching, face washing, put traditional medicine, consult doctor, advise self-medication to friends/family is part of self-care, follow-up for acne important and do you feel depressed when you get acne. Testing reliability of the scale items using alpha Cronbach test = 0.83.

Scoring system: **attitude (Likert scale):** Likert scale consists of 13 statements and scores as follows: (3) score for agree, (2) score for neutral and (1) score for disagree. The total score level of attitude was classified into: Positive attitude: From 80% and more, while indifferent attitude: < 80% -60%, and negative attitude: Less than 60%.

Validity and reliability of study tools

Content validity was ascertained by a group of experts (5) including3 Pediatric Nursing, 2 professors of dermatology. Their opinions were elicited regarding to the tools format layout, consistency, scoring system. The tools content was tested regarding to the knowledge accuracy, relevance and competence. Reliability of all items of the tools was done. The reliability test of was

established by using the Cronbach alpha to assess internal consistency construct validity. Cronbach alpha r= 0.87.

Administrative design

An official approval was obtained from the administrators of the study settings to carry out the study. A clear explanation was given about the aim, nature, importance and predictable outcomes of the study.

Pilot study

A pilot study was conducted on 10% of the total study subjects to test the clarity and practicability of the tools, and suitability of the setting. Those who participated in the pilot study were later included in the study as there were no modifications on the tools.

Ethical considerations

Approval to conduct the study was obtained from the director of the previous selected setting. All students who agreed to participate and meet the inclusion criteria were conversant about the study aim and their rights according to research ethics to participate or not in the study. Then, they provided their consent to participate in the study.

Procedure

The study was started and completed within 12 months from beginning of May 2019 to April 2020. The aim of the study at first was simply explained to the involved adolescent students. The researchers started to collect data from the adolescent students at the selected settings. Data were collected 2 days/week (Sundays & Tuesdays) during the morning period in the previously mentioned settings from 9.00 a.m. to 1.00 p.m.

The tools were complete by the researchers according to health condition of students under the study. Theory assessment was done individually pre-intervention. Then evaluated pre/post and follow-up individually (half an hour for each one). Otherwise about 10 minutes for attitude scale.

- Educational guidelines were advanced based on analysis of the actual educational needs of students under study in pretest.
- Content of the guidelines program was prepared in simple Arabic language by the researchers, then in Brill manner by specialist, consistent with the related literatures and adolescent students' level of understanding.
- Educational guidelines program were written in theoretical and practical sessions. Subjects were distributed into small groups (6 – 7) students and repeated sessions included all students. Each group attended 4 sessions (2 theories and 2 practices). Moreover, each adolescent student was directed by simple instructions and then orientation about the aim, contents and expected outcomes was done.

- The theoretical sessions were taken in 2 sessions (each session for 25 minutes) and cover the following items: definition, causes, manifestations, common sites, and types, affecting factors, complications effect, and treatment and nursing management of acne vulgaris.

The first and second sessions: knowledge about acne vulgaris:

These sessions include informing blind adolescent students about definition of can vulgaris, causes, manifestations, common sites, and types. affecting factors, complications effect**,** and treatment and nursing management of acne vulgaris. Each session lasts 25 minutes. The sessions were carried out through lectures and group discussions and use of learning aids and tools that are specifically developed for the blind and visually impaired. Examples of tools used are text-to-audio systems, recordings, and other audio devices. Full, specific descriptions were used in teaching at all times. In most cases, indistinct words and expressions can result in misunderstanding or failure to grasp specific meanings. For example, instead of saying, "Pick up that phone over there," say "Pick up that phone on the desk next to the bag."Keep learning tools organized and in their own designated places. This procedure will allow students to find learning materials and supplies that are wanted on a regular basis without having to constantly look for certain supplies. Sometimes need special learning environments to help them better interpret and understand the world around them such as describing actions and visions in explicit detail, or continue reading. Brill booklets were distributed as handout.

Third and fourth sessions: The practical sessions were taken in 2 sessions (each session for 25 minutes) and cover the following items: face and skin care, skin massage, methods of drying, hand wash, drinking water, and changing diet, applying topical medications, warm compress and exercises. The practices session conducted individually after evaluating them individually pre-intervention. Then assessed post and followed up individually (half an hour for each one). Sessions were carried out through demonstration and re-demonstration by simulation and models and concentrate in tactile exploration. The researchers explained to the students about the paraphernalia used during acne vulgaris and how to care her skin. Covering the eyes and doing the things that instruction to the students. This gives an idea for suggestions or adaptations that will be useful to them. Students were informed to be in contact with the researchers by telephone for any guidance.

- Evaluation for the effect of guidelines on the studied students using the pre-constructed tools as follows:

-Posttest was done after application of the guidelines.

-Follow up test after two months later by using the same tools.

Statistical Design

The data collected were organized, sorted, tabulated and analyzed using the Statistical Package for Social Sciences (SPSS). They were presented in tables and charts using numbers, percentages, means, standard deviations, t–test and Chi-square ($\chi 2$) test. Level of significance was considered $p < 0.05$.

Results

Table (1) demonstrates the percent distribution of the socio-demographic characteristics of the blind adolescents students. It shows that 61.0% of the studied adolescent students their age ranged between 15-<18 years with a mean age of 15.9 ± 2.3 years. Concerning their educational level, 50.0% of them have preparatory school. As regards residence, 60.0% of them reside rural areas. In relation to mothers' occupation and education 45% of them were working and had high education.

Figure (1) illustrates that the sources of information for blind adolescent students were friends (64%), followed by teachers (16%), then mass media (12%), and the least family (8%).

Table (2): illustrates percent distribution of blind adolescent students' knowledge regarding acne vulgaris Pre, post guideline implementation and at Follow up. Results indicates significant improvement in adolescent students' knowledge regarding acne post and follow-up tests (mean percent = 91.7±2.9 and 83.3±3.2 respectively) compared to pre – test (24.1±9.5), with t – test = 52.8 and 17.5 respectively) at $p < 0.05$.

Figure (2) describes the studied blind adolescent students' total knowledge score. The majority of them (82%) had unsatisfactory level before the guideline implementation, which improved for most of them (93.0%), to satisfactory knowledge immediately post guideline implementation. However, the same figure illustrates that, the majority of studied adolescent students (85%) had satisfactory level in their total knowledge scores in follow up phase of guideline implementation, with a highly statistically significant difference (P<.0001).

Table (3): Reveals the percent distribution of blind adolescent students' practices regarding acne vulgaris before, immediately after guidelines implementation and at follow up. Results indicated significant improvement in adolescent students' practices as regards post and follow - up tests (mean percent = 93.8±2.2 and 86.2±4.5 respectively),

compared to pre – test (20.3± 6.8), with T1 and T2 = 72.4 & 13.8 respectively $p < 0.05$.

Figure (3) illustrates the studied blind adolescent students' total practices score. Most of the studied adolescent students (92%) had incompetent level before the guideline implementation; however significant improvement was observed immediately post guidelines implementation that most of them (90%) had competent practices. Furthermore, the same figure shows that the majority of studied student (85%) had competent level in their total scores of practices during the follow up phase of guideline implementation with a highly statistically significant difference (P<.0001).

Table (4): points out that there is a highly statistically significant improvement in blind adolescent students ' attitude post-program implementation. As adolescent students` positive attitude increased from 20% pre intervention to 90% and 85% post intervention and follow up regarding acne vulgaris respectively.

Table (5) shows that, there were a highly statistical significance positive correlations between knowledge scores, practice, attitude and adolescents' age, educational level, sex and residence at the post- and follow up guideline implementation **(P** < 0.001**)**. However, this table shows that, there were statistically insignificant correlations between adolescent students' knowledge, practice, attitude scores and their age and educational level, sex and residence at pre-guideline implementation.

Table (1) Percent Distribution of of the Blind Studied Adolescent students Socio-Demographic Characteristics (n=100).

Socio-demographic characteristics	N	%
Age/years		
11-<13	9	9.0
13-<15	30	30.0
15-<18	61	61.0
Mean ± SD	**15.9** ± 2.3	
Birth order		
First	20	20.0
Second	45	45.0
Third	20	20.0
The last	15	15.0
Sex		
Male	35	35.0
Female	65	65.0
Educational level		
Primary school	10	10.0
Preparatory school	50	50.0
Secondary school	40	40.0
Residence		
Urban	40	40.0
Rural	60	60.0
Mothers' education		
Primary	25	25.0
Secondary	30	30.0
High	45	45.0
Mothers' occupation		
Not working	55	55.0
Working	45	45.0

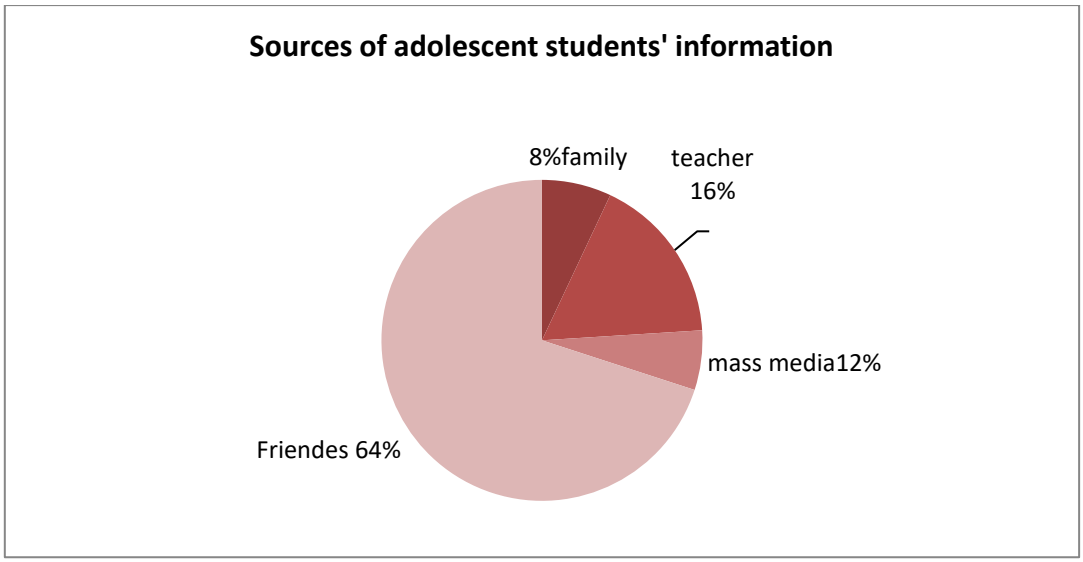

Fig (1) Blind adolescents' Students Sources of Information Regarding Acne Vulgaris (n=100).

Table (2): Percent Distribution of Blind Adolescent Students' Knowledge regarding Acne Vulgaris Pre, Post guideline implementation and at Follow up (n=100).

Knowledge about Acne Vulgaris	Students' satisfactory knowledge		
	Pre-test	Post- test	Follow up
	High	High	High
	%	%	%
Definition	22.0	92.0	85.5
Causes	20.0	96.0	82.0
Signs and symptoms	35.0	90.0	85.0
Common sites	30.0	92.0	87.5
Types	20.0	96.0	85.0
Affecting factors	15.0	94.0	88.0
Complications effect	35.0	91.0	79.0
Treatment	23.5	92.0	84.3
Nursing management	19.0	85.0	78.0
Mean ± SD	24.1±9.5	91.7±2.9	83.3±3.2
T-test	**T1= 52.8* pre- versus post-** guideline implementation		
P value	**T2 = 17.5* post - versus follow- up** guideline implementation		

* Significant P=< 0.05

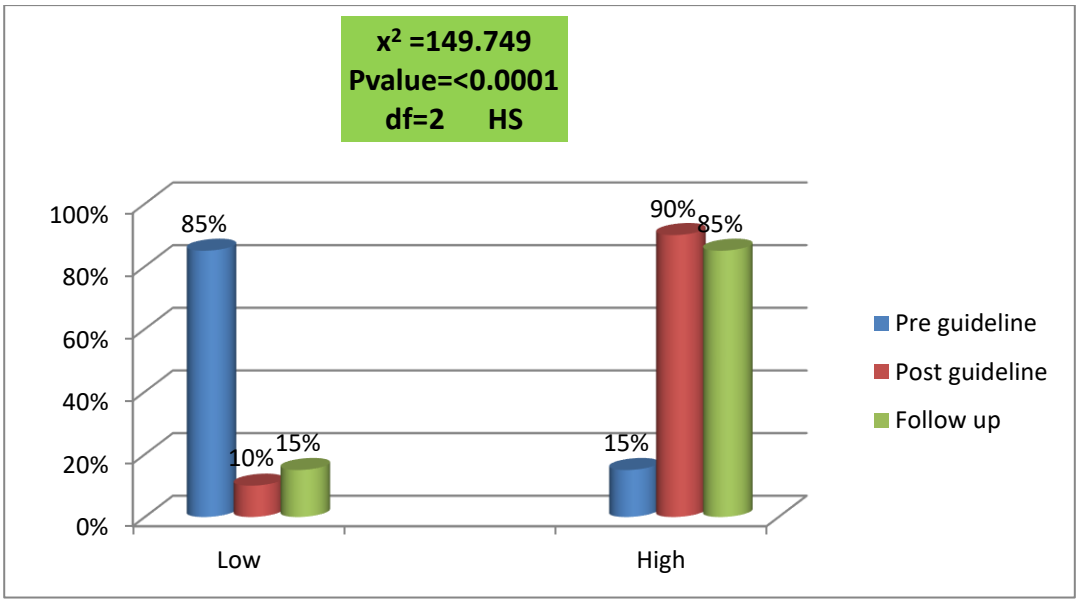

Figure (2): Total Knowledge Score of Blind Adolescent Student about Acne Vulgaris throughout the Guideline Phases (n = 100).

Table (3): Percent Distribution of Blind Adolescent Students' Practices Regarding Acne Vulgaris Before, immediately after guidelines implementation and at follow up. (N=100)

Practices regarding Acne Vulgaris	Students` competent practices		
	Pre-test	Post- test	Follow up
	Competent	Competent	Competent
	%	%	%
Skin wash and skin massage	18.0	92.0	85.5
Drying methods	30.0	96.0	88.0
Wash hand	35.0	90.0	80.0
Drinking water	40.0	95.0	85.0
Changing diet	19.0	94.3	92.0
Applying topical medications	17.0	95.1	89.0
Warm compress	19.0	94.3	92.0
Exercises	17.0	95.1	89.0
Mean ± SD	20.3± 6.8	93.8±2.2	86.2±4.5
T-test	**T1 = 72.4* pre-intervention versus post-intervention**		
P value	**T2 = 13.8* post -intervention versus follow-up**		

* Significant P =< 0.05

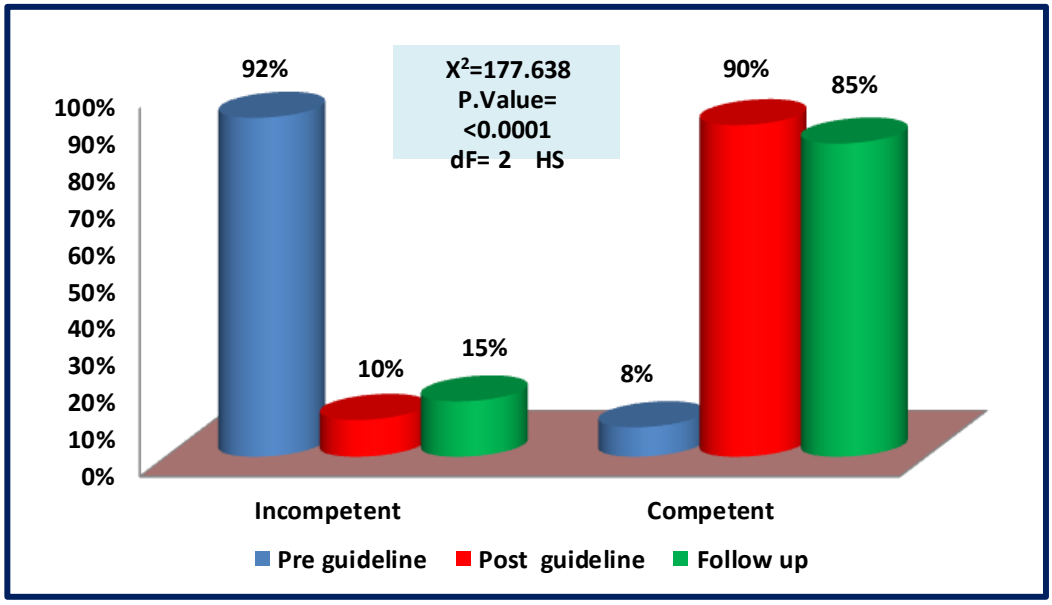

Figure (3): Total Practices Score of the Studied Adolescent Students about Acne Vulgaris (Pre/Post Implementation) (n=100).

Table (4): Percent Distribution of Studied Adolescent Students as Regards their Attitude related to Acne Vulgaris (Pre/Post Implementation) (N=100).

Adolescent s' attitude	Total Attitude		
	Pre-test	Post-test	Follow up
	%	%	%
Positive	20.0	90.0	85.0
Indifferent	40.0	10.0	12.0
Negative	40.0	0.0	3.0
T-test **P value**	**T1 = 42.6* pre-intervention versus post-intervention**		
	T2 = 12.2* post -intervention versus follow- up		

Significant P=< 0.05

Table (5): Correlation coefficient between adolescent students' total knowledge, practices and attitude regarding Acne Vulgaris guideline implementation (pre, post & follow-up) characteristics and adolescent students' demographic (N=100).

Variables		Age		Educational level		Sex		**Residence**	
		r	P	r	P	r	P	r	P
Knowledge	Pre program	0.72	>0.05*	0. 145	>0.05*	0.377	>0.05*	0.166	>0.05*
	Post program	0.544	0.001**	0.245	0.001**	0.246	0.001**	0.435	0.001**
	Follow up	0.451	0.02*	0.364	0.001**	0.422	0.001**	0.413	0.001**
Practices	Pre program	0. 22	>0.05*	0.24	>0.05*	0.172	>0.05*	0.120	>0.05*
	Post program	0.433	0.001**	0.405	0.001**	0.263	0.001**	0.322	0.001**
	Follow up	0.532	0.001*	0.42	0.001**	0.344	0.001**	0.481	0.001**
Attitude	Pre program	0. 42	>0.05*	0.32	>0.05*	0.166	>0.05*	0.130	>0.05*
	Post program	0.533	0.001**	0.433	0.001**	0.243	0.001**	0.282	0.001**
	Follow up	0.432	0.001*	0.222	0.001**	0.424	0.001**	0.461	0.001**

* Statistically insignificant (p> 0.05)

** Highly statistically significant correlation (P< 0.001)

Discussion:

Acne is a chronic inflammatory pilosebaceous disorder, characterized by the growth of comedones, erythematous papules, pustules, and/or nodules that may be followed by scarring. [8]. Acne affects the face more than the trunk and is most common in individuals aged 12 to 24 years old. Nearly 85%, with a typical onset of acne is during adolescence or early adulthood. This study aimed to evaluate the outcomes of educational guidelines on awareness of blind adolescents regarding acne vulgaris[13].

The present study, revealed that the mean age of the studied adolescent students is 15.9 ± 2.3 years old and more than half were girls (table 1). These findings were supported by **(**Uslu et al., 2018**)**[20] who found in their study about Acne: prevalence, perceptions and effects on psychological health among adolescents in Aydin, Turkey**,** that the study population consisted of 303 girls and 260 boys between the ages 13 and 19, and the mean age was 15.24±1.05 years. Additionally, **Markovic, et al.,(2019)**[21] who found in their study about "adolescents' self-perceived acne-related beliefs: from myth to science", that, more than half of the study population were girls .

As regards adolescents" sources of information about acne vulgaris more than tow thirds of the studied children reported that, friends were their source of information. (Fig. 1). This may be attributed to that many of the adolescents are shy about asking for details or lack of opportunity to conduct self-search about the information because of their blindness and limited health programs concerned with acne vulgaris among blind population in Egypt. This finding is supported by **Tameez et al., (2019)**[12] who reported in their study regarding "Assessment of Knowledge, Attitude, and Practices Regarding Self-medication for Acne among Medical Students", that the most common source of information was acquaintances. Additionally, **Corey et al ,(2013)** [22] stated that, the majority of students are getting information from non-physician sources. However, the present study findings disagreed with findings **Alajlan et al., (2017)** [23] who reported that, doctors were the most common sources of information**.** Moreover, **Mosbeh, Faheim & Hassan,(2016**) [4] who reported in their study about "Awareness of Blind Adolescent Girl Students Regarding Premenstrual Syndromes: Outcomes of Educational Guideline in Egypt", that friends were the main source of information for the majority of studied students.

The present study highlighted the high prevalence of insufficient and in appropriate knowledge about acne among the studied adolescents before guidelines

implementation. This may be due to insufficient education concerned with ace as an important health problem and children were depending on nonprofit source for their knowledge about acne which was their friends as reported by more than two thirds of the studied adolescents. These findings are in agreement with **Uslu et al., 2018 and Tałasiewicz1 et al ,(2012)** [20,24] who reported the high deficiency of knowledge and wrong beliefs about acne among adolescents and indicated the urgent need for efficient education about acne vulgaris in order to promote safe treatment and lower the risk of complication and promoting adolescents' quality of life.

However, the present study revealed significant improvement regarding total knowledge score about acne vulgaris among the studied adolescents immediately after the guidelines implementation and during the follow up compared to high unsatisfactory level among them preprogram. This Improvement may be attributed to adolescents' high interest in the topics presented and active involvement and participation in the educational sessions with frequent revision of information these findings are in agreement with **Allayali et al, (2017)**[11] and **Mohamed A et al, (2018)**[25] who stated that, Educational programs should be directed in schools and through the mass media to promote awareness that acne is a disease that can be managed and controlled effectively[9.21] . In addition, findings of the present study is in agreement of **Koch et al,(2008)**[26] who concluded that there was significant improvement regarding adolescents' knowledge and compliance to acne treatment post education and during follow up compared to base line knowledge score before education interventions .

Regarding adolescents' self-care practices for acne the present study demonstrates that the majority of the students practiced competent care regarding acne immediately post guidelines implementation and during follow up. Most of them practiced skin washing and massage, proper face drying, drinking water, changing diet, applying topical preparations. In addition, almost all of them wash hands, apply warm compresses and practice exercises. There was significant improvement regarding total practices score regarding adolescents' care of acne immediately post guidelines implementation and during follow up compared to pre guidelines implementation total practices score.

The incompetent pre guidelines practices score may be attributed to the insufficient and incorrect adolescents" knowledge regarding acne. In addition, lack of education and inadequacy of learning aids

for blind students may have an impact on their access to efficient source of information and acne self-care sessions. In addition, the blind adolescents may experience lowered self-confidence regarding their capacity to have independent self-care due to long lasting need for external assistance for fulfillment of daily life activities. On the other hand, the significant improvement regarding the adolescents' practices total score post guidelines implementation is expected to be attributed to the knowledge they gained during the sessions and the active participation in the training that considered their learning difficulties and the challenges associated with practicing care of acne for the blind adolescents. In addition, active involvement of the adolescents during the practical sessions helped them to recognize the probable difficulties they may encounter while caring for acne and they learned how to overcome. In addition, active involvement of the blind adolescents in the practice sessions may participate in promoting their self-confidence regarding their capacity to conduct self-care with minimal assistance and supervision. These findings are in agreement with **Lavers .,(2014)** [27] who reported that adolescent' education about acne care help them to overcome the challenges associated with the long-term course of acne treatment and reduces the disappointment associated with difficulties they face due to delayed treatment results, promote their adherence to acne care plan and maximizes treatment efficacy. In addition, the present findings are consistent with **Koch et al ,(2008)** [26] who concluded that education about acne vulgaris confer significant and equivalent benefits in terms of short- and long-term knowledge gains among adolescent patients with acne.

As regards adolescents' attitude towards acne the present study revealed that there was highly statistically significant improvements in adolescent students' attitude post guidelines implementation and during follow up compared to lack positive attitude towards acne preprogram. The pre intervention poor acne attitude among the studied adolescents probably due to poor knowledge and false believes which lead to inefficient acne self-care practices among the blind adolescents and delayed treatment out comes. In addition, the disturbed body image associated with acne and the disappointment associated with delayed treatment outcomes are expected to be associated with the poor attitude among the blind adolescents regarding acne. The finding of the current study is in agreement with **Uslu et al.,(2018)** [20]**,** who informed that, despite the high prevalence of acne, there is still much deficiency of knowledge and wrong beliefs about acne [18]. In addition, the

study done by **Hulmani et al, (2017)** [7]**.** Illustrated that, more than half of the study subjects had wrong belief and unfavorable attitude regarding acne.

Regarding the significant improvements of adolescents' attitude towards acne post guideline implementation and during follow up may be attributed to attending the educational sessions that contributed to the correction of the studied adolescents' knowledge, believes, and the promotion of their acne caring practices. The modified knowledge and promoted practices probably were helpful in promoting the adolescents' self-confidence and minimize the psychological impacts associated with acne particularly that appears in the face. These results indicated the importance of education for the adolescents with especial learning consideration for the children with especial needs to help them maintain healthy practices and promote their capacity to independent self-care practices regarding care of acne. In addition, results of the present study highlight the importance of health education for the adolescents to provide them with accurate sources for the health information and minimize the health impacts associated with their referring to untrusted sources for getting information. These findings are consistent with **Mosbeh, Faheim & Hassan,(2016)** [4] who illustrated that, heath education for adolescents is very limited or they often receive information from sources that may be misleading or inaccurate. Also **Uslu et al., (2018)** [20] who indicates that, there is an urgent need for education about etiopathogenesis, potential complications and importance of effective treatment for acne. Effective treatment may make significant contributions for the mental health of adolescent. Additionally, **Abdulrahman et al, (2017)** [28] who found that education still important overall the treatment of the patients. Moreover, the result of the present study revealed that adolescent students ' knowledge, practice and attitude were improved after program implementation. This could attribute to the fact that the importance and effectiveness of training course in enhancing students' knowledge, practice and attitude which play significant role in the quality of care providing and effective outcomes. Furthermore, high level of knowledge, competent practice and positive attitude increase self confidence and trust that enhance behavior and attitude toward care of acne.

Conclusion

The current study concluded that, the educational guidelines had positive effect on awareness of blind adolescent students regarding acne vulgaris.

Recommendation

-An orientation program should be prepared for such group of students regarding acne vulgaris.

-Increasing awareness of blind adolescent students about physical and physiological changes and needs of their adolescents.

-Improving knowledge and practice of those working with such group of students regarding medical, social, and legal aspects of youth and adolescent health needs.

-Further studies should be carried out on a larger number of such groups of students for evidence of the results and generalization .

-Availability of guidelines about acne vulgaris for blind girls in suitable manner as Brill booklets at their schools and libraries.

References

1. Bajawia S, Salih S, Mahfouz M S, Bajawi N, Asiri B. Acne vulgaris awareness and impact on quality of life and psychological status of adolescent school children in Jazan, Saudi Arabia. International Journal of Sciences: Basic and Applied Research (IJSBAR) .2016 ;25 (2): 374-84.
2. Verma, P., PandyaC, Ramanuj V, Singh, M . Menstrual pattern of adolescent school girls of Bhavnagar (Gujarat): National Journal of Integrated Research in Medicine, 2015;2(1): 38-40.
3. Alanazi M S, Hammad S M, Mohamed A E. Prevalence and psychological impact of Acne vulgaris among female secondary school students in Arar city, Saudi Arabia, Electronic Physician, 2018;10(8):7224-29. Available at: DOI: http://dx.doi.org/10.19082/7224.
4. Mosbeh A ., Faheim S., Hassan R. Awareness of blind adolescent girl students regarding premenstrual syndromes: outcomes of educational guideline. original article Egyptian Journal of Health Care, 2016;7 (4) 374-91.
5. Shanbhag D, Shilpa R., D'SouzaN, Josephine, P, Singh J, Goud B R. Perceptions regarding menstruation and practices during menstrual cycles among high school going adolescent girls in resource limited settings around Bangalore city, Karnataka, India. International Journal of Collaborative Research on Internal Medicine and Public Health.2012; 4(7): 1353-62.
6. Alam, M., Luby, S., Halder, A. , Islam, K.. Menstrual hygiene management among Bangladeshi adolescent schoolgirls and risk factors affecting school absence: results from a cross-sectional survey. BMJ Open.2016; 7(7): e015508.
7. Hulmani M, Bullappa A, Kakar1 S, Kengnal B. Knowledge, attitude and practice towards acne vulgaris among acne patients. Int J Res Dermatol ,

2017; DOI: http://dx.doi.org/10.18203/ issn.2455-4529.IntJResDermato l20170797.

8. Hassan RA, Nofal AA,& Hussien NN. Prevalence and Risk Factors of Acne Vulgaris in Adolescents in Belbis City, Sharkia Governorate, Egypt: A Cross-Sectional Study. Egyptian Family Medicine Journal.2019; 3(1):1-14.
9. Prashar L, Kachipond F, Nagalamika O. Assessment of level of knowledge of management of acne vulgaris among community pharmacists and prescribers in Lusaka Urban. Asian Journal of Pharmacy, Nursing and Medical Sciences.2015; 3 (5): 2321 –39.
10. Mukesh K C and Mohan C. A review on treatment options for acne vulgaris. World Journal of Pharmacy and Pharmaceutical Sciences SJIF.2016; 5 (7) :524-45 .
11. Allayali A, Asseri B, AlNodali N, Alhunaki RNM, Algoblan SFG . Assessment of Prevalence, Knowledge, Attitude, and Psychosocial Impact of Acne Vulgaris among Medical Students in Saudi Arabia. J Clin Exp Dermatol Res.2017; 8: 404. doi:10.4172/2155-9554.1000404.
12. Tameez-Ud-Din A, Malik I J, Bhatti A. Assessment of Knowledge, Attitude, and Practices Regarding Self-medication for Acne Among Medical Students. Cureus .2019; 11(8): e5510. DOI 10.7759/cureus.5510.
13. Asai Y, Baibergenova A, Dutil M, Humphrey S, Hull P, Lynde C, Poulin Y, Neil H. BASc(Hons) S Tan J, Toole J, Zip C. Management of acne: Canadian clinical practice guideline. CMAJ .2016; 188(2): 118–26.DOI:10.1503 /cmaj.140665.
14. Espinosa N, Cohen P R. Vulgaris: A Patient and Physician's Experience. Dermatol Ther (Heidelb), 2020; 10:1–14 https://doi.org/10.1007/s13555-019-00335-0.
15. Hazel H. Wong S, Chen DW; Cheong W, Leok C & Hee H T. Acne Management Guidelines by the Dermatological Society of Singapore. J Clin Aesthet Dermatol. 2019; 12(7):34–50.
16. American Academy of Dermatology released its updated . Guidelines of Care for Acne Vulgaris Management after this chapter went to print. Please visit: 2016.https://www. aad.org/ practice-tools/quality-care/clinical-guidelines/acne.
17. Abd-Elsattar, R. , Mohamed, E. Effect of health educational program for females blinded adolescent girl students regarding reproductive health. American Journal of Nursing Science.,2015; 4 (1): 1-8.
18. Chandra-Mouli, V. & Patel, S. V. Mapping the knowledge and

understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in low-and middle-income countries. Reproductive health.2016; 14(1): 30.

19. Suen, N, Wong, T, Chow, F, Kong, B. Use of physical restraints in rehabilitation settings: staff knowledge, attitudes and predictors. Journal of Advanced Nursing.2006; 55(1): 20-28.
20. Uslu G, Sendur N , Uslu M , Savk E, Karaman G, Eskin M. Acne: prevalence, perceptions and effects on psychological health among adolescents in Aydin, Turkey. JEADV .2019. DOI: 10.1111/j.1468-3083.2007.02497.
21. Markovic M, Soldatovic I, Bjekic M, Sipetic-Grujicic S. Adolescents' self perceived acne-related beliefs: frommyth to science. An Bras Dermatol. 2019; 94(6): 684–90. .
22. Corey KC., Cheng C E., Irwin B, and Kimball A B., (2013). Self-Reported Help-Seeking Behaviors and Treatment Choices of Adolescents Regarding Acne. Pediatric Dermatology 2013;30 (1): 36–41.
23. Alajlan, A. Al Turki, YA. AlHazzani, N. Alhowaish, N. AlEid, Z. Alhozaimi, W. Al Saleh, A. Bin Yahya, Y. Alkriadees, S. . Prevalence, level of knowledge and lifestyle association with acne vulgaris among medical students, Journal of Dermatology & Dermatologic Surgery .2017, doi: http:// dx.doi.org/10.1016/ j.jdds.2017 .01.001.
24. Tałasiewicz1 K , Ołdakowska1 A , Szczerkowska A. Evaluation of knowledge about acne vulgaris among a selected population of adolescents of Tricity schools. Postep Derm Alergol 2012;6: 417-420 DOI: 10.5114/pdia. 2012.32388
25. Mohamed A, Fahmy H, Elmaghrapy N, AbdElAty N. Prevalence and Disability Induced by acne vulgaris among adolescent students at secondary schools in Assiut City, Assiut Scientific Nursing Journal, EJHC.2018;.6.(14): 109-120.
26. Koch PH, Ryder H, Dziura J, Njike V, Antaya R. Educating adolescents about acne vulgaris: a comparison of written handouts with audiovisual computerized presentations. Dermatology. 2008; 144(2) 208-14.
27. Lavers I.Diagnosis and management of acne vulgaris. Journal of prescribing practices.2014 12; (7). https://doi.org/ 10.12968/npre.2014.12.7.330
28. Abdulrahman M A, Hatim A A, Reham A A, Bayan F ,Sultan S f , Ameen M M, Manahel A Q , Lamiaa S. Assessment of Knowledge, Attitude and Practice toward Acne Vulgaris among Community in Jeddah City. The Egyptian Journal of Hospital Medicine. 2017; (66):193-97 DOI: 10.12816/ 0034652 .

Effect of Educational Program on Head Nurses' Coaching Skills to Manage Novice Nurses Role Ambiguity

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Abstract

Background: Coaching has been identified as a key managerial behavior that organizations must promote to develop novice nurses and achieve higher levels of performance. The transition process of novice nurse to the clinical environment is a critical phase in the professional life. Factors linked with transition process include head nurses coaching skills, insufficiency of practical training, lack of confidence, lack conflict management, unrealistic expectations, stress, lack of supervision or support and burnout. **Aim:** The aim of the study was to determine the effect of educational program on head nurses' coaching skills to manage novice nurses' role ambiguity. **Subjects and Method: Setting** of study Tanta International Teaching Hospital. **Subjects:** All (n=123), head nurses (50) and novice nurses (73). **Tool:** Three tools were used to collection data; (1) Head nurses coaching skills knowledge questionnaire (2) Head nurses coaching skills self-assessment questionnaire (3) Novice nurses' role ambiguity questionnaire. **Results:** Preprogram about 82% of head nurses had poor level of knowledge and had either low or moderate level of total coaching skills, while (78.1%) of novice nurses showed high total level of role ambiguity. There was highly statistically significant difference between total knowledge and skills practice post than preprogram. There was also statistical significant positive correlation between head nurses total knowledge, total coaching skills practice and novice nurses total role ambiguity preprogram at (P = 0.001) and post program at (P = 0.001). As well as between head nurses total coaching skills and novice nurses total role ambiguity preprogram at (P = 0.044) and post program at (P = 0.001). **Conclusion:** Head nurses were demanding for educational program to develop their knowledge and coaching skills practice to manage novice nurses' role ambiguity, **Recommendations:** Maintain periodical in-service program to head nurses about coaching skills and to novice nurses about their roles and responsibilities.

Keywords: Head nurses, coaching skills, novice nurses and role ambiguity.

Introduction

Teaching hospitals are increasing turning to coaching as one key strategy in responding to the growing uncertainty, change and complexity in today's world. The coaching skills used to support the learning and development of novice [1]. Novice nurses are enter the work force and find that they have neither the practice expertise nor the confidence to navigate what has become a highly dynamic and intense clinical environment burdened by escalating levels of patient acuity and nursing workload, as well as role ambiguity. The head nurse is responsible for guiding and developing the novice nurse in clinical skills, interpersonal communication, and how to overcome role ambiguity [2, 3].

Ambiguity is the absence of satisfactory information which is required in order for novice to efficiently accomplish their role. It occurs when novice tasks or authority are not clearly defined and novice becomes afraid to act or take responsibility for anything. Role ambiguity defined as lack of clarity of plans and goals, and uncertainty about the authority or knowledge on how to perform assigned jobs (roles).It can appear as a result of inadequacy of information on role extent, role behavior and role hierarchy. And occurs when novice are required to meet incompatible demands and expectations, while their organization does not define their job functions and responsibilities [4, 5].

Role ambiguity cause lower productivity, tension, dissatisfaction and psychological withdrawal from the work group and have negative impacts on novice with increasing of stress [6]. Role ambiguity is the opposite of role clarity and increase the incidence of adverse outcomes for patients. Also, role ambiguity is facilitated when novice receives complexity or limited messages about patient requires. It is greatest when there is poor communication of expectations, relationships and responsibilities and it affects novice in particular because of the nature of their work situated between other allied health professionals and patient [6].

Management of novice nurse's role ambiguity emphasizes the head nurse coaching role as developer rather than controller [7]. Coaching head nurses has been suggested as a valuable assist in the development of novice. Coaching is partnership of equals whose aim to achieve speedy increased and sustainable effectiveness through focused learning in every aspect of the novice as (role responsibilities, behaviors, performance evaluation and the consequences to full fill the role responsibilities). It raises self - awareness and identifies choices [7].

Also facilitate exploration of needs, motivations, skills and thought processes. Facilitate real, lasting positive change, observe, listen and ask questions. Use questioning techniques to identify solutions, support goal setting and assessment. Encourage commitment to action, maintain positive, supportive and non-judgmental point of view. Develop/improve novice competences and not become dependent on coach. But work within their area of personal competence, manage the team relationships and support each other [8,9].

Head nurse uses coaching skills as listening, inquiry and questioning and clarifying skills. Active listening is a communication form that is described as a set of verbal and nonverbal skills is to build or demonstrate empathy by listen to the novice problem and search for solutions. Active listening can consists of nodding the head, making eye contact and restarting important information. Goal setting skills and feedback skills, to encourage novice to develop their self-confidence, resourcefulness and beliefs in the value of their own decision-making[8,9]..

The head nurse and novice have sole aim of closing gabs between novice potential and actual performance, gaining an understanding of their responsibilities and accountabilities as well as help them to gain more effectiveness in their given role [10]. Clarifying is one of the most powerful head nurses coaching tools include repeating back different words, summarizing and reflecting back the exact words. The skill of clarifying is a combination of listening, asking and reframing, where by the head nurse can offer different perspectives in order to help the novice gain clarity [10].

Beside that head nurse coach works as an effective mentor who helps novice in becoming best team leader as well as becoming available assist for the organization. As well as helps them to discover his/her potential strengthen skills and work in his/her weakness after receiving honest feedback from the coach. Also helps in developing and executing a well-structured professional growth plan for novice by helping them in gaining perspective about inherent leadership, improve emotional intelligence, enabling them to have greater empathy and self-awareness [11].

Implementing of coaching skill program for head nurses has been found to be correlated with improvement of both their management and leadership skills [12]. Coaching program can be used to develop head nurses understanding of their own approach with novice and to gain insights how to develop this to be most effective. Also seen as one of effective method for

managing talent novice and head nurses insightful conversation and reflect with them [13].

Aim of the study

The aim of this study was to determine the effect of educational program on head nurses' coaching skills to manage novice nurses' role ambiguity.

Research hypothesis

After implementation of the educational program it is expected that.

a- Head nurses' coaching skills will be improved.

b- Novice nurses' role ambiguity will be managed.

Subjects and method

Study design

Quasi experimental research design was used to achieve the aim of the present research. Such design fits the nature of the problem under investigation. A quasi-experiment is an empirical interventional study used to estimate the causal impact of an intervention on its target population without random assignment [14].

Setting

The study was conducted at Tanta International Teaching Hospital.

Subjects

The study subjects consisted of all (n=50) head nurses that working in previous mentioned setting and all (73) novice nurses with more than six month of experience working in previous mentioned setting.

Tools of data collection

Three tools were used for data collection:

Tool 1: Head Nurses' Coaching Skills Knowledge Questionnaire developed by the researcher guided by **Kabeel** (2016) [15], **Passmore** (2015)[16] and **Baxter** (2013)[17] and review of literature including 2 parts:

- **Part 1**: Characteristics data of head nurses as age, gender, marital status, department, level of education, years of experience, and coaching program head nurse attended.
- **Part 2**: Head Nurses' Coaching Skills Knowledge Questionnaire. It consisted of (51) question. In the form of multiple choice (20 items), complete (5 items), true &false (17 items), and match (9 items).These questions were classified into 6 categories as follows:

1- Coaching concept
2- Coaching skills
3- Coaching models
4- Effective coaching process
5- Types and styles of coaching
6- Novice nurses role ambiguity management

Scoring system

Head nurses responses measured according to correct answer take (1) score and wrong answer take (0) score.

Levels of knowledge as follows:-

-Good knowledge (> 75%)

-Fair knowledge (60- 75)

-Poor knowledge (< 60%)

Tool 11: Head Nurses' Coaching Skills Self- assessment Questionnaire developed by researcher guided by **Bruce** (2017) [18], **Mannion** (2015) [19], **Passmore** (2015)[16], **Mc Carthy and Milner** (2013) [20] and literature review. It translated into Arabic language. This tool used to assess head nurses coaching skills with the following subscales:-

1. Skill of active listening subscale includes 32 items divided into 4 skills:
   - Paying close attention skill
   - Demonstrating physical expressions skill
   - Paraphrasing skill
   - Respond appropriately skill
2. Skill of inquiry and questioning subscale
3. Skill of clarifying subscale
4. Skill of goal setting
5. Skill of feedback subscale

Scoring system

Responses of head nurses measured on 5 points Likert Scale ranging from always done = (5), usually done = (4), frequently done = (3), sometimes done= (2) to rarely done = (1).

Levels of head nurses coaching skills:

- High level of coaching skills (>75%)
- Moderate level of coaching skills (60 - 75%)
- Low level of coaching skills (< 60%)

Tool III: Novice Nurses Role Ambiguity developed by researcher guided by **Palmino** and **Freazti** (2016) [21], **Tang** (2010) [22] and the recent literature review. It translated into Arabic language. With two parts:

Part 1: Characteristics data of novice nurses as age, gender, marital status, level of education, years of experience and department.

Part 2: Novice Nurses Role Ambiguity includes 20 items under 4 subscales as follows:

- Ambiguity related to role definition
- Ambiguity related to role performance and job description
- Ambiguity related to role training and experience
- Ambiguity related to social and psychological aspect

Scoring system

Responses of novice nurses measured on five points Likert Scale ranging from strongly agree= (5), agree = (4), Natural= (3), disagree = (2) to strongly disagree = (1).

Levels of role ambiguity:

- High level role ambiguity (> 75%)

-Mild level role ambiguity (60 -75%)

-Low level role ambiguity (< 60%)

Method

1. Official permission from Faculty of Nursing, Tanta University to managers of each unit under study to obtain their cooperation to conduct the study after explanation the purpose of this study.

   Ethical consideration: head nurses and novice nurses consent for participation in the study obtained after explanation of the nature and the purpose of the study, confidentiality of the information's obtained from them and the right to withdrawal.
2. After reviewing of the related literature and different studies in this field, the study tools (I, II, III) were developed by the researcher based on recommended and relevant review.
3. The three tools (I, II and III) presented to a jury of five experts in the area of specialty to check content validity of the tools. The five experts were two assistant professor and two lecturers from Faculty of Nursing Tanta University (Nursing Service Administration) department and one assistant professor from Psychiatric Nursing department.
4. The expert's responses were represented in four points rating score ranging from (4-1); 4 =strongly relevant, 3 = relevant, 2= little relevant, and 1= not relevant. Necessary modifications were done including; clarification, omission of certain questions and adding others and simplifying work related words. **The face validity** was 94%for head nurses coaching skills knowledge, head nurses coaching skills self-assessment was 93% and 94%for novice nurses' role ambiguity.
5. Reliability of tools was tested using Cronbach's Alpha and coefficient test and take mean average of scores, which must not be less than 3 score. Its value 0.803for head nurses coaching skills self- assessment, 0.865 for novice nurses' role ambiguity, and 0.845for head nurses coaching skills knowledge.
6. The aim of the study was explained to head nurses and novice nurses to gain their cooperation, and obtain verbal consent for their participation in the study.
7. A pilot study was conducted on (5) head nurses and (7) novice nurses randomly selected to test the tools for clarity and applicability, not from study subjects. It was conducted two times to the same head nurses and novice nurses after two weeks later (test - retest) to assess reliability of tools. The first time was implemented after the development of

the tools and the second time was implemented before starting the actual data collection to test the clarity, applicability, and relevance of the questions.

Data collection phase

8. Knowledge questionnaire about head nurses' coaching skills, tool (I) was used before, implementation of program.
9. Self-assessment questionnaire about head nurses' coaching skills, tool (II) was used before, implementation of program.
10. Novice nurses role ambiguity questionnaire tool (III) was used before, implementation of program.
11. The researcher collected data and gave direction of program for duration of 6 months (start from December month at 2019 to April 2020.

Construction of educational program

Putting of statement of instructional objectives, which derived from the assessed need of the sample and literature review.

Instructional objectives general

The main objective of the program is to improve head nurses coaching skills and make them able to manage novice nurses' role ambiguity.

Specific objectives

At the end of the program the head nurses should be able to

- Recognize coaching concepts
- Demonstrate coaching skills.
- Use coaching model.
- Discuss coaching process.
- Describe types and styles of coaching.
- Describe novice nurses' role ambiguity management.

Program contents

The content was designed to provide knowledge related to coaching skills through 6 sessions as follows:-

- **Session** (1) Coaching concept.
- **Session** (2) Coaching skills.
- **Session** (3) Coaching models.
- **Session** (4) Coaching process.
- **Session** (5) Types and styles of coaching.
- **Session** (6) Novice nurses role ambiguity management.

Selection of teaching methods

The methods used were lecture, group discussion, example from role play or real life, and work situations.

Teaching aids

The teaching aids used for attainment of program objectives were data show, flow sheets, hand out, pens, and papers.

Implementation of program

The study was carried on 50 head nurse.

The head nurses were divided into six groups. The program time was 12 hours for each group. The program was conducted for head nurses at meeting hall of Tanta International Teaching Hospital or inside head nurses office as available. The head nurses were informed about objectives of program. The researcher built good relationship and motivated them to participate and share in program activities.

Evaluation the effectiveness of the program is the final step that was planned to determine the extent to which head nurses subjects have acquired knowledge and self-assessment and novice nurses role ambiguity management it through:

- Pre and post implementation of the program testing of head nurses knowledge using (tool I) and level of skills using (tool II) and novice nurses role ambiguity management using (tool III).

Results

Table (1): Shows the age, gender, marital status, department, level of education, years of experience in nursing in unit as well as attended educational program about coaching skills were included. The age of head nurses ranged from 30 -<40 years with mean35.36±7.01. Head nurses 92% were female, 84% married. 92% had bachelor degree and 8% had master degree. They 48% had 10 < 20 years of experience in the unit with mean experience 13.2±6.6 years, and 82% not attended coaching skills program. Head nurses 34% worked as quality/infection control team, (16%) worked at internal ward / outpatient, while equal (8%) worked at surgical ICU and OR. All novice nurses' were nursing specialist, 54.8% aged 25 or more, the rest age <25 years, with mean 26.73±1.6, 72.6% were married. Novice nurses 20.5%, worked at surgical ICU and equal (16.4%) worked at neonate unit and medical ICU.

Figure (1): Shows levels of head nurses total knowledge about coaching skills pre and post program. Preprogram majority of head nurses had poor level of knowledge for coaching skills, but post program the majority were at good level.

Table (2): Shows that there was highly statistically significant improvement of head nurses level of total knowledge about coaching skills post than pre at ($p<0.001$). Preprogram majority (88%, 86% and 82%) of head nurse showed poor level of knowledge for dimension of novice nurses' role ambiguity management, coaching process and types and styles of coaching respectively. Most (80%, 76% and 74%) of head nurses showed poor level of knowledge for coaching skills, coaching concept and coaching models respectively. While, post program range (92%-82%) of head nurses showed good

level of knowledge for all dimension of coaching skills.

Table (3): Shows that there was highly statistical significant improvement of head nurses of all items of coaching skills post than preprogram (p= <0.001). Preprogram head nurses range (60% - 56%) showed low level for feedback, goal setting, clarifying, inquiry and questioning, and active listening skill. Post program changed to be range (80%- 86%) showed good level for all items of coaching skills.

Figure (2): head nurses' levels of total coaching skills pre and post program. Preprogram majority of head nurses had either low or moderate level of total coaching skills, changed post program to be majority of them had high level of skill.

Figure (3): Novice nurses levels of total role ambiguity pre and post program. Preprogram three quarter of novice nurses showed high level of total role ambiguity, changed to be majority of them had low level of total ambiguity post program.

Table (4): Shows that there was highly statistical significant change of novice nurses level of each item for role ambiguity post than preprogram (p= <0.001). Preprogram majority range (83.6%- 72.6%) of novice nurses showed high level of role ambiguity related to role definition , ambiguity related to training and experience, ambiguity related to role performance and job description and ambiguity related to social psychological aspects. They changed to be range (86.3%- 82%) had low level of ambiguity post program respectively.

Table (5): Shows that there was highly statistical significant change of novice nurses of all items of ambiguity related to role definition post than preprogram (p= <0.001). Preprogram majority ranged (89.0%- 79.5%) of novice nurses showed high level of ambiguity for items of lack of clear job description, lack of clear instruction for specialized skills, lack of self- confidence, lack of clear responsibilities to carry out ethical professional and lack of consistent information about adequate performance. They changed post program to be 75.3%, 89.0%, 80.8%, 83.6% and 84.9% had low level of ambiguity respectively.

Table (6): Shows that there was highly statistical significant change of novice nurses ambiguity of role performance and job description all items post than preprogram (p= <0.001). Preprogram majority ranged (84.9%, 80.8%) of novice nurses showed high level of ambiguity for lack of support from head nurse, absence of orientation program to perform task. They changed to be 79.5%, 86.3% respectively had low level of ambiguity post program. Also, preprogram range (72.6% -64.4%) of novice nurses showed

high level of ambiguity for lack of leadership, lack of sufficient information about work objectives and lack of appropriate supervision. They changed post program to be range (83.6%- 76.7%) had low level of ambiguity post program range.

Table (7): Shows that there was highly statistical significant change of novice nurses all items of ambiguity related to training and experience post than preprogram (p= <0.001). Preprogram majority (84.9%, 80.8%) of novice nurses showed high level of ambiguity for unclear criteria by which my role is evaluated and insufficient clinical practice experience to carry out duties properly, which changed respectively to be 82.2% and 79.5% had low level of ambiguity post program. Also, preprogram 78.1%,74.0% and 72.6% of novice nurses showed high level of ambiguity for have insufficient training, not receive work assignment and variability work related tasks and lack of autonomy to make decisions, which changed respectively to be 79.5%, 83.6% and 87.7% had low level of ambiguity post program.

Table (8): Shows that there was highly statistical significant change of novice nurses for all items of ambiguity of social and psychological aspect post than preprogram (p= <0.001). Preprogram majority (83.6%, 75.3% and 74.0%) of novice nurses showed high level of ambiguity for inadequate functional support, lack of meeting, lack of basic knowledge and skills and insecurities in personal communication, which changed respectively to be 80.8%, 78.1% and 84.9 had low level of ambiguity post program. Also, preprogram 67.1% and 64.4% of novice nurses showed high level of ambiguity for insufficient emotional support and lack of adaptation to new organizational climate, which changed respectively to be 83.6% and 89.0%, had low level of ambiguity post program.

Figure (4): Shows statistical significant positive correlation between head nurses total coaching skills and novice nurses total role ambiguity preprogram at (P = 0.044) and post program at (P = 0.001).

Table (1): Subjects characteristics (N= 123)

	Head nurse		**Novice**	
	N	%	N	%
Age				
<30	16	32	33	45.2
30- <40	20	40	40	54.8
40 or more	14	28		
Mean±SD	35.36±7.01		26.73±1.6	
Gender				
Female	46	92	51	69.9
Male	4	8	22	30.1
Marital status				
Single	8	16	20	27.4
Married	42	84	53	72.6
Department*				
Neonate unit	3	6	12	16.4
Renal dialysis unit	2	4	6	8.2
Lab/cath	2	4	4	5.5
Surgical ICU	4	8	15	20.5
Operating room(OR)	4	8	5	6.8
Sterilization	2	4		
Cardiology CCU	3	6	5	6.8
Bone marrow transplantation unit (BMT)	1	2	7	9.6
Medical /chest ICU	2	4	12	16.4
Pediatric unit	2	4	7	9.6
Internal ward/outpatient	8	16		
Quality team/infection control team	17	34		
Level of education				
Bachelor	46	92	73	100
Master degree	4	8		
Years of experience				
<10	16	32	33	45.2
10- <20	24	48	16	21.9
20 or more	10	20	24	32.9
Mean±SD	13.2±6.6		2.4±1.47	
Attended coaching program				
Once	9	18		
None	41	82		

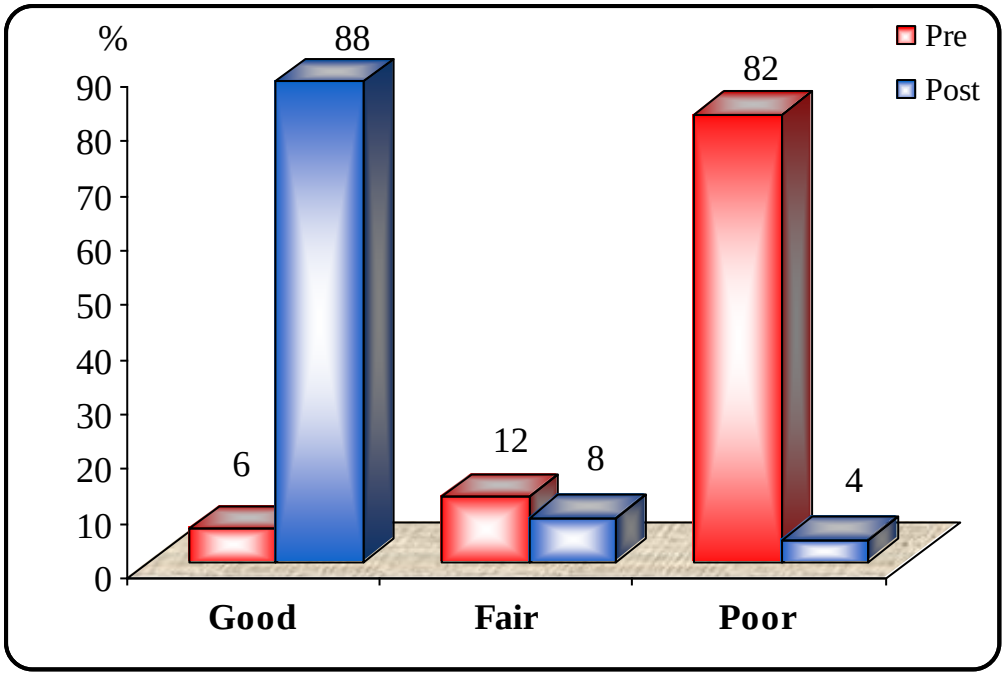

Figure (1): Levels of head nurses total knowledge about coaching skills pre and post program

Table (2): Level of head nurses total knowledge about coaching skills items pre and post program (No = 50)

Coaching skill Dimension	Pre			Post			X^2 (P-value)
	Good	Fair	Poor	Good	Fair	Poor	
	N %	N %	N %	N %	N %	N %	
Concept	10	14	76	86	10	4	**62.817 (<0.001**)**
Skills	6	14	80	82	10	8	**62.606 (<0.001**)**
Models	10	16	74	88	8	4	**63.784 (<0.001**)**
Process	4	10	86	90	6	4	**77.196 (<0.001**)**
Types and styles	12	6	82	92	6	2	**68.864 (<0.001**)**
Ambiguity management	2	10	88	84	12	4	**77.532 (<0.001**)**

****Highly significant at P < 0.01**

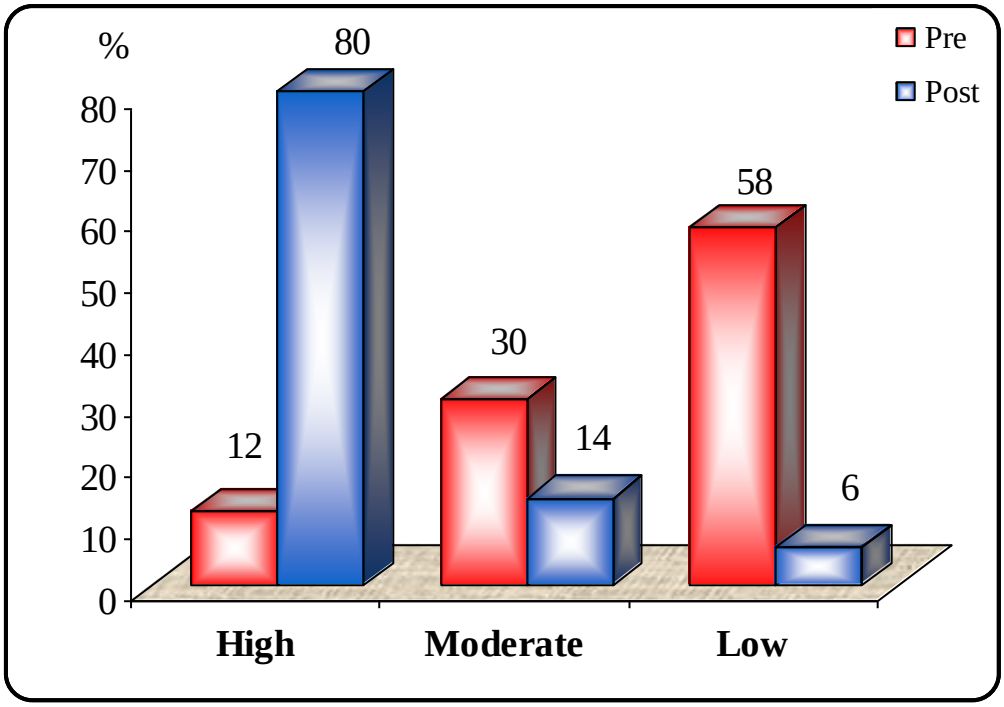

Figure (2): Head nurses levels of total coaching skills pre and post program

Table (3): Levels of percent of head nurses total of each coaching skills dimension pre and post program (N=50)

Skills items	Pre			Post			X^2 (P-value)
	High	Moder	Low	High	Moder	Low	
	N %	N %	N %	N %	N %	N %	
1-Active listening	16	28	56	82	12	6	**45.586 (<0.001**)**
-Paying close attention	12	26	62	86	12	2	**58.643 (<0.001**)**
-Demonstrating -physical expressions	16	38	46	82	12	6	**44.369 (<0.001**)**
-Paraphrasing	8	30	62	80	16	4	**57.070 (<0.001**)**
-Respond appropriately	18	22	60	82	10	8	**42.612 (<0.001**)**
2-Inquiry and questioning	10	34	56	80	14	6	**51.550 (<0.001**)**
3-Clarifying	14	30	56	82	12	6	**48.102 (<0.001**)**
4-Goal setting	6	36	58	84	10	6	**62.273 (<0.001**)**
5-Feedback	12	28	60	86	8	6	**55.585 (<0.001**)**

****Highly significant at P < 0.01**

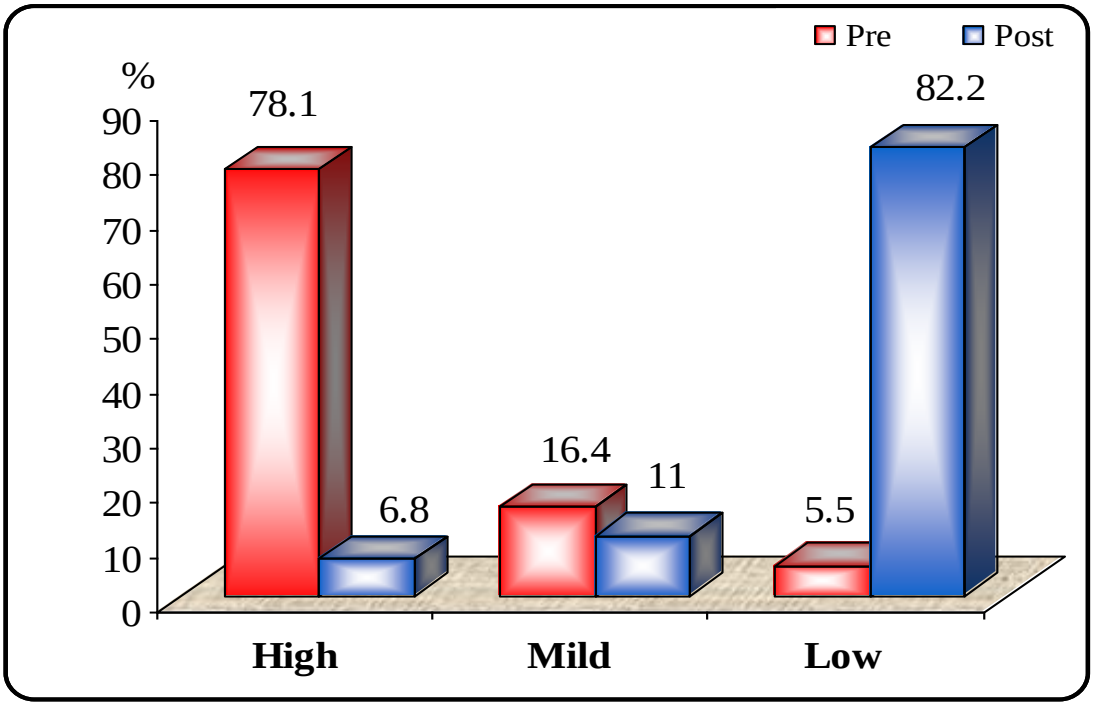

Figure (3): Novice nurses levels of total role ambiguity pre and post program

Table (4): Levels of percent novice nurses role ambiguity dimensions pre and post program (N=73)

Items of role ambiguity	Pre			Post			X^2 P-value
	High	Mild	Low	High	Mild	Low	
	%	%	%	%	%	%	
Ambiguity related to role definition items	83.6	11.0	5.5	6.8	6.8	86.3	**100.163 (<0.001**)**
Ambiguity related to role performance and job description	75.3	16.4	8.2	6.8	11.0	82.2	**86.648 (<0.001**)**
Ambiguity related to training and experience	78.1	16.4	5.5	6.8	11.0	82.2	**93.413 (<0.001**)**
Ambiguity related to social psychological aspects	72.6	20.5	6.8	5.5	11.0	83.6	**91.768 (<0.001**)**

****Highly significant at P < 0.01**

Table (5): Levels of percent novice nurses ambiguity of role definition items pre and post program (N=73)

Ambiguity related to role definition items	Pre			Post			X^2 P-value
	High	Mild	Low	High	Mild	Low	
	%	%	%	%	%	%	
-Lack of clear job description	89.0	8.2	2.7	11.0	13.7	75.3	**94.788 (<0.001**)**
-Lack of clear instruction for specialized skills	86.3	11.0	2.7	5.5	5.5	89.0	**112.527 (<0.001**)**
-Lack of consistent information about adequate performance	79.5	12.3	8.2	6.8	8.2	84.9	**91.305 (<0.001**)**
-lack of clear responsibilities to carry out ethical professional	80.8	13.7	5.5	4.1	12.3	83.6	**100.618 (<0.001**)**
-Lack of self confidence	82.2	11.0	6.8	6.8	12.3	80.8	**92.160 (<0.001**)**

****Highly significant at P < 0.01**

Table (6): Levels of percent novice nurses ambiguity of role performance and job description items pre and post program (N=73)

Ambiguity related to role performance and job description	Pre			Post			X^2 P-value
	High	Mild	Low	High	Mild	Low	
	%	%	%	%	%	%	
-Lack of appropriate supervision	64.4	23.3	12.3	2.7	13.7	83.6	**81.770 (<0.001**)**
-Lack of sufficient information about work objectives	72.6	17.8	9.6	8.2	15.1	76.7	**75.718 (<0.001**)**
-Absence of orientation program to perform task	80.8	12.3	6.8	5.5	8.2	86.3	**98.086 (<0.001**)**
-Lack of leadership	72.6	19.2	8.2	6.8	9.6	83.6	**87.207 (<0.001**)**
-Lack of support from head nurse	84.9	13.7	1.4	9.6	11.0	79.5	**99.131 (<0.001**)**

****Highly significant at P < 0.01**

Table (7): Levels of percent novice nurses ambiguity of role training and experience items pre and post program (N=73)

Ambiguity related to training and experience	Pre			Post			X^2 P-value
	High	Mild	Low	High	Mild	Low	
	%	%	%	%	%	%	
-I have insufficient training	78.1	16.4	5.5	5.5	15.1	79.5	**93.125 (<0.001**)**
-Insufficient clinical practice experience to carry out duties properly	80.8	15.1	4.1	4.1	16.4	79.5	**100.214 (<0.001**)**
-I not receive work assignment and variability work related tasks	74.0	24.7	1.4	8.2	8.2	83.6	**102.465 (<0.001**)**
-Unclear criteria by which my role is evaluated	84.9	8.2	6.8	6.8	11.0	82.2	**95.317 (<0.001**)**
-Lack of autonomy to make decisions	72.6	19.2	8.2	9.6	2.7	87.7	**92.324 (<0.001**)**

****Highly significant at P < 0.01**

Table (8): Levels of percent novice nurses ambiguity of social and psychological aspects items pre and post program (N=73)

Ambiguity related to social psychological aspects	Pre			Post			X^2 P-value
	High	Mild	Low	High	Mild	Low	
	%	%	%	%	%	%	
-Inadequate functional support(lack of meeting)	83.6	16.4	0.0	5.5	13.7	80.8	**109.166 (<0.001**)**
-Insufficient emotional support	67.1	20.5	12.3	6.8	9.6	83.6	**77.390 (<0.001**)**
-Insecurities in personal communication	74.0	16.4	9.6	8.2	6.8	84.9	**85.123 (<0.001**)**
-Lack of basic knowledge and skills	75.3	23.3	1.4	2.7	19.2	78.1	**103.640 (<0.001**)**
-Lack of adaptation to new organizational climate	64.4	28.8	6.8	5.5	5.5	89.0	**99.243 (<0.001**)**

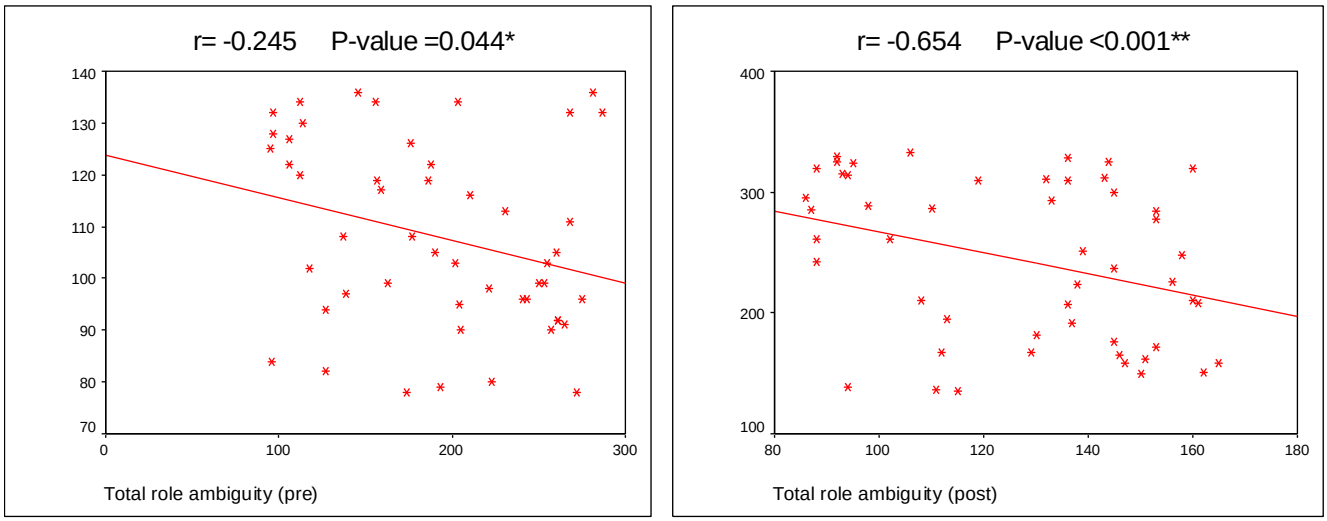

Figure (4): Correlation between head nurses total coaching skills and novice total role ambiguity pre and post program

Discussion

Coaching is a training method to develop novice nurses qualifications to work effectively to provide high quality care and services [23]. Through their head nurses having coaching skills, novice nurse can receive sound mentoring and feedback on technical aspect of their responsibilities. As well as head nurses was held accountable to help novice nurses to practice their new role through using of interactive listening and clarifying coaching skills [24]. So the present study education program is very important not only to improve head nurses coaching skills but also to manage novice nurses role ambiguity and held them being accountable for efficiently practice their new role.

Result analysis indicated that majority of present study head nurses at preprogram showed poor level of knowledge about total coaching skills. Actually they were unequipped with enough knowledge about total coaching skills because they not attend any related orientation or training programs. But those head nurses significantly improved immediately post attendance of present program sessions. The program gave them information about coaching concepts, skills, models, process and styles, as well as gave them information about novice nurses' role ambiguity management. Really the well-designed program attracted those head nurses to manage novice nurses' role ambiguity and educate them about their job description.

Actually the program clarified to head nurse's professional and psychological aspects of coaching role, so that they start to appreciate shared the opinion as the main purpose for coaching. They understand that coaching is useful tool for head nurses and novice nurses alike because it encouraged participants to learn about their strengths and weaknesses, develop their competencies and gain new skills and perspective. Beside that organizations can use coaching in various ways, such as to respond to performance problems, as a developmental tool, training, succession planning, and change management.

Bozer and Jones (2018) [25] stated that coaching is about the mutual relationship between head nurse and novice, that process has the purpose of facilitating professional and personal growth within the novice. Adding that **Rekalde et al. (2017)** [26] found that coaching was a lot more effective than other developmental tools in regards to the observed behavioral changes and sustainability.

Current study result reve6aled that pre-program majority of head nurses showed either low or moderate level of total coaching skills, most probably due to most

of head nurses had 30-<40 years and not attend previous training program about coaching skills. Actually they need to be stimulated to make workshop about coaching skills as active listening, questioning, clarifying, goal setting and feedback skills. Those head nurses are responsible to enhance novice work performance and to improve their communication skills, cooperation and ethical relationship. Most probably those head nurses are in need for either self - learning or educational program to improve personal development, helps to realize novice potential, supporting, encouraging, and most importantly transferring responsibility for their own development directly to the novice who benefits from coaching.

Really the education program can help novice find more and new professional opportunities, as well as create and learn new skills that will contribute not only to organizational objectives, but also to a novice individual career goals. **Malling et al. (2020)** [27] suggested the use of coaching skills in hospitals is less than in private and public organizations where coaching is often utilized as a professional development strategy in continuing professional development. The participants perceived that coaching program improved their work attitude and it was effective in enhancing core-performance.

Finding of present study illustrated that pre-program more than half of head nurses showed low level for total active listening coaching skills. Most probably due to head nurses not paying close attention or serve as role model for novice nurses and not demonstrating physical expression every time.

Gad (2019) [28] support the present study and found that minority of technical nursing students know that effective listening is giving attention to the patient effectively until he finished. They might need to improve their ability to listen and utilize nonverbal communication skill to use silence with full connection on patient through using small comments (like uh-huh, yes, right). But post program majority of technical nursing students started to give full attention to verbal message, tone of voice, posture and gesture to understand their patient problems.

Finding of present study illustrated that pre-program half of head nurses showed low level of inquiry and questioning skill. Unfortunately, those head nurses not make space for novice nurses responses to the question and they don’t used questions as how we solve this problem. Those coaching head nurses overlook asking the novice nurses if understand their direction and giving information about their work objectives and not give chance to ask question or to clarify that they comprehend

the message. Those coaching head nurses need to know the importance of asking questions to novice nurses. Really asking questions can increase motivation, develop novice way of comprehending things, and positively influence novice. Novice nurses will be more confident in their own potential, especially in a situation of change, and help them to approach their set goals.

Training to use open end questions is very important for head nurses to stimulate creative thinking, problem solving and cognitive growth of novice nurses. As well as encourage novice nurses full meaningful response relying on novice own knowledge, feeling perspective and have ideas. The skillful use of open end question focused on the needs of the novice, opening up new learning is very important for their work experience. **Sibiya (2018)** [29] explained that the head nurse can use verbal methods as questioning, facilitation, empathic statements, clarification, and summarizing in an appropriate instructive communication for effective decisions for novice nurses. She/he can use closed questions to check information. Added that head nurses uses facilitation to help novice verbalize their concerns by acknowledging and legitimizing the problem, showing respect, and a willingness to share the feelings and needs.

Results revealed that pre-program head nurses showed low level of clarifying coaching skills. Actually those head nurses lack experience in using reflecting back ethical professional responsibilities and lack use of paraphrasing method for what the novice has said. Most probably those head nurses need to be trained for using reflecting back and paraphrasing tools. The coach head nurses required to check the novice understanding of the message through giving short statement or summary and helps them clarify their thinking. As well as they have to demonstrate attentive listening for what the novice has said and way of helping them reflect on their own situation. Beside make summarizing as a shared activity skill not only to allow the novice to pause for thought, but also for the head nurse coach to draw out the key themes for the novice to verify and build upon.

The present study finding illustrated that pre-program sixty percent of head nurses showed low level of total feedback skill. Really those head nurses are in great need to practice using feedback skill after identify strength and weakness point of novice, identifying gap and show them how to improve and overcome their weakness. Immediately post program, head nurses gave attention in their practice to give feedback to the novice as the right

way and major key for success. They take care to give clear feedback being constructive, relevant, solution focused, positive and motivating. They practice the art of feedback and have the ability to transmit and receive in the most effective way and achieved the dual purpose of motivation and development. Head nurses realized that feedback is a very useful part of the performance evaluation process and by practice convinced it would be un wise to just think what it would be unwise to just think of feedback as part of the annual performance evaluation review.

Actually head nurses immediately post program committed to be undertaken the feedback in a fairly regular and consistent manner to be really effective. As **Moore (2019)** [30] state that specific feedback, head nurse provide novice with increased awareness of their strengths and deficiencies, and help clarify their understanding of the nature of any problems they need to address. Without such assessment, it would be unclear which change efforts would have the most impact. Therefore, when coaching includes significant assessment and feedback, head nurse should be more successful in furthering their development and changing their novice behavior in important ways.

Current study result revealed that three quarter of novice nurses showed high level of total role ambiguity pre-program. Most probably those novices were lacking orientation program explain their role definition, training and experience. Apparently this due to most of those novice nurses were <25 years and lack knowledge about their job description and responsibilities. Their role ambiguity leads them to have dissatisfaction with work, increase their emotional exhaustion and decrease their personal accomplishment. Role ambiguity may also influence those novice personal life and correlated with work-life conflict. Apparently novice nurses need educational program to improve their knowledge and practice about different roles. Yet when novices have role clarity they will have satisfaction with work and increase their job performance in complex organizations.

Carmina et al. (2018) [31] found that majority of novice nurses came from the 20-24 age groups. Most of the novice nurses were assigned in the special areas of the institution. Also, majority of the novice nurses have less than 6 months of experience in the institution, so that there is need for training courses about their role to accomplish their tasks effectively. **Morrison (2017)** [32] state that role ambiguity is seen as a serious obstacle for novice nurses and can cause consequences such as preventing novice from using their skills at full capacity as well as causing burnout due to work overload.

Post-program novice nurses had low level of ambiguity due to the training program for head nurses lead them to provide a safe learning environment for managing novice nurses ambiguity. Really the program promoted opportunities for practicing ambiguity management skills and building effective teams. As well as novice nurses can define effectively their roles and responsibilities within the workplace boundaries.

Analysis of results revealed that majority of novice nurses showed high level of ambiguity of role definition pre-program. Those novices reported that they lack clear job description and lack clear instruction for specialized skills. As well as reported lack of self – confidence and lack of clear responsibilities to carry out ethical professional. Most probably that was due to their lack of information required for adequate performance to carry out professional and ethical practice. Role theory was used to understand that any role (like that of a nurse specialist) requires that a part or identity be assumed by specific social participants, with expectations held and understood for that role by all participant's including patterned and characteristic.

Abd-Elaziz (2017) [33] supported present result and asserted that majority of nursing interns showed high ambiguity related to role definition. The nursing interns reported lack of orientation program and lack of authority to carry out job assignment. They also lack realistic hospital expectations of their job, and lack clear information needed to carry their job.

Results illustrated that majority of novice nurses showed high level of ambiguity related to role performance pre-program. Actually preprogram those novice have lack of support from head nurse, absence of orientation program to perform task, lack of leadership, objectives and lack of appropriate supervision. Also feelings of inadequacy and lack of necessary knowledge for carrying out specific procedures often leads them to fear of making a mistake. Role theory provides a way of incorporating the wider contextual elements that are needed to develop a sustainable approach to nurse specialist development. Role performance is concerned with how nurses perceive the boundaries of their role within their organization, and is often used to distinguish in-role from extra-role behavior, especially in relation to organizational citizenship behavior.

Pre-program majority of novice nurses showed high level of ambiguity related to role training and experience, and social and psychological aspects. Most probably they have unclear criteria for their role evaluation, insufficient clinical practice experience to carry out duties properly,

and they not receive work assignment. They also have variability work related tasks, and they lack of autonomy to make decisions. Beside that novice nurses have inadequate functional support (lack of meeting), and lack of basic knowledge and skills. As well as they have insecurities in personal communication, insufficient emotional support and lack of adaption to new organizational climate.

Actually, post program those novice nurses receive adequate functional and emotional support, have securities in personal communication, availability of knowledge and skills and adapt to new organizational climate. As well as statistical significant positive correlation found between head nurses total knowledge, total coaching skills and novice nurses role ambiguity post program. This could direct the attention that implementation of program about coaching skills improved head nurses knowledge and skills and decreased novice nurses' role ambiguity. Really, the coaching skills program maximized the head nurses knowledge about effective coaching skills to manage role ambiguity for novice nurses because the program was planned and implemented according to their pre assessed needs. Furthermore, simplification and well-presented educational matter with suitable educational aids attracted head nurses to practice their coaching knowledge and properly manage role ambiguity, and build good relationship with novice nurses. **Akhtar and Rehman (2018)** [34] assert that managerial coaching result in psychological ownership and learning goal orientation and creative behaviors of nurses.

Ideally coaching is a one-to-one process of head nurses helping novice nurses to improve, grow and get to a higher level of performance. Through providing focused feedback, encouragement and raising awareness, as well as used to access the roots of what is causing the problem with the novice in question and then empower them to take the necessary steps to create their own action plan to move forward. The present study coaching programs have impacted positively on head nurses and facilitated behavioral changes in some key leadership competencies, such as self-awareness, emotional intelligence and strategic thinking. Really the effective coaching skills program permit head nurse be trained in required tools and methods for improving novice nurses performance and managing their role effectively. Using coaching skills supported head nurse in novice nurses' orientation role transitions, initiatives changing responsibilities for ongoing development and succession planning.

Conclusion

Tanta International Teaching Hospital head nurses were lacking coaching skills and practice while novice nurses have high level role ambiguity which reflected on their demand for educational program to explain necessary information and train them for practicing effective coaching skills. The present study well designed program improved their knowledge and coaching skills practice. As well as novice nurses became oriented about their job description and decreased their role ambiguity. Still apparently head nurses need specific follow up and periodical orientation program to always develop their coaching skill knowledge and practice and to remove novice nurses' role ambiguity.

Recommendation

- Head nurses should periodical attend education program to update their coaching skill knowledge and practice.
- Periodical orientation program to novice nurses about their job description.
- The head nurse should periodically examine the novice performance against the standard to help them identify strength, weakness and needs. Records such as novice complaints, absenteeism, productivity reports can be used to determine the novice needs.
- The head nurse should undergo self - learning and workshops to acquire skills and best practice in coaching. This will assist them in identifying the specific job performance skills needed and developing specific measurable and performance objectives.
- Head nurses encourage novice nurses for self -learning on their items of role ambiguity.
- The impact of coaching program should be evaluated. The head nurse should compare the benefits of coaching with the objectives that were set before coaching commenced. This can be reflected through performance rating, and novice reaction to the benefits of coaching.

References

1. Diochon P, Louis D. Complex situations in coaching. A critical case based approach. First published by Rutledge, 52 Vanderbilt A venue. New York.2019.
   https://www.taylorfrancis.com.
2. Murray M, Sundin D, Cope V. Benner's model and Duchscher's theory: Providing the Framework for understanding new graduate nurses' transition to practice. Nurse Education

in Practice. 2019; 34 (1):199-203. Available at: https://ro.ecu.edu.au/ecuworkspost2013/5632.

3. Schuelke S. The Effects of Preceptor Coaching Intervention on Use of Clinical Judgment by New Gradate Nurses. Published Doctor of Philosophy. University of Nebraska Medical Center.2016. Available at: http:/digitalcommons.unmc.edu/etd/170
4. Ling S, Tharmalingam S, Kumaran V. Determinants of work stress and job performance among administration employees in education sector in Malaysia: Examining the moderating role of social support. International Journal of Advanced Scientific Research and Management. 2018; volume 3 Issue 2.
5. Janiero R. Role conflict and role ambiguity in the work of judges: The perceptions of Portuguese judges. Brazilian Journal of Public Administration. 2017; (15): 927-46.
6. Cheen Ee M, Ming W, Teoh Y, Yen Y. Role conflict, role ambiguity and role overload: The strains of work family conflict. Faculty of Business. Meleka Malaysia. The Social Science. 2017; 12(9): 1566. 1576.
7. Martinez I, Salanova M, Plaez M. Coaching based leadership intervention programs: A controlled Trial Study. Positive Organizational Intervention: Contemporary Theories, approaches and Applications. 2020. available at: https://doi.org/10.3389/fpsyg.2019.03066.
8. Burrows K. Coaching skills – ultimate guide- coaching techniques. Coaching skills-tips. Making Business Matter. Trainers to the UK Grocery Industry. 2018. Available at: www.making businessmatter.co.uk.
9. Westcott L. How coaching can play a key role in the development of nurse managers. Journal of Clinical Nursing. 2016; 25(17-18): 2669-77.
10. Korotov K. Coaching for leadership development. In Handbook of Coaching. 2016. 139-158.ISBN 978-1-4739-1653-1
11. Shah V. How to improve leadership skills through executive coaching .2017. Available at: https:// www. inevestopedia.com.
12. Spector N. Transition to practice in nonhospital setting. Retrieved from National Council of State Boards of Nursing: 2015; 6 (1): 4-13.
13. Abu Salah A, Aljerjawy M, Salama A. Gap between theory and practice in the nursing education: The role of clinical setting. Palestine College of Nursing. JOJ Nurse Health Care. 2018;.7 (2).;555-70.
14. Dawson B, Trapp R. Basic and clinical biostatistics. 3rd ed. New York: Lange Medical Book/ McGraw – Hill.

Medical Publication Division Co; 2011. 467.

15. Kabbel A. Impact of coaching program on nurse managers' awareness regarding coaching leadership. Med. J. Cairo University. 2016; 84(1): 1481-1487. Available at: www. Medical journalof cairouniversity.net.
16. Passmore J. Excellence in coaching the Industry Guide. 2nd ed. 2015.chapter 2. 16,18,19,20, 83,84,85,86,87.
17. Baxter C. The Effect of Coaching on Nurse Manager Leadership of Unit based Performance Improvement: Exploratory Case Study. Published Doctoral Thesis. Kentucky University. 2013. Available at: http://www. Jofamericanscienceorg.
18. Bruce L. Coaching skills self-assessment. 2017. Available at: www.BruceLeeSpeakers.com.
19. Mannion R. Guide to coaching for potential coaches and for potential coaching clients. HR Division leadership, Education & Development. 2015; 6 (10): 16.
20. Mc Carthy G. and Milner J. Managerial coaching: Challenges, opportunities and training. Journal of Management Development. 2013; 32(7):768-79.
21. Palmino M, Frezati F. Role conflict, role ambiguity and job satisfaction: Perception of the Brazil controllers. 2016; 51(2):165-181.
22. Tang Y, Change C. Impact of role ambiguity and conflict on employee creativity. African Journal of Business Management. 2010; 44 (6): 869-81.
23. Mudallal R, Othman W, Al Hassan N. Nurses burnout: The influence of leader empowering behaviors, work conditions, and demographic traits inquiry. The Journal of Health Care Organization, Provision, and Financing. 2017; 1(54): 1-10. Doi:10.1177/0046958017724944.
24. Vucic M, Bolton L. Turning ideas into actions. How research on identity, psychological resources, and leadership support can inform career coaching. Coaching: An International Journal of Theory, Research and Practice.2019; 12 (2): 162-178.
25. Bozer G, Jones R. Understanding the factors that determine workplace coaching effectiveness: A systematic literature review. European Journal of Work and Organizational Psychology. 2018; 27 (3):1–20.
26. Rekalde I, Landeta J, Albizu E, Fernandez-Ferrin P. Is executive coaching more effective than other management training and development methods? Management Decision. 2017; 55(10): 2149–2162. Available at: https://doi.org/10.1108/MD-10-2016 0688.

27. Malling B, Lasson L Stegeager N, Just E. How Group Coaching Contributes to Organizational Understanding Among Newly Graduated Doctors. 2020. BMC Medical Education, 20(1), 1-8. (193). Available at: http://doi.org/ 10.1186/s12909-020-02102-8.
28. Gad L. Efficacy of Teaching Program about Efficient Patient Communication Using Role-Play Strategy on Technical Nursing Students' Practice. Unpublished Doctoral Thesis. Tanta University. Faculty of Nursing. 2019.
29. Sibiya M. Effective Communication Skills in Nursing. 6th edition. 2018. DOI: 10.5772/intechopen.74995.
30. Moore C. 32+ Coaching skills and techniques for life coaches & leaders. 2019. Positive Psychology. Available at: https:// positive psychology.com.
31. Carmina V, Ponce1, Lorraine P, Christian B. Engaging novice nurses through reflecting and interactive coaching huddle. Journal of Nursing & Healthcare. 2018; 3(3):1-12.
32. Morrison A. A qualitative exploration of multiple case studies of the perception of school social workers concerning their roles in public schools. Published Doctoral Thesis. Linden Wood University. 2017. 10123628.
33. Abd-ELaziz M. Study Relationship of Internship Clinical Rotation and Role Ambiguity among Nursing Interns. Unpublished Master Thesis. Tanta University. Faculty of Nursing. 2017.
34. Akhtar S, Rehman M. Impact of managerial coaching behavior on job performance: Analyzing the role of organization commitment and role clarity. Future of marketing and management. Journal of Managerial Sciences. 2017; 40(3): 297-318.

Assessing the Patterns of Youth Use of Social Media and their Parental Oversight

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Abstract

Background: Social media plays a crucial role in the lives of networked adolescents and take up a great deal of their time. Parental oversight or monitoring is essential at this period to protect against inaccurate, inappropriate or unsafe content and contacts. **Aim of the study**: Was to assess the patterns of youth use of social media and parental oversight for them. **Study design:** Descriptive research design was used in this study. **Setting**: This study was conducted in all governmental 15 secondary schools in Tanta city. **Subjects:** A convenience sample of 1000 students (6.12%) (483 boys and 517 girls) from 1st grade to 3rd grade of 15 secondary schools were selected by proportional allocation method. **Tool of data collection:** Structured questionnaire sheet that consisted of five parts: socio-demographic data; availability of social media and internet media; causes of using social media; patterns of using social media; parents' oversight to their adolescents' social media activities. **Results:** The results of this study showed that 78.1% and 76.2% of studied males and females respectively use social media for communication and more than half of them use it since more than three years for about 3 times per day. The majority (84.1% and 71.4%) of males and females, their parents did not oversight them. **Conclusion: T**he majority of the studied adolescents use social media for communication since more than three years for about 3 times per day. Lack of parental oversight was prevalent among the studied subjects while using social media. **Recommendations:** It is essential to design health educational programs to preparatory and secondary school students to improve their inappropriate use of social media and to prevent its hazards. Educate the parents and the families about the importance of their oversight and follow up their adolescents during using social media.

Keywords: Adolescents, Patterns, Social Media, Parental oversight

Introduction

Adolescence is a time of self-disclosure and conflict to find a balance between autonomy and connectedness. It is a period in which an individual face major physical, psychological, body and brain changes. It may begin as early as age 8 and extend until age 24. Adolescents represent one fifth of the global population. In Egypt, according to Egypt Demographic profile 2018, the age group of 15-24 years represents 18.94% of the total population[1,2].

Today's adolescents have unprecedented access to modern technology and use them in expected and unexpected ways. They spend many hours a day using technology[3]. Adolescents are among the highest users of technology and are typically early adaptors of new technologies including internet, mobile phones, social media and other devices [4].

Social media has a diversity of functions and structures of applications. It takes on many different forms, involving both web-based and mobile technologies including internet forums, instant messaging (IM), social networking services (SNS) and micro blogs. Today, new applications in social media such as Facebook, IM, blogs, Twitter, YouTube and online games are well accepted as the preferred tools for communication among adolescents. The most six main groups of social media are social networks, wikis, content communities, blogs, micro-blogs and forums. This categorization of social media forms because of its interpersonal and user-generated nature "two way interaction" [5].

In Britain 2017, and United States 2016, an estimated 85% of internet users aged 16 years and more than 90 % of 16- 29 year olds had the highest usage of social networking sites. Problematic internet use among adolescents is between 4% and 8% up to 8.5% of US youth 8 to 18 years of age meet criteria for internet gaming disorder [6-8]. Also, active users of social media in Arab region in 2015, was aged ≥15 years who use at least one social media channel [9].

Egypt had about a quarter of total Facebook users in Arab region and 75% of total Arab country Facebook users were youth (15-29) years [10, 11]. In Egypt 2015, Panel Survey of Young People that compare between years 2009 and 2014 found that, compared to before the revolution, internet and media usage among young people aged 15-19 years quickly growing from 7.5% in 2009 to 25% in 2014 [12]. There were 42.00 million social media users in Egypt in January 2020. The number of social users in Egypt increased by 2.9 million (+7.3%) between April 2019 and January 2020 [13].

Problematic internet use among a sample of Egyptian adolescents revealed that 65.6% were having internet addiction, 61.3% were gaming addicts, and 92.8% Facebook addicts [14].

While media use is an integral part of the daily life of adolescents, there are a number of risks associated with social media use, specifically, negative effects on mental health, cyber bullying, texting/sexting, dangers of sexual solicitation and exposure to problematic and illegal content and privacy violations. The categories of risks teenagers face on a social media are broadly the same as those they face on the internet in general [15, 16].

With millions of teenagers on the Internet, millions of parents are trying to understand what their teens are doing and why. Understanding how technology use impacts teens' learning, growth, and social development is critical for their health and wellbeing and for the welfare of the family. Yet, balancing parent authority with teen privacy and autonomy is difficult. Proliferating internet-accessible media have altered the home context, raising questions about parental influence on youth computer/internet use. Greater general parental oversight of adolescents predicted less teen engagement in networking site use [17].

Parents should watch what their teens watch so they can talk about what they're seeing on their screens. They know their teens best, so they are the best judge of what they can handle. They can use a number of programs and apps to monitor teens' social media accounts which alert parents to any inappropriate language or photos and give detailed reports of teens browsing history and how much time they spent online and on each site [18].

Parents' talking to their teens about safe online practices is a teachable moment. These kinds of discussions can provide important benefits of instilling ethical behavior. Teens learn how to develop responsible online practices and that their behavior towards others may influence the way others feel about themselves and how they feel about the teen. Parents should ensure that their teens demonstrates their ability to follow the rules, meet their expectations, and understand the consequences of unacceptable behaviors[19].

School health nurse has an important role of helping students to change their life style to optimal health through increasing awareness, change risk behaviors and support good health practice. It's important to note common misconceptions among students regarding the use of social media[20, 21].

In addition, she can educate the adolescents and their parents about protective measures and about safe

environment as keep power supply outside bedroom and decrease the exposure at night [22]. Furthermore, she can teach the parents to be aware of their teens' online through frequent track of their online behavior. Tell them to protect privacy by keep their personal information online and password secret [23]. Moreover, school health nurse must provide the parents with clear instruction to observe their adolescents if bullied as becomes sad, angry or appears anxious when receiving a text or email or avoid discussions or is secretive about cell phone activities[24].

The aim of the study

The aim of this study was to assess the patterns of youth use of social media and their parental oversight.

Research Questions

1-What are the patterns of youth use of social media?

2- To what extent the parents' oversight their adolescents during using social media? 3- What are the factors that may affect parental oversight for their youth during using social media?

Subjects and Method

Study Design

Descriptive research design was used in this study.

Settings

This study was conducted in all governmental general secondary schools in Tanta city. Their number was 15 schools representing the two educational zones in Tanta city, east and west zones (nine schools of east educational zoon and six schools of west zoon).

Subjects

A total sample of 1000 students (483 boys and 517 girls) that represent 6.12% of the total students from 1st grade to 3rd grade of secondary schools in both east and west educational zones were conveniently selected by proportional allocation method as shown in the table:

Educational zoon	Total No. of students		Total	The selected 6.12% of student		Total
	Boys	Girls		Boys	Girls	
East educational zoon	4374	3654	8028	267	223	490
West educational zoon	3485	4809	8294	216	294	510
Total	7859	8463	16322	483	517	1000

Tools of the study

A structured questionnaire sheet was used in this study to collect necessary data. It was developed by the researchers based on a thorough review of literatures [25-28]. The tool comprises of 22 questions divided into five main parts: -

Part (1): Socio-demographic data of the study subjects (13) questions:

Which covered data about sex, age, grade, parents' education & occupation, family income, with whom he/ she live, the number of family members. birth order, and daily expense.

Part (2): Availability of social media and internet media (1) question:

Which assessed the accessibility of internet and social media through the assessment of the availability of different devices as mobile phones, laptop, personal computer or through cyber and net café.

Part (3): Causes of using social media by the study subjects (1) question:

Which covered data about the students' different causes of connecting to internet and social media such as: communication with relatives and friends, read blogs and news, discuss current events, for interesting with time, share photos and entertainment, learning and search, escape from reality, electronic shopping and others.

Part (4): Patterns of using social media by the students (4) questions:

Such as the age of starting use the social media for first time, ability of using social media without help, frequency of using social media / day, and duration spending / session,

Part (5) Parents oversight for their adolescents and causes for lacking of oversight (3) questions:

Included asking if parents oversight their adolescents use of social media, their awareness of their adolescents social media activities and causes of lack of parental oversight.

Method

1. Before conducting the study, an official permission was obtained from

the dean of the faculty of nursing to the manager of the educational administration in Gharbia governorate and then to the managers of selected schools in Tanta city.

2. Ethical considerations:

- The consent of ethical committee of Faculty of Nursing, Tanta University was obtained to conduct the study.
- **Informed consent was obtained from all selected students after providing appropriate explanation about the purpose of the study.**
- **Every student was ensured about the privacy and confidentiality of all information collected.**

3. Data collection procedure:

- Developing the tool:

Structured questionnaire sheet was developed by the researchers based on relevant literature reviewed [25- 28]. Then the study tool was tested for face and content validity by a jury of five expertise in the field of community health nursing.

- **The pilot study**:

A pilot study was carried out on 10% of the students (100 students from the three grads) for testing the clarity and applicability of the study tool and to estimate the length of time needed to fulfill data collection from each student as well as to identify any obstacles or problems in data collection. Those students were excluded from study sample.

- Based on the result of the pilot study, study tool was tested for its **reliability** using Cronbach's Alpha test based on standardized items. It was (0.865) which indicated highly reliable tool.

-Field work:

- The data were collected by the researchers over a period of two months starting from 15 October until 15 December in the academic year (2019/ 2020).
- Each student was informed about the purpose and benefits of the study at the beginning of the interview.
- One class from each grade (first, second and third) in each school was selected randomly to reach the required number.
- Each student was asked to fill the questionnaire by himself / herself in the presence of the researcher for providing any clarification or explanation as needed.
- The tool was administered to all students at their schools at an appropriate time as coordinated with the director of each school.

4. Data analysis

The collected data was organized, tabulated and statistical analyzed using SPSS software statistical computer package version 23. For quantitative data, the range, mean and standard deviation were calculated. For qualitative data,

comparison was done using Chi-square test (χ^2). Correlation between variables was evaluated using Pearson's and Spearman's correlation coefficient (r). A significance was adopted at level P<0.05 for interpretation of results of tests of significance. However, a strong significance was adopted at level P < 0.01.

5. Difficulties

The sample collection from both boys and girls students in 3rd grade was difficult because they were not at schools and so they were reached through private classes.

Results

Table (1) represents the distribution of the studied students according to their socio-demographic data. It shows that, about three quarters (70% and 75.2%) of the studied boys and girls were in the age group of 14<17 years respectively. Their age ranged between 15-20 years for boys and 14-19 years for girls with a mean age of (16.92±1.028) and (16.67±1.075) among boys and girls respectively. There was no significant difference found between age of boys and girls (P =0.062).

Regarding the studied students' educational grade, the table shows that nearly one third (33.5%) of both boys and girls were from first grade, second grade (32.5% and 33.7%) and third grade (33.5% and 32.9%) respectively. No significant difference was found between grade of boys and girls (P =0.964).

The table shows also that the majority of studied boys and girls were lived with their parents and siblings (87.8% and 85.9%) respectively with no significance difference (P =0.063). Nearly three quarters 73.5% of studied boys compared to 81.4% of studied girls had five or more family members and 22.6% of boys compared to 15.1% of girls had four family members. There was a high significance difference between family members of boys and girls (P=0.008).

Concerning the birth order of the studied students this table reveals that, less than half of studied boys and girls were the oldest (43.1% and 44.7%) respectively with no significance differences between boys and girls (P=0.276). In relation to daily expense the table shows that 43.1% of studied boys compared to about half of studied girls (49.3%) had daily expense from five to ten pounds and 16.6% of boys compared to 11.2% of girls had >10 pounds daily expense with a significance difference (P=0.026).

Table (2) shows the distribution of the studied students according to their parents' socio-demographic characteristics. Concerning father's education, more than one third (38.3% and 37.1%) of the studied boys their fathers had secondary education and university education respectively. While, more than two fifths (43.5%) of the studied girls their fathers had university

education / post university and about one third (32.7%) of them their fathers had secondary education. Significant difference was found between boys and girls in relation to their fathers' education (P =0.042). As for mother's education, the table illustrates also that about one third (35.4% and 30.2%) of the studied boys their mothers had secondary education and university education / post respectively. While, more than one third (37.1%) of the studied girls their mothers had university education / post and about one third (32.7%) of them their mothers had secondary education. No a significant differences were found between boys and girls mothers' education (P =0.141).

In relation to the father's occupation, the majority of fathers of both boys and girls were worked (93.8% and 91.9%) respectively. While, about two thirds (62.1% and 67.5%) of both boys' and girls' mothers were housewives respectively. No significant differences were found also between boys' and girls' fathers and mothers occupation (P =0.242 and 0.074) respectively. Furthermore, the table illustrates that more than half (58.2%) of studied boys and nearly two thirds (63.8%) of studied girls had enough family income. No significant differences were found between family income of both boys and girls (P =0.187)

Table (3) and figure (1) represents the distribution of the studied students regarding accessibility of social media and causes for using it. The table and figure show that, more than three quarters (78.1% and 76.2%) of both boys and girls had mobile phones respectively and nearly half (48.0% and 45.6%)of them had computers respectively. Furthermore, about one quarter (27.3% and 24.8%) of both boys and girls had laptops or tablets respectively. Indeed, cyber & net café were available for 15.3% of the studied boys and for only 4.6% of the studied girls. There was a high statistically significant difference between boys and girls in relation to availability of cyber & net café as a social media (P < 0.01).

Concerning the goal of using social media, the table indicates that the majority (86.5% and 83.8%) of both boys and girls respectively used social media for communication with relatives /friends. Also, it was obvious that, more than half (51.1% and 56.9%) of both boys and girls respectively and about two fifths (38.1 % and 44.9%) of them respectively used the social media for learning / search or for share photos /entertainment respectively. The table reveals that about one third (33.5%, 33.7% and 31.3%) of studied boys respectively and of studied girls (36.6%, 28.6% and 25.1%) respectively used the social media for read blogs / news, discuss

current events and for interesting with time respectively. The table also shows that less than one quarter (18.0% and 22.2%) of both boys and girls respectively used the social media as a way to escape from reality. The difference between boys and girls was significance only in relation to using social media as for interesting with time and share photos and entertainment (P =0.031 and 0.03) respectively.

Table (4) represents the distribution of the studied students regarding patterns of using social media. The table reveals that slightly more than one half (51.1% and 54.7%) of the studied boys and girls respectively had starting to use social media for the first time since more than three years. Regarding the ability to use social media without help, it was clear that the highest frequencies of both boys and girls were excellent or good in using social media (43.3% and 44.7%) and (32.3% and 31.1%) respectively while, only 3.7% of boys and 1.4% of girls don't use social media.

In relation to the frequency of using social media / day, the table reveals that more than half of boys (52.8%) and about two thirds of girls (60.7%) used social media 1-3 times/ day. While, more than one fifth of studied boys and girls used social media > 5 times /day (24.0% and 20.5%) respectively.

Concerning the duration of spending / session, the table illustrates that 11.8% of boys and 17.6% of girls spent >2 hours using social media each time. Indeed, slightly less than one quarter (22.6% and 23.8%) of both boys and girls spent 5-15 minutes on using social media each time respectively. Significant statistical differences were observed only among boys and girls in relation to the frequency of using social media / day (P =0.039) and the duration of spending / session of using social media (P < 0.01).

Table (5) represents the distribution of the studied students regarding their parents' oversight on using social media by them. The table reveals that there was no parental oversight for the majority of boys (84.1%) and for less than three-quarters of girls (71.4%) during their use of social media. However, girls were more mentored than boys. Highly significant differences were observed (P < 0.01). Moreover, the table shows that 92.1% of males and 67.9 % females reported that their parents were not aware of their online social networking activities.

Concerning the causes of lack of parents' oversight or oversight, about half of the studied boys (50.9% and 48.4%) reported that this may be due to the parents' preoccupation and parents' confidence in their adolescents respectively.

While, (52.2% and 42.6%) of the studied girls reported that lack of parents oversight may be related to the parents' confident in their adolescents and preoccupation respectively. The table shows also that (32.5% and 23%) of studied boys and girls respectively reported that lack of parents oversight may be due to the ignorance of using social media. About one quarter (24.0%) of boys and 18% of girls reveals lack of oversight to lack of awareness of parents about hazards of using social media.

High statistically significant differences were found between studied boys and girls regarding causes of lacking of parents oversight including parents preoccupation, unawareness of hazards of social media and ignorance of using social media as a causes of lack of oversight (P = 0.008, 0.019 and 0.001) respectively.

Table (6) shows the correlation between socio-demographic data of the studied students and their parents and their patterns of using social media. The table illustrate that there was a significant negative correlation between students' sex and number of family members and frequency of using social media / day (P =0.018 and 0.007) respectively. While, a significant positive correlation was found between students' birth order and frequency of using social media / day (P = 0.045). Also, there was a positive correlation between grade of students and starting to use social media for first time (P < 0.01).

Furthermore, the table shows that there was a highly positive correlation between father's and mother's education and all items of patterns of using social media as starting to use social media for first time, ability of using social media without help, frequency of using social media /day and duration /session (P < 0.01).

In addition, a highly negative correlation was found between father's occupation and ability of using social media without help by the students (P= 0.001). While, there was a highly negative correlation between mother's occupation and all items of patterns of using social media as starting to use social media for first time, ability of using social media without help, frequency of using social media / day and duration / session (P < 0.01).

As for daily expense, the table illustrates that there was a highly positive correlation between it and all items of patterns of using social media as starting to use social media for first time, ability of using social media without help, frequency of using social media / day and duration / session (P < 0.01).

Regarding family income, the table shows that there was a highly positive correlation between family enough income that can be saved and all items of patterns of using social media as starting to use social media

for first time, ability of using social media without help, frequency of using social media / day and duration / session (P = < 0.01). On the other hand, a highly negative correlation was fond between those who haven't enough income and all items of using social media patterns as starting to use social media for first time, ability of using social media without help, frequency of using social media / day and duration / session (P = < 0.01). The table also reveals that there was a negative correlation between family enough income and frequency of using social media / day and duration / session (P = 0.015 and 0.049) respectively.

Table (1): Distribution of the studied students according to their Socio-demographic data

Students' socio-demographic data	The studied students (n=1000)				
	Boys (N=483)		Girls (N=517)		χ^2
	No.	%	No.	%	P
Age in years:					
▪ 14< 17	338	70.0	389	75.2	3.484
▪ ≥17-20	145	30.0	128	24.8	0.062
Range	**(15-20)**		**(14-19)**		
Mean±SD	**16.92±1.028**		**16.67±1.075**		
Grade					
▪ First	162	33.5	173	33.5	
▪ Second	159	33	174	33.6	0.074
▪ Third	162	33.5	170	32.9	0.964
Live with					
▪ Parents and siblings	424	87.8	444	85.9	
▪ Father and siblings only	22	4.6	15	2.9	
▪ Mother and siblings only	30	6.2	48	9.2	10.462
▪ Siblings only	3	0.6	3	0.6	0.063
▪ One of the relatives	4	0.8	2	0.4	
▪ Others	0	0.0	5	1.0	
No of family members including student					
▪ 3 members	19	3.9	18	3.5	**9.635**
▪ 4 members	109	22.6	78	15.1	**0.008****
▪ ≥5 member	355	73.5	421	81.4	
Birth order					
▪ The oldest	208	43.1	231	44.7	2.572
▪ Middle	174	36.0	163	31.5	0.276
▪ The youngest	101	20.9	123	23.8	
Daily expense					**7.334**
▪ <5 pounds	195	40.4	204	39.5	**0.026***
▪ 5-10 pounds	208	43.1	255	49.3	
▪ >10 pounds	80	16.6	58	11.2	

* Significant at P < 0.05 . ** Significant at P < 0.01 .

Table (2): Distribution of the studied students according to their parents' socio-demographic data

Parents' socio-demographic data	The studied students (n=1000)				
	Boys (N=483)		Girls (N=517)		χ^2 P
	No.	%	No.	%	
Father's education					
▪ Illiterate or reads and writes	20	4.1	11	2.1	
▪ Elementary education	99	20.5	112	21.7	**8.228**
▪ Secondary education	185	38.3	169	32.7	**0.042***
▪ University education / post	179	37.1	225	43.5	
Mother's education					
▪ Illiterate or reads and writes	38	7.9	37	7.2	
▪ Elementary education	128	26.5	119	23.0	5.464
▪ Secondary education	171	35.4	169	32.7	0.141
▪ University education / past	146	30.2	192	37.1	
Father's occupation					
▪ Worked	453	93.8	475	91.9	1.367
▪ Not worked	30	6.2	42	8.1	0.242
Mother's occupation					
▪ Worked	183	37.9	168	32.5	3.188
▪ House wife	300	62.1	349	67.5	0.074
Family income					
▪ Enough	281	58.2	330	63.8	
▪ Enough and save	138	28.6	128	24.8	3.357
▪ Not enough	64	13.3	59	11.4	0.187

* Significant at P <0.05.

Table (3): Distribution of the studied students regarding accessibility of social media and causes for using it

Accessibility of social media and causes of using	The studied students (N=1000)								χ^2	P
	Boys (N=483)				Girls (N=517)					
	No		Yes		No		Yes			
	No.	%	No.	%	No.	%	No.	%		
Social media accessible through: (•••)										
▪ Computer	251	52.0	232	48.0	281	54.4	236	45.6	0.571	0.450
▪ Mobile phone	106	21.9	377	78.1	123	23.8	394	76.2	0.481	0.488
▪ Laptops or tablets	351	72.7	132	27.3	389	75.2	128	24.8	0.858	0.354
▪ Cyber& net café	409	84.7	74	15.3	493	95.4	24	4.6	32.21	< 0.01**
causes of using social media (•••)										
▪ Communication with relatives/friends	65	13.5	418	86.5	84	16.2	433	83.8	1.533	0.216
▪ Read blogs and news	321	66.5	162	33.5	328	63.4	189	36.6	0.998	0.318
▪ Discuss current events	320	66.3	163	33.	369	71.4	148	28.6	3.056	0.080
▪ For interesting with time	332	68.7	151	31.3	387	74.9	130	25.1	4.626	0.031*
▪ Share photos and entertainment	299	61.9	184	38.1	285	55.1	232	44.9	4.72	0.03*
▪ learning and search	236	48.9	247	51.1	223	43.1	294	56.9	3.299	0.069
▪ Escape from reality	396	82.0	87	18.0	402	77.8	115	22.2	2.774	0.096
▪ Electronic shopping	436	90.	47	9.7	484	93.6	33	6.4	3.803	0.051
▪ Others as (political or sex purposes)	361	74.7	122	25.3	403	77.9	114	22.1	1.426	0.232

* Significant at P < 0.05 . **Significant at P < 0.01 ••• More than one response

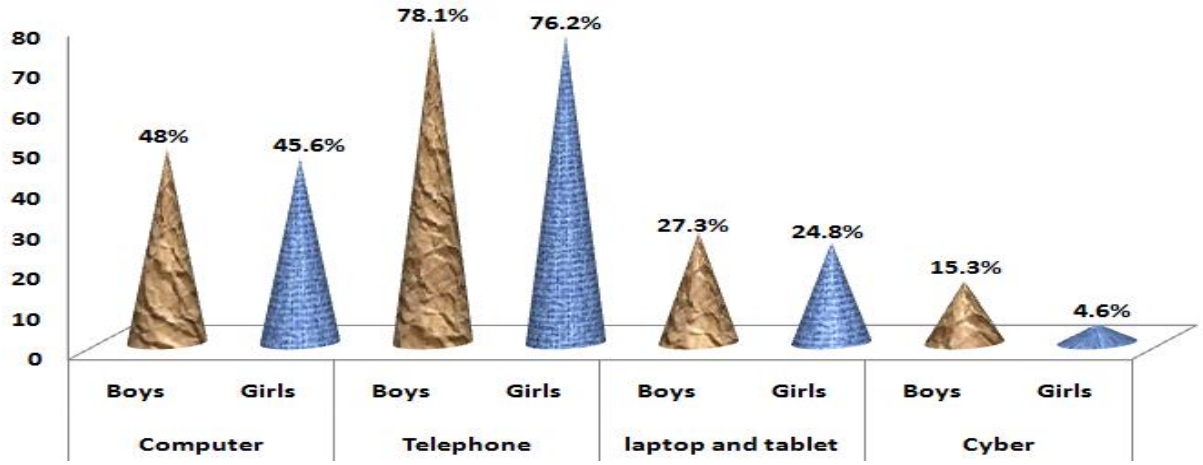

Figure (1): Distribution of the studied students regarding accessibility of social media

Table (4): Distribution of the studied students regarding patterns of using social media

Patterns of using social media	The studied students (n=1000)				χ^2 P
	Boys (N=483)		Girls (N=517)		
	No.	%	No.	%	
Starting to use social media for first time					
▪ Since <1 year	86	17.8	94	18.2	
▪ 1-2 years	69	14.3	80	15.5	5.591
▪ 2-3 years	81	16.8	60	11.6	0.133
▪ > 3 years	247	51.1	283	54.7	
Ability of using social media without help					
▪ Don't use it	18	3.7	7	1.4	
▪ Poor	32	6.6	32	6.2	6.975
▪ Fair	68	14.1	86	16.6	0.137
▪ Good	156	32.3	161	31.1	
▪ Excellent	209	43.3	231	44.7	
Frequency of using social media / day					
▪ 1-3 times	255	52.8	314	60.7	**6.496**
▪ 3-5 times	112	23.2	97	18.8	**0.039***
▪ > 5 times	116	24.0	106	20.5	
Duration of spending / session					
▪ <5 minutes	74	15.3	53	10.3	
▪ 5-15 minutes	109	22.6	123	23.8	**23.915**
▪ 15-30 minutes	66	13.7	101	19.5	< 0.01**
▪ 30-60 minutes	96	19.9	66	12.8	
▪ 1-2 hours	81	16.8	83	16.1	
▪ >2 hours	57	11.8	91	17.6	

* Significant at P < 0.05 **Significant at P < 0.01.

Table (5): Distribution of the studied students regarding their parents' oversight on using social media by them

Parents' oversight	The studied students (n=1000)								χ^2	P
	Boys (N=483)				Girls (N=517)					
	No		Yes		No		Yes			
	No.	%	No.	%	No.	%	No.	%		
Parents oversight (monitor) you when using social media	406	84.1	77	15.9	369	71.4	148	28.6	**23.042**	< 0.01**
Parents were aware of your online social networking activities	445	92.1	38	7.9	351	67.9	166	32.1	**23.042**	< 0.01**
Causes of lack of parents oversight (•••)										
-Preoccupation	237	49.1	246	50.9	297	57.4	220	42.6	7.044	**0.008****
-Unawares of hazards of social media	367	76.0	116	24.0	424	82.0	93	18.0	5.489	**0.019***
-Confident in their adolescents	249	51.6	234	48.4	247	47.8	270	52.2	1.425	0.233
-Ignorance of using social media	326	67.5	157	32.5	398	77.0	119	23.0	11.249	**0.001****
-Don't know	406	84.1	77	15.9	453	87.6	64	12.4	2.617	0.106

* Significant at P < 0.05 **Significant at P < 0.01 ••• More than one response

Table (6): Correlation between socio-demographic data of the studied students and their parents and their patterns of using social media

Socio-demographic Data	Patterns of using social media							
	Starting to use social media for first time		Ability of using social media without help		Frequency of using social media / day		Duration / Session	
	r	P	R	P	R	P	r	P
Sex								
▪ **Boys**	-0.017	0.583	-0.019	0.558	0.075	**0.018***	-0.054	0.087
▪ **Girls**	0.017		0.019		-0.075		0.054	
Grade	0.142	< 0.01	0.029	0.364	0.019	0.539	-0.019	0.538
Father's education	0.101	**0.001****	0.213	< 0.01	0.101	**0.001****	0.104	0.001**
Mother's education	0.142	< 0.01	0.249	< 0.01	0.121	< 0.01	0.131	< 0.01
Father's occupation	-0.061	0.052	-0.108	**0.001****	-0.029	**0.365**	-0.035	0.271
Mother's occupation	-0.092	**0.004****	-0.122	< 0.01	-0.112	< 0.01	-0.114	< 0.01
No of family members	0.049	0.121	0.057	0.071	-0.085	**0.007****	0.011	0.724
Birth order	0.008	0.795	0.016	0.619	0.064	**0.045***	0.053	0.093
Daily expense	0.138	< 0.01	0.213	< 0.01	0.233	< 0.01	0.168	< 0.01
Family income								
▪ Enough	0.021	0.508	0.002	0.945	-0.077	**0.015***	-0.062	**0.049***
▪ Enough and save	0.076	**0.016***	0.125	< 0.01**	0.161	< 0.01**	0.122	< 0.01**
▪ Not enough	-0.134	< 0.01**	-0.171	< 0.01**	-0.103	< 0.01**	-0.071	**0.024***

* Significant at P < 0.05 . ** Significant at P < 0.01 .

Discussion

Social media have benefits when used for education, information and access health-promotion messages. However, social media have also a lot of health hazards due to inaccurate, inappropriate or unsafe content and contacts. Parents face challenges in oversight their adolescents' use and in serving as positive role models [29]. Therefore, the aim of this study was to assess perception of adolescent students regarding different health hazards of social media.

The present study showed that the majority of studied boys and girls were living with their parents and siblings. This result is in the same line of the study done by **Shaheen et al. (2016)** [30], who revealed that the majority of school students lived with their parents at home.

Concerning studied students parents' education, the results of the present study showed that, more than one third of both of them their parents had secondary and university education. Furthermore, the result showed that there were highly positive correlation between fathers' and mothers' education and students patterns of using social media. This result is in agreement with the study done by **Desouky and Ibrahem (2015)** [31], who found that, two fifths of subjects' parents had secondary education.

Also, this result of current study is in agreement with the study of **Ahmadi et al. (2014)** [32], about internet addiction among Iranian adolescents who reported that, nearly half of his participants' parents had a high education with a significant difference between the three types of net users (addicts, potential addicts and non-addicts) and their parents' education. This agreement may be due to the important of parents' education which make them more confident in setting the rules and aware of hazards of social media so can influence on their adolescents ' behaviors.

With no doubt, high and optimal family income help students to use social media through the availability of different sources. In this regard, the present study illustrated that, nearly two thirds of studied boys and girls had enough family income. This is in accordance with the result of **Shaheen et al. (2016)** [30], who stated that nearly half of the students were of middle socioeconomic level and one quarter of them were of high socioeconomic level. Also, **Saied et al. (2016)** [33], showed that more than one half of both Egyptian and Malaysian students were had enough family income and can save it.

The present study showed that, social media was accessible for more than three quarters of both boys and girls through mobile phones while less than half of them access it through computers and about one quarter of both of them access social media through laptops or tablets (table 4). This is in agreement with the result of the study done by **Saied et al. (2016)** [33], who study internet and Facebook addiction among Egyptian and Malaysian medical students. They stated that, the majority of both of them had internet access especially through mobile phone and laptop. On the other hand, the current study revealed that less than one fifth of the studied boys compared to only 4.6% of studied girls access social media through cyber or net café. Which is contradicted with **Saied et al. (2016)** [33], who found that half of subjects access the internet through net café. This difference may be related to that most of students in secondary school in Tanta city were from around villages in which there wasn't available net café.

In the same line, the study done by **Shaheen et al. (2016)** [30] revealed that, all of studied sample had computers, two thirds of them had private laptops and most of them had mobiles and internet access at their homes. This attributed to the fact that the mobiles more accessible and available for all ages at any time and any place especially away from their parents supervision.

Adolescents usage of social media has a lot of goals. Results of the present study indicates that, the majority of studied boys and girls used social media for communication with relatives /friends. Also, more than half and about two fifths of both of them used the social media for learning / search and for share photos / entertainment.

This result goes in the same line with **Chowdhury et al. (2015)** [34], who reported that the main cause for using the computer and the internet by youth was for chatting with their friends for a prolong time without benefits. Also, this result go in the same line with the study done by **Saied et al. (2016)** [33], who showed that, the majority of both Egyptian and Malaysian students reported that they use Facebook to keep in touch with friends & relatives and for studying issues. This is because of the adolescents and young people period needs for identity development and their susceptibility to peer influence and change of social interaction.

Unfortunately, the age of start and duration of using social media sources can affect the occurrence of health hazards that associated with social media use. Also, the study done by **Desouky and Ibrahem (2015)** [31], reported that, the significant

correlation between General Health Questionnaire (GHQ) scores "experienced severe problems and psychological distress "and young internet addiction test (YIAT) for those who spent more than 4hours /day and more than 6 times weekly.

The result of present study revealed that more than half of the studied boys and girls had starting to use social media for first time since more than three years. This finding is in agreement with the study done by **Jafarkarimi and Saadatdoost (2016)** [35], who showed that, half of students had starting to use social media for first time since ≥ 4years and two fifths of them had starting to use it for first time since < 4years. While, **Saied et al. (2016)** [33], showed that, the majority of Egyptian and Malaysian students had starting to use social media since > 5 years. This is because he studied university students while the present study studied secondary students who are in early age group.

Regarding to the duration of each media contact, the present study illustrated that one fifth of boys and girls spent >2 hours using social media / session. This result is in agreement with the study done by **Jafarkarimi and Saadatdoost (2016)** [35], who showed that, more than half of the students younger than 20 years old were addict social media use while about one half of them use social media 1-3 hours/ day.

This result also is agreement with **Jamaluddin and Jeyakumar (2012)** [36], who showed that nearly three quarters of respondents can be considered as SNS addict who spent at least 5-8 hours daily. Also, most of them login to SNS daily and spent at least three hours every login. This may be explained as this adolescence period is a time to make outside relationships in which they using social media to explore outside world.

Effective parenting is a solution to monitor their adolescents' social media activities and help them think about online presence in moral and ethical ways. Parents have wide range of actions to monitor their teen's online as speaking with their teen about acceptable and unacceptable online behavior as well as checking up their teen websites, taking a proactive approach to prevent problems and using parental tools to monitor or block online content [37, 38]. The study done by **Martha (2012)** [37], revealed that, only online safety measures weren't adequate in protecting adolescents online but a combination of parental oversight, education, enlightenment and service providers policies help to reduce online risks.

However, the present study revealed that the majority of studied boys and girls reported that their parents didn't oversight them, while using social media and that they are not aware of their social media

activities. Concerning the causes of lack of parents' oversight, about half of the studied boys and girls perceived that, this may be due to the parents' preoccupation and parents' confidence in their adolescents. This results is in the same line with the result of study done by **El Gazzar (2013)** [39], who reported that the majority of adolescents stated that their parents do not set any rules regarding their internet usage and the adolescents just ignoring the whole experience when facing risks.

However, these results are in contrast with the result of **Moawad and Ebrahem (2016)**[40], who stated that most of adolescents reported that, their parents give them enough amount of oversight, observing and give them advices about their way of using mobile or internet and their parents dealing with them as a responsible person. Also, a national survey of **Anderson (2016)** [41]**,** showed that, parents of teens ages 13 to 17, in 2014 and 2015 in United states (U.S.) reported that most parents check their teens online; 61% have ever checked their teen's social media profiles; 56% have ever friended or followed their teen on Facebook or other social media platform; nearly half of parents know their teen's email password and 39% of them using parental controls for blocking or oversight their teen's online activities.

This difference may be due to the lack of parents' awareness of social media hazards and parents preoccupation with life burden and related to culture difference. Overall despite parents' concerns about their teen's online activities, parents may not know much about them and not effective at setting limits and oversight their activities that may be due to increasing smart phones, parents' lack of knowledge about these websites and adolescents think that sharing their personal experiences to their parents may be less acceptable. In addition, lack of parenting skills as communication including listening, availability, mutual respect, acceptance and understanding their behavior and their problems may also effecting factors.

The results of the present study revealed that there was a significant relationship between parents' education and the students' patterns of use to different social media. This result is in line with the study done by **Mazaheri et al. (2014)** [42], who revealed that, highly educated parents tend to socialize their adolescents into the modern information technology world.

The present study presented that all items of patterns of using social media increases with enough and save family income. On the other hand, all items of patterns of using social media decreases with family haven't enough income. This finding is disagreement with the study done by **Naz**

et al. (2011) [43], who showed that smartphone use has been increasing in all economic and age sectors. Modernism and technological advancement provide the opportunities for individual's income and economic position as the technology excessive uses which adversely influences the economic structure. Also, the study done by **Martha (2012)** [37], revealed that, the income was not a factor in internet oversight. This disagreement may due to parents with higher incomes and more skillful with the internet would be more set rules regarding internet use than parents with lower socioeconomic and limited skills.

The present study revealed presence of a significant correlation between students' sex and the frequency of using social media / day. Studied boys are more frequent of using social media / day than girls. This result is disagreement with the study done by **Gorkemli (2017)** [44], who stated that, no significant relation between students' sex and internet usage. While, the study done by **Kuss et al. (2012)** [45], stated that the males are more susceptible to internet addiction than females. This finding is in agreement with study done by **Salehi et al. (2014)** [46], who revealed that boys students reported problematic internet use more than girls**.**

These results may be explained as female students in eastern cultures have more parental supervision than males so, they haven't much time to use the internet than boys. In addition, the nature of secondary school education may be a barrier towards having enough time to a degree of internet addiction. Moreover, gender is an important factor in the adoption of technology that male tend to more highly usefulness of technology while, females tend to ease of use it.

At the end we can see that our adolescents can't see the whole picture about the nature of social media and internet usage and focus only on their benefits. They need more orientation and health educational messages to target this aspect.

Conclusion

At the end of this study, it can be concluded that the telephone was the most available method for studied students to access social media. The majority of them use social media for communication since more than three years s for about 3 times per day. Lack of parental oversight (monitoring) was prevalent among the studied subjects while using social media. Moreover, most of males and two thirds of females reported that their parents were not aware of their online social networking activities. Preoccupation was reported as a cause for lack of parental oversight from about half of the studied adolescents.

Recommendations

So the study recommended that health educational programs should be designed and directed to preparatory and secondary school students to improve inappropriate use of social media to prevent its hazards. Educate the parents and the families about the importance of their oversight and follow up to their adolescents during using social media. Also, emphasizing the role of parents in discussing the hazards of social media and internet with their adolescents and improve their self-esteem and self-acceptance rather seeking approval from others through these sites is essential. Moreover, emphasizing the role of school health visitor in increasing awareness of adolescent students about different hazards of social media and internet. Further researches is required to investigate factors associated with excessive uses of social media especially psychological and social factors.

References

1. Crosnoe R, Johnson M. Research on adolescence in the Twenty-First century. Annual Review of Sociology. 2013; 37(1):439–460.
2. Index Mundi. Egypt Demographics Profile 2018 – Index Mundi, 2018. Available at: https://www.indexmundi. com/egypt/demographics _profile.html
3. Simuforosa M. The impact of modern technology on the educational attainment of adolescents. International Journal of Education and Research. 2013; 1 (9): 1-8.
4. Mullan K. Technology and children's screen-based activities in the UK: The story of the millennium so far**.** Child Indicat. Res. 2018; 11 (6): 1781-1800.
5. Sylvia M, Lee S .User perceptions of social media: A comparative study of perceived characteristics and user profiles by social media. Online Journal of Communication and Media Technologies. 2013; 3(4):149-178.
6. Liu D, Baumeister R. Social networking online and personality of self-worth: A meta-analysis. Journal of Research in Personality. 2016; 64(1): 79-89.
7. Cramer S, Inkster B. Status of mind: Social media and young people's mental health and wellbeing. (Report.) London, England: Royal Society for Public Health (UK) and Young Health Movement (UK). 2017. Available at https://www.rsph.org.uk/static/uploaded/d125b27c-0b62-41c5-a2c0155a8887cd01.pdf.
8. Jelenchick L, Eickhoff J, Zhang C, Kraninger K, Christakis D, Moreno M. Screening for adolescent problematic Internet use: Validation of the Problematic and Risky Internet Use Screening Scale (PRIUSS). Acad. Pediatr. 2015; 15(6):658–665.

9. Arab Social Media Influencers Summit. Arab Social Media Report WPP. Com, 1st report. 2015. Available at:https://www.wpp.com/govtpractice/media/wppgov/arabsocialmediareport-2015
10. Mourtada R, Salem F. Arab Social Media Report: Civil Movements: The Impact of Facebook and Twitter. Dubai School of Government. 2011;1(2):1-30.
11. Attia M B. Impact of Facebook on Egyptian youth culture identity Lecturer of Radio and TV, Media Department. College of Language & Communication. Alexandria. Arab Academy for Science. Technology and Maritime Transport. 2018 (6): 1-28.
12. Roushdy R. Summary report: Panel survey of young people in Egypt 2014 generating evidence for policy, programs and research. Cairo: Population Council. 2015:1-13. Available at: www.popcouncil.org/.../survey-of-young-people-in-egy...
13. Digital 2020: Egypt- Data Reportal – Glopal Digital Insight. Available at: https://datareportal.com/reports/digital-2020-egypt
14. Khalil S A, Kamal H, Elkholy H. The prevalence of problematic Internet use among a sample of Egyptian adolescents and its Psychiatric Comorbidities. Int. J. Soc. Psychiatry. 2020 Dec; Doi: 10.1177/0020764020983841
15. Outback treatment (program of internet addiction). The Dangers of Social Media for Teens. 2020. Available at:https://www.outbacktreatment.com/the-dangers-of-social-media-for-teens/
16. Durbin J, Cristina R, Lundeen H. Social media and adolescents: What are the health risks? June 8, 2018. Available at: https://www.clinicaladvisor.com/home/features/social-media-and-adolescents-what-are-the-health-risks/
17. Vaala S E, Bleakley A. Monitoring, mediating, and modeling: Parental influence on adolescent computer and Internet use in the United States. Journal of Children and Media. 2015; 9 (1): 40-57. Published online: 07 Jan 2015.://www.tandfonline.com/doi/abs/10.1080/17482798.2015.997103
18. Ben-Joseph E P. Monitoring your child's media use. 2019. Available from https://kidshealth.org/en/parents/monitor-media.html
19. Mintz S, aka Ethics Sage. Parents Monitor their Teens Social Media Activities – Ethics. Feb 19, 2019. Available from: https://www.ethicssage.com/2019/02/should-parents-monitor-teens-social-media-activities.html.
20. Tejedor S, Pulido C. Challenges and risks of Internet use by children. How to Empow-er Minors? Comunicar. 2012; 39 (XX):65-72.
21. Viero V, Farias J, Ferraz F, Simoes P, Martins J. Educacao em Saude com

Adolescentes: Analise da Aquisicao.de Conhecimentos Sobre Temas de Saude. Esc Anna Nery Rev Enferm. 2015; 19(3):484-90. [cited 2016 Oct 10]Available at: https://www.scielo. br/j/ean/a/wyHpK9Nm4p4wjjp7sHKb kLw/?format=pdf&lang=pt

22. Hanninen O, Knol A, Conrad A. Environmental burden of disease in Europe: Assessing nine risk factors in six countries. Environ Health Perspect. 2014; 122(5):439–46.
23. Culture and Youth. Review: Stop Cyber bullying before it starts – Culture and Youth. 2014. Available at: cultureandyouth.org/.../articles.../revie w-stop-cyberbullying-starts
24. Help Guide. Dealing with Cyberbullying: Tips for kids and parents to prevent and abuse. Help guide, 2016. Available from: www. helpguide.org/articles/abuse/cyberbull ying.htm
25. Kirik A, Arslan A. A quantitative research on the level of social media addiction among young people in Turkey. International Journal of Science Culture and Sport (IntJSCS). 2015; 3(3):108-122.
26. Kaya T, Bicen H. The effects of social media on students' behaviors: Facebook as a case study. Computers in Human Behavior. 2016; 59(C): 374-379.
27. Albarashdi H, Bouazza A, Jabur N, Al-Zubaidi A. Smartphone addiction reasons and solutions from the perspective of Sultan Qaboos University Undergraduates: A Qualitative Study. Int. J. Psychol. Behav. Anal. 2016; 113 (2):1-10.
28. Abraham A. Sexting Uncensored: An Exploratory Study on the Behaviors, Experiences and Perceptions of Sexting among College Students. Published Master Thesis of Public Health. College of Health and Human Services. California State University. 2015:1-100. Available at: https://www.researchgate.net/profile/A nju_Abraham4/publication/281652117 _Sexting_Uncensored_An_Explorator y_study_on_the_Behaviors_Experienc es_and_Perceptions_of_Sexting_amon g_College_Students/links/55f32a6608 ae63926cf2352b.pdf
29. Reda M, Rabie M, Mohsen N, Hassan A. Problematic Internet users and psychiatric morbidity in a sample of Egyptian adolescents. Psychology. 2012; 3(8): 626-31.
30. Shaheen H, Farahat T, Gaber H. Problematic Internet use among medical school students. Department of Family Medicine, Menoufia University Faculty of Medicine, Egypt. J. Child Adolesc. Behav. 2016; 4(3): 2375-94.

31. Desouky D, Ibrahem R .Internet addiction and psychological morbidity among Menoufia University Students, Egypt. American Journal of Public Health Research. 2015; 3(5):192-8.
32. Ahmadi K. Internet addiction among Iranian adolescents: A Nationwide study. Acta Med Iran. 2014; 52(6): 467-472.
33. Saied S, Elsabagh H, El-Afandy A. Internet and Facebook addiction among Egyptian and Malaysian medical students: A comparative study. Tanta University, Egypt International Journal of Community Medicine and Public Health. Int. J Community Med Public Health. 2016; 3(5):1288 -1297 .
34. Chowdhury D, Roy I, Biswajeet S. Impact of Facebook as a Social Networking Site (SNS) on youth generations: A case study of Kolkata City. International Journal of Humanities and Social Science Invention ISSN. 2015; 4 (6): 28-42.
35. Jafarkarimi H, Saadatdoost R. Facebook addiction among Malaysian Students. International Journal of Information and Education Technology. 2016; 6(6): 465-469.
36. Jamaluddin H, Jeyakumar R. Determinants and prevalence of Social Networking addiction among Varsity Students in Malaysia. Faculty of Business and Law, Multimedia University. 2012:1-8. Available at: https://www.researchgate.net/publication/270740671_Determinants_and_prevalence_of_Social_Networking_addiction_among_varsity_students_in_Malaysia
37. Martha S. Parents' perceptions of the influence of Social Media Networking on the children of Demonstration. Master thesis in Mass Communication. Secondary School, Ahmadu Bello University, Zaria. 2012:1-99. Available at: https://journals.sagepub.com/doi/full/10.1177/0042085915623334
38. Toombs E. Evaluating the Parent Adolescent Communication Toolkit: Usability, MeKirik A, Arslan A. A Quantitative research on the level of social media addiction among young people in Turkey. International Journal of Science Culture and Sport (IntJSCS). 2015; 3(3):108-122.
39. El Gazzar N. The role of social media networks in enhancing political change amongst adolescents in Egypt: A survey. Misr International University. Stirling International Journal of Postgraduate Research. 2013;1 (2) :1-11.
40. Moawad G, Ebrahem G. The relationship between use of technology and parent-adolescents social relationship. Journal of

Education and Practice. 2016; 7(14):170-178.

41. Anderson M. Parents, Teens and Digital Monitoring-Pew Internet, 2016. Available from: www. pewinternet.org/PI_2016-01-07_ Parents-Teens-Digital-monitoring .FINAL. p.
42. Mazaheri M, Mohamed F, Karbasi M. Mobile Phone usage patterns among students in Iran. Reef Resources Assessment and Management Technical Paper. 2014; 40(1): 313-319.
43. Naz A, Khan W, Daraz U, Hussain M. The malevolence of technology: An investigation into the various socio-economic impacts of excessive Cell Phone use among University Students (A Case Study of University of). International Journal of Academic Research in Business and Social Sciences. 2011; 1(3): 2222-6990.
44. Gorkemli N. Internet and Social Media usage of secondary school students in rural areas. Manas. Journal of Social Studies. 2017; 6(1): 1-11.
45. Kuss D, Griffiths M. Internet gaming addiction: A systematic review of empirical research. International Journal of Mental Health and Addiction. 2012; 10(2): 278-96.
46. Salehi M, Khalili M, Hojjat S, Saleh M, Danesh A. Prevalence of Internet addiction and associated factors among medical students from Mashhad, Iran in 2013. Iran Red Crescent Med J. 2014; 16(5): e17256.

Relation between Health Literacy and Health Promoting Behaviors among Elderly at Tanta City

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Abstract

Health literacy is an emerging concept in the health care environment. It is one of the main factors that is related to adoption of the healthy lifestyle behaviors. Low health literacy in older adults leads to poor overall health. **The aim of the study:** was to assess the relation between health literacy and health promoting behaviors among elderly at Tanta city. **Study design**: A descriptive correlational study design was used in this study. **Study settings:** This study was conducted at the outpatient clinics of health insurance hospital at Tanta city**. Study subjects:** A convenience sample of 400 elderly who attend the previous setting was included in the study. **Study tool:** A structured interview schedule was used to collect data in this study which consisted of four parts**: Part I:** Socio-demographic characteristics and medical history of the elderly**. Part II:** Assessment of health literacy for the elderly. **Part III:** The Health Promotion Lifestyle Profile II (HPLP-II). **Part IV:** Assessment of the elderly knowledge about the basic health information. **Results:** about two thirds of the studied elderly had poor level of health literacy while more than half of the studied elderly had moderate level of adherence to health promoting behaviors. In addition, there was significant positive correlation between total health literacy scores, total knowledge scores, and total health promotion behaviors scores (P<0.005).**Conclusion:** Poor health literacy level was associated with low adherence to the healthy lifestyle among the studied elderly. Therefore, the community health nurse should organize health education programs about health promoting lifestyles and health literacy for older adults to help in improving their overall health.

Key wards: Health literacy ,Promoting behaviors , Elderly.

Introduction

Recently, there has been massive increase in the number of the older adult worldwide. According to World Health organization (WHO) the proportion of the world's population over 60 years will nearly double from 12% to 22% between 2015 and 2050 **(1).** In Egypt, the Central Agency for Public Mobilization and Statistics (CAPMAS) stated that, the number of older persons who are 60 years and over reached 6.410 million in 2018, which represents 6.7% of total population. It is expected to reach 20.8% in 2050 **(2).** Therefore, there is an urgent demand to increase attention in supporting the health and well-being of the elderly **(3-5).** Unfortunately, many disabilities and diseases are suffered by older people. These diseases are more common among older people such as diabetes mellitus, hypertension, heart disease, osteoporosis and the risk of developing them increases as the people grow older **(6,7).**

Elderly engagement in health promotion activities, choosing healthy behaviors, and making changes in their lifestyle this will reduce the risk of developing chronic diseases and disabilities. So, it is particularly important for older persons to adopt a healthy lifestyle practices that minimize their risk of death from morbidity and maximize their healthful aging **(8).**The earlier adoption of those good habits, the greater the benefit in older age. According to the World Health Organization (WHO), it is not too late to change risky behaviors among elderly to promote their health **(9).**

One of the main factors that can be related to adoption of healthy lifestyle behaviors is the health literacy. The health literacy concept is recently appeared in the health care environment in the early to mid-1990s. It refers to the capacity and ability to obtain, process, and understand healthcare information to make proper decisions about health**(10).** The individual's health literacy abilities vary greatly and can be viewed on a continuum ranging from adequate to marginal to inadequate.

Many studies had demonstrated that the older adults are at risk of inadequate or marginal health literacy due to different age-related changes such as decline in physical and mental health status as changes in cognition and sensory impairments as lack of vision that lead to lack of use of reading skills and inability to complete complex cognitive tasks, especially those that require effortful processing of information **(11,12)**. So, older adults carry the biggest burden because of inadequate health literacy, which is shown as an unfavorable outcome to their health such as lack of knowledge of the health promoting behaviors, underutilization of preventive health service such as

vaccinations and mammograms and high morbidity rates [13,14].

Older adults are more susceptible to poor health, as the level of health literacy constantly decreases with advanced age. It is probable that the older adults carry the biggest burden because of an inadequate health literacy, which shows itself as an outcome that is unfavorable to an old person's health [7]. Health literacy of older adults is inuenced also by basic socioeconomic factors [3

Moreover, the elderly people need some advanced skills of health literacy such as reading, writing, listening, speaking, numeracy, critical analysis , communication and interaction skills to help themselves to participate optimally in healthcare. The adequate health literacy is associated with disease acceptance, adequate understanding about self-care, self-efficiency in disease management, adherence to treatment, self-management and the outcome of more ideal health [10, 11, 14].

Community health nurse plays an important role in improving the health literacy skills among the elderly to enhance their commitment to the health promoting behaviors. This can be done through inspiring the older adults to change their behavioral habits and unhealthy lifestyle. This could be done through the choice of suitable medical education techniques. So, they can recognize how their lifestyle influences their health and what risk factors they may face. The nurse will help them to know how to keep, strengthen and achieve optimum health, and in the case of an illness, elderly will know how to effectively navigate the health system [12, 13].

There are few studies that were done regarding heath literacy particularly among elderly in Egypt. Therefore, this study was conducted to assess the relationship between health literacy among the elderly and their health promoting behaviors.

Aim of the Study

The aim of the study was to assess the relation between health literacy and health promoting behaviors of elderly at Tanta city.

Research Question

What is the relation between health literacy and health promoting behaviors of elderly at Tanta city?

Subjects and method

Subjects

Study design

A descriptive correlational study design was used in this study.

Study Setting

This study was conducted at the outpatient clinics of health insurance hospital for elderly at Tanta city.

Subjects

A convenience sample of 400 elderly patients who attend the previous setting was included in the study.

The inclusion criteria for elderly

- Free from psychiatric disorders.
- Able to communicate and accept to participate in the study.

The sample size was calculated using Epi-Info software statistical package created by World Health organization and Center for Disease Control and Prevention, Atlanta, Georgia, USA version 2002[15]. The sample size was estimated with test of power analysis (95% confidence limit, 80% power of the study). It was calculated to be not less than 384 elderly and the sample size was increased to 400 elderly.

Tool of data collection

In order to collect the necessary data, a structured interview schedule was used in this study which consisted of four parts as follows:

Part I: Socio-demographic characteristics and medical history of the elderly

This part included data about socio-demographic characteristics and medical history. The socio-demographic characteristics data included age, sex, marital status, level of education, previous occupation, family income and place of residence. The medical history data included the presence of chronic diseases, duration of illness, medication taken, number of medications taken daily, number of previous hospital admission and smoking and its duration.

Part II: Assessment of health literacy for the elderly

This part was developed by the researcher based on the related health literacy scales **[16-19].** It included 34 statements that covered the following items: access to health information (6 statements), reading of health information (6 statements), understanding the health information (8 statements), appraisal of health care (5 statements), use of health services (4statements) and communication with health care providers (5statements).

Scoring system

- Each statement was rated using 5 points rating scale for each item, ranged from 1 (never), 2 (rarely), 3 (sometimes), 4 (often), and 5 (always).
- The overall score was classified into:
- (Poor health literacy) <50% of total score.
- (Fair health literacy) 50% – <70% of total score.
- (Good health literacy) ≥ 70% of total score.

Part III: The Health Promotion Lifestyle Profile II (HPLP-II) [20]

This part assessed the health promoting lifestyle. The researcher adapted the Health Promotion Lifestyle Profile II

(HPLP-II) that was designed by Walker et al., 1995 based on Pender's health promotion model to measure health promoting lifestyle behaviors (HPBs). It included 42 statments which encompassed six healthy lifestyle dimensions: Health responsibility (11 statements), physical activity (3 statements), nutrition (10 statements), interpersonal relations (6statements) rest & stress management (5 statements) and spiritual growth (7 statements).

Scoring system

- Each statement was rated using 4 points rating scale, ranged from 1 (never), 2 (sometimes), 3 (often), and 4 (always).
- The overall score was classified as follows:
- (Low level of adherence to health promoting behaviors) <50% of total score.
- (Moderate level of adherence to health promoting behaviors) 50% – < 75% of total score.
- (High level of adherence to health promoting behaviors) 75% –100% of total score.

Part IV: Assessment of the elderly knowledge about the basic health information

This part was developed by the researcher to assess the elderly knowledge about the basic health information such as the normal body temperature, normal pulse rate, normal level of blood pressure, normal blood glucose level, complications of diabetes mellitus, complications of hypertension, risks of obesity and the causes of osteoporosis.

Scoring system

The items of the questionnaire were checked with a model answer which was prepared by the researcher. Each correct and complete answer was given score 2, correct and incomplete answers given score 1 while don't know was given score zero. Then all the correct answers were summed up. The total score of knowledge was 16 and classified into:

- (Poor knowledge) <50% of total score indicated.
- (Fair knowledge) 50- < 70% of total score.
- (Good knowledge) ≥ 70 of total score.

Method

The study was carried out as follows:

- **Administrative approval:**
- An official letter to conduct the study was obtained from the Dean of the Faculty of Nursing and directed to the manager of outpatient clinics of Health Insurance Hospital.
- The manager of outpatient clinics of Health Insurance Hospital was informed about the objectives of the study to take his permission to collect the data from the previous setting.

- **Ethical and legal consideration:**
- The consent of the Faculty's Ethical Committee was obtained to conduct the study.
- An informed consent was obtained from all study subjects after providing appropriate explanation about the purpose of the study.
- Each participant was informed that he/she has the right to withdraw from the study any time he/she wants.
- Anonymity was considered.
- Nature of the study didn't cause any harm or pain for the entire subjects.
- Confidentiality and privacy was considered regarding the collected data.
- **Developing the tool:**
- Part I, II and IV of the study tool was developed by the researcher based on literature review.
- Part III of the study tool was adapted, modified and translated into Arabic language by the researcher.
- The study tool was tested for face and content validity by jury of five professors expertise in the field of Community Health Nursing before conducting the study.
- The study tool was tested for its reliability using Chronabach's alpha test. It was found to be (0.843) for the entire study tool while the reliability of part II which assessed the health literacy was (0.905).The reliability of part III which assessed the adherence to health promoting behaviors was (0.787) and the reliability of part IV which assessed the elderly knowledge about basic health information was (0.800).
- **The pilot study**
- A pilot study was carried out by the researcher on 40 elderly for testing the tool for its clarity, applicability and to identify obstacles that may be encountered with the researcher during data collection. Accordingly, the necessary modification/s was done. Those elderly were excluded from the study subjects.
- **The actual study**
- The researcher met the elderly patients in the waiting area of the outpatient clinics of the health insurance hospital.
- The structured interview was individually administered with each elderly at the outpatient clinics of the health insurance hospital.
- The average time spent for collecting the data from each elderly was 10-15 minutes.
- The data was collected by the researcher over a period of five months starting from October 2019 to March 2020.

- **Statistical analysis of data**

The collected data was organized, tabulated and statistically analyzed using SPSS (statistical package of social science) version 23. For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, which describe a categorical set of data by frequency, percentage or proportion of each category, comparison between two groups and more was done using Chi-square test (χ^2). Correlation between variables was evaluated using Pearson's correlation coefficient (r). Significance was adopted at $p<0.05$ for interpretation of results of tests of significance [21].

Results

Table (1) represents the distribution of the studied elderly patients according to their socio-demographic characteristics. The table shows that, the age of the studied elderly ranged from 60-90 years with a mean age 64.45±5.37 years, and more than two –thirds (68.5%) of them their age ranged from 60-<65 years old. More than half (56.2%) of them were females and 53.9% of them were married. As regard to education, 50.1% of the studied elderly were illiterates and read and write and 31.3% had secondary education. About three quarters (73.3%) of the studied elderly were working before retirement, and 29.4 % of them were farmers. Regarding their family income, 79.0% of the elderly reported that their income was sufficient for their needs while only 14.7% of them mentioned that, their income wasn't sufficient and owed. In relation to residence, 50.2% of the studied elderly were living in rural areas.

Table (2) represents the distribution of studied elderly patients according to their medical history. The table illustrates that, the majority (96.5%) of the studied elderly were suffering from chronic diseases. It also shows that, nearly half (50.5% and 47.7%) of them were suffering from diabetes mellitus (DM) and hypertension respectively with a mean duration (9.68±5.93 and 8.72±6.23 years respectively). Slightly more than one third (34.7%) of them were suffering from osteoarthritis with a mean duration (13.13±7.83 years). Moreover, 13.5%, 15.5% and 6.2% were suffering from heart diseases, liver disease and osteoporosis respectively. It also showed that, 60.1% of them were taking their medication (1-4) times per day.

Regarding previous hospital admission, more than three quarters (78.5%) of the studied elderly were admitted to the hospital, About two thirds (65.3%) of them were admitted to the hospital 1-<5 times while 34.7% of them had been admitted to the hospital ≥ 5 times. Concerning smoking, slightly less than three quarters

(71.3%) of the studied elderly weren't smokers.

Table (3) represents the distribution of the studied elderly according to their response to health literacy categories. The table illustrates that, about two thirds (61.5%and 63.4%) of the studied elderly reported that, they never/rarely access to health information and reading of the health information respectively, more than half (55.4%) of the studied elderly reported that they often /always could communicate with health care providers and 40.8% always understand health information. Moreover, 37.0% of them often or always use health services and 23.4% often or always able to read the health information.

Figure (1): represents the distribution of the studied elderly according to their total health literacy level. The figure illustrates that, 61.0% of the studied elderly had poor level of health literacy, slightly more than one quarter (27.3%) of them had fair level of health literacy while only 11.8% of them had good level of health literacy.

Table (4) represents the distribution of the studied elderly according to their level of adherence to health promoting behaviors' dimensions. The table shows that, less than two thirds (61.7%) of the studied elderly had low adherence level toward their health responsibility while the majority (91.7%) of them had low adherence level to physical activity. Moreover, 65.5% of them had moderate adherence level toward their proper nutrition. In addition, about 46.0% of them had moderate level of adherence toward their interpersonal relations. Concerning rest and stress management dimension, more than half (57.5%) of the studied elderly had low adherence level. Regarding their spiritual growth, more than two thirds (68.0%) of them had moderate adherence level.

Figure (2) represents the distribution of the studied elderly according to their total level of adherence to health promoting behaviors' dimensions. The figure shows that, more than half (59.5%) of the studied elderly had moderate level of adherence to health promoting behaviors, more than one-third (37.0%) of them had low adherence level while only 3.5% of them had high adherence level.

Figure (3): represents the distribution of the studied elderly according to their total knowledge level regarding basic health issues. The figure illustrates that, more than half (52.3%) of the studied elderly had poor knowledge level regarding basic health issues, more than one-third (36.0%) of the studied elderly had fair level of knowledge while only 11.8% had good level.

Table (5) represents the relationship between total knowledge level and both total health literacy level and total adherence to health promoting behaviors

level among the studied elderly patients. The table shows that, there was statistical significant relationship between total knowledge level among the studied elderly patients and their level of total health literacy (p=0.0001) where 59.5% of those who gained good level of total knowledge gained also good level of total health literacy. It also shows that, there was statistical significant relationship between total knowledge level among the studied elderly patients and their level of total adherence to health promoting behaviors (p=0.0001) where those who gained good level of total knowledge were from those who gained either moderate or high level of total adherence to health promoting behaviors.

Table (6) represents relationship between total health literacy level and level of total adherence to health promoting behaviors among the studied elderly patients. The table shows that, slightly more than half (50.4%) of the studied elderly who had poor level of health literacy had low adherence to health promoting behaviors. It also revealed that, more than three quarters (76.1**%**) of those who had fair level of health literacy also had moderate level of adherence to health promoting behaviors. Moreover, about one quarter (25.5%) of the studied elderly who had good level of health literacy also had high adherence level to health promoting behaviors. There was statistically significant relationship between total health literacy levels and levels of total adherence to health promoting behaviors among the studied elderly patients (p=0.0001).

Table (1): Distribution of the studied elderly according to their socio- demographic characteristics

Socio-demographic data	The studied elderly patients (n=400)	
	n	%
•Age years:		
60-<65	274	68.5
65-<70	62	15.5
70-<75	52	13.0
75-≤90	12	3.0
Range	**60-90**	
Mean±SD	**64.45±5.37**	
•Sex:		
Male	175	43.8
Female	225	56.2
•Marital status:		
Married	216	53.9
Widow	165	41.3
Divorced	19	4.8
•Educational level:		
Illiterate and read and write	201	50.1
Elementary education	38	9.5
Secondary education	125	31.3
University/higher education	36	9.1
•Occupation before retirement:		
- Not working (Include house wife)	107	26.7
-Working	293	73.3
-If working, type of work:	(n=293)	
Professional work	39	13.7
Craftsmanship	75	25.5
Office work	56	18.8
Free business	37	12.6
Farmer	86	29.4
•Monthly income:		
Sufficient and spare from it	25	6.3
Sufficient for the elderly needs	316	79.0
Not sufficient and owed	59	14.7
•Residence:		
Rural	201	50.2
Urban	199	49.8

Table (2): Distribution of the studied elderly according to their medical history

Medical history data	The studied elderly patients (n=400)	
	n	%
•Suffering from chronic disease:		
Yes	386	96.5
No	14	3.5
Hypertension	184	47.7
-Duration in years:		
Range	**1-35**	
Mean±SD	**8.72±6.23**	
Diabetes Mellitus (DM):	195	50.50
-Duration in years:		
Range	**1-40**	
Mean±SD	**9.68±5.93**	
Heart diseases	52	13.5
-Duration in years:		
Range	**1-15**	
Mean±SD	**6.66±3.50**	
Liver disease	60	15.5
-Duration in years:		
Range	**1-20**	
Mean±SD	**6.88±3.74**	
Osteoporosis	24	6.2
-Duration in years:		
Range	**2-20**	
Mean±SD	**7.09±4.10**	
Osteoarthritis	134	34.7
-Duration in years:		
Range	**1-30**	
Mean±SD	**13.13±7.83**	
•Previous hospital admission:		
Yes	314	78.5
No	86	21.5
•Smoking:		
Yes	115	28.7
No	285	71.3

Table (3): Distribution of the studied elderly according to their response to health literacy categories

Health Literacy categories	Response of the studied elderly patients (n=400)					
	Never / Rarely		Sometimes		Often / Always	
	n	%	n	%	n	%
Access to health information	246	61.5	98	24.5	56	14.0
Reading of health information	254	63.4	53	13.2	93	23.4
Understanding the health information	124	30.9	113	28.3	163	40.8
Appraisal of health care	211	52.7	104	26.0	85	21.3
Use of health services	131	32.8	121	30.2	148	37.0
Communication with health care providers	110	27.5	68	17.1	222	55.4

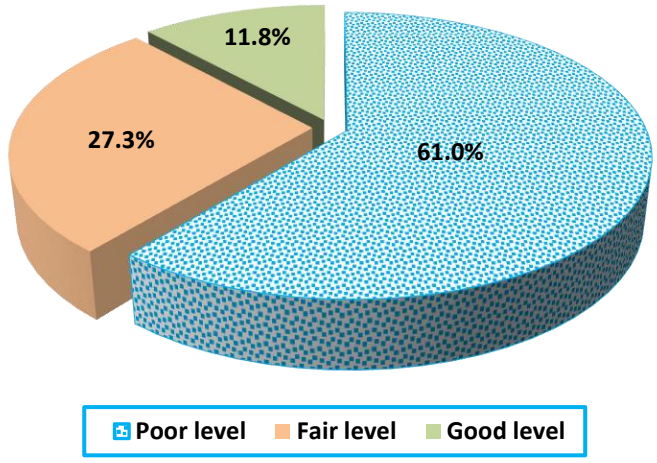

Figure (1): Distribution of the studied elderly according to their total health literacy level

Table (4): Distribution of the studied elderly according to their total level of adherence to health promoting behaviors dimensions

Health promoting behaviors' dimensions	Level of adherence to health promoting behaviors of the studied elderly patients (n=400)					
	Low adherence level		Moderate adherence level		High adherence level	
	n	%	n	%	n	%
Health responsibility	247	61.7	116	29.0	37	9.3
Physical activity	367	91.7	30	7.5	3	0.8
Nutrition	44	11.0	262	65.5	94	23.5
Interpersonal relations	34	8.5	184	46.0	182	45.5
Rest & stress management	230	57.5	146	36.5	24	6.0
Spiritual growth	86	21.5	272	68.0	42	10.5

N.B. Low level of adherence (25 %-< 50%), Moderate level of adherence (50 %-< 75%), high level of adherence (75%-100%)

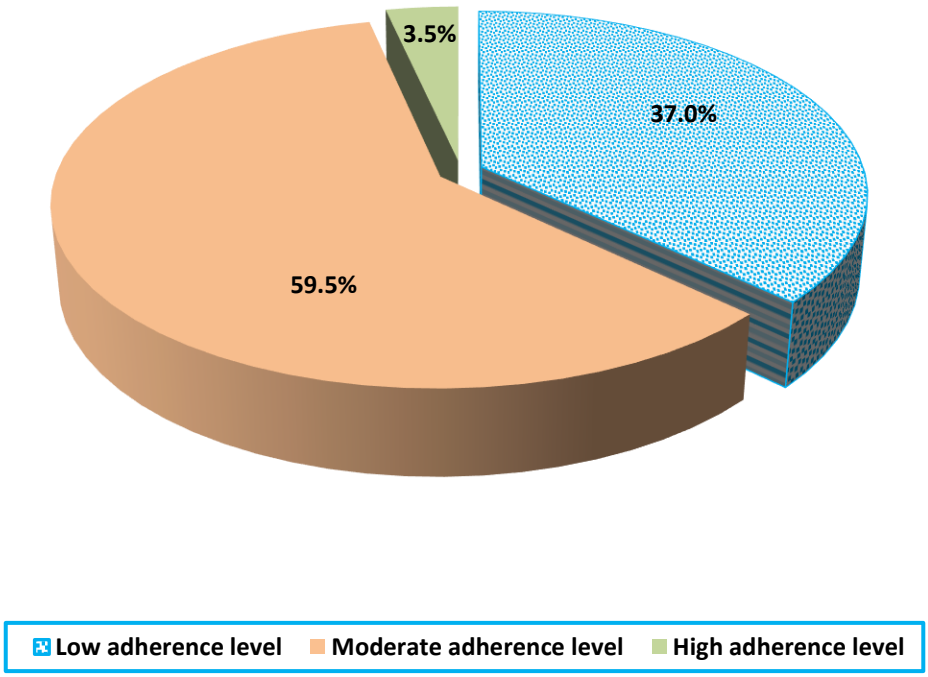

Figure (2): Distribution of the studied elderly according to their level of adherence to health promoting behaviors' dimensions

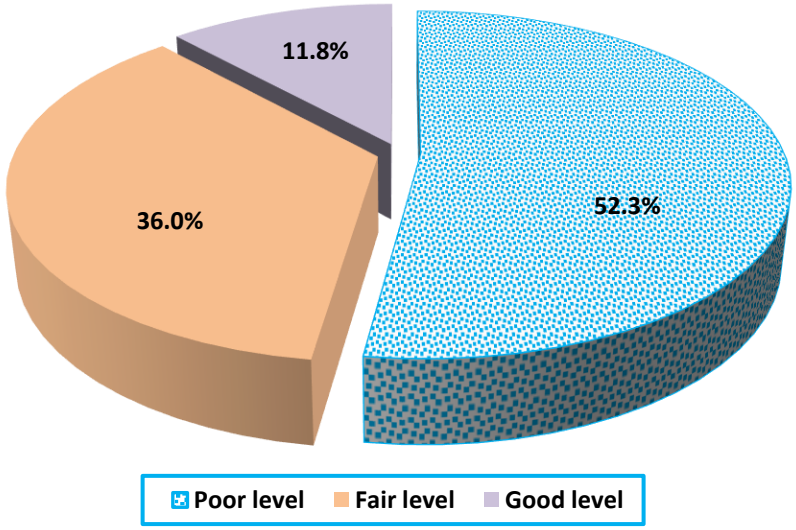

Figure (3): Distribution of the studied elderly according to their total knowledge level regarding basic health issues

Table (5): Relationship between total knowledge level and both total health literacy level and adherence to health promoting behaviors level among the studied elderly patients

Variables	Total knowledge level among the studied elderly patients (n=400)						χ^2	P
	Poor level (n=209)		Fair level (n=144)		Good level (n=47)			
	n	%	n	%	n	%		
• Total health literacy Level:								
Poor (244)	182	87.1	60	41.7	2	4.3	215.109	0.0001*
Fair (109)	20	9.6	72	50.0	17	36.2		
Good (47)	7	3.3	12	8.3	28	59.5		
•Total adherence to health promoting behaviors level:								
Low adherence (148)	118	56.5	26	18.1	4	8.5	155.145	0.0001*
Moderate adherence (238)	91	43.5	117	81.2	30	63.8		
High adherence (14)	0	0	1	0.7	13	27.7		

Table (6): Relationship between total health literacy levels and levels of total adherence to health promoting behaviors among the studied elderly patients

Variables	Total health literacy levels among the studied elderly patients (n=400)						χ^2	P
	Poor level (n=244)		Fair level (n=109)		Good level (n=47)			
	n	%	n	%	n	%		
•Levels of total adherence to health promoting behaviors:								
Low adherence (148)	123	50.4	24	22.1	1	2.2	118.911	0.0001*
Moderate adherence (238)	121	49.6	83	76.1	34	72.3		
High adherence (14)	0	0	2	1.8	12	25.5		

***Statistically significant (P<0.05)**

Discussion

Health literacy is a major international public health concern. It has become an important topic in today's health care environment. It seems reasonable that health literacy would be important when considering an older individuals' health. As the elderly persons number increase all over the world, more consideration given to their healthcare to achieve successful aging. Successful ageing for older adults could be reached through care preventive approach, and improving health literacy is the principle of non-pharmaceutical measures directed to elderly individuals [22-24]

The elderly people largely affected by inadequate health literacy due to age-related changes such as decline in their cognitive ability that contribute to an older adult's ability to comprehend and/or recall new topics. Moreover, physical impairments such as hearing and vision loss may also contribute to a decreased ability to process health information. In addition, psychosocial factors such as socioeconomic status and coping may negatively influence understanding of the health information[11].

The lack of health-related knowledge and/or skills may serve as a barrier to engagement in healthy behaviors, preventative services as well as chronic disease management. Moreover, inadequate health literacy (HL) is adversely connected with social factors and health behaviors among elderly. It also related with different unwanted outcomes such as poor self-appraised wellbeing and lack of adherence to health promoting behaviors. Inadequate HL is more prevalent among elderly people that adversely connected with health practices and health risk behaviors among them [11, 25, 26].

Therefore, the aim of this study was to assess the relation between health literacy and health promoting behaviors of elderly. Health literacy is perceived as one of the most important concepts for modern health promotion activities to be successful. In the declaration arising from the 9th Global Conference of health promotion held in 2016 in Shanghai, health literacy was indicated as a critical determinant of health [27].

The current study found that less than two-thirds of the studied elderly had poor health literacy level **(figure1).** This may be attributed to the mean age of the studied elderly that was 64.45±5.37 years (table I) where the health literacy decline as the age increase due to the age related changes which affect the elderly ability to access, understand, appraise and apply health information. Moreover, nowadays most health information has been in written formats which require a high reading,

calculating, and decision-making skills. These skills require education while in the current study more than half of the studied elderly were illiterates /read and write **(table 1).** In addition, more than half of the studied elderly reported that, they had never/ rare access to health information, reading of health information, and appraisal of health care **(table 5)** which may be a contributing factor to the decline in the health literacy level among the studied elderly.

This finding was in the same line with some Egyptian studies. **Awad et al., (2018)** [28] who conducted a study for assessment of health literacy and health risk behaviors among elderly at Assiut city and **Abd AL-Rahman et al., (2014)** [29] who studied health literacy prevalence among elderly care givers and its impact on the frequency of elderly hospitalization in Ain Shams. They found that, slightly more than three quarters of the studied sample had low health literacy. These findings highlight the need for more efforts to be directed toward increasing elderly health literacy.

When knowledge and awareness are present, better performance is expected. In this regard, the current study revealed that, slightly more than half of the studied elderly had poor knowledge level regarding the basic health issues **(figure3)**. This may be justified by, the presence of more than two thirds of the studied elderly who had never or rare access to health information. Also, more than one third of them never or rarely understand the health information **(table 3)**. This finding may indicate weakness in health care system in conducting health education sessions for the elderly attendee. This could be attributed to the myth generally believed by health professionals that elderly are unable to understand health information. This highlights the need to direct health professionals to put greater emphasis for conducting health education programs for elderly. This finding was in contrast with an Iranian study conducted by **Taheri et al., (2013)** [30] who studied the elderly awareness on healthy lifestyle during aging and found that more than two thirds of the studied elderly had excellent knowledge.

In addition, the current study revealed the presence of statistical significant relationship between total knowledge level among the studied elderly patients and their level of total health literacy where more than half of those who gained good level of total knowledge gained also good level of total health literacy **(table5)**. This finding could be used to motivate nurses to conduct health education sessions for elderly as it is worthwhile .This finding was in contrast with an

Iranian study conducted by **Razazi et al., (2018)** [31] who studied the relationship between health literacy and knowledge about heart failure with recurrent admission of heart failure patients which revealed that, there is no significant relationship between health literacy and knowledge.

Furthermore, the current study also revealed that, there was statistical significant relationship between total knowledge's levels among the studied elderly patients and their levels of total adherence to health promoting behaviors where those who gained good level of total knowledge were from those who gained either moderate or high level of total adherence to health promoting behaviors **(table 6).** This finding was in the same line with an Iranian study done by **Tawalbeh et al., (2013)** [32] who studied the effect of cardiac education on knowledge and adherence to healthy lifestyle which found positive correlation between knowledge and adherence to healthy lifestyle. These finding put emphasis on the importance of knowledge in modifying individual behavior.

Health promoting behaviors is very important for the elderly health, it plays an important role in reducing the morbidity, prevent chronic diseases, improve their quality of life (QOL) and reduce health care costs on the community [33]. In this regard, the current study illustrated that, more than half of the studied elderly had moderate level of adherence to health promoting behaviors (**figure2).** This finding may be justified by, as the people grow old they have more sense of concern about their health and become more engaged in healthy lifestyle as much as possible in order to maintain independence and self-esteem. In the same time, more than half of the studied elderly in the current study were married which may suggest that couples provide mutual support for each other to be involved in a healthy lifestyle. Also, more than one third of them had secondary education **(table I)** and aware of the importance of adherence to healthy lifestyle in this age.

This finding was in contrast with an Iranian study conducted by **Mofrad et al., (2015)** [34] who conducted a study to investigate health promotion behaviors and chronic diseases of aging in the elderly people of Iranshahr which found that, more than half of the studied elderly got the score of inappropriate health promoting behaviors**.** This discrepancy between the findings may be attributed to the culture variation as well as the living style where in rural Egypt the people prefer to live in extended families where the presence of care givers to the elderly

people could encourage and help the older ones to follow a healthy lifestyle.

The most important health promoting behaviors for the elderly are health responsibility, physical activity, stress management, nutrition, spiritual growth and interpersonal relations [35]. In this regard, this study revealed that, more than two thirds of the studied elderly had low adherence level toward their health responsibility **(table 4)**. This finding may be attributed to the belief of the studied elderly that the changes occur in their bodies is due to aging process which they may consider them normal. Also, their perception about their health, where most of them consider themselves healthy until the onset of disease manifestation. This finding was in agreement with an Egyptian study done by **El-Sayed et al., (2015)** [36] who assessed the prevalence and risk factors of obesity among elderly attending geriatric outpatient clinics in Mansoura city which revealed that, nearly two thirds of the participants assume negative responsibility towards their health.

Concerning the studied elderly adherence to physical activity and stress management, the current study revealed that, the majority of them had low adherence level to physical activity as well as about half of them also had low adherence level regarding rest and stress management dimension **(table 4).** This finding may be attributed to the age related changes such as musculoskeletal, psychological and mood changes which interfere with their ability to perform the physical activities as well as their ability to adapt with the stressful situations. This finding was in agreement with the study done by **El-Sayed et al., (2015)** [36] who found that, more than half of studied elderly didn't participate in any physical activity in the same time stress management was practiced negatively by slightly more than half of the studied elderly.

As regard to the adherence to the proper nutrition dimension, the current study revealed that, more than two thirds of the studied elderly had moderate adherence level **(table 4).** This may be reasoned by the presence of multiple chronic diseases as the majority of the studied elderly were suffering from chronic diseases **(table 2)** which impose a nutritional regimen to manage their chronic disease properly**.** This finding was in contrast with the study done by **Sayed et al., (2015)** [36] who found that, more than half of the participant consumes unhealthy diet.

Furthermore, the current study revealed that, most of the studied elderly had either moderate or high level of adherence toward the interpersonal relation **(table 4)**. This finding may be justified by presence of more leisure time in the elderly life than previous. So, they tend to spend more time

with their close friends retrieving their memories and share their feelings and experiences with each other as well as seeking social support. Moreover, more than two- thirds of them had moderate adherence level toward spiritual growth **(table 4).** This may be attributed to; as the people grow old they have a sense of fear from death and become more involved in the religious practices. This findings was in contrast with **El-Sayed et al., (2015)**[36] who found that, the interpersonal relations and spiritual growth were practiced negatively by slightly more than half of the studied elderly.

The relation between health outcomes and health literacy (HL) could be shown through health behaviors as the human behavior had a main role in maintaining health and prevention of diseases. The elderly individuals with inadequate HL are less mindful of health behaviors significance [33, 37]. In this regard, the current study found that, there was a positive relationship between health literacy level and level of adherence to health promoting behaviors **(6)** as the elderly who had higher levels of health literacy tend to have greater level of adherence to the health promoting behaviors. This finding may be attributed to the fact that health literacy provides the elderly with health information and enable them to apply this health information in order to make judgments and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve the quality of life during their life course [38].

This result was similar to the finding of some international studies. A Chinese study conducted by **Li, et al., (2020)** [39] who studied the associations among health-promoting lifestyle, health literacy, and cognitive health in older Chinese and Iranian study conducted by **Cherik et al., (2018)** [10] who studied the relationship between health literacy and health promoting behaviors in patients with type 2 diabetes. They found that, there was a significant relationship between all dimensions of health promoting behaviors and health literacy.

Finally, this study provides an evidence that, there is a positive link between health literacy and health promoting behaviors, which reflects that health literacy plays an important role in health promotion. Health literacy plays key roles in promoting the elderly people's health and reduction of their medical costs. Therefore, the health literacy must be considered as a factor that promotes the elderly health behaviors, help them to develop a healthy lifestyle, and improve their quality of life.

Conclusion

Based on the findings of the present study, it can be concluded that, the majority of the

studied older people had poor level of health literacy, moderate level of adherence to health promoting behaviors as well as poor level of knowledge regarding the basic health issues. In addition, a statistical significant relation was found between health literacy level and level of adherence to health promoting behaviors among the elderly as the poor health literacy level associated with low adherence to the healthy lifestyle.

Recommendations

Based on the results of the present study the following recommendations were suggested:

- Community health nurses should organize health education programs about health promoting lifestyles and health literacy for older adults to help in improving their overall health.
- Community health nurses should develop health education materials such as booklets and brochures about the health promoting behaviors and the basic health information using plain language and images suitable for the elderly.
- A greater emphasize should be given by the nursing schools to the involvement of health literacy topics in the basic nursing curriculum and continuing education for nursing students to be able to assess the elderly health literacy level.
- Each health facility needs to develop and use health literacy assessment tool that assists in measuring health literacy in order to respond to elderly health needs.
- In-service training programs on health literacy skills need to be developed by health facilities and provided to nurses to improve their abilities in caring with elderly.
- Nurses and health professionals need to improve health literacy in health care settings. They must embed HL in programs, policies, strategic plan and research activities.
- Health literacy should be an essential part of the mission and goals for any health care organization in order to improve its effectiveness in responding to client's needs.

References

1. World Health Organization (WHO).About Aging and Life Course. 2019 .Available from: https://www. who.int/ageing/about/en.
2. Percentage of Older Persons in Egypt 2018 CAPMAS.2018 **.**Available from: https://wwww. dailynewssegypt.com /2018/09/29/ percentage-of-older-persons-in-egypt-6-7-in-2018-capmas/
3. Robnett R, Chop W. Gerontology for the Health Care Professional. 3rd ed. United State of America: Jones and Bartllett Co, 2015;4.

4. Sweed H, Maemon M. Egypt Ageing Population. Egyptian Journal of Geriatrics and Gerontology.2014; 1(1):1-9.
5. World Health Organization (WHO).Aging and Health.2018. Available from: https://www. who.int/ news-room/fact-sheets/ detail/ ageing-and-health.
6. Zanjani S, Tol A, Mohebbi B, Sadeghi R, Jalyani K,Moradi A. Determinants of Healthy Lifestyle and Its Related Factors among Elderly People. Journal of Education and Health Promotion. 2015; 4(4): 103.
7. Jaul E, Barron J. Age-Related Diseases and Clinical and Public Health Implications for the 85 Years Old and Over Population. Front Public Health Journal. 2017; 5(5):335.
8. Altgeld T, Gesundheit L , Sozialmedizin A, Niedersachsen E, Sinclair J.Healthy and Active Aging. Europe. Europe Health Net Co, 2012; 14-15.
9. World Report on Ageing and Health.2015. Available from: https:// apps.who.int/iris/bitstream/handle/10665/86468/WHO_FWC_ALC_15.01_eng.pdf;jsessionid=DF0C9479B737FB22E3D9074BC7538A67?sequence=1
10. Cherik Sh,Gheibizadeh M, Jahani S , Cheraghian B. The Relationship between Health Literacy and Health Promoting Behaviors in Patients with Type 2 Diabetes. International Journal of Community Based Nurse Midwifery. 2018; 1(6): 65–75.
11. Chesser A, Woods N, Smothers K, RogersN. Health Literacy and Older Adults. Gerontological and Geriatric Medicine Journal.2016; 15 (2):3-41.
12. Okan O, Bauer U, Zemir D, pinheir P, Sorensen K. International Handbook of Health Literacy in Research, Practice and Policy across Lifespan, Brittian,: Policy Press Co,2019;5-21.
13. KolarT, Kaucic B, Kolnik T. The Role of the Nurse in Improving Health Literacy among Older Adults. Race Originale Journal.2017; 2(16):59-64.
14. Disease Prevention and Health Promotion. National Action Plan to Improve Health Literacy.2012. Available from: https://health.gov/ our-work/health-literacy/national-action-plan-improve-health-literacy.
15. Andrew G. Introduction to Epi Info 2002.2004. Available from: http://www .epiinformatics.com/IntroToEpi2002.htm.
16. Emiral O, Aygar H, Isiktekin B, Göktas S, Dagtekin G, Arslantas D etal., Health Literacy Scale European Union –Q16: A Validity and Reliability Study in Turkey. International Research Journal of Medical Science. 2018; 6 (1): 1-7.

17. Dodson S, Good S, Osborne H. Health Literacy Toolkit for Low- and Middle-Income Countries: A Series of Information Sheets to Empower Communities and Strengthen Health Systems. New Delhi: World Health Organization Regional Office For South-East Asia, 2014;38-47.
18. Hawkins M, Gill S, Batterham R, Elsworth G, Osborne R. The Health Literacy Questionnaire (HLQ) at the Patient-Clinician Interface: A Qualitative Study of What Patients and Clinicians Mean by Their HLQ Scores. Biomedical Central Health Services Research Journal.2017; 1(17):309-321.
19. Ghanbari S. Health Literacy Measure for Adolescents (HELMA).2015. Available from: https://health literacy.bu.edu/documents/ 197/HELM A .pdf
20. Walker S, Sechrist K, Pender N. Health Promotion Model - Instruments to Measure Health Promoting Lifestyle : Health- Promoting Lifestyle Profile [HPLP II] (Adult Version).1995. Available from: http:// hdl.handle. net/2027.42/85349.
21. Dawson B, Trapp R: Reading the Medical Literature: Basic & Clinical Biostatistics Lange Medical Book. 3rd ed. New York: McGraw – Hill. Medical Publication Division, 2001; 161-314.
22. Malik M, Zaidi R, Hussain A. Health Literacy as a Global Public Health Concern: A Systematic Review, Journal of Pharmacology & Clinical Research. 2017; 4(2):1-5.
23. Leod S, Musich S, Hawkins K, Douglas G. The Growing Need for Resources to Help Older Adults Manage their Financial and Healthcare Choices, BMC Geriatrics Journal. 2017; 17(1):477-87.
24. WHO. Global Strategy and Action Plan on Ageing and Health. USA: Rose Wiley Co.;4-10.
25. Adams R. Improving Health Outcomes with Better Patient Understanding and Education, Risk Management Health Policy Journal. 2010; 3(3): 61–72.
26. Kobayashi L, Wardle J, Wolf M, Wagner C. Cognitive Function and Health Literacy Decline in a Cohort of Aging English Adults. Journal of General Internal Medicine, 2015; 30(2): 958–964.
27. World Health Organization. 9th Global Conference on Health Promotion Shanghai the Mandate for Health

Literacy.2016.Available from: https:// www. Who . int / healthpromotion /conferences / 9gchp/health-literacy/en/.

28. Awad S, Ibrahim H, Hassanen R , Abd-Elaziz S, Assessment of Health Literacy and Health Risk Behaviors among Elderly at Assiut City Egypt. IOSR journal of nursing and health science, 2018; 7(3):59-67.
29. Abdel Rahman T. Health Literacy: Prevalence among Elderly Care Givers and Its Impact on the Frequency of Elderly Hospitalization and Elderly Health Related Quality of Life Advances in Aging Research Journal. 2014; 3(5): 380-387.
30. Taheri M, Mohammadi M, Paknia B, Mohammadbeigi A. Elderly Awareness on Healthy Lifestyle during Aging. Tropical Medicine and Surgery Journal.2013; 5(1):100-139.
31. Razazi R, Mohammad J, Amin A, Taghavi S, Ghadrdoost B, Nader N. The Relationship between Health Literacy and Knowledge about Heart Failure with Recurrent Admission of Heart Failure Patients. Research in Cardiovascular Medicine Journal.2018; 7(3):123-128.
32. Tawalbeh L, Ahmad M. The effect of Cardiac Education on Knowledge and Adherence to Healthy Lifestyle. Clinical Nursing Research Journal.2014; 23(3):245-258.
33. Jayasinghe W, Harris F, Parker M. The Impact of Health Literacy and Life Style Risk Factors on Health-Related Quality Of Life of Australian Patients. Health Quality of Life Outcomes Journal. 2016; 14(7):14-68.
34. Mofrad Z, Jahantigh M, Arbabisarjou A. Health Promotion Behaviors and Chronic Diseases of Aging in the Elderly People of Iranshahr, Global Journal Of Health Science, 2016; 8(3): 139–145.
35. Bayati T, Dehghan A, Bonyadi F, Bazrafkan L. Investigating the Effect of Education on Health Literacy and Its Relation to Health-Promoting Behaviors in Health Center, Journal of Education and Health Promotion, 2018; 7(1):107-127.
36. El-Sayed S, Mohamed A, Hatata E, Boughdady A. Prevalence and Risk Factors of Obesity among Elderly Attending Geriatric Outpatient Clinics in Mansoura City, Journal of Education and Practice.2015; 30(6): 222-288.
37. Södergren S, Effects of Health Literacy on Health Status and Health Service Utilization amongst the Elderly. Social Science & Medicine Journal, 2012; 66(8):1809–1816.

38. World Health Organization (WHO). Health Literacy Why Health Literacy is Important.2019.
Available from: https://www.euro.who.int/en/health-topics/disease-prevention/health-literacy/why-health-literacy-is-important

39. Li S, Yin Y, Cui G, Xu H. The Associations among Health-Promoting Lifestyle, Health Literacy and Cognitive Health in Older Chinese Adults: A Cross-Sectional Study, International Journal of Environmental Research and Public Health. 2020; 17(7): 2263-73.

Effect of Emergent Nursing Educational Program on Nurses' Performance for Patients with acute poisoning

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Abstract

Background: Acute poisoning is a major health problem leading to emergency department admission and inducing significant patient morbidity and mortality throughout worldwide. Nurse's performance plays an important role in the management of acute poisonings. **Aim of the study**: Determine the effect of emergent nursing educational program on nurses' performance for patients with acute poisoning. **Design**: A quasi- experimental design was utilized in this study. **Subjects and method:** Data were collected from all nurses (27 nurses from Tanta University Poisoning Control Center and 10 nurses from Elmanshawy General Hospital) affiliated to affiliated to ministry of health. **Tools:** Two tools were used to collect data: **Tool (I)**; Nurses' Structured Interview Scheduled Sheet part one: socio-demographic characteristics of nurses, part two: structured nurses' knowledge interview questionnaire, **Tool (II);** nurses' observational checklist about emergent nursing intervention of acutely poisoning patient. **Results:** the present study revealed that there was a significant improvement in the mean scores of the total level of knowledge and practice immediately and one-month post program implementation in both studied groups at $P < 0.05$. with only significant difference between two groups in pre-program implementation regarding total practice at $P < 0.05$. **Conclusion:** The study findings revealed that nurses' performance of emergent intervention for patient with acute poisoning had improved after application of educational program. **Recommendation:** It is recommended to nurse's instructor to distribute guideline booklet with knowledge and practices about emergent intervention for poisoning in centers and continuous in-service educational program.

Key words: Acute poisoning, Emergent educational program, Nurses performance.

Introduction

Acute poisoning is a global problem that has constantly increased over the last few years and is a major cause of morbidity and mortality all over the world [(1)]. It is a common problem in the emergency departments, those patients are rushing to the hospital at the earliest possible moment, irrespective of the amount and nature of the poison. This requires accident and emergency team to have knowledge, skills and positive self-esteem to perform critical assessment and emergent care to ensure an optimal patient outcome [(2)].

Globally acute unintentional poisonings represent about 2- 3 million cases in 2012 resulting in 1,93,460 deaths, while the intentional poisonings about 2 million cases resulting in about million people die each year this is according to world health organization (WHO) statistics, and estimated that about 84% of deaths occurred in low- and middle-income countries [(3,4)]. Updated Global Burden of Disease 2015 estimated that approximately 86 353 people died from unintentional poisonings worldwide in 2015, with 78 054 (90%) deaths occurring in low- and middle-income countries [(5)].

Although the epidemiology of poisoning in Egypt is difficult to be established. A statistical record at Tanta University Hospitals indicated that the number of patients with acute poisoning admitted to the poisoning control center in 2019 was 2793 patients [(6)]. And a statistical record at Elmanshawy General Hospital indicated that the number of patients with acute poisoning 1n 2019 was 2033 patients [(7)].

Poison is a substance capable of producing harm or dysfunction when entering the body through ingestion, inhalation, injection as intravenous or dermal route in the body by its chemical activity produce general or local effects [(8)]. This affects multiple body systems and symptoms are frequently numerous and non-specific. Some of the signs and symptoms include cerebral and neuromuscular features such as staggering and dizziness, coma, convulsions, delirium and hallucination. In addition to respiratory features such as cyanosis, hypoventilation, coughing, wheezing, breathlessness. Also, cardiovascular features such as arrhythmia, and hypotension. Additionally, skin features such as purpura, skin hemorrhage and sweating [(9)].

The accident and emergency nurse considered the first staff who deals with acutely poisoned patient. So, the staff should be aware for using universal measures to protect themselves during management of patients with acute poisoning, followed by emergent intervention which is a consequence of resuscitation and stabilization, assist in toxic diagnosis, therapeutic interventions

such as decontamination, enhanced elimination of absorbed toxins and antidotes. Finally, supportive care and psychosocial interventions must be performed for acutely poisoned patients[10].

Initially, the nurses should follow a resuscitation of airway, breathing, circulation and disability approach (ABCD) to maintain a protected airway, adequate ventilation and hemodynamic stability. During initial stabilization nurses are responsible for taking proper history as early as possible to obtain data about the nature of the poisonous substance, the degree of exposure and the time since exposure through asking the patient, relatives, accompanies or obtaining sample from poisonous substances and perform detailed physical examination [11].

Through identifying the toxic substances, the nurse should assist in decontamination procedures such as terminating topical exposures if the patient has cutaneous contact should have their clothes removed, the affected areas should be well rinsed and irrigation with normal saline or tap water is of utmost importance and should be initiated as soon as possible [10]. During patient exposure to ingested toxic substances the nurse is responsible for decreasing exposure to toxic substances by assist in performing emesis, gastric lavage, giving activated charcoal, multi-dose activated charcoal and whole bowel irrigation), urine alkalinization, extracorporeal elimination [12].

Finally, the nurse is responsible for providing supportive care which include assessing and controlling Vital signs, Fluid and Electrolytes, acid-base status, monitor and treat secondary complications results from delayed effects of poisoning, follow up for end organ damage and psychosocial and workplace safety interventions [12].

Significance of the study:

Acute poisoning is a global health problem that getting worse throughout the world because the development of new chemicals and drugs, leading to increase morbidity and mortality [13,14]. Nurses play a core role in emergency department to deal with acute poisoning patient. There are many studies used to assess nurse's performance toward emergent care of acute poisoning and revealed that nurse's improper performance regarding emergent intervention for acute poisoning. In Tanta, there is a lack of studies to improve nursing performance about acute poisoning. Hence there is urgent need to design program for nursing care to supply nurses with the chance to earn the necessary, knowledge and skills for patient management with acute poisoning.

Aim of the study:

Determine the effect of emergent nursing educational program on nurses'

performance for patients with acute poisoning.

Research Hypothesis:

Nurse's performance is expected to improve post implementing emergent nursing educational program for patients have acute poisoning.

Subjects and Method:

Study design:

A quasi- experimental design was utilized in this study.

Study setting:

The study was conducted at Tanta University Poisoning Control Center (T.U.P.C.C) (10 beds) and Elmanshawy General Hospital Emergency Department (E.G.H.E.D) (6 beds) affiliated to Ministry of Health.

Subjects:

All nurses who were working in the previous mentioned setting (27 nurses from Tanta University Poisoning Control Center and 10 nurses from Elmanshawy General Hospital). Who were involved directly in immediate care of acutely poisoning patients regardless of their age, sex, years of experience, level of education and residence.

Tools of the study:

Two tools were used for data collection. These tools were aimed to determine the effect of emergent nursing educational program on nurses' performance for patients with acute poisoning.

Tool I: Nurses' Structured Interview Scheduled Sheet: This tool was developed by researcher after reviewing relevant literature [15-23] to collect baseline data pertinent to the current study. It consisted of two parts as follows:

Part one: Socio-demographic characteristics of nurses, to assess data relate to age, sex, marital status, level of education, total years of experience in previous mentioned department, previous and current training program on acute poisoning and previous lectures regarding poisoning during undergraduate study.

Part two: Structured nurses' knowledge interview questionnaire: This part was used to assess nurse's knowledge related to acute poisoning. It included

a) **Knowledge regarding acute poisoning:** Such as definition, classifications, causes of acute poisoning and clinical manifestations, this consisted of 6 items.
b) **Knowledge related to emergent nursing intervention:** It includes airway management, breathing, maintenance of circulation and neurological assessment, which consisted of 11 items.
c) Knowledge regarding diagnosis of poison, gastrointestinal decompression, specific therapy and supportive care, which consisted of 11 items.

Scoring system of nurses' knowledge: was the following

- Correct and complete answer was scored (2).
- Correct and incomplete answer will be scored (1).
- Incorrect answers will be scored (0).

The total scoring systems of students' knowledge were (28) and classified as the following: Good if total knowledge score > 75%.

- Fair if total of knowledge score from 60% to 75%.
- Poor if total knowledge score < 60%.

Tools (II) : **Nurses' Observational Checklist about Emergent Nursing Intervention of Acutely Poisoning Patient :** This tool was developed by the researcher after reviewing of related literature [15-23] except AVPU scale was developed by American College of Surgeons 1977 [24]. To assess the actual emergent nursing intervention of acutely poisoning patient. It was consisted of four domains:

1. **Emergent intervention:** Such as airway which includes airway patency, gag reflex, assist intubation, pharyngeal air way and suctioning. Breathing such as rate, rhythm, breathing sounds and oxygen therapy. Circulation which consisted of pulse rate and rhythm, blood pressure, bleeding, fluid therapy. Assessment of Alert, Verbal, Painful, Unresponsive scale (AVPU) and pupil reaction. It included 4 main items of resuscitation (2 sub items) for air way management, (2 sub items) for breathing management, (2 sub items) for circulation management and (2 sub items) for disability management.
2. **Patient assessment:** such as history taking and physical examination. It included 2 items of assessment (4 sub items) for history taking, (8 sub items) for physical examination.
3. **Antidote and drug administration:** It included 3 main items of antidote (22 sub items) for intravenous medications, (15 sub items) for oxygen therapy, (5 sub items) for activated charcoal.
4. **Gastrointestinal decompression**: which included 3 main items of decontamination (4 sub items) for eye decontamination, (5 sub items) for skin decontamination, (3 sub items) for gastric decontamination which include (4 items for emesis, 11 items for gastric lavage and 4 items for whole bowel irrigation).

Scoring system of nurses' practice was the following:

- Correct and complete done will be scored (2).
- Correct and incomplete done will be scored (1).
- Incorrect done will be scored (0).

The total scoring system of nurses' practice was calculated and classified as the following:

- The total score of practice ≥ 70% indicates satisfactory.
- The total score of practice < 70 indicates unsatisfactory.

Method

1. Official Permission to carry out the study was obtained from the responsible authorities.
2. **Ethical consideration:**

   - Informed consent was gotten from every nurse included in this study after explanation of the aim of the study and assuring them of confidentiality of collected data.

   - Confidentiality and anonymity were maintained and the right of withdrawal is reserved.

   - Privacy of the studied nurses was maintained.

   - approval of ethical committee
3. All tools were developed by the researcher after review of the relevant literature [15-23] except AVPU scale in tool II was developed by American College of Surgeons 1977 [24] to monitor level of consciousness for poisoning patient.
4. The developed tools were translated into Arabic and tested for content validity by reviewer experts of Critical Care Nursing, Medical-Surgical nursing, Toxicology and Medical Biostatistics and modifications was done to judge clarity, comprehensiveness, relevance, simplicity, and accuracy. All of the remarks were taken into consideration; some items were re-phrased to reach the final version of the tools. The tools were regarded as valid from the experts' point of view.
5. The suitable statistical test was used for testing questionnaire reliability
6. A pilot study was carried out on (4) (10%) of nurses to test the tool for its clarity, applicability, feasibility.
7. The suitable statistical test was used for testing questionnaire reliability.
8. Data were collected over a period of 7 months, started from February to August 2020.

Field of work

The study was conducted at four phases which include: assessment, planning, implementation and evaluation.

Assessment phase of nurses' performance: -

Nurses of both groups were assessed throughout the period of the study.

- Pre-test distributed for all staff before beginning the program.
- Assessment of the nurses' socio-demographic data using the tool I (part1) were collected from the nurses.

- Assessment nurses' knowledge carried out using Tool I (part 2); the researcher assesses nurses knowledge pre-implementation of educational program
- Assessment nurses' practice carried out using Tool (II); the researcher assesses nurses practice pre- implementation of educational program.

Planning phase:

This phase was formulated based on data from the assessment phase, literature review, priorities, goals and expected outcome criteria were taken into consideration when planning patients care.

Expected outcomes:

- Improvement of nurses' knowledge about emergent nursing interventions regarding acute poisoning.
- Improve nurses practice post-implementing emergent nursing interventions about acute poisoning.

Teaching learning strategies:

Selection of teaching learning strategies methods were governed by studying the subject themselves and content of program

Teaching methods were lecture, group discussion between the researcher and the nurses and demonstration were used as teaching method and it was translated into Arabic language for nurses.

Teaching aids used for attainment of program objectives were: lab top, videos and power-point prepared by the researcher based on literature review. A colored booklet was developed to be given to the nurses.

Implementation phase:

- Educational program about emergent nursing intervention was developed and implemented by the researcher to all nurses in the nursing room in the poisoning control center.
- Each interview lasted for about 30-50 minutes to complete the tool I. The time needed to complete the checklist (tool II) varies from 15-60 minute depending upon the time of the different procedure inside the department.

Educational session or program content:

Educational sessions were given to all nurses included in the study and it was implemented over four sessions. Nurses were divided into small groups each one ranges from 2-5. The content of sessions was divided into two theoretical and two practical sessions. Sessions for nurses were carried out during the morning and afternoon shift.

The content of sessions divided into two theoretical and two practical sessions as follows:

Theoretical part: It included: ***Session 1:*** Basic knowledge of acute poisoning. It included (definition, classifications, causes, clinical manifestations and complications of medicine and drugs). ***Session 2:*** Basic knowledge of acute

poisoning management. It included (Resuscitation and initial stabilization, Diagnosis of type of poison, Nonspecific therapy, Specific therapy& Supportive care).

Practical part: It was included: ***Session 3:*** It included application of resuscitation, stabilization and assessment. ***Session 4:*** It included decontamination, administration of antidotes and supportive care**.**

Evaluation phase: -Nurses was evaluated as following:

- Evaluation was done for both theoretical and practical part three times pre, immediately after teaching and training this evaluation was repeated by the same researcher post one month under supervision of supervisor's after implementation of training program by using tool (I and II).
- Comparison was done to determine the effect of implementing emergent nursing intervention training program on nurse's performance (knowledge and practice) regarding acute poisoning.
- Comparison was done between Tanta University Poisoning Control Center and Elmanshawy General Hospital pre, immediate and one-month post-implementing training program.

Statistical analysis:

Data were fed to the computer and analyzed by using SPSS software statistical computer package version 26. For quantitative data, the mean and standard deviation were calculated. For qualitative data, comparison was done using Chi-square test (χ^2). For comparison between means of two variables in a group, paired samples t-test was used. For comparison between means for variables during three periods of intervention in a group, or for more than two variables, the F-value of analysis of variance (ANOVA) was calculated. Correlation between variables was evaluated using Pearson and Spearman's correlation coefficient R [(25)].

Result

Table (1): Illustrates percentage distribution of the studied nurses according to their Sociodemographic characteristics. The result revealed that most of the studied nurses (55.6% and 70.0%) were in age groups between 21-30 years old in T.U.P.C.C and E.G.H.E.D groups. **In relation to sex,** it was clear that the majority 85.2% and 100% respectively of nurses were females in T.U.P.C.C and E.G.H.E.D groups**.** This table also, the majority of the studied nurses in T.U.P.C.C and all nurses in E.G.H.E.D groups were married 92.6% and 100% respectively. **Regarding educational level**, near half 48.1% in T.U.P.C.C group and more than half 60% of the studied nurses in E.G.H.E.D group had nursing technician. **As regard years of experience in emergency department**, it was noticed

that near half 48.1% of nurses in T.U.P.C.C group had experience more than 10 years. Conversely; more than half 60.0% of nurses E.G.H.E.D group did not have any experience. **In addition,** it was observed that most (59.3% and 80.0%) of nurses did not attend training courses respectively in T.U.P.C.C and E.G.H.E.D groups.

Fig (1): This figure shows that none of the studied nurses in T.U.P.C.C and E.G.H.E.D group had good level of knowledge before the implementation of educational program (0.00%) compared to the majority (96.3% and 100%) and the majority (88.9% and 100%) had a good knowledge level immediately and one-month post program implementation respectively.

Fig (2**): This figure** show distribution of the nurses' total knowledge mean score pre, immediately and one-month post program implementation of both studied groups. This figure highlighted that the nurses' total knowledge mean score of both studied groups pre- program implementation was (31.74±4.494 and 31.70±6.093) then Enhanced immediately into (51.07±4.187 and 50.10±2.807) while mean score one-month post program implementation was (47.19±3.752 and 45.70±2.058) in T.U.P.C.C group and in E.G.H.E.D group respectively. **In addition,** this figure concluded that there were A positive non statistically significant difference between two groups (T.U.P.C.C and E.G.H.E.D) where P value= (0.982, 0.502, 0.137) respectively in pre, immediate and one-month post program implementation.

Figure (3): This figure demonstrates percentage distribution of the **of the studied nurses' according to their** total practice level of both studied groups pre, immediately and one-month post program implementation. It was noticed that the minority (25.9% and 20%) of T.U.P.C.C and E.G.H.E.D had satisfactory practice level pre-program implementation, which enhanced to 100% of both studied groups immediately and one-month post program implementation. On other hand, it was observed that un satisfactory level decrease from most (74.1% and 80%) pre-program implementation compared to none of nurses had un satisfactory practice level immediately and one-month post program implementation in T.U.P.C.C and E.G.H.E.D groups respectively.

Figure (4): This figure shows that the total mean practice of T.U.P.C.C was 176.70±10.38 which was slightly higher than that for E.G.H.E.D group 162.10±15.53 pre-program implementation, while the mean enhanced to (246.07±5.32 and 246.80±3.25) followed by (226.96±7. 43 and 224.10±7.19) immediately and one-month

post program implementation respectively of both groups. **In addition,** this figure clarified that there was A positive statistically significant correlation between two groups (T.U.P.C.C and E.G.H.E.D) pre-program implementation where p= (0.002*). While, there was no significance between two groups immediately and one-month post program implementation where P= (0.620,0.298) respectively.

Table (2): Presents correlation between total level of knowledge score of the studied nurses and their total practice scores in both groups pre, immediately and one-month post program implementation. This table shows that more than half of studied nurse (55.6%) and half (50%) had an unsatisfactory level of practice with a poor level of knowledge in T.U.P.C.C and E.G.H.E.D groups respectively pre-program implementation while the majority of the studied nurses (96.3%) and all nurses(100%)had a satisfactory level of practice with a good level of knowledge immediately after program implementation compared to majority (88.9%) and all(100%)of studied nurses who had a satisfactory level of practice with a good level of knowledge one-month post program implementation. **Additionally,** it was found that there was a positive nonsignificant correlation between the total knowledge scores of the studied nurses and their total practice scores of nursing intervention for patient with acute poisoning in pre-program implementation where (r= 0.208, P=0.299) and (r= 0.464, P= 0.177), while immediately there were a negative non-significant correlation where (r= -0.328, P=0.095) and (r= -0.206, P=0.568) in T.U.P.C.C and E.G.H.E.D groups respectively. In addition, there was a negative non-significant correlation where (r= -0.110, P= 0.585) in T.U.P.C.C and positive significance where (r=0.739, P=0.015) between level of practice and total knowledge one-month post program implementation.

Table (3) Show correlation between socio demographic characteristics of the studied nurses and their total knowledge score in both groups pre, immediately and one-month post program implementation. Regarding T.U.P.C.C there was a negative non-significant correlation between age and total knowledge scores (r= -0.062, P=0.760), (r= -0.067, P=0.741) and (r= -0.071, P= 0.726) respectively pre, immediate and one-month post program implementation in T.U.P.C.C groups. Compared to positive significance correlation (r= 0.635, P=0.049) between age and total knowledge scores in E.G.H.E.D immediately post program implementation. **In addition,** there was a positive significant correlation where r= 0.640 and P= 0.046 between total knowledge score and educational level pre-

program implementation in E.G.H.E.D group. While, there was a positive non-significant correlation between Experience (in years) in emergency department and total knowledge score pre, immediate and one-month post program implementation in both groups respectively. **Finally,** there was a positive nonsignificant correlation between attendance of training programs and total knowledge score in both groups except pre and immediate program implementation in T.U.P.C.C were negative r= (-0.049 and -0.076).

Table (4) Illustrate correlation between socio demographic characteristics of the studied nurses and their total practice score in both groups pre, immediately and one-month post program implementation. There was A positive non-significant correlation between total practice level scores and age in years among nurses in T.U.P.C.C and E.G.H.E.D groups except on immediately and post one month of program implementation where it became a negative significant (r= -0.413, P=0.032 and r=-0.606, P= 0.001) among nurses in T.U.P.C.C. In relation to educational level, it was noticed that there was a positive non- significant correlation with total practice level scores pre, immediately and one-month post program implementation in both studied groups. A negative non-significant correlation was noticed between total practice level scores and Experience (in years) in emergency department among nurses in both groups while it became a positive non-significant (r= 0.284 and 0.251) among nurses in E.G.H.E.D in pre and one-month post program implementation. In addition, A positive non-significant correlation was revealed between total practice level scores and Attendance of training programs about management for acute poisoning patients (in weeks) among nurses in both groups. except on pre-program implementation in T.U.P.C.C where it became a negative non-significant (r=-0.178, P=0.375).

Table (1): Percentage distribution of the studied nurses according to their Sociodemographic characteristics.

Characteristics	The studied nurses (n=37)				χ^2 P
	Tanta university P.C.C (n=27)		Elmanshawy General Hospital E.D (n=10)		
	N	%	N	%	
Age (in years)					
▪ (21-30)	15	55.6	7	70.0	
▪ (31-40)	8	29.6	2	20.0	4.688
▪ (41-50)	0	0.0	1	10.0	0.196
▪ (51-60)	4	14.8	0	0.0	
Range	**(22-55)**		**(21-46)**		t=1.251
Mean ± SD	**33.19±9.274**		**29.10±7.355**		P=0.219
Gender					
▪ Male	4	14.8	0	0.0	FE
▪ Female	23	85.2	10	100.0	0.557
Marital status					
▪ Married	25	92.6	10	100.0	FE
▪ Single	2	7.4	0	0.0	1.00
Educational level					
▪ Diploma	11	40.7	1	10.0	
▪ Technician	13	48.1	6	60.0	5.453
▪ Bachelor	3	11.1	2	20.0	0.142
▪ Post studies	0	0.0	1	10.0	
Experience (in years) in emergency department					
▪ None	0	0.0	6	60.0	4.451
▪ < 5	2	7.4	1	10.0	0.325
▪ (5-10)	12	44.4	3	30.0	
▪ > 10	13	48.1	0	0.0	
Range	**(2-15)**		**(0-10)**		t=2.658
Mean ± SD	**9.00±3.101**		**2.30±3.466**		P=0.204
Attendance of training programs about management for acute poisoning patients (in weeks)					
▪ None	16	59.3	8	80.0	3.198
▪ < 1	4	14.8	2	20.0	0.362
▪ (1-2)	5	18.5	0	0.0	
▪ > 2	2	7.4	0	0.0	

FE: Fisher' Exact test

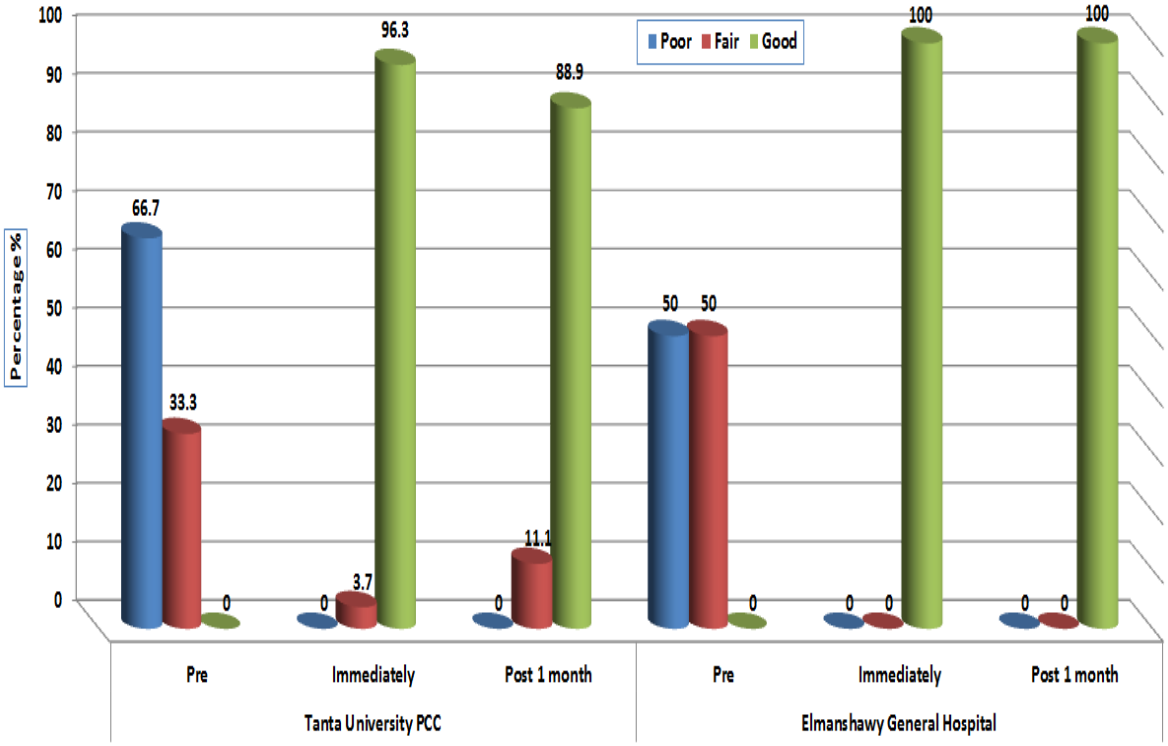

Fig (1): percentage distribution of the nurses' total knowledge scores pre, immediately and one-month post program implementation of both studied groups

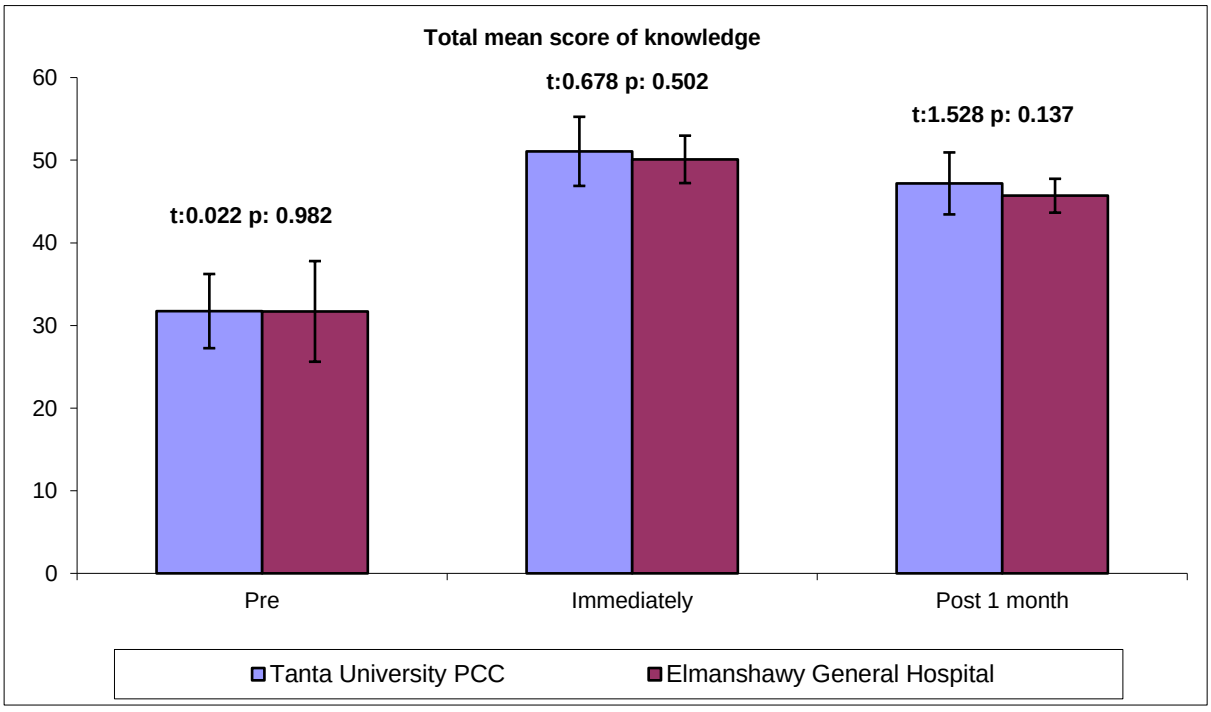

Fig (2): Distribution of the nurses' total knowledge mean score pre, immediately and one-month post program implementation of both studied groups.

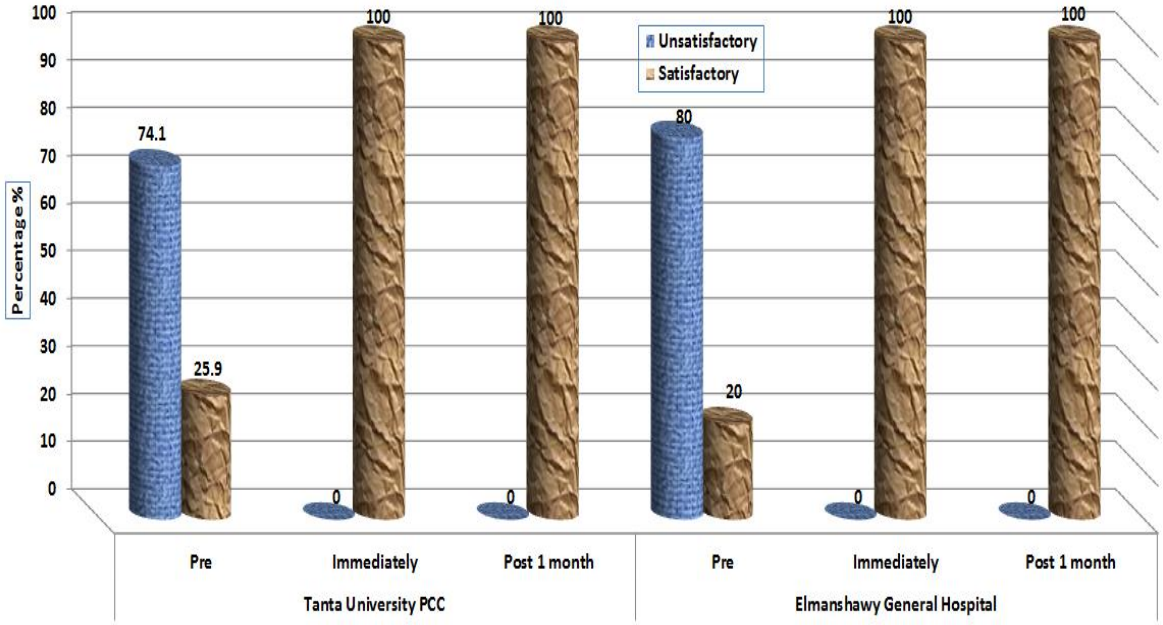

Figure (3): Percentage distribution of the studied nurses' according to their total practice level of both studied groups pre, immediately and one-month post program implementation

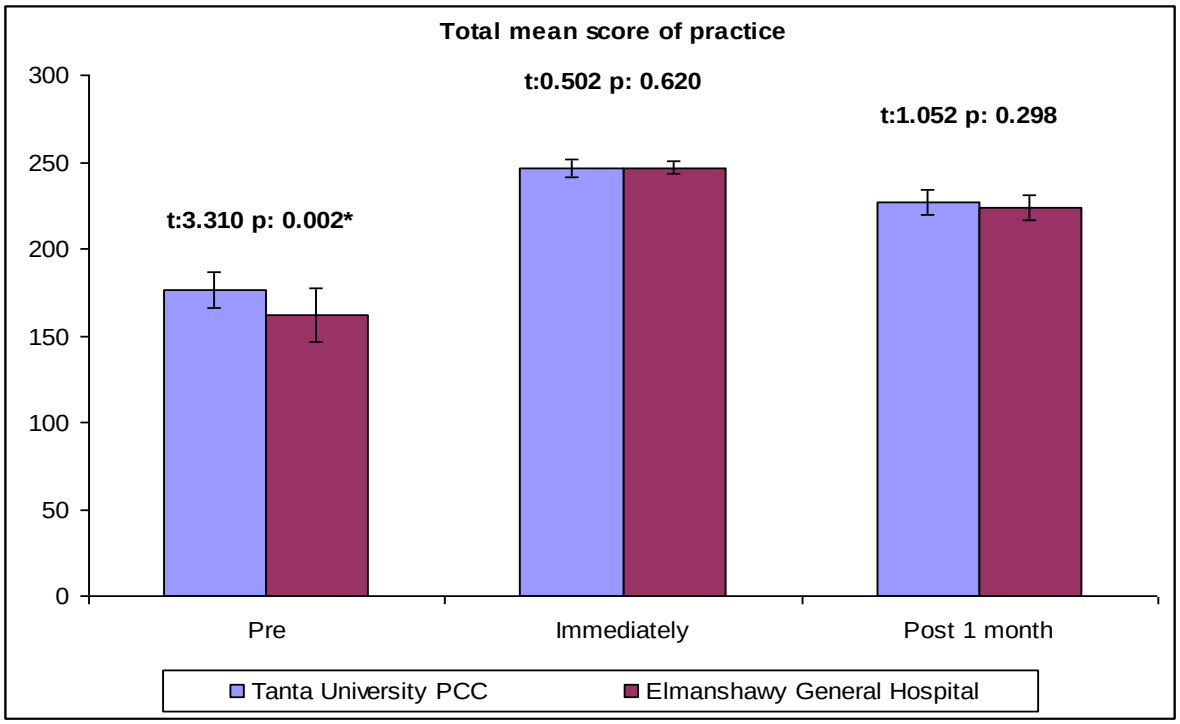

Figure (4): Distribution of the studied nurses' mean scores of total practice of both studied groups pre, immediately and one-month post program implementation

Table (2): Correlation between total level of knowledge score of the studied nurses and their total practice scores in both groups pre, immediately and one-month post program implementation

Total knowledge level	The studied nurses (n=37) Level of practice									
	T.U.P.C.C (n=27)				χ^2 P	Elmanshawy General Hospital (n=10)				χ^2 P
	Unsatisfactory		Satisfactory			Unsatisfactory		Satisfactory		
	N	%	N	%		N	%	N	%	
Pre ▪ Poor ▪ Fair	15 5	55.6 18.5	3 4	11.1 14.8	FE 0.175	5 3	50.0 30.0	0 2	0.0 20.0	FE 0.222
r , P	0.208 , 0.299					0.464 , 0.177				
Immediately ▪ Fair ▪ Good	0 0	0.0 0.0	1 26	3.7 96.3	-	0 0	0.0 0.0	0 10	0.0 100.0	-
r , P	-0.328 , 0.095					-0.206 , 0.568				
Post 1 month ▪ Fair ▪ Good	0 0	0.0 0.0	3 24	11.1 88.9	-	0 0	0.0 0.0	0 10	0.0 100.0	-
r , P	-0.110 , 0.585					**0.739 , 0.015***				

r: Pearson correlation coefficient Significance at level P<0.05. ** Highly significance at level P<0.01.

Table (3): Correlation between socio demographic characteristics of the studied nurses and their total knowledge score in both groups pre, immediately and one-month post program implementation.

Characteristics	Total knowledge score Mean ± SD											
	T.U.P.C.C (n=27)						Elmanshawy General Hospital (n=10)					
	Pre		Immediately		Post 1 month		Pre		Immediately		Post 1 month	
	r	P	r	P	r	P	r	P	r	P	r	P
Age (in years)	-0.062	0.760	-0.067	0.741	-0.071	0.726	0.556	0.095	0.635	0.049*	0.531	0.114
Educational level	0.357	0.067	-0.157	0.435	0.023	0.910	0.640	0.046*	-0.207	0.567	-0.007	0.986
Experience (in years) in emergency department	0.044	0.827	0.234	0.240	0.053	0.793	0.231	0.521	0.613	0.059	0.606	0.063
Attendance of training programs	-0.049	0.810	-0.076	0.706	0.133	0.507	0.588	0.074	0.169	0.641	0.333	0.347

r: Pearson correlation coefficient Significance at level P<0.05. ** Highly significance at level P<0.01.

Table (4): Correlation between socio demographic characteristics of the studied nurses and their total practice score in both groups pre, immediately and one-month post program implementation.

Characteristics	Total practice score Mean ± SD											
	T.U.P.C.C (n=27)						Elmanshawy General Hospital (n=10)					
	Pre		Immediately		Post 1 month		Pre		Immediately		Post 1 month	
	r	P	r	P	r	P	r	P	r	P	r	P
Age (in years)	0.018	0.930	-0.413	0.032*	-0.606	0.001*	0.555	0.096	0.141	0.697	0.397	0.256
Educational level	0.031	0.877	0.277	0.162	0.261	0.189	0.362	0.303	0.569	0.086	0.203	0.574
Experience (in years) in emergency department	-0.024	0.906	-0.210	0.293	-0.372	0.056	0.284	0.426	-0.253	0.482	0.251	0.484
Attendance of training programs	-0.178	0.375	0.110	0.586	0.125	0.534	0.574	0.083	0.441	0.202	0.363	0.302

r: Pearson correlation coefficient Significance at level P<0.05. ** Highly significance at level P<0.01.

Discussion

Acute poisoning is a major health problem leading to emergency and intensive care unit (ICU) admission [26,27]. Early diagnosis and immediate effective management improve patient outcomes, saving live and decreasing mortality [28]. Nurses are generally the first responder in the emergency department for acute poisoning patient and require programs on a regular basis is advocated in order to improve nurses' knowledge and practice provided to patient with poisoning [29]. So, this study was aimed to determine the effect of emergent nursing educational program on nurses' performance for patients with acute poisoning.

Implementation of the educational program led to significant improvements in nurses' knowledge and practice immediately and one-month post program implementation in both studied groups. This improvement might be related to the majority of nurses who are enthusiastic to learn and have highly expressed need to learn more about acute poisoning management.

Concerning the acquisition of knowledge, the result of the current study revealed that the nurses hadn't a good level of knowledge about acute poisoning before program implementation in both study groups. This might be related to the fact that most nurses had nursing technician in nursing education in which the content was limited in their curriculum, lack of availability of manual booklets, nurses abandon reading, work overload and most of nurses did not attendance of training programs about management for acute poisoning patients.

These results were congruent with **Sayed et al, (2015)** [11], who revealed that all studied nurses in Cairo University had un satisfactory level of knowledge. Also, a study conducted by **Abebe, (2019)** [30] in Ethiopia Dessie referral hospital and concluded that the studied nurses had un satisfactory knowledge level. Consequently, **Kingsley et al, (2017)** [31] revealed that there was a poor knowledge level among health care professionals regarding poison management in Douala. Moreover, **Lekei et al, (2017)** [32] who revealed that health care provider had inadequate knowledge level about what to do about Acute Pesticide Poisoning in South Africa. However, **Hakami et al, (2018)** [33] concluded that most of the studied sample in Riyadh City had adequate knowledge level, from the researcher point of view, that about two-thirds of the studied student receive first aid and emergency training. As well, **Goktas et al, (2014)** [34] carried out the study to assess knowledge of regarding first aid in poisoning Cases and reported that the majority of studied sample had good knowledge level in Istanbul, from the

researcher point of view, that the highest proportion of the studied student in the medical department.

Also, this finding shows that the educational program had a good impact on improving nurses' knowledge, which could be due to the concise presentation of each session using simple Arabic language, clear educational methods, instructional media and the availability of researcher in the field for more clarification, and frequent repetition to fix the knowledge.

This result was supported by **Gharib et al, (2017)** [35] carried out a study for toxicology nurses in the national center for clinical and environmental toxicology Research illustrated that the sessions were successful in improving nurse's knowledge in Cairo university hospitals. In addition, **El-Bahnasawy et al, (2015)** [36] proved this study when conducting a Program for Nurses about health hazards of chemical insecticides exposure in a practical field at Ain Shams university and emphasized that there was a significant improvement in total knowledge scores of nurses in post-test and follow up when compared to pre-test. Additionally, **RAJ A (2013)** [37] showed improvement in mean score of the studied sample regarding house hold poisoning· when conducting a structured teaching program regarding house hold poisoning in children among mothers in in Bangalore, Karnataka. Moreover, **Zaveri et al, (2019)** [38] who found that there was improvement in knowledge post program implementation.

Regarding the acquisition of skill performance, the current study shows that most of studied nurses had unsatisfactory practice in both studied group before the application of nursing educational program. This may be attributed to the poor knowledge level, shortage of nursing staff, increasing work overload, lack of nurses' evaluation against the standards nursing practice by nursing supervisor and head nurses for detecting the strength and weakness point to work on it and refusal of some nurses to change their practice.

In agreement with current study finding was **Rutto et al, (2012)** [39] who noticed that the nurses in acute and emergency department nurses in Kenia had unsatisfactory practical level about initial management of acute poisoning. As well, **Hanafi et al, (2012)** [40] and **Hussien et al, (2014)** [41] in Tehran revealed that poor practices among studied nurses regarding care for poisoning at emergency unit. Additionally, **Blanchard, (2019)** [42] and **Rajalakshmi et al, (2017)** [43] revealed that the studied sample didn't rely on proper treatment measures for poisoning patient in India and Tiruchanoor, Tirupati respectively.

On the other hand, all studied nurses had satisfactory practice level immediately and

one-month post program implementation than pre- program implementation with significant improvement in both studied groups. This improvement may be attributed to a combination of the theoretical part and the practical training element of the intervention which was effective in improving the nurses' practice, providing the nurse with colored booklet, using of audiovisual aids, proper communication and demonstration.

This result is supported by **Bakr Moshtohry (2018)** [44] who reported that application of the guiding program has a positive effect to improve the practice of the studied sample regarding first aid for poisoning in rural areas in Ain Shams. As well, **Fathy et al, (2020)** [45] stated that there was a significant improvement in the studied sample practice to prevent pesticide hazards in Suez Canal University. Additionally, **Sibani, (2017)** [46] reported improvement of health care provider for treatment of pesticide poisoning in Uganda.

Regarding safety preparations of the nurses, educational sessions induced significant improvement in nurses' skills immediately and one-month post- program in both studied groups compared to pre-program regarding (hand washing, using personal protective equipment) in T.U.P.C.C group. Moreover, (immediate remove from contaminated environment) in E.G.H.E.D group pre- program implementation.

This result was supported by **Maheswari et al, (2014)** [47] who heightened that employees the studied employed sample lack to uses universal precautions which developed to good level regarding Universal Precautions post Program implementation in Puducherry, India. Also, **Arafat et al, (2018)** [48] concluded that there was a statistically significant improvement post program implementation regarding infection control guidelines compared to before implementation in Port Said university, Egypt. In addition, **Fathy et al, (2020)** [45] indicated that the use of personal protective equipment regarding pesticide poisoning improved immediately post-test and declined slightly in the follow-up period compared with pre-program implementation in Suez Canal University, Egypt.

In relation to emergent intervention, the current study results indicated that there was significant improvement in nurses mean score of both studied groups immediately and one-month post program implementation except emergent intervention in T.U.P.C.C as it considered a routine procedure in the center.

Little, (2009) [49] result was matched with the current results as they mentioned that there was dramatically improved in care provided to poisoned patient in emergency

observation unit after service application in Perth, Australia. In addition, **Nhan, (2019)** [50] And **Saramma et al, (2016)** [51] they stated that the practice skills of the studied sample about Basic life support for the studied nurses had significantly increased after planned educational program in Kerala, India.

On the other hand, **Urushibata et al, (2017)** [52] was disagreed with the present results and mentioned that even after training, some participants were not able to adequately perform chest compressions under the guidelines for chest compression depth for health care provider in Japan. This can be justified by in- compliance with new guidelines.

Regarding decontamination, the findings of the present study clarified that the nurses' practice regarding eye decontamination had A significant improvement in both studied groups post program implementation when compared to pre- program implementation. **Fashafsheh et al, (2013)** [53] was supported this study and reported that educational intervention in North Palestine hospitals improved of studied sample practice about eye care and decrease complications.

As well, there was only significant improvement post program implementation regarding gastric lavage in E.G.H.E.D. From the researcher point of view, because nurses are newly distributed in poisoning center and decreased years of experience. And significant improvement related to bowel irrigation in both studied groups, because it not considered as a routine practice. **Borja et al, (2018)** [54] **and El-Meanawi, (2017)** [55] was in the same line with the current study and reported that educational intervention improved the studied nurse's performance regarding implementation of drug and food via nasogastric tube in Alexandria University.

Concerning correlation, the present study demonstrated that, there were no statistical significance difference between nurse's socio demographic characteristics as (age, educational level, years of experience and attending training program) and nurse's knowledge among T.U.P.C.C group. **However,** there was a statistical significance only regarding age immediately and educational level pre-program implementation in E.G.H.E.D.

In this regard, **Sreelakshmy, (2016)** [56] was in the same line with this finding, who reported that there was no significant relation between nurses' knowledge and socio demographic characteristics such as age, educational qualification and clinical experience in Trivandrum, India. Also, **Sayed et al, (2015)** [11] showed no statistical significance between sociodemographic characteristics in (age, years of experience and qualifications) and total knowledge level in Cairo University.

However, **Mohammed, (2017)** [57] showed that there was statistically significant difference between socio-demographic characteristics of the studied nurses and their knowledge in Ain Shams University. As well **Rutto et al, (2012)** [39] revealed that socio demographic of nurses such as level of education, age had impacted the initial management of acute poisoning in Kenia.

In addition, the present study demonstrated that there was non-significant correlation between sociodemographic characteristics and total mean of practice in E.G.H.E.D. **Abdallah, (2018)** [58] was in agreement with this finding and reported that no significant statistical difference between total mean practice scores in relation to socio demographic characteristics as (age and year of experience) at Shandi University. And **Sayed et al, (2015)** [11] showed no statistical significance between sociodemographic characteristics in (age, years of experience and qualifications) and total practice level.

Conclusion

Based on the finding of the current study; it can be concluded that after application of emergent intervention educational program to nurses for patients with acute poisoning, there was a significant improvement in the mean scores of the total level of knowledge and the mean scores of the total practice immediately and one-month post program implementation among two studied nurses' groups in relation to the pre -program implementation.

There was a significant improvement in nurses' skills immediately and one-month post- program compared to pre-program implementation in both studied groups regarding safety preparations, antidote and drug administration.

There was A positive statistically significant correlation between two groups (T.U.P.C.C and E.G.H.E.D) pre-program implementation regarding to total mean of practice. While, there was no significance between two groups immediately and one-month post program implementation.

Also, there was A positive non statistically significant difference between two groups (T.U.P.C.C and E.G.H.E.D) respectively in pre, immediate and one-month post program implementation regarding to total mean of knowledge.

Recommendations

Based on the findings of the present study, the following recommendations are suggested:

For nursing practice

1. Periodic in-service training program and regular lectures should be provided to nursing staff in order to keep them of updating knowledge and practice regarding.

2. Distribute guideline booklet for poisoning control center nurses about emergent intervention for acute poisoning management.
3. A system for accreditation and certification should be developed to motivate nurses' participation in the training and educational programs which should be conducted in the work place.

For nursing education

1. Developing a system of periodical nurse's evaluation to determine strategies for updating their knowledge and enhancing their practice regarding acute poisoning management.
2. The management for acute poisoning patient can be included within the curriculum of both diploma degree and technical institutions of health.
3. Replication of the program in other hospitals to improve the nurses' knowledge and practices regarding acute poisoning management.

References

1. Sigdel D, Kumar S, Kathet R, Mainali U, Pokhrel R. Pattern and outcome of acute poisoning cases in a tertiary care hospital in Eastern. International J of Contemporary Medical Research. 2019;6(4):27-9.
2. Rutto J, Mwaura J, Chepchirchir A, Odero T. Nurse's knowledge, attitude and practice on the initial management of acute poisoning among adult casualties: Kenyatta national hospital, Kenya. Open J of Nursing, 2012; 2: 149-56.
3. Gebremariam E, Gelaw B. Global epidemiology of acute poisoning with an emphasis to Ethiopia: Systematic review. Int J of Pharma Sciences and Scientific Research. 2016;2(4):120-21, 23.
4. Asawari R, Atmaram P, Bhagwan K, Priti D, Kavya S, Jabeen G. Toxicological pattern of poisoning in urban hospitals of western India. J of Young Pharmacists. 2017; 9(3): 315.
5. Wang L, Wu Y, Yin P, Cheng P, Liu Y, Schwebel D, Qi J, Ning P, Liu J, Cheng X, Zhou M. Poisoning deaths in China, 2006–2016. Bulletin of the World Health Organization. 2018;96(5):314.
6. Annual statistics of Tanta poisoning control center 2019.
7. Annual statistics of Elmanshawy General Hospital Emergency department 2019.
8. Saglam Z, Demir B, Ataoglu E, Yenigun M, Temiz L, Saler T. Causes of acute poisoning in adults: a retrospective study, in a hospital in Istanbul, Turkey. Journal of public health. 2012; 20(1):59-63.
9. Rutto J, Mwaura J, Chepchirchir A, Odero T. Nurse's knowledge, attitude and practice on the initial management

of acute poisoning among adult casualties: Kenyatta National Hospital, Kenya. Open Journal of Nursing, 2012; 2: 149-56.

10. Liisanantti J. Acute drug poisoning: Outcome and factors affecting outcome. Published Doctoral Thesis. Faculty of Medicine. University of Oulu. 2012.
11. Sayed Y, Youssef W, Alshekhepy H, Elfeky H. Nurses' knowledge and practices regarding detection and management of acute drug poisoning at Cairo University Hospitals. Egyptian J of Nursing. 2015;10(1): 1-15.
12. Aggarwal P, Handa R, Wali J. Acute poisoning–management guidelines. J of Indian Academy of Clinical Medicine. 2004;5(2):141-7
13. Burcham P. An Introduction to Toxicology. London: Springer.2014;55-6.
14. Blancharda J, Feltesb M, Kimc J, Poussond A, Douglassa K. Experience of Indian emergency physicians in management of acute poisonings. Open acess. 2019;3(1): 54–60 https://doi.org/ 10.1080/24734306.2019.1635725.
15. Bajracharya S, Prasad P, Ghimire R. Management of organophosphorus poisoning. J of Nepal Health Research Council. 2016;14(34):131-8.
16. Kalantri S, Jajoo S. Protocol for management of pesticide poisoning. J Occupational Environment Medicine. 2012;16: 93-8.
17. Sundaray N, Kumar R. Organophosphorus poisoning: Current management guidelines. Medicine update. 2010;20(5):420-5.
18. Nazima S, Bashir Y, Nabi S and Bashir N. Intensive care management of organophosphorus poisoning patients: An experience from tertiary care centre. International J Advanced Medicine. 2018;5(2):257-64.
19. Masoud R, Barghash S. Laboratory prognostic potential for acute aluminum phosphide poisoning. AAMJ. 2013; 11(3):214-16.
20. Hashemi-Domeneh B, Zamani N, Hassanian-Moghaddam H, Rahimi M, Shadnia S, Erfantalab P, Ostadi A. A review of aluminium phosphide poisoning and a flowchart to treat it. Archives of Industrial Hygiene and Toxicology. 2016;67(3):183-93.
21. Singh Y, Joshi S, Satyawali V, Gupta A. Acute aluminium phosphide poisoning, what is new?. The Egyptian J of Internal Medicine. 2014;26(3):99.
22. Farahani M, Soroosh D, Marashi S. Thoughts on the current management of acute aluminum phosphide toxicity and proposals for therapy: An evidence-based review. Indian j of critical care medicine: Peer-reviewed, official publication of Indian Society of Critical Care Medicine. 2016;20(12):724.

23. Anant j. Review on gastric lavage in the management of ingested poisoning. European j of pharmaceutical and medical research. 2018;5(10): 167-71.
24. American College of Surgeons' Committee on Trauma. Advanced trauma life support for doctors. 1977;6.
25. Gerstman B. Basic biostatistics, Statistics for public health practice. 3rd ed. Canada: Jones and Bartlet publisher Co. 2011:161-218.
26. Hammad, S., Zanaty, A., Abdelhady, O., Shaban, F., & Sobhi, R. Respiratory system affection in acute poisoned cases admitted to Menoufia poison and dependence control center (MPDCC), Menoufia university Hospital" a prospective study". The Egyptian Journal of Forensic Sciences and Applied Toxicology. 2019;19(1):39-69.
27. Getie A, Belayneh Y. A retrospective study of acute poisoning cases and their management at emergency department of Dessie Referral Hospital, Northeast Ethiopia. Drug, healthcare and patient safety. 2020; 12:41.
28. Alinejad S, Zamani N, Abdollahi M, Mehrpour O. A narrative review of acute adult poisoning in Iran. Iranian journal of medical sciences. 2017 Jul;42(4):327.
29. Hussien A, Emery S, Labeeb S, Marzouk S. Nurses' knowledge and performance regarding care for children with poisoning at emergency unit. Assiut Scientific Nursing J. 2014 Jun 1;2(3):115-22.
30. Abebe AM, Kassaw MW, Shewangashaw NE. Assessment of knowledge and practice of nurses on initial management of acute poisoning in Dessie referral hospital Amhara region, Ethiopia, 2018. BMC nursing. 2019 Dec 1;18(1):60.
31. Kingsley TA, Dieudonne A, Jacques Y. Evaluating the necessity of a poison control center in Cameroon: The knowledge and perception of health care professionals in the laquintinie hospital and the bonassama district hospital in Douala. J Clin Toxicology. 2017; 7(6).
32. Lekei E, Ngowi A, Mkalanga H, London L. Knowledge and practices relating to acute pesticide poisoning among health care providers in selected regions of Tanzania. Environmental health insights. 2017. DOI: 10.1177/1178630217691268.
33. Hakami F, Alqubaysi A, Bilal A, Alharbi M. Assessment of knowledge toward initial management of acute poisoning among medical students in Riyadh City KSA, 2017. The Egyptian J of Hospital Medicine. 2018;70(3):503-6.
34. Goktas S, Yildirim G, Selmin KO, Yildirim S, Ozhan F, Senturan L. First aid knowledge of university students in

poisoning cases. Turkish J of emergency medicine. 2014;14(4):153-9.

35. Gharib S, Fekry N. Designing job descriptions for toxicology nurses. Asian Social Science. 2017;13(7):167-180.
36. El-Bahnasawy M, Mohammad A, Ragab I, Morsy T. A training program for nursing staff on health hazards of chemical insecticides exposure in a practical field. J of the Egyptian Society of Parasitology. 2015;45(2):291-308.
37. Raj A. A study to evaluate the effectiveness of structured teaching program regarding house hold poisoning in children among mothers in selected rural area of Bangalore Published Doctoral dissertation. Oriental College of Nursing. Rajiv Gandhi University of Health Science.2013.
38. Zaveri J, Chaudhari A. Impact of educational training and workshop on knowledge, attitude, and practice of pharmacovigilance in nursing staff of tertiary care hospital, Rajasthan. National J of Physiology, Pharmacy and Pharmacology. 2019;9(6):530-3.
39. Rutto J, Mwaura J, Chepchirchir A, Odero T. Nurse's knowledge, attitude and practice on the initial management of acute poisoning among adult casualties: Kenyatta national hospital, Kenya. Open J of Nursing. 2012; 2(3): 149-56.
40. Hanafi S, Torkamandi H, Hayatshahi A, Gholami K, Javadi M. Knowledge, attitudes and practice of nurse regarding adverse drug reaction reporting. Iranian J of Nursing and Midwifery Research. 2012;17(1):21.
41. Hussien A, Emery S, Labeeb S, Marzouk S. Nurses' knowledge and performance regarding care for children with poisoning at emergency unit. Assiut Scientific Nursing J. 2014;2(3):115-22.
42. Blanchard J, Feltes M, Kim JY, Pousson A, Douglass K. Experience of Indian emergency physicians in management of acute poisonings. Toxicology Communications. 2019;3(1):54-60.
43. Rajalakshmi R, Devi BV, Prasad TD, Swetha S, Dharini B. Knowledge, attitude and practice towards pharmacovigilance and adverse drug reaction reporting among nurses in a tertiary care hospital, tirupati. International J. Pharmacology and Clinical Research. 2017; 9(11):683-9.
44. BakrMoshtohry M, Mohamed A, Kunswa M. Effect of guiding program on mothers' health awareness regarding household poisoning of their children less than six years old in rural areas. IOSR J of Nursing and Health Science.2018;7(4): 75-88.

45. Fathy E, Elkarmlawy E, Mohamed H, Yousef F. Effect of educational program on prevention of pesticides hazards among children working in agriculture. American J of Nursing. 2020;8(2):199-210.
46. Sibani C, Jessen K, Tekin B, Nabankema V, Jørs E. Effects of teaching health care workers on diagnosis and treatment of pesticide poisonings in Uganda. Environmental health insights. 2017. Dio:28;11:1178630217726778.
47. Maheswari S, Muthamilselvi G. Assess the effectiveness of structured teaching programme on universal precaution among class IV employees working at Aarupadai Veedu Medical College and Hospital, Puducherry, India. American J of Nursing Research. 2014;2(2):26-30.
48. Arafat M, Mahdy A, El-Kashif M. The Effect of evidence-based guidelines on nurses, performance in respect to nosocomial infection at medical-surgical and obstetrician departments. American J of Nursing. 2018;6(6):507-14.
49. Little M. Emergency management and resuscitation of poisoned patients: perspectives from" down under". Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine. 2009;17(1):36.
50. Nhan N. Evaluation of resuscitation cardiopulmonary training for the new nurse.2019. Published master degree. College of Natural and Health Sciences. University of Northern Colorado. Available at: : https://digscholarship. unco.edu/theses
51. Saramma P, Raj L, Dash P, Sarma P. Assessment of long-term impact of formal certified cardiopulmonary resuscitation training program among nurses. Indian J of Critical Care Medicine: Peer-reviewed, official publication of Indian Society of Critical Care Medicine. 2016;20(4):226.
52. Urushibata N, Murata K, Endo H, Yoshiyuki A, Otomo Y. Evaluation of manual chest compressions according to the updated cardiopulmonary resuscitation guidelines and the impact of feedback devices in an educational resuscitation course. BMC Emergency Medicine. 2020;20(1):1-6.
53. Fashafsheh I, Morsy W, Ismaeel M, Alkaiasi A. Impact of a designed eye care protocol on nurse's knowledge, practices and on eye health status of unconscious mechanically ventilated patients at North Palestine hospitals. Journal of Education and Practice. 2013;4(28):107-20.
54. Borji M, Tarjoman A, Otaghi M. The effect of training intervention on nurses' performance in execution of drug and food delivery via nasogastric tube. J of

Clinical & Diagnostic Research. 2018;12(5).

55. El-Meanawi N. Impact of implementing an educational programme regarding care of nasogastric tube feeding on nurses knowledge and performance. IOSR J Nursing Health Services. 2017;6(1):101-9.
56. Sreelakshmy U, Haseena T. Knowledge regarding management of selected medical emergencies among registered nurses: A Cross-sectional survey. International J of Science and Research. 2016;5(4):448-58.
57. Mohammed S. Evaluating nurses' performance regarding care of children. published Doctoral dissertation. Faculty of Nursing. Ain Shams University.
58. Abdallah D. Assessment of nurse's knowledge regarding initial management of poisoning among children under 5 years in Alamal National Hospital (December 2017 to April 2018). Published Doctoral dissertation. faculty of nursing. Shandi University

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