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Educational program for Psychiatric nurses to improve their knowledge and attitude toward application of evidenced based nursing practices

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Abstract

Background: Evidence-based practice (EBP) is defined as the conscientious, explicit, and judicious use of current best evidence to provide services for clients in addition to integration of the best available research findings, patient preference with clinical expertise to enhance decision making. EBP helps the psychiatric nurses keep up to date with the best, clinically relevant research in the field and increases confidence in decision. EBP weighs risk, benefit, and cost against a backdrop of patient preferences.

Aim: the Study aimed to evaluate the effect of an educational program about concept of Evidence-Based Nursing Practice on psychiatric nurses' knowledge and attitude.

Design: This study followed is a quasi-experimental design. **Setting:** it was conducted at Tanta Mental Health Hospital affiliated to the ministry of health and population.

Subjects: The subjects of this study were 60 nurses. **Tools:** two tools were used (1) Evidence Based Practice Questionnaire (EBPQ), and (2) Evidence-based Practice Attitude Scale (EBPAS).

Results: the main results revealed that the attitude of the studied nurses about EBP was improved after program implementation. Statistically significant positive relationship was found between total level of knowledge and attitude among the studied nurses regarding evidence based practice. **Conclusion:** The present study concluded that evidence based practice is greatly important for nurse and patient and overall nursing profession.

Recommendations: the present study recommended that continuous In-service training programs are needed to be implemented for nurses to provide the necessary skills for application of EBP in clinical practice area.

Key words: evidence based practice, psychiatric, nurses, educational program.

Introduction

Evidence-based practice became the standard of care in psychiatric nursing and mental health care. In mental health, the most relevant evidence is ideally from research or evidence-based theories, but other evidence such as expert opinion, patient data, and clinical experiences are also used. So, competent nurses are expected to make decisions based on research findings, monitor and document the effects of interventions, and use concrete, observable, and measurable terms and instruments to demonstrate outcomes⁽¹⁾.

Evidence based practice is a holistic approach to care delivery that places the individual patient at its core. It is far more than research utilization alone and is a partnership between inter professional clinicians, patients and the best available evidence to optimize patient outcomes. Component EBP includes the clinical state and the clinical setting⁽²⁾. This area also requires that the provider individualizes the understanding of the patient's illness experience to include the unique aspects of symptoms, personal life concerns and situations. These economic, environmental, and social circumstances are devoted from culture. EBP positions nurses to have a significant influence on health-care decisions and be a partner in improving quality of care⁽³⁾.

Evidence based practice has been defined as "the integration of the best possible research to evidence with clinical expertise and with patient needs" and "the conscientious, explicit, and judicious use of the best evidence from systematic research to make decisions about the care of individual patients. In order for EBP to truly work and to impact upon today's health delivery systems, it must arise from the practice setting and include the actual practitioners involved in care delivery^(4,5).

Beyond an expectation for professional practice, EBP provides a major opportunity for nurses to enlighten practice and add value to the patient's experience. Today, nursing interventions and processes informed by the best evidence are critical to realizing health-care improvements and cost savings. In light of the fact that evidence based practice has been demonstrated to yield significantly improved patient outcomes, it is indeed very worrying to know that it is not yet widely utilized in psychiatric nursing⁽⁶⁾.

Evidence suggests that clinicians tend to underestimate their information requirements and, when they do recognize a need for information, they do not access the most reliable and least biased sources. This leads to a gap between research and clinical practice which manifests as unwarranted variations in clinical practice. There are only two explanations for these variations: either there is no evidence on which to base practice, or that there is evidence, but at least some of us are not using it. The inevitable result of these variations is that some patients are not receiving the best available care⁽⁷⁾.

Many psychiatric/mental health nursing (PMHN) practices have been affected by old traditions and haphazard trial and error instead of established scientific evidence. Barriers surrounding evidence-based practice explain the lack of EBP in today's PMHN environment. These barriers include: the nature of the evidence, the contribution of the psychiatric nursing researchers to EBP, the personal characteristics of psychiatric nurses, and organizational factors. While the challenge, is to build up creative strategies through which psychiatric nurses are better able to provide EBP care as part of their everyday performance⁽⁸⁻¹⁰⁾.

Adaptation of a more dynamic form of EBP, increasing the number of PMHN researchers, conducting clinical research projects, choosing suitable journals for publication, training the psychiatric nurses about computer skills, integrating the EBP principles into nursing curricula, developing journal clubs, and offering organizational facilitators are essential prerequisites for the achievement of EBP in the PMHN field. It is no longer justifiable for psychiatric nurses to be deficient in knowledge and skill since the advantages of EBP for patients are well-documented⁽⁸⁾.

The process of developing evidence-based nursing practice begins with a question about a specific patient problem or situation. Systematic search for evidence that could be used to answer the question follows. Once the evidence is obtained, its validity, relevance, and applicability are appraised. The evidence is then integrated with other information including; nurses' experience, patient preferences for alternative forms of care, and available resources. Taken together, these factors influence management of the clinical problem. Finally, the evidence-based practice decision is implemented and the outcome of the decision is evaluated and disseminated^(11, 12).

Determining the relevance of the evidence requires three critical thinking skills that are increasingly being recognized as the cognitive engine driving the process of knowledge development and use: analysis, evaluation, and interpretations. Analysis

involves examining the evidence and its component parts and reducing the complexity of the evidence into simpler or more basic components or elements. The focus of the analysis should be determining the degree of alignment among the practices in question, the evidence indicators, and the evidence-gathering strategy used. Evaluation involves determining the precision, accuracy, and integrity of the evidence through careful appraisal of the results of the evidence-gathering strategy ⁽¹³⁾.

As the psychiatric and mental health nursing specialty moves to embrace evidence-based practice, there is work to be done in three areas: personnel, process, and product. There is a need for more researchers who possess both clinical knowledge and research expertise, and these nurse researchers need to increase the depth and scope of their research. With the current nursing shortage in all areas of nursing and the predicted shortage of nursing faculty, increasing the number of psychiatric nurse researchers is a challenge. Thus, those in practice and in academic settings must work together to encourage young men and women to become nurses and psychiatric and mental health nurses in particular ^(14, 15).

The aim of this study is to evaluate the effect of an educational program about concept of Evidence-Based Nursing Practice on psychiatric nurses' knowledge and attitude.

Research question: Psychiatric nurses' knowledge and attitude about concept of evidence based nursing practice was improved after implementing the educational program.

Materials & Method

Research design:-The design followed in this study was a quasi-experimental design.

Setting:The study was conducted at Tanta Mental Health Hospital affiliated to the Ministry of Health with a capacity of 75 beds divided into three wards for men(50 beds) and two wards for women (25 beds). It provides health care services to Gharbya, Menofia, and KafrElsheikh governates.

Subjects: The target population of this study was 60 nurses (all available convenient nurses from the previous setting) who fulfilled the following inclusion criteria:

- Willing to participate in the study.
- Have at least two years working experience at mental health hospitals.
- Provide direct care to psychiatric patients.



Tools of the study:

The data of this study was collected using the following tools:

Tool I: Evidence Based Practice Questionnaire (EBPQ). It consisted of two parts

Part one: Socio-demographic and work experience data:

It was developed by the researcher to elicit the sociodemographic data about nurses as age, sex, level of education, residence, years of experience.

Part two: Evidence Based Practice Questionnaire (EBPQ).

It was developed by *Kate Gerrish (2007)*⁽¹⁶⁾ to assess knowledge used by nurses in their practice, barriers and facilitators of EBP. It comprised of 49 items presented in the following five sections:

- Section 1 contains 22 items that measure sources of knowledge used by nurses in their practice. Each item is scored on a 5-point Likert scale from 1 (never) to 5(always).
- Section 2 contains 10 items that measure variables related to barriers to finding and reviewing evidence. Each item is scored on a 5-point Likert scale from 1 (disagree strongly) to 5 (agree strongly).
- Section 3 contains 5 items that measure barriers to changing practice. Each item is scored on a 5-point Likert scale from 1 (disagree strongly) to 5 (agree strongly).
- Section 4 contains 4 items that measure variables related to facilitators of EBP. Each item is scored on a 5-point Likert scale from 1 (disagree strongly) to 5 (agree strongly).
- Section 5 contains 8 items that measure self-assessment of skills. Each item is scored on a 5-point Likert scale ranging from (complete beginner) to 5 (expert).

Each nurse can receive score ranging from 49 to a 245 grades.

Evaluation of this questionnaire was as follows:

< 50% = Poor 50 – 65% = Average > 65% = Good

Tool II: Evidence-based Practice Attitude Scale (EBPAS):

Evidence-based Practice Attitude Scale was developed by *Gregory Aarons (2004)*⁽¹⁷⁾. It is a 15-item self-report scale aimed to measure attitude about using Evidence-based Practice.

Each statement was rated on a 5 point Likert scale where 0= not at all, 1=to a slight extent, 2= to a moderate extent, 3= to a great extent, 4= to a very great extent.

Every nurse can receive scores ranging from 0 to a 60 grades classified as follows:

Less than median = negative attitude.

Median and more than median= positive attitude.

Method

The steps that have been followed in this study were as follow:

- An official approval was obtained from the identified hospital to collect the study data.
- Tool I part 2 Evidence Based Practice Questionnaire (EBPQ) and tool II Evidence-based Practice Attitude Scale (EBPAS) were translated into Arabic by the researcher.
- Tool I part 2 and tool II were translated to Arabic language by the researcher and tested to ascertain content validity and the required corrections by a group of 5 experts in the psychiatric field.
- A test -retest reliability was applied on the two previously mentioned tools to test the internal consistency. Test – retest reliability was 0.96022.
- Before embarking in the actual study: A pilot study was carried out on 10 nurses after taking their approval to ascertain the clarity and applicability of the study tools. In addition, it served to identify obstacles that might be faced during data collection. These nurses were excluded from the study sample.

- Informed consent was obtained from the studied nurses after explaining the purpose of the study and assuring the nurses about their privacy and confidentiality of the obtained data. The nurses were informed that they have a right to withdraw from the study at any time if they wanted.
- Tool I and tool II were applied two times. The first one pre-test and the second posttest immediately after application of the program and after three months.
- The selected nurses undergone a pre-test using Evidence-based Practice Attitude Scale (EBPAS) and Evidence Based Practice Questionnaire (EBPQ).
- The researcher distributed the two tools to nurses and asked them to fill them in the presence of the researcher for necessary clarification.

Implementation of the program:

- The educational program was developed by the researcher based on the results from pre-test and the review of related literature ^(1, 18-24).
- The educational program was divided into five sessions:
 - **Session 1:** Introductory session, definition and importance of evidence-based practice.
 - **Session 2:** Types and steps of evidence-based Practice.
 - **Session 3:** Barriers and challenges of evidence-based practice.
 - **Session 4:** Giving example about the application of evidence-based practice in nursing care plan for schizophrenia.
 - **Session 5:** Immediate post-test by using tool I part 2 and tool II.

The study subjects were divided into subgroups, each group composed of 5-7 nurses. Each group was met, three times per week, for duration of 45 minutes each, and this for 5 sessions.

The program was presented through discussion between the researcher and the nurses, audiovisual materials and handouts were used whenever needed to supplement discussion.

The evaluation of educational program was done at the end of 5th session (immediate posttest) and after three months using tool I part 2 and tool II as post-test 2.

The study was conducted in April 2014 and finished in September 2014.

Statistical analysis:

The collected data was organized, tabulated, coded and statistically analyzed using the mean, standard error, unpaired student t-test, the linear correlation coefficient, Analysis of variance [ANOVA] tests Paired t-test and chi-square by SPSS V17.

Limitation of the study

- Nurses had many challenges during time of the study such as; work overload which lead to repeated out during the educational program sessions.
- The researcher was exposed to many interruptions from patients and staff members and noise from maintenance works in the hospital
- The training hall isn't equipped with the necessary tools for training.
- A self-completion questionnaire is not the best way to gather the views of individual professionals about such a complex subject, with respondents' verbal explanations of key terms were often differing from their written responses

Acknowledgement:

The researcher would like to express their sincere gratitude to the all nurses and staff of Tanta mental health hospital who helped in facilitating conduction of this study. Great appreciation as well is all researcher who shared in this research

Results

Table 1 presents Socio-demographic and work experience of the studied nurses. The results revealed that most of nurses were females (76.67%) with a mean age of 32.333 ± 8.206 years. Regarding their residence, more than half of the nurses (63.33%) lived in rural areas. Concerning the nurses' marital status, those who were married represented more than three quarters of the studied nurse (83.33%). In relation to nurses' educational level, about half of nurses had a secondary school

nursing diploma (46.67%) while about one third had technical nursing institute (33.33%). Regarding their occupation, about three quarters of the studied nurses were bedside nurses (76.67%). Regarding nurses' work experience, most of them (70%) had working experience more than 5 years.

Table 2 presents the distribution of the studied nurses according to total score of their level of knowledge regarding evidence based practice before, immediate and 3months after educational program implementation. The results revealed that, 45% of the nurses have average knowledge about bases of practice knowledge (section I) before the implementation of the educational program, while 56.67% of studied nurses had good knowledge immediately after the educational program, but after three months from the implementation of the educational program 60% of them returned to average knowledge .

In relation to knowledge about barriers to finding and reviewing evidence (section II), the results revealed that about half (48.33%) of the studied nurses had good knowledge about barriers before the educational program. While immediately after and after three months from the implementation of the educational program, 45.00% of the studied nurses had average knowledge about barriers.

Regarding knowledge about barriers to changing practice on the basis of evidence (section III), the results presented that 56.67% of the studied nurses had average knowledge about barriers before the educational program. While immediately after the educational program implementation, less than half (45.00%) of the studied nurses had good knowledge about barriers compared by 28.33% fall in the same category after three months from implementation of the program.

In relation to knowledge about facilitation and support in changing practice (section IV), the results presented that before the educational program 63.33% of nurses had good knowledge about facilitations, while more than half (66.67%) of the studied nurses in the same category immediately after the educational program implementation compared by 43.33% of them after three months from implementation of the program.

Finally, regarding self-assessment of skills (section V), the results revealed that before the educational program 33.33% of the studied nurses had average skills to EBP,

while immediately after the educational program implementation 28.33% of them had average skills to EBP compared with 25.00% fall in the same category three months after the educational program implementation.

Table 3&4 show studied nurses total attitude score regarding evidence based practice. The results showed that 36.67% of studied nurses had a positive attitude regarding evidence based practice before the educational program. While it increased to 76.67% to fall in the same category immediately after the educational program implementation compared with 46.67% of nurses fall in the same category three months after the educational program implementation.

Table 5 illustrates the correlation between total level of knowledge and attitude among the studied nurses regarding evidence based practice. The results revealed a statistically significant positive relationship between total level of knowledge and attitude among the studied nurses regarding evidence based practice where P-value <0.001.

Table (1):- Distribution of the studied nurses according to their socio-demographic characteristics and work experience.

Socio-demographic characteristics	studied nurses (N=60)	
	N	%
Age (years)		
20-	26	43.33
30-	28	46.67
40-	2	3.33
50-	4	6.67
Mean±SD	32.333±8.206	
Sex		
Female	46	76.67
Male	14	23.33
Residence		
Rural	38	63.33
Urban	22	36.67
Marital status		
Married	50	83.33
Single	7	11.67
Widow	3	5.00
Level of education		
Diploma	28	46.67
Technical nursing institute	20	33.33
Bachelor	11	18.33
Higher studies	1	1.67
Occupation		
Nurse	46	76.67
Supervisor	14	23.33
Work experience (years)		
<5	18	30.00
>5	42	70.00

Table (2):- Distribution of the studied nurses according to total score of their level of knowledge regarding evidence based practice before, immediate and 3months after educational program implementation (N=60)

Level of knowledge		Studied nurses							
		Before		Immediate		After 3 months		Chi-square	
		N	%	N	%	N	%	X ²	P-value
I. Bases of practice knowledge	Poor	7	11.67	3	5.00	5	8.33	8.972	0.062
	Average	27	45.00	23	38.33	36	60.00		
	Good	26	43.33	34	56.67	19	31.67		
II. Barriers to finding and reviewing evidence	Poor	9	15.00	10	16.67	14	23.33	4.071	0.395
	Average	22	36.67	27	45.00	27	45.00		
	Good	29	48.33	23	38.33	19	31.67		
III. Barriers to changing practice on the basis of evidence	Poor	12	20.00	9	15.00	25	41.67	19.386	<0.001*
	Average	34	56.67	24	40.00	18	30.00		
	Good	14	23.33	27	45.00	17	28.33		
IV. Facilitation and support in changing practice	Poor	11	18.33	7	11.67	8	13.33	12.268	0.015*
	Average	11	18.33	13	21.67	26	43.33		
	Good	38	63.33	40	66.67	26	43.33		
V. Self-assessment of skills	Poor	35	58.33	35	58.33	32	53.33	4.575	0.322
	Average	20	33.33	17	28.33	15	25.00		
	Good	5	8.33	8	13.33	13	21.67		

Table (3):- Distribution of the studied nurses total attitude score regarding evidence based practice before, immediate and after three months from the implementation of the educational program. (N=60)

Attitude		Studied nurses					
		Pre		Immediate		After 3 months	
		N	%	N	%	N	%
Negative		38	63.33	14	23.33	32	53.33
Positive		22	36.67	46	76.67	28	46.67
Chi-square	X ²	20.893					
	P-value	<0.001*					

Table (4):- Comparison of the studied nurses attitude toward evidence based practice regarding Paired Differences before, immediately and after three months from the implementation of the educational program. (N=60)

Educational program	Studied nurses' attitude		Comparison	Paired Differences		Paired Samples Test	
	Range	Mean ± SD		Mean	SD	T	P-value
Before	19.00 - 53.00	35.93 ± 7.18	Before - Immediate	-12.23	8.82	-10.74	<0.001*
Immediate	19.00 - 60.00	48.17 ± 8.32	Before - After 3 months	-6.53	10.53	-4.80	<0.001*
After 3 months	22.00 - 59.00	42.47 ± 8.03	Immediate- After 3 months	5.70	10.69	4.13	<0.001*

Table (5):- Correlation between total level of knowledge and attitude among the studied nurses regarding evidence based practice

Correlations between Attitude and Total knowledge	
R	P-value
0.464	<0.001*

Discussion

Evidence based practice is really important to make the patient more satisfied with the psychiatric nursing care. Also, it ensures the safety for nurses, patients and organizations. EBP increases the ability of nurses to be more updated with the most recent and scientific researches and to involve the patient in the nursing process which enables her to introduce efficient and powerful nursing care.

The aim from this study was to evaluate the effect of an educational program about concept of evidence-based nursing practice on psychiatric nurses' knowledge and attitude. Regarding hypothesis of this study, psychiatric nurses' knowledge and attitude about concept of evidence based nursing will improve after the implementation of educational program, the results of this study are in accordance with this hypothesis.

Regarding total knowledge score, the present study represented improvement in the total knowledge level immediately after implementation of the educational program compared with before the implementation of the educational program. This result may be probably due to the immediate effect of educational program session which was supported by booklet about the evidence based practice. While three months after implementation of the educational program, this improvement decreased which may be probably due to absence of continuing training and education, inability to apply the evidence based practice in real clinical area, work overload which didn't allow the nurses to use EBP.

Regarding base of knowledge (section I), the present study represented that the majority of the nurses had good level of knowledge especially in the statements of information they learn about each patient/client as an individual, their intuitions about what seems to be 'right' for the patient/client, their personal experience of caring for patients/clients over time, what has worked for them for years, the ways they have always done it, information their fellow practitioners share, information senior clinical nurses share, what doctors discuss with them, new treatments and medications that they learn when doctors describe them for patients, information from attending in-service training/conferences, information they get from local and national policy and protocols and guidelines. These results may be related to that nurses depend on experience, information transferred from one to another, limited training conferences offered by the hospital and the majority of the studied nurses aren't highly educated.

This result is in agreement with *Dalheim , et al.(2012)*⁽²⁵⁾ in their study of factors influencing the development of evidence-based practice among nurses: a self-report survey that aimed to examine factors influencing the implementation of EBP among nurses in a large Norwegian university hospital, reported that nurses largely used experienced-based knowledge collected from their own observations, colleagues and other collaborators for support in practice while evidence from researches was seldom used.

Regarding knowledge of nurses about barriers to finding and reviewing evidence (section II), the present study is in agreement with the study of *Dalheim, et al.(2012)*⁽²⁵⁾ that the majority of nurses face barriers. Most common barriers were that the nurses do not know how to find organizational information, they do not have sufficient time to find research reports or organizational information, research reports and organizational information is not easy to find, they do not feel confident in judging the quality of research reports, they find it difficult to identify the implications of research findings or organizational information for their own practice. This result may be probably due to majority of the studied nurses were females and have multiple duties and responsibilities beside their work, live in rural areas in which there is no sufficient facilities such as libraries or internet, hospital doesn't provide libraries, halls of the

Internet, national or international journals their level of education didn't reach the necessary and sufficient information about scientific research or evidence based practice, insufficient training courses on how to understand and apply scientific researches and absence of continuing education plans for nurses.

In the same direction, *Olade (2004)*⁽²⁶⁾ in her study of strategic collaborative model for evidence-based nursing practice aimed to describe a model that has been developed to guide nurses and other health professionals in collaborative efforts toward evidence-based nursing practice. She reported that a number of barriers to evidence-based nursing practice, have persisted over the last two decades, including inadequate knowledge of research among practicing nurses, lack of administrative support for research activities in clinical settings, lack of empowerment of nurses, and lack of needed mentoring from nursing research consultants.

Regarding this respect, *Yadav & Fealy (2012)*⁽²⁷⁾, in their study about Irish psychiatric nurses' self-reported barriers, facilitators and skills for developing evidence-based practice that aimed to examine and describe barriers, facilitators and skills for developing EBP. They reported the same barriers mentioned in the present study findings except that the Irish nurses were more confident about beginning to change the traditional practice to evidence based practice.

In relation to knowledge of nurses about barriers to changing practice on the basis of evidence (section III), the present study represents common barriers that face nurses were; lack of authority in the work place, insufficient resources, time at work to implement changes in the practice. These results may be due to that majority of nurses were bedside nurses and didn't have authority to change the hospital routine, work overloads and multiple nursing roles on nurses due to decrease in nurses' number. The studied supervisors weren't motivated to change the practice and try new trends due to lack of managerial support to nurses to achieve more efforts in their work and lack of managerial awareness about importance of applying of evidence based practice, unavailability of national or international journals for nurses, neglection of pharmaceutical or equipment company representatives of giving the necessary information to nurses about the new issues in the field.

This result came in accordance with *Yadav & Fealy (2012)* ⁽²⁷⁾, who found that insufficient resources for implementing EBP was perceived as the greatest barrier to changing practice on the basis of best evidence, followed by a lack of authority to change.

Regarding nurses' knowledge about facilitation and support in changing practice (section VI), the present study shows that they expect that nursing colleagues, nurse managers, doctors with whom they work, practice managers will support them for changing practice if there are real opportunity to change the practice. These results may be probably due to that most of the studied nurses have the ability and the desire to change the practice if they get the necessary support and facilitation such as providing enough time and the appropriate number of nurses, getting enough authority and getting the needed experience from training, education and availability of experienced personnel in the work place. In this respect, *Yadav & Fealy (2012)* ⁽²⁷⁾ agreed with the present study that practice development coordinators or clinical facilitators were the most supportive in assisting them to change their practice. But this was in contrast with the present study whereas nurse managers and nursing colleagues were perceived as the least supportive in changing practice.

In the same line, *Olade (2003)* ⁽²⁸⁾ in her study of attitudes and factors affecting research utilization that aimed to describe the attitude of nurses in rural settings toward nursing research and the relationship between selected variables and the nurses attitudes toward research. She reported that lack of consultative support and lack of encouragement from their organizational leaders, the lack of interest by the nurse administrators were some of the important barriers for utilization of scientific evidence for evidence-based practice stressed in the comments of those rural nurses who had the knowledge and interest in research but no encouragement from their nurse leaders.

Dogherty (2009) ⁽²⁹⁾, in her study on facilitation as a role and process in achieving evidence-based practice in nursing: A focused review of concept and meaning, facilitation is described as involving two major elements of „supporting“ and „enabling“ practitioners to improve practice through evidence implementation, that aimed to examine the current state of knowledge surrounding the concept of facilitation as a role

and process in the implementation of evidence-based practice within the context of nursing reported that facilitation continues to be described as supporting and enabling practitioners to improve practice through evidence implementation. The main results were; facilitation is now being viewed as an individual role as well as a process involving individuals and groups, project management and leadership are important components, no specific approaches appear superior but tailoring facilitation to the local context is critical and there is growing emphasis on evaluation, particularly linking outcomes to nursing actions.

In this context, **Brown (2009)**⁽³⁰⁾ in her study about nursing practice, knowledge, attitudes and perceived barriers to evidence-based practice at an academic medical center that aimed to describe nurses' practices, knowledge, and attitudes related to evidence-based nursing, and the relation of perceived barriers to and facilitators of evidence based practice mentioned that respondents indicated that the availability of learning opportunities as (research discussion group, classes, and mentors to facilitate change), building culture as (mechanisms to implement change, involvement of staff nurses and environment that encourages thinking and rewards thinking), and availability and simplicity of evidence as (simple language, available sources and understandable concepts) were facilitator of EBP.

Regarding nurses self-assessment of skills (section V), the present study showed that the majority of nurses didn't have enough skills required for application of EBP represented in the following statements; finding research evidence, finding organizational information, using the library to locate information, using the internet to search for information, reviewing research evidence, reviewing organizational information, using research evidence to change practice, using organizational information to change practice. These results may be due to absence of technological facilities in the work place such as computers and libraries also insufficient technological training for nurses and low percentage of studied nurses who had quite skills don't have the capacity to read scientific books or search about new issues in psychiatric nursing. Also, they don't know scientific and professional databases and sites. Indeed, **Yadav & Fealy (2012)**⁽²⁷⁾ mentioned that over half of the respondents

(51%) rated themselves as competent or expert in using the Internet to search for information.

This result is in accordance with *Dalheim, et al.(2012)*⁽²⁵⁾, who reported that most responding nurses rated their skills in evidence based practice as being beginner/novice. They explained the limited use of research based evidence by lack of competence in finding, assessing and understanding research.

Indeed, *O'Donnell (2004)*⁽³¹⁾ in her study an attitudes and knowledge of primary care professionals towards evidence-based practice: a postal survey that aimed to describe the attitudes, awareness and use of evidence across key professional groups working in primary care in Scotland reported that nurses have the necessary skills for reviewing and understanding researches and have more holistic view of research evidence.

Regarding attitude of nurses about EBP, the present study represented increased number of nurses having positive attitude immediately after implementation of the program. This result may be probably due to effective educational program sessions which gave the nurses the necessary and scientific knowledge about concept of evidence based practice and its importance in clinical practice, knowledge of the difference between the traditional practice and the evidence based practice.

The present study showed no relationship between difference in socio-demographic data of the studied nurses and attitude about EBP except the nursing expertise in which the nurses having experience less than 5 years were more positive regarding EBP. This result may be probably due to flexibility of the new generation of nurses to accept new concepts and their view that they still have enough time to change the practice to the best. Also, theses nurses are recently graduated and still have some knowledge from their educational courses that may contain knowledge about EBP but the old generations of nurses became more comfortable with the traditional care and may not have the capacity to deal with the new concepts and change.

Pryse (2012)⁽³²⁾ in the study of using evidence based practice: the relationship between work environment, nursing leadership and nurses at the bedside that aimed to

examine variables that describe the relationship among beliefs about EBP, the work environment and nursing leadership on the EBP implementation activities of the staff nurse, who reported that there is no relationship between the nurses' attitude and the education level and the length time of experience. On other hand, *Pryse* reported that there is a moderately significant positive correlation between nursing leadership and beliefs and attitudes about EBP in which the nurse manager's role in setting the milieu and fostering a positive attitude regarding beliefs and attitudes related to EBP.

Regarding relation between level of knowledge and attitude, the present study showed that there is a positive correlation between level of knowledge and attitude of the nurses regarding evidence based practice in which increase in nurses knowledge level led to improvement of their attitude about EBP. This result may be due to increased awareness of nurses about concept of EBP and its benefits in clinical practice for nurses, patients and hospitals and how it can increase the quality of nursing as a whole. In this respect, *Hart (2008)* ⁽³³⁾, in her study, effectiveness of a computer-based educational program on nurses' knowledge, attitude, and skill level related to evidence-based practice that aimed to conduct a baseline assessment of nurses' perceptions of knowledge, attitude, and skill level related to evidence-based practice and research utilization at Georgia. She reported that there are statistically significant differences in knowledge, attitude, and skill level, as well as beliefs about organizational readiness after nurses participated in the computer based education intervention.

In the same respect, *Melnky, Fineout-Overholt & Mays. (2008)* ⁽³⁴⁾, in their study about the evidence-based practice beliefs and implementation scales: psychometric properties of two new instruments mentioned that the strength of beliefs in EBP was strongly associated with the frequency of implementing EBP and this relationship was strongest among participants who had prior training in EBP, training facilitated implementation of EBP. Similarly, the level of education was strongly associated with beliefs about EBP and implementation of EBP, suggesting that graduate education increases appreciation of the positive impact of EBP and instills a desire to use EBP to improve patient outcomes. Like educational level, the role was significantly associated with EBP beliefs and implementation with nurse educators and faculty having

significantly stronger beliefs in EBP and implementing EBP significantly more frequently than did staff nurses.

From the point of view that using evidence based practice improve the patients care, *Teresi, et al. (2013)*⁽³⁵⁾, in their study about comparative effectiveness of implementing evidence-based education and best practices in nursing homes: Effects on falls, quality-of-life and societal costs that aimed to conduct a comparative effectiveness research study to estimate the effects on falls, negative affect and behavior, and the associated societal costs of implementing evidence-based education and best practice programs in nursing homes found reduction of between 5 and 12 falls in a typical nursing home after implementation of the training program which led to cost saving.

training program which led to cost saving.

Conclusion

According to the findings of the present study, it can be concluded that building a culture in which research is valued and EBP becomes the norm among nurses and nurse leaders is essential to the progression of nursing practice. Evidence based practice is greatly important for nurse and patient and overall nursing profession. Nurses are able to work with new trends if they received the necessary information, training and support for this. Diverse and effective methods are essential in educating and engaging nurses in EBP. The findings point to the need for research-based information, exposure to professional journals and, in particular, organizational support for evidence-based nursing practice.

Recommendation :

- Generalize the application of the educational program for all psychiatric nurses to provide a better understanding about concept of psychiatric evidence based nursing practice.
- Continuous In-service training programs need to be implemented for nurses to provide necessary skills for application of EBP in clinical practice area.
- Educate the nurses the principles of scientific research.
- Provide ways of accessing information to nursing staff as internet unit, library books and digital library.
- Provide encouragement and rewards for nurses who attend committees and workshops.
- Provide reinforcement as financial rewards for nurses who do researches in psychiatric nursing issues.
- Provide plans for continuous updating of the available scientific content to renew the nurses' information and skills.
- Annual research plan should be formulated to ensure continuity of research process.

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Effect of an Educational Program based on Coping Strategies Enhancement on the Dimensions of Auditory Hallucinations as a psychotic symptoms

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Abstract

Auditory hallucinations are prominent feature of psychosis that can threaten, disturb, command and capture voice-hearers in a demoralizing cycle of dependence, isolation and destructive activities. Fortunately, there are many coping strategies that voice-hearers can use to challenge these voices, impose their own limits and thus regain some control. **The aim** of the study was evaluate the effect of an educational program based on coping strategies enhancement (CSE) on the dimensions of auditory hallucinations as a psychotic symptoms . **The study sample** consisted of 50 Psychiatric inpatients having auditory hallucinations, able to communicate relevantly and who are hospitalized at Tanta Mental Health Hospital that is affiliated to the Ministry of Health and Population . **A quasi-experimental design** was utilized. **Three tools were used for data collection:** Socio-demographic and Clinical data sheet, Auditory Hallucination Rating Scale used to measure various dimensions of hallucination and a Structured interview schedule of self management of auditory hallucinations . **The results revealed that** there was a statistically significant improvement between mean score of hallucination and total coping score before implementation of the program, immediately and after one month of implementation. **The study concluded : A marked decrease in the allover damnation** of auditory hallucination of the studied patients as the result of receiving an educational program about enhancing different coping strategies to cope with auditory hallucinations . **Recommended:** develop and implement educational programs for nurses about auditory hallucinations and coping strategies to deal with it .

Key words : Coping Strategy, Enhancement , Auditory Hallucinations.

Introduction

Auditory hallucinations, also known as paracusia, are those in which a person begins hearing non-existent voices and sounds while in a conscious state. Auditory hallucinations range from muffled sounds to complete conversations.⁽¹⁻³⁾ The severity of auditory hallucinations varies among affected individuals, ranging from "very mild" causing individuals to not be burdened by them to be "severe enough" to disturb their daily functioning. Hallucinating voices may "talk about", or "to the person", and may involve several speakers with distinct personalities.^(4,5)

Phenomenological auditory hallucinations are quite heterogeneous in nature: varying from first to second to third person commentary; from brief utterances of simple sounds or single words to full conversations; consisting of voices (the average is three) from familiar, personal and repeated to the unknown; from passive discussion to issuing commands; and from pleasant or compliment to far more commonly unpleasant and distressing. Auditory hallucinations may be experienced as coming through the ears, in the mind or anywhere in external space. Several studies found that auditory hallucinations occur either internally or externally or from both locations.⁽⁶⁻⁹⁾

The frequency of auditory hallucinations can range from low (once a month or less) to continuously all day long. Loudness also varies, from whispers to shouts. Duration lasts from a few seconds to several hours. The content of voices is usually highly personalized. The intensity and frequency of symptoms fluctuate during the illness, but the factor that determines whether auditory hallucinations are a central feature of the clinical picture is the degree of interference with activities and mental functions.⁽¹⁰⁾

Auditory hallucinations cause high levels of stress. The content and the experience of intrusive and personal voices can cause distress to the individual and can cause social withdrawal and isolation. Patients may feel that they are unable to escape from the experience, and this feeling is persistent and beyond a voluntary control.⁽¹¹⁻¹⁵⁾ Affective symptoms, including depression, anxiety, fear and anger have been found in 25% - 40% of hallucinating patients. Some patients have committed suicide to escape from the voices. Although psychotropic medications produce the most potent effect on auditory hallucinations, 25% to 30% of auditory hallucinations are "persistent".^(15,16) Persistent hallucinations affect the person's ability to engage in work, leisure, and self-care tasks. For some patients with persistent psychotic illness, hallucinations are directly responsible for the profound dysfunction in all aspects of daily life. Such patients find it difficult to engage in meaningful tasks or relationships. Fortunately, there are many coping strategies voice-hearers can use to challenge the voices, impose their own limits and thus regain some control.^(17,18)

Coping strategies have been demonstrated to be an effective adjunctive therapy to medications and can significantly decrease the negative characteristics of this distressing symptoms, divert patients attention away from the voices, help patients to gain some control over hallucinated voices, help patients follow regular daily activities more effectively as well as assist them not to use maladaptive ways to deal with auditory hallucinations.^(18,19) *Falloon and Talbot (1981)* were amongst the first to study coping in relation to hallucinations and divided coping strategies into 3 main categories: behavioral strategies, changes in physiological arousal; either a reduction or increase and cognitive strategies.⁽²⁰⁾

Physiological coping strategies include that techniques that alter patients physiological state ,either to reduce autonomic arousal involve relaxation methods such as an attempt to lay down/ relax ,meditation ,taking warm bath ,deep breathing or progressive relaxation exercises or arousal increasing technique as practicing physical exercises, walking ,running, listening to stimulating music. Another method is taking prescribed medications.⁽²¹⁻²³⁾ Cognitive coping strategies include techniques involving mental processes . It is based on the recent cognitive conceptualizations of auditory hallucinations that involve challenging the interpretations of voices and modifying the focus of attention such as repeating short sentences and/ or counting numbers sub vocally, reading aloud, using self- instruction (telling oneself that the voices are imaginary, asking oneself to calm down). Another cognitive techniques include using self monitoring logs for recording auditory hallucinations.^(16,23,24)

Behavioral coping strategies are those in which the patients describe themselves consciously doing something in response to hallucinations. These include distraction techniques as watching television, using ear plug, change one posture, keeping busy with an enjoyable activity, praying, singing, do any religious activities, painting ,play game, helping others and increasing socialization which involves initiating interpersonal contact. Seeking medical help was another commonly used coping strategy.⁽²⁵⁻²⁸⁾

These coping strategies help hallucinating patient follow regular daily activities more effectively as well as assist them not using maladaptive ways to deal with auditory hallucinations. In addition , the nurse can empower patients to take care of themselves and enhance patients' confidence in their abilities to manage their auditory hallucinations by nurse can teaching them these strategies. ^(18, 29-32).

Nurses are in an ideal position to facilitate coping with voices through teaching, coaching, and counseling roles. Intervening when a client experiences hallucinations requires the nurse to focus on what is real and to help shift the client's response towards reality. Psychiatric nurses have several responsibilities in dealing with hallucinations.^(33,34) The nurses can play a crucial role as a trusted persons with whom the patients can discuss and validate their perceptions. Establishing clear, consistent open communication and providing a safe therapeutic environment also

play an important role in reinforcing coping strategies and maximizing a person's sense of control over their hallucinatory experience.⁽³⁵⁾

The aim of the study is to:

Evaluate the effect of an educational program based on coping strategies enhancement on the dimensions of auditory hallucinations as a psychotic symptom

Research Hypothesis

- Psychiatric patients coping strategies with auditory hallucinations are enhanced after the implementation of an educational program of coping strategies for auditory hallucinations.
- Dimensions of Auditory hallucinations as a psychotic symptom are improved after an educational program among psychiatric patients.

Materials and Method

Materials

Research design: A quasi-experimental research design was used.

Setting:

The study was conducted at Tanta Mental Health Hospital and population which is affiliated to the Ministry of Health with a capacity of 75 beds divided into three wards for men (50 beds) and two wards for women (25 beds) and provides health care services to Gharbya, Menofia, and Kafr El-Sheikh governorates.

Subjects:

The target population of this study consisted of 50 Psychiatric inpatients (according to power analysis equation), (34 patients have schizophrenia, 12 patients have bipolar disorders and 4 patients have depression , who fulfilled the following inclusion criteria ;Age from 18– 65 years ,both sexes, having auditory hallucinations, able to communicate relevantly and willing and agreeing to participate in the study.

- Data were collected over a period of 6 months starting from August 2014 to January 2015).

Tools of data collection:

The data of this study will be collected by using the following tools:

Tool I: Socio-demographic characteristics and Clinical Data Sheet.

The tool was developed by the researcher to elicit the socio-demographic data about the study sample as age, sex, marital status, level of education, occupation, residency , living condition as well as clinical data of the patients as diagnosis, age of onset of psychotic illness, number of previous psychiatric hospitalizations , duration of current hospitalization .

Tool II: Auditory Hallucination Rating Scale .

A scale developed by (*Gillian Haddock 1994*)⁽³⁶⁾. It consists of 11 items that measure various dimensions of hallucinations (frequency ,duration, location, control & loudness of auditory hallucinations, origin of voice, disruption of daily life, amount of distress due to auditory hallucinations, intensity of distress due to auditory hallucinations amount of negative content and degree of negative content.)

Each item is scored from 0 to 4 .The hallucination severity score therefore ranged from 0 to 44 where 0 indicates absence of auditory hallucinations and 44 indicating sever auditory hallucinations. Evaluation of this scale will be as follow: < 50%= Mild auditory hallucinations, 50 – 75% = Moderate auditory hallucinations and > 75% = Severe auditory hallucinations.

Tool III: Structured Interview Schedule related to Self management of auditory hallucinations.

The tool developed by (*Eman S. Abd Elhay 2008*)⁽²⁵⁾. It was used to elicit information in relation to self management of auditory hallucinations. It includes 36 items of coping strategies that are divided into three categories:

- a) **Physiological category** which includes 7 strategies either to reduce patient's arousal that is divided into three negative strategies such as sleeping ,taking extra medication , listening to soft music and one positive strategy such as lying down /rest and strategies to increase patient's arousal which include one negative strategy such as smoking cigarette and two positive strategies such as doing exercise and walk.
- b) **Cognitive category** which includes 11 strategies that are divided into three negative strategies such as reacting/talking with the voices ,listening to voices , shooting and screaming at the voices and eight positive strategies such as asking self to calm down ,ignoring them, clarifying voices and saying to oneself it isn't true, saying" go away" and "stop to voices", thinking in another thing except voice, reading aloud , selective listening to voices ,repeating short sentences and /or counting numbers subvocally.
- c) **Behavioral category** which includes 18 strategies that are divided into 7 negative strategies such as isolating oneself, going to crowded places ,crying , masturbating , hurting oneself ,eating and do as the voices say and 11 positive strategies such as blocking ears, watching television with loud voices ,seeking help from nurses and doctors ,talking to others, praying, singing ,drawing ,playing cards, doing any tasks, changing one's posture and leaving places .

Each item is scored (by researchers) from 0 to 3 , where 0= No coping , 1=didn't help ,2=help to some extent , 3=help a lot . The minimum score for these tool is 0 and the maximum score is 108. . Evaluation of this scale will be as follow: < 50% = Unsuccessful coping, 50 – 75% = Partial successful coping and > 75% =Successful coping.

Method: official approval was obtained from the identified hospital to collect the study data.

Ethical consideration: Written consent was obtained from the patient or the patient's family after the explanation of the aim of the study.

Patients' privacy and data confidentiality were assured and kept.

Patient's right to withdraw from the study at any phase was respected.

- Tool I was developed by the researcher.
- Tool II (Auditory Hallucination Rating Scale) was translated into Arabic language by the researchers.
- Tool III (Structured interview schedule of self-management of auditory hallucinations), the scores are added by researchers through statistics expert.
- Tools II and III were tested for content validity by a group of 5 experts in the psychiatric field.
- A pilot study was conducted on 10 psychotic patients out of the proposed sample after taking their approval to test the feasibility and applicability of the study tools, and determining obstacles that may be encountered during the period of data collection, after its implementation and according to the results, some statements of tool II (No 5,10,11) needed rewording and are retested.
- Internal consistency of the study tools II&III was done by means of Cronbach's Alpha coefficient, which yielded values of $r=0.9421$ – $r=0.9325$ respectively.
- The actual study which was divided into four phases :
 - **Assessment Phase:-**
 - The researcher reviewed all psychiatric inpatients' records in order to select those who meet inclusion criteria.
 - The recruited patients were asked to participate in the study after establishing rapport and trusting relationship and explaining the aim of the study. The process continued till desired subjects number (50 patients) was reached.
 - The recruited patients underwent a pre-test using Socio-demographic and clinical data sheet. Auditory Hallucination Rating scale and the Structured Interview schedule of self-management of auditory hallucinations. This was applied through interviewing patients on an individual basis by the researcher.

- Each interview lasted for 30-45 minutes, according to the patient's attention, concentration, willingness to co-operate or talk. Patient's clinical data were double checked from their clinical charts.
- **Program development phase**
 - The program was developed by the researchers based on data from the assessment phase and literature review. The program content was developed, the content stressed mainly on the different coping strategies enhancement (physiological , cognitive and behavioral) and apply it to cope with auditory hallucinations as the psychotic symptoms and improve its characteristic
 - The program objective was settled. The suitable educational strategies selected according to session content .
 - **General objective:** to enhance coping strategies and practice it with auditory hallucinations.
 - **Specific objective :** by the end of this program ,the patients will be able to: Recognize purpose of the program; list importance coping with auditory hallucinations ; List the different types of coping strategies; Apply these coping with auditory hallucination ; apply different activities as Listening to music, drawing and painting, singing to cope with the voices
 - The program was developed on a small group basis. Each sub group encompassed 5 patients. Each subgroup attended a total of 5sessions. These sessions were scheduled as 2 sessions per week for a duration of about 2½ weeks and one session in third week .The total hour of the session was approximately 10 hours .The sessions was planned to conduct inside the patient's ward.
 - The researcher prepared essential materials for conducting the program such as writing papers, cards, chess, dominoes ,different size of papers for drawing and painting, water colors,pens ,pencils,brushes, journals, books, cottons, religious books ,colorful magazines ,puzzles and laptops.
- **Implementation Phase:-**
 - Before implementation of the program, permission was obtained through official letters to secure approval about agenda of the program, place and time performing was arranged with hospital administrator and staff in order not to interfere with their work.
 - The researchers divided the implementation phase of the program into two parts which includes 5sessions. During each session, The participants are given break for 10 minutes.
 - Part I.** It includes 3 educational sessions as the following :
 - First Session:** lasted for one hour, it was an introductory session that emphasizes acquaintance between the group members (5 patients) as well as the researcher and

also an explanation of the program purpose and importance of coping strategies to ensure that the patients understand the program.

-Second Session: This session lasted 2.30 hours. It Covered the topics:"physiological and cognitive coping strategies explanation and the application of such strategies. Some strategies supported by videos. Also, The researchers helped the patients to practice physical exercises with listening to stimulate music

-Third session: This session lasted 2.30 hours , it covered the topic : "Behavioral coping strategies explanation and its applications". it was supported by videos. During this session the researcher regulates drawing/painting, singing competition with patients . Group activity such as playing cards, dominoes, puzzles and any preferable activity as watching TV, praying and talking with others are used

-Part II: Training exercises are done to help patients to cope with stress, which may act as triggers for hallucinations which include:

-Fourth Session: This session lasted one hour. It Covered the topic "Deep breathing exercise, explanation steps of these exercises and it was supported by videos, demonstration and re demonstration of these exercises.

- Fifth Session: This session lasted 2 hours. It Covered the topic "progressive relaxation technique ", explanation steps of these exercises and it was supported by videos and pictures about it ,demonstration and re demonstration of these exercises .

▪ ***Evaluation Phase:***

The evaluation of the implemented program was done by:

-Reapplying of Auditory Hallucination Rating Scale and Structured interview schedule of self - management of auditory hallucinations was done as follows:

-Immediately after the implementation of the program (post test 1).

-One months later after the program implementation (post test 2).

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 numerical values, the range mean and standard deviations were calculated. The differences between two mean values were compared using student's t test. Differences of mean values between more than two groups were tested by analysis of variance (F) test ,followed by Bonferroni test whenever result was significant. The relations between quantitative variables were tested by Pearson's correlation coefficient (r) . The level of significance was adopted at $p < 0.05$. For categorical variable, the number and percentage were calculated the associations and between variables were tested by chi square (X^2).

Results

Table (1):-Shows that most patients were male (68%). The highest percentage of the studied patients(58%) had age ranging between 20 to 35 years. Concerning the patient's occupational status, it was observed that 56% of the studied subjects were unemployed and 28% of the studied patients were illiterate .In relation to their residency 62% were living in rural areas. Regarding their marital status 50% of the subjects were singles .The table also shows that 38% of the studied patients who live with their relative ,34% live with family and 28 % of the patients live alone.

Table (2): illustrate the distribution of the studied patients according to their clinical data. It reveals 68% of the studied patients had schizophrenia and 24% had mania. Regarding patient's age at onset of the disease, 32% of the studied patients were in the age from 20 years to less than 25 years and 28% in the age from 25 years to less than 30 years . Regarding the number of hospital admissions, 62% of the studied patients were admitted 4 times or more, while 38% were admitted only once . In relation to the current length of hospital stay , 48% were staying in the hospital for less than 3 months.

Figure 1: Illustrates that 38% of the patients have been hallucinating for 5 to less than 10 years, while only 28% of the patients for less than 5 year.

Table (3):- This table shows dimensions auditory hallucinations of studied sample. It reveals that 52% of the studied patients had a frequency of auditory hallucinations once per an hour before intervention, while 58% of them had a frequency of auditory hallucinations once per a day immediately after intervention and 46% once per a day after one month. Significant difference was observed between the improvements the frequency of auditory hallucination and implantation coping strategies from before intervention, immediately and after one month of intervention ($\chi^2 =55.78, P < 0.05$).

Concerning e degree of negative content of voice, 38% of the studied patients reported that voices content includes personal verbal abuse before intervention. Immediately after intervention, 42 % of them reported that voices content includes verbal comments on behavior. After one month of intervention, only 6% of the studied patients reported that voices content includes personal threat to harm them. The Significant difference was present regarding the degree of negative content of voices ($\chi^2 =45.76, P < 0.05$).

Table 4:- Represents the physiological coping strategies as reported by the studied patients. It shows that 54% of the studied patients used sleeping as a technique for dealing with voices before intervention while immediately after the intervention, 30% of them used this technique. After one month of intervention,84% of patients didn't use sleeping as a technique for dealing with voices .There is a statistically significant relation between sleeping as coping strategies and educational program before, immediately and after the implementation at the level of ($\chi^2 2 5.13, P < 0.05$).

This table also shows that there is a statistically significant relation between smoking cigarettes using as coping strategies auditory hallucination for before training program and after implementation at the level of ($\chi^2=25.27$, $P<0.05$).

Table (5): This table reflects that there was a significant improvement in the method of cognitive strategies as (say go away and stop to voices , read aloud ,think of another thing except voice) from before intervention ,immediately and after one month of the educational program where ($\chi^2 =24.82,11.04,45.92$ respectively) and ($P<0.05$).

Table (6) :Concerning the studied patients who used talk with someone /friend to cope with voices, the table demonstrates that 12% of them used this technique before intervention to cope with voices. After one month of intervention, 78% of the studied patients used this way to cope with voices and 58% of them reported that it helped them to some extent. There is statistically significant relation between using talk with someone/friend as coping strategies before, immediately and after the implementation program at level of ($\chi^2=49.10$, $P<0.05$).

Table (7): The table reveals that appears that 88% of the patients practice deep breathing exercise to immediately after intervention and 32% of them reported that it helps them a lot. After one month of intervention 68% of the studied patients practice deep breathing exercises. the significant relation was observed between practice deep breathing exercises as coping strategies before program and after the training program implementation at level of ($\chi^2 =70.32$, $P<0.05$).

Table (8): illustrates the comparison between the total scores of hallucination and different types of coping strategies before, immediately and after intervention. It was present that 64% of study patients had moderate hallucination which decreased to 20% after implementation the program and 28% of them suffered from severe hallucination which decreased to only 8% after training program.

Also significant differences was observed between patients' mean scores of successful coping to different strategies as physiological , cognitive and behavior coping strategies before and after the implementation of training program($\chi^2 =48.054$, $29.314,54.526$, $P<0.05$) respectively

Table (9): This table shows the relation between socio-demographic and clinical characteristics of the studied patients and their total mean score of hallucination. The results reveals that there is a statistically significant relationship between mean hallucination score and clinical diagnosis While there is no statistically significant relation between ages, sex, residence, level of education

,marital status and occupation of the studied patients and their total mean score of hallucinations

The table also reveals that there is a statistically significant relationship between behavioral coping score and educational level in which $t=4.291$ and $P\text{-value}=0.020$ while there is no statistically significant relation between age, gender, residence, employment, marital status and clinical diagnosis of the studied patients and their mean behavioral coping scores.

Table (10) : This table revealed that there is a statistically significant and negatively correlation between the age at onset of illness of study patients and the mean score of behavioral coping ($r = -0.362, p < 0.05$). There is a statistically significant relationship between the age at onset of illness of the studied patients and the total coping score ($r = -0.295, p < 0.05$). while no observe any significant relation between number of hospital admission, current duration of hospitalization and the mean scores of different coping strategies used to control the hallucination .

Table (1): Percentage distribution of the studied patients according to Socio-demographic characteristics.

Socio-demographic characteristics	The studied patients (n=50)	
	No	%
Age in years:		
20-	29	58.0
35-	13	26.0
50 +	8	16.0
Range	21-62	
Mean+SD	37.30+11.42	
Sex:		
Male	34	68.0
Female	16	32.0
Occupation :		
Unemployed	28	56.0
Manual Worker	16	32.0
Employee	4	8.0
Retired	2	4.0
Educational level:		
Illiterate	14	28.0
Read and write	11	22.0
Preparatory school	8	16.0
Secondary school	10	20.0
High education	7	14.0
Residency:		
Rural	31	62.0
Urban	19	38.0
Marital status:		
Single	25	50.0
Married	18	36.0
Divorced	5	10.0
Separate	2	4.0
Living accommodation:		
Alone	14	28.0
With family	17	34.0
With relative	19	38.0

Table (2): Percentage distribution of the studied patients according to clinical characteristics

clinical characteristics	The studied patients (n=50)	
	N	%
Diagnosis:		
Schizophrenia	34	68.0
Mania	12	24.0
Depression	4	8.0
Age at onset of the disease:		
<20	11	22.0
20-	16	32.0
25-	14	28.0
30+	9	18.0
Range 17-55		
Mean+SD 26.40+10.03		
Number of hospital admissions:		
<2 times		
2- times	15	30.0
4- and more	4	8.0
	31	62.0
Range 1-30		
Mean+SD7.04+6.27		
Median 5		
Length of hospital staying in month:		
<3	24	48.0
3-	20	40.0
6-	3	6.0
9-	2	4.0
12+	1	2.0
Range 1-13		
Mean+SD 3.22+2.4		
Median 3		

Figure (1): Distribution of the studied patients according to the duration of auditory hallucinations.

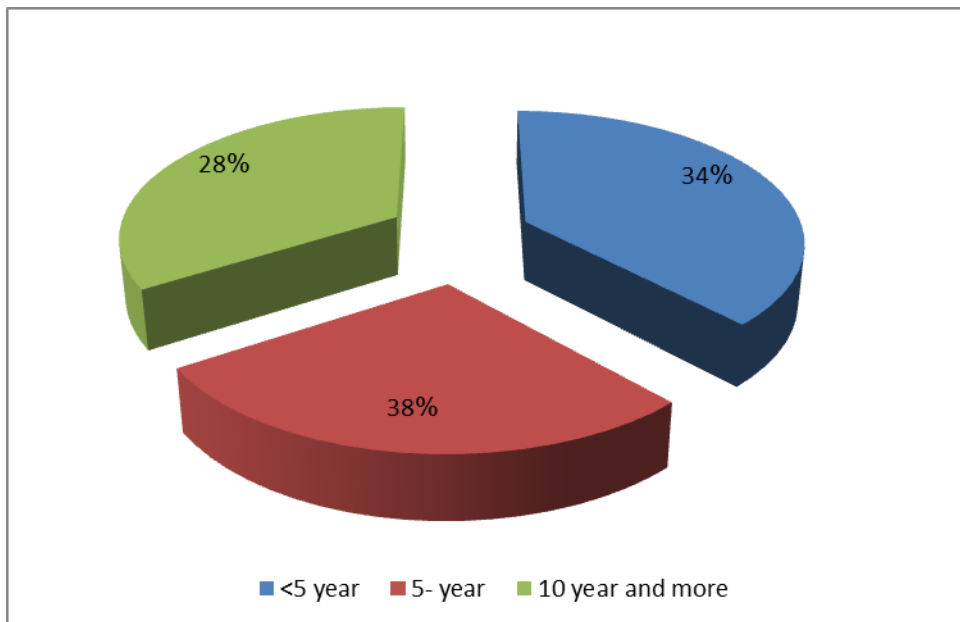


Table (3): Percentage distribution dimensions of auditory hallucinations among the studied patients before, immediate and after intervention (n=50).

Dimensions of auditory hallucination	Time						X ²	P
	Before Intervention		Immediately after Intervention		After one month of Intervention			
	No	%	No	%	No	%		
Frequency of sounds:								
Not present	0.0	0	0.0	0	4.0	2	55.78	0.001*
Once /week	2.0	1	4.0	2	34.0	17		
Once /day	34.0	17	58.0	29	46.0	23		
Once /hour	52.0	26	28.0	14	10.0	5		
Continuous	12.0	6	10.0	5	6.0	3		
Duration of sounds:								
Not present	0.0	0	0.0	0	4.0	2	49.31	0.001*
Few seconds	0.0	0	0.0	0	16.0	8		
Several minutes	36.0	18	48.0	24	56.0	28		
One hour	12.0	6	40.0	20	22.0	11		
Hours at a time	52.0	26	12.0	6	2.0	1		
Location of sounds:								
Not present	0.0	0	0.0	0	4.0	2	30.71	0.001*
Inside head	2.0	1	4.0	2	14.0	7		
Outside head close to ears	54.0	27	68.0	34	70.0	35		
Outside head away from ears	42.0	21	28.0	14	12.0	6		
Outside space	2.0	1	0.0	0	0.0	0		
Intensity of sounds:								
Not present	0.0	0	0.0	0	4.0	2	34.60	0.001*
Whisper	28.0	14	32.0	16	54.0	27		
Same as own voice	44.0	22	54.0	27	38.0	19		
Louder than own voice	28.0	14	14.0	7	4.0	2		
Source of sounds:								
Not present	14.0	7	14.0	7	26.0	13	36.60	0.001*
Internally generated	8.0	4	16.0	8	16.0	8		
<50% from external cause	30.0	15	38.0	19	40.0	20		
>50% from external cause	48.0	24	32.0	16	18.0	9		
100% from external cause								

***Significant at p<0.05.**

Table (3): (Continue)

Dimension s of Auditory hallucination	Time						X ²	P
	Before Intervention		Immediately after Intervention		After one month of Intervention			
	No	%	No	%	No	%		
Amount of negative content								
No unpleasant content	1	2.0	1	2.0	6	12.0	66.65	0.001*
Rarely unpleasant content	1	2.0	6	12.0	16	32.0		
Sometimes unpleasant content	18	36.0	23	46.0	24	48.0		
Most times unpleasant content	23	46.0	19	38.0	4	8.0		
Always unpleasant content	7	14.0	2	4.0	0	0.0		
Degree of negative content:								
No unpleasant content	1	2.0	2	4.0	6	12.0	45.76	0.001*
Some degree of negative content	8	16.0	8	16.0	22	44.0		
Verbal comments on behavior	15	30.0	21	42.0	13	26.0		
Personal verbal abuse	19	38.0	15	30.0	6	12.0		
Personal threat to harm self	7	14.0	4	8.0	3	6.0		
Amount of distress by sounds:								
Not distressing	0	0.0	2	4.0	9	18.0	77.58	0.001*
Occasionally distressing	2	4.0	6	12.0	19	36.0		
Equal distressing ¬ distressing	11	22.0	23	46.0	17	36.0		
Majority of voice distressing	22	44.0	15	30.0	3	6.0		
Always distressing	15	30.0	4	8.0	2	4.0		
Intensity of distress by sounds:								
Not distressing	0	0.0	1	2.0	13	26.0	88.55	0.001*
Slightly distressing	2	4.0	15	30.0	26	52.0		
Distressing to moderate degree	17	34.0	28	56.0	9	18.0		
Very distressing	24	48.0	5	10.0	2	4.0		
Extremely distressing	7	14.0	1	2.0	0	0.0		
Disturbed life by sounds:								
No disruption	0	0.0	2	4.0	18	36.0	60.20	0.001*
Minimal amount of disruption	16	32.0	17	34.0	22	44.0		
Moderate amount of disruption	22	44.0	22	44.0	6	12.0		
Sever disruption	11	22.0	9	18.0	4	8.0		
Complete disruption	1	2.0	0	0.0	0	0.0		
Level of control on sounds:								
Complete control	0	0.0	0	0.0	1	2.0	56.75	0.001*
Some control half of time	2	4.0	6	12.0	20	40.0		
Some control occasionally	11	22.0	25	50.0	22	44.0		
No control	37	74.0	19	38.0	7	14.0		

***Significant at p<0.05**

Table (4): Percentage distribution of studied patients in relation to using physiological methods of coping strategies for treatment of auditory hallucinations (n=50).

Physiological Coping Strategies	Before Intervention						Immediately after Intervention						After one month of Intervention						X ²	p						
	Use			Didn't use			Use			Didn't use			Use			Didn't use										
	Help alot		Help to some extent	Didn't help		Help alot		Help to some extent	Didn't help		Help alot		Help to some extent	Didn't help		Help alot		Help to some extent			Didn't help					
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%			N	%	N	%	N	%
Sleep	0	0.0	1	26.0	1	28.0	2	46.0	0	0.0	8	16.0	7	14.0	3	70.0	0	0.0	6	12.0	2	4.0	4	84.0	25.1	0.001*
Ask doctor for extra medication	0	0.0	6	12.0	1	38.0	2	50.0	0	0.0	1	2.0	1	22.0	3	76.0	0	0.0	0	0.0	1	2.0	4	98.0	32.7	0.001*
Listen to soft music	3	6.0	4	8.0	8	16.0	3	70.0	0	0.0	2	4.0	5	10.0	4	86.0	1	2.0	0	0.0	2	4.0	4	94.0	15.5	0.001*
Lay down/rest	0	0.0	2	4.0	1	2.0	4	94.0	1	2.0	1	22.0	1	24.0	2	52.0	2	4.0	1	20.0	8	16.0	3	60.0	26.4	0.001*
Smoke cigarettes	3	6.0	2	40.0	7	14.0	2	40.0	2	4.0	1	20.0	1	26.0	2	50.0	3	6.0	6	12.0	1	24.0	2	58.0	25.2	0.001*
Do exercise	0	0.0	2	4.0	0	0.0	4	96.0	2	4.0	2	40.0	1	2.0	2	54.0	6	12.0	1	36.0	1	2.0	2	50.0	27.7	0.001*

Walk	4	8.	2	54.	1	2.0	1	36.	1	2.	3	60.	2	4.0	1	34.	3	6.0	1	26.	1	32.	1	36.	25.2	0.001
		0	7	0			8	0		0	0	0			7	0			3	0	6	0	8	0	1	*

***Significant at p<0.05**

Table (5): Percentage distribution of studied patients in relation to using cognitive methods of coping strategies for treatment of auditory hallucinations (n=50).

Cognitive Coping Strategies	Before Intervention						Immediately after Intervention						After one month of Intervention						X ²	p						
	Use			Didn't use			Use			Didn't use			Use			Didn't use										
	Help a lot		Help to some extent	Didn't help		Help a lot		Help to some extent	Didn't help		Help a lot		Help to some extent	Didn't help		Help a lot		Help to some extent			Didn't help					
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%			No	%	No	%		
React /talk to voices	4	94.0	0	0.0	3	6.0	0	0.0	1	2.0	6	12.0	1	22.0	3	64.0	3	6.0	1	26.0	1	32.0	18	36.0	58.51	0.001*
Selective listen to voices	0	0.0	7	14.0	5	10.0	3	76.0	0	0.0	8	16.0	4	8.0	3	76.0	2	4.0	1	22.0	1	38.0	18	36.0	17.62	0.001*
Listen to voices	2	4.0	1	22.0	19	38.0	1	36.0	5	10.0	0	0.0	7	14.0	3	76.0	1	2.0	1	2.0	3	6.0	45	90.0	38.62	0.001*
Ask oneself to calm down	1	2.0	0	0.0	2	4.0	4	94.0	2	4.0	1	32.0	7	14.0	2	50.0	1	2.0	1	32.0	4	8.0	29	58.0	24.50	0.001*
Ignore the voices	0	0.0	6	12.0	1	2.0	4	86.0	7	14.0	2	54.0	3	6.0	1	26.0	1	34.0	2	42.0	1	2.0	11	22.0	58.66	0.001*
Clarify voices and say to oneself it isn't true	0	0.0	1	2.0	2	4.0	4	94.0	0	0.0	1	38.0	3	6.0	2	56.0	7	14.0	1	36.0	2	4.0	23	46.0	29.15	0.001*
Shoot and scream at	3	6.0	2	42.0	6	12.0	2	40.0	0	0.0	1	24.0	5	10.0	3	66.0	1	2.0	1	2.0	5	10.0	43	86.0	39.85	0.001*

Table (6): Percentage distribution of studied patients regarding to using behavioral methods of coping strategies treatment of auditory hallucinations(n=50).

Behavioral Coping Strategies	Before Intervention						Immediately after Intervention						After one month of Intervention						X ²							
	Use			Didn't use			Use			Didn't use			Use			Didn't use										
	Help a lot		Help to some extent	Didn't help		Help a lot		Help to some extent	Didn't help		Help a lot		Help to some extent	Didn't help		Help a lot		Help to some extent		Didn't help						
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		No	%	No	%			
Cover one's ear/place cotton in one's ear	2	4.0	9	18.0	2	4.0	37	74.0	23	46.0	3	6.0	4	8.0	20	40.0	27	54.0	2	4.0	2	4.0	19	38.0	19.13	0.0
Watch television with aloud voice	0	0.0	0	0.0	2	4.0	48	96.0	0	0.0	0	0.0	8	16.0	42	84.0	0	0.0	2	4.0	5	10.0	43	86.0	13.62	0.0
Seek help from doctor or nurse	7	14.0	7	14.0	15	30.0	21	42.0	2	4.0	3	6.0	9	18.0	36	72.0	3	6.0	1	2.0	2	4.0	44	88.0	6.545	0.0
Isolate oneself	7	14.0	7	14.0	15	30.0	21	42.0	2	4.0	3	6.0	9	18.0	36	72.0	3	6.0	1	2.0	2	4.0	44	88.0	28.67	0.0
Pray	30	60.0	0	0.0	16	32.0	4	8.0	15	30.0	0	0.0	23	46.0	12	24.0	17	34.0	0	0.0	16	32.0	17	34.0	24.53	0.0
Sing	1	2.0	11	22.0	0	0.0	38	76.0	5	10.0	16	32.0	0	0.0	29	58.0	3	6.0	21	42.0	1	2.0	25	50.0	12.62	0.0

Go to crowded places	3	6.0	0	0.0	4	8	43	86.0	4	8.0	0	0.0	2	4.0	44	88.0	7	14.0	0	0.0	2	4.0	41	82.0	0.565	0.
Paint	6	12.0	1	2.0	0	0.0	43	86.0	12	24.0	20	40.0	1	2.0	17	34.0	10	20.0	18	36.0	0	0.0	22	44.0	26.69	0.0
Eat	2	4.0	7	14.0	5	10.0	36	72.0	4	8.0	4	8.0	1	2.0	41	82.0	3	6.0	3	6.0	1	2.0	43	86.0	1.810	0.

*Significant at p<0.05

Table (6): (Continue)

Behavioral Coping Strategies	Before Intervention						Immediately after Intervention						After one month of Intervention						X ²							
	Use			Didn't use			Use			Didn't use			Use			Didn't use										
	Help a lot	Help to some extent	Didn't help		Help a lot	Help to some extent	Didn't help		Help a lot	Help to some extent	Didn't help		Help a lot	Help to some extent	Didn't help											
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		

Cry	0	0.0	9	18.0	7	14.0	34	68.0	2	4.0	3	6.0	2	4.0	43	86.0	0	0.0	0	0.0	1	2.0	49	98.0	20.28	0
Masturbate	1	2.0	8	16.0	11	22.0	30	60.0	1	2.0	3	6.0	6	12.0	40	80.0	1	2.0	1	2.0	8	16.0	40	80.0	23.74	0
Hurt oneself	17	34.0	8	16.0	12	24.0	13	26.0	9	18.0	9	18.0	13	26.0	19	38.0	10	20.0	2	4.0	9	18.0	29	58.0	31.03	0
Play cards	0	0.0	2	4.0	2	4.0	46	92.0	17	34.0	6	12.0	5	10.0	22	44.0	22	44.0	2	4.0	3	6.0	23	46.0	42.69	0
Talk with some friend	0	0.0	4	8.0	2	4.0	44	88.0	3	6.0	26	52.0	6	12.0	15	30.0	8	16.0	29	58.0	2	4.0	11	22.0	49.10	0
Change task they perform	0	0.0	0	0.0	0	0.0	50	100	0	0.0	0	0.0	0	0.0	50	100	0	0.0	0	0.0	0	0.0	50	100	0.000	0
Leave the place	0	0.0	6	12.0	4	8.0	40	80.0	1	2.0	13	26.0	13	26.0	23	46.0	2	4.0	23	46.0	10	20.0	15	30.0	37.54	0
Change posture	1	2.0	8	16.0	2	4.0	39	78.0	6	12.0	20	40.0	4	8.0	20	40.0	6	12.0	27	54.0	2	4.0	15	30.0	29.82	0
Do what voice say	0	0.0	16	32.0	15	30.0	19	38.0	0	0.0	8	16.0	6	12.0	36	72.0	0	0.0	2	4.0	5	10.0	43	86.0	42.21	0

***Significant at p<0.05**

Table (7): Percentage distribution of studied patients regarding to using other coping strategies for auditory hallucinations(n=50).

Other Coping Strategies	Before Intervention						Immediately after Intervention						After one month of Intervention						X ²	P						
	Use			Didn't use			Use			Didn't use			Use			Didn't use										
	Help a lot	Help to some extent	Didn't help		Help a lot	Help to some extent	Didn't help		Help a lot	Help to some extent	Didn't help		Help a lot	Help to some extent	Didn't help											
	N o	%	N o	%	N o	%	N o	%	N o	%	N o	%	N o	%	N o	%	N o	%			N o	%	N o	%	N o	%
Using of prescribed medication	0	0.0	0	0.0	0	0.0	5	10.0	7	14.0	1	36.0	3	6.0	2	44.0	5	10.0	1	36.0	1	2.0	2	52.0	42.3	0.001*
Practice deep breathing exercise	0	0.0	0	0.0	0	0.0	5	10.0	1	32.0	2	46.0	5	10.0	6	12.0	1	24.0	1	34.0	5	10.0	1	32.0	70.3	0.001*
Practice progressive relaxation technique	0	0.0	0	0.0	0	0.0	5	10.0	5	10.0	1	26.0	4	8.0	2	56.0	4	8.0	1	22.0	5	10.0	3	60.0	36.0	0.001*
Using self monitoring logs for recording hallucination	0	0.0	0	0.0	0	0.0	5	10.0	2	4.0	1	26.0	6	12.0	2	58.0	1	2.0	1	24.0	3	6.0	3	68.0	27.8	0.001*
Drawing /painting competition with colleague	0	0.0	0	0.0	0	0.0	5	10.0	1	24.0	4	8.0	1	2.0	3	66.0	9	18.0	2	4.0	1	2.0	3	76.0	24.1	0.001*
Reading Quran	0	0.0	0	0.0	0	0.0	5	10.0	7	14.0	9	18.0	1	2.0	3	72.0	4	8.0	1	22.0	1	2.0	3	68.0	22.1	0.001*

		0				0	0		0		0			6	0			1	0			4	0	1		
Say positive statement to self	0	0.	0	0.0	0	0.0	5	10	0	0.0	5	10.	2	4.0	4	82.	0	0.0	4	8.0	2	4.0	4	88.	12.2	0.002*
		0				0	0		0		0			3	0			4	0			4	0	9		
Play domino	0	0.	0	0.0	0	0.0	5	10	2	4.0	4	8.0	0	0.0	4	88.	1	2.0	1	2.0	0	0.0	4	96.	8.00	0.018*
		0				0	0		0		0			4	0			1	0			4	0	0		

*Significant at p<0.05

Table (7): (Continue)

Other Coping Strategies	Before Intervention								Immediately after Intervention								After one month of Intervention								X ²
	Use				Didn't use				Use				Didn't use				Use				Didn't use				
	Help a lot		Help to some extent		Didn't help				Help a lot		Help to some extent		Didn't help				Help a lot		Help to some extent		Didn't help				
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	
Thinking of a nice place	0	0.0	0	0.0	0	0.0	50	100	1	2.0	3	6.0	1	2.0	45	90.0	1	2.0	2	4.0	1	2.0	46	92.0	6.421
Watch colorful magazine	0	0.0	0	0.0	0	0.0	50	100	0	0.0	6	12.0	0	0.0	44	88.0	2	4.0	1	2.0	0	0.0	47	94.0	6.700
Dancing/singing	0	0.0	0	0.0	0	0.0	50	100	1	2.0	5	10.0	1	2.0	43	86.0	1	2.0	5	10.0	1	2.0	43	86.0	14.00
Write stories/poem	0	0.0	0	0.0	0	0.0	50	100	2	4.0	0	0.0	0	0.0	48	96.0	2	4.0	0	0.0	0	0.0	48	96.0	4.00

Table (8): Comparison of total mean scores of patients' hallucination and coping strategies before and after program implementation

Patients' scores on the different scales	Mean+SD						X ²	P
	Before intervention		Immediately after		At follow up			
	n	%	n	%	n	%		
Hallucination							57.905	0.001*
Mild hallucinations	4	8	11	22	36	72		
Moderate	32	64	35	70	10	20		
Severe	14	28	4	8.0	4	8		
Physiological coping							48.054	0.001*
Unsuccessful coping	44	88	17	34	12	24		
Partial successful	6	12	33	66	37	74		
Successful coping	0	0.0	0	0.0	1	2		
Cognitive coping							29.314	0.001*
Unsuccessful coping	50	100.0	29	58	26	52		
Partial successful coping	0	0.0	2	40	23	46		
Successful coping	0	0.0	1	2	1	2		
Behavioral coping							54.526	0.001*
Unsuccessful coping	50	100.0	20	40	16	32		
Partial successful coping	0	0.0	30	60	34	68		
Successful coping	0	0.0	0	0.0	0	0.0		
Total coping							47.538	0.001*
Unsuccessful coping	49	98	22	44	16	32		
Partial successful coping	1	2	28	56	34	68		
Successful coping	0	0.0	0	0.0	0	0.0		

***Significant at p<0.05**

Table (9): Relationship between socio-demographic and clinical data of studied patients and mean hallucination score

Sociodemographic and clinical data	Hallucination score		t/F	P
	Range	Mean±SD		
Age in years:				
≤35	15-40	29.00±5.88	0.759	0.452
>35	17-42	30.33±6.47		
Gender:				
Males	15-42	29.74±6.14	0.293	0.771
Females	19-40	29.19±6.22		
Residence:				
Rural	15-42	30.45±6.01	1.329	0.190
Urban	17-40	28.11±6.14		
Employment:				
Unemployed	19-42	30.15±5.85	0.758	0.452
Employed	15-38	28.82±6.47		
Educational level:				
Illiterate	15-42	31.79±6.97	1.332	0.274
Read and write/primary	17-40	28.89±5.56		
Secondary /university	19-39	28.47±5.81		
Marital status:				
Single	15-42	30.16±6.04	0.691	0.493
Ever married	17-40	28.96±6.23		
Clinical diagnosis:				
Schizophrenia	15-42	31.68±5.74	4.113	0.001*
Mania/depression	17-34	25.06±4.17		

***Significant at p<0.05**

Table (10): Correlation between total scores of hallucinations and coping strategies in relation to the age at onset of the disease, number of hospitalization and current duration of hospitalization

Patients scores on different scales	Age at onset of illness		Number of hospital admissions		Current duration of hospitalization	
	r	P	R	p	r	P
Total hallucination score	-0.069	0.632	0.256	0.072	0.155	0.283
Physiological coping score	-0.251	0.079	0.115	0.427	-0.060	0.681
Cognitive coping score	0.008	0.956	-0.039	0.789	-0.067	0.643
Behavioral coping score	-0.362	0.011*	0.017	0.908	-0.019	0.869
Others methods of coping score	0.010	0.945	-0.104	0.484	-0.249	0.088
Total coping score	-0.295	0.044*	0.009	0.953	-0.125	0.402

Discussion

Auditory hallucinations are a frequent and prominent component of psychotic disorders. Auditory hallucinations are unusual experience that can be emotionally stressful and few people equipped to cope with through prior learning. For some people, assistance with learning will be adjunctive to pharmacotherapy whilst for others, coping enhancement ought to be the primary intervention.^(12,37,38)

In the present study, it was observed that there is a significant improvement in the patients' dimensions of auditory hallucinations as frequency, duration, location, control & loudness of auditory hallucinations, origin of voice, disruption of daily life, amount of distress, intensity of distress due to the auditory hallucinations amount and degree of negative content of voices. This improvement may be due to teaching patients using cognitive and behavioral strategies that increased patients' involvement in assessing their symptoms, practicing management skill and evaluating the outcome from their perspective with the researcher. In this study the group discussion that was used in this study help patients to be aware of their symptoms and to know that they were not alone.

In addition, activities intervention which are attractive and stimulating for patients as (reading aloud, watching television with loud voices, singing/dancing, playing cards or dominoes, watching colorful magazines, drawing/painting competitions, writing stories and poem. These activities keep patients more contact with reality and distract attention away from hallucinations. It is difficult for patients to hallucinate and to share in reality based activity at the same time.^(39,40)

This result was congruent with some studies as a study conducted by **Bagaul (2012)** who revealed that after 1 week of intervention, there is a decline in 9 components of auditory hallucination rating scales (frequency, duration, loudness, location, belief, origin of voice, amount of negative content, degree of negative content, amount and intensity of distress, disruption of life and control of voices).⁽⁴¹⁾ Another experimental study was conducted by **Kanungpairn et al (2007)** who evaluate the effects of a symptom management program on auditory hallucinations. The results revealed that the participants who attended the symptom management program experienced a significantly decreased overall scores of the characteristics and severity of auditory hallucinations as (frequency, duration, intensity, control, distress, and anxiety).⁽⁴²⁾

It was noticed that after educational program, there is decrease in the number of subject used smoke cigarette, sleeping ask doctor for extra medication. This may be due to that the researcher motivates patients to decrease the use of these strategies through giving bonus, candy, verbal praise and material reward. These results were coincides with a study by **Bagaul (2012)** who revealed that after application coping strategies program with schizophrenic patients, 22% of them used sleeping

,32% of them used asking doctors for extra medications and 38% used smoking to cope with auditory hallucinations.⁽⁴¹⁾ While *Fallon (1981)* who reported that 53% of the schizophrenic patients ask the doctors for extra medications to manage auditory hallucinations .⁽⁴³⁾

The current study showed that application cognitive coping strategies with patients. The result showed that about two thirds of subjects react/ talk to the voices. This result may be probably due to that listening to voices is a common response. Often unconsciously the patient has developed the habit of reacting with voices ,as if the patient was a passive recipient.⁽²¹⁾ Some patients claimed that react/talk to voices, technique helps them to decrease fear and anxiety and keeps voices under control. This result came in line with a study by *Farhall ,Gehrbe (1992)* who reported that interacting with voices was identified as the most common hallucination specific strategy.⁽⁴⁴⁾ Another study was conducted by *Eman (2008)* who revealed that 78% of schizophrenic patients used react/ talk to voices and shout /scream at voices to manage auditory hallucinations.⁽²⁵⁾

It was observed that after the training program nearly half of the subject clarify voices and say to oneself , "it isn't true". Half of them ask themselves to calm down and most of them reported these strategies helping them to some extent. This is may be due to that these cognitive coping methods help to shift patients' attention away from auditory hallucinations. This result was consistent with a study conducted by *Naoki, Yoshito (2007)* who revealed that 40 % of the studied patients used clarify voices and say to oneself , "it isn't true" and 47% of them ask themselves to calm down.⁽¹⁹⁾

Regarding behavioral coping strategies , the results showed that immediately and after intervention, the majority of patients used "paint" and "talk with someone/friend", and about half of them used "play with cards to cope with the voices. Most of them reported that it helps to some extent. These results could be explained by one of the helpful strategies for intervention with hallucinations which is to engage patients in reality based activity such as painting with bright colors among the group of patients.⁽⁴⁵⁾

This result may probably due to encouraging the patients to talk with someone/friend in the ward and play cards among the group with the researcher. This was successful because the verbal interaction reduced auditory hallucinations in patients diagnosed with schizophrenia ⁽⁴⁶⁾. These results were inconsistent with a study conducted by *Eman (2008)* that revealed that the majority of the patients used playing cards , one third of them used talking with someone and only a small percentage used painting to cope with the voices.⁽²⁵⁾

The current study presented that majority of the studied patients immediately & after the educational program used "deep breathing exercises" and some patients reported that this helps them a lot. The researcher, teaches patients principles of practicing deep breathing exercises and its

usefulness showing the video about this technique and allowing them time to practice in group. This may be due to that deep breathing exercises are anxiety reduction approaches. It has been found that by systematically reducing anxiety associated with particular stressful situation, there is a corresponding decrease in hallucinatory activity. This result was supported by a study conducted by *Singh ,Sharan (2002)*who revealed that deep breathing exercises were a strategy favored by most patients(69%)⁽³¹⁾.

It was found that the mean score of behavioral coping and the total coping score were negatively and significantly related to age at onset of hallucinations. This may be due to that the advanced age person acquire skill ,experience to cope with difficult situations than younger age, so patients with early disease onset showed less coping with auditory hallucinations than patients with late disease onset .This agreed with a study done by *Ikram (2009)*who found that reading aloud was negatively and significantly related to the onset of hallucinations.⁽⁴⁷⁾.

Conclusion

Based on the results of the present study, It can be concluded that a marked decrease in the overall dimensions of auditory hallucination of the studied patients as the result of receiving an educational program about enhancing different coping strategies to cope with auditory hallucinations .The majority of patients were practice some physiological, cognitive and behavior coping which are not knowing to the patients before the educational program.

Recommendations

In the light of the result of this study the following recommendations are suggested

1. Recommendations related to patients:

- A psycho educational session about auditory hallucinations and coping strategies should be provided in a treatment program during patients hospitalization.
- Health education about different coping strategies to deal with auditory hallucinations when rehabilitation of the patients to the community

2. Recommendations related to patient's family:

- Developing and implementing educational programs for psychiatric patients' families about auditory hallucinations coping strategies and how to deal with patients having auditory hallucinations.

3. Recommendations related to hospital staff

- Develop an educational and training programs for nurses about auditory hallucinations and coping strategies to deal with the hallucinations.

- Health care providers must learn to work with patients through positive therapeutic relationships and use communication skills to encourage patients to express their experiences about their own symptoms of auditory hallucinations and verbalizing if they feel unwell.

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Effect of an Educational program about Attention Deficit Hyper Activity Disorder on Teachers Knowledge and skills in primary schools

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Abstract

Attention deficit hyperactivity disorder is one of the most prevalent behavioral disorders affecting children and adolescent worldwide. It causes a grave problem to child, teacher and family. The study aimed to evaluate the effect of educational program about Attention Deficit Hyper Activity Disorder on primary schools teacher's knowledge and skill. This study was conducted at two governmental primary schools at Elgharbia Governorates (one urban and another rural), the subject of the study were 50 primary school teachers. This study followed a quasi-experimental design. Two tools were used for the data collection, Tool 1 include : part a: Socio-demographic data, : part b: Knowledge of Attention Deficit hyper activity Disorders Scale (KADDS) to assess teachers' knowledge about ADHD, Tool 2 include : Teacher Intervention Survey to determine teachers skills regarding interventions that a teacher can use with students with a DHD.. The study program included 4 sessions for six months. The designed educational program helped teachers through providing efficient knowledge and skill regarding ADHD. The results revealed that the designed program had an effective impact on teachers' knowledge and skill regarding ADHD as there was a statistically significant difference between total score of knowledge and skill before implementing the program, immediately after and at follow up .The study concluded that educational program about ADHD can improve level of teacher's knowledge and skills about ADHD. According to these results, the researcher recommended that teachers should be offered in-service training in ADHD, as well as behavioral management and academic interventions (curriculum adaptations) regarding ADHD.

Keywords; Attention deficit hyperactivity disorder, Teachers, knowledge

Introduction

The global burden of disease indicates that by the year 2020, childhood neuropsychiatric disorders will increase by more than 50% internationally to become one of the five most common causes of

morbidity and disability among children. the attention deficit hyper activity disorder will be one of most widely studied of this disorder among children and adolescents. ⁽¹⁾

Attention deficit hyper activity disorder is characterized by a persistent pattern of inattention, hyperactivity and impulsivity that is more frequently displayed and more severe than is typically seen in individuals at a comparable level of development and these symptoms must present in more than one setting.^(1,2)

Attention deficit hyper activity disorder affect 8-12% of elementary school children (worldwide), and affects 7.48% in (Egypt) these variable incidence of attention deficit hyper activity disorder is depending on the diagnostic criteria and assessment tool ^(3, 4)

Attention deficit hyper activity disorder cause grave problems for suffers and those around them as they have a variety of school-related problem including difficulty in paying attention, following directions, staying seated, completing listening, assignments and also exhibit social problems including poor relations additionally these problems are often accompanied by other associated Problems as low self-esteem that may further affect the academic performance of these students and also social problem as anti-social behavior, have trouble getting along with others, and are often less liked by their peers. ^(5,6)

Attention deficit hyper activity disorder cause grave problems for family as more time and attention needed to deal with a child with attention deficit hyper activity disorder can change internal family relationships and create conflicts with parents and siblings⁽⁶⁾

Child with attention deficit hyper activity disorder liable to high comorbidity rate with other disorders, as anxiety disorder, major depression, oppositional defiant disorder and conduct disorder are 25% ,35% and 20-56%, respectively^(6,7)

Attention deficit hyper activity disorder has breached the boundaries of academic research and study and become a social phenomenon, as any child who shows a certain degree of activity, who does not remain seated and quiet for hours and does not instantly obey each and every instruction he or she receives that is immediately suspected of having attention deficit hyper activity disorder. ^(7,8)

Teachers play an important role due to long contact with student in school than family, so they are one of the most suitable groups to receive information and training regard attention deficit hyper activity disorder. As teacher with more knowledge about attention deficit hyper activity disorder has a more favorable conduct and attitudes towards students with this disorder. ^(9,10)

A significant percentage of teachers have false ideas or gaps in their knowledge of attention deficit hyper activity disorder, which causes them to behave inappropriately in the classroom

In this regard it has been observed that specific training of teachers in the field as give student positive and negative verbal feedback, as well as nonverbal feedback such as nods, frowns, smiles, pats of approval, taking away privileges, tokens, or points, for inappropriate behavior, restricting the child's access to positive reinforcement such as placing the child in the corner of the room on a chair have positive consequences for these children ⁽¹¹⁻¹³⁾

In working effectively with students diagnosed with attention deficit hyper activity disorder many factors have to be considered, teachers need to be knowledgeable not only about the etiology,

diagnosis, and prognosis of the disorder, they also need to know how to implement educational interventions that have been shown to have positive outcomes for students with attention deficit hyper activity disorder, Therefore, investigating ways of helping teachers to teach students with attention deficit hyper activity disorder is extremely important. ^(14,15)

The most effective therapeutic approach for childhood attention deficit hyper activity disorder is multimodal treatment which consist of multiple elements including stimulant medication, parental training, teacher's education by identifying teachers' knowledge about attention deficit hyper activity disorder as it provide data regarding what kinds of information teachers are lacking in this area and help them to implement various educational interventions (e.g., token economy, teacher attention ,response cost, time out)^(16,17)

The aim of this study is to:

Evaluate the effect of an educational program about Attention Deficit Hyper Activity Disorder on teachers' knowledge and skills in primary schools

Research hypothesis:

Educational program increase the Primary school teachers' knowledge and skills when deal with Attention Deficit Hyper Activity Disorder.

Materials and Method

Materials

Research design:-A quasi-experimental design was used for this study.

Setting: According to cluster random sampling, the study was conducted at two governmental primary schools at Elgharbia Governorates (one urban and another rural)

Subjects: According to (Epi info program) the target population of this study will consist of 50 teachers from primary school at Elgharbia governorates who were fulfilling the following inclusion criteria:

- Age less than 55 years.
- Both sexes.
- Willing and agree to participate in the study.

Tools of the study:

The data of this study was collected by using the following tools:

Tool I: Knowledge of Attention Deficit hyper activity Disorders Scale (KADDS).

Part a; Socio Demographic data: It was developed by researcher to assess the socio demographic data about teachers, it was included 5 demographic questions (age, gender, highest degree attained, and numbers of total years of teaching. Grade level (he, she) currently teach

Part b: Knowledge of Attention Deficit hyper activity Disorders Scale (KADDS). It was developed by (Garque N, Tarraga L, Miranda L 2007)⁽¹⁸⁾ and modified by researcher after review of related literature It was consist of 30 items designed to assess teachers' knowledge regarding symptoms, diagnosis, the treatment , and general information about

the nature, causes, and outcome of attention deficit hyper activity disorder. Each item was answered as “True,” “False,” or “Don’t Know.” Correct answers are scored as one point; incorrect, don’t know, and missing answers are scored as zero points. Each teacher can receive score ranging from 0 to 30 grades. Evaluation of this questionnaire will be as follow:

- < 50% = Poor
- 50 – 75% = Average
- > 75% = Good

Tool II: Teacher Intervention Survey:It was modified by researcher from a version of a teacher intervention survey that developed by Matlock, (1999)⁽¹⁹⁾, it will be used to determine teachers skill regarding interventions for response of students with attention deficit hyper activity disorder. Each item is scored on a 5-point Likert scale ranging from 1 (very low) to 5 (very high). The minimum score is 12 and maximum score is 60. This include “how knowledgeable they have regarding ADHD intervention,” “how effective they perceive them,” and “how willing they would be able to implement various interventions in their classrooms for students with attention deficit hyper activity disorder.

It consists of four sections.

Section 1 contains three items that measure teachers' attention in giving students positive and negative verbal feedback, as well as nonverbal feedback.

Section 2 contains three items that measure teachers' knowledge regarding the intervention (response cost taking away privileges, tokens, or Points for inappropriate behavior) and ability to implement.

Section 3 contains three items that measure teachers' knowledge regarding this intervention the time out from positive reinforcement and the ability to implement it.

Section 4 contains three items that measure teacher knowledge regarding this intervention (structure) and the ability to implement it by providing organization in the classroom such as posting rules, providing students with daily schedules.

Evaluation of this questionnaire will be as follow: The total score is the summation of the total score of the questionnaire 12 questions, the minimum score should be 12 and the maximum score 60, the total score for each study participants was divided by the maximum score and multiplied by 100 to get percentage of total of each participants. The percentage of total score was categorized by the followings:

- < 50% = Poor
- 50 – 75% = Average
- > 75% = Good

Method

-An official approval was obtained from the identified school to collect the study data.

-Ethical consideration:

- Written consent was obtained from teachers after explanation of the aim of the study.
 - Privacy and confidentiality were assured.
 - Teacher's rights to withdraw from the study at any phase were respected.
- Tools (I part b) and tool (II) was modified by the researcher by adding score through statistics expert.

-All tools was translated into Arabic by the researcher, and tested for their translation and content validity by five experts in the psychiatric field.

-Internal consistency of the study tools (I part b) and tool (II) was done by means of Cronbach's Alpha coefficient which yielded values of $r=0.9421$ – $r=0.9325$ respectively.

-Tool (I part b) and tool (II) was applied three times, the first one pre-test and the second post-test immediately after application of the program and third after one month from the end of program.

-A pilot study was conducted on 5 teachers out of the proposed sample after taking their approval to test the feasibility and applicability of the study tools, and determine obstacles that may be encountered during period of data collection ,after its implementation and according to result some statement of tool II needed rewording and re tested.

The actual study carried out in four phase:

a-Assessment phase:

-The researcher reviewed all teachers' record in order to select those who meet the inclusion criteria. And asked to participate in the study after explaining the aim of the study.

-The selected teachers were undergoing a pre-test using the two tools in the presence of the researcher for necessary clarification.

-Each interview lasted from 30-45 minutes according to the teacher's free time (break).

Before the beginning of the program, the researcher fixed a meeting time with the participants, on Saturday, Thursday (every other week). This assessment phase lasted for 4 weeks.

b-Planning phase:

-The educational program was developed by the researcher based on data from the assessment phase and literature review.

-Expected Outcomes:

-Improvement Primary school teacher's Knowledge and skill regard Attention Deficit Hyper Activity Disorder.

-Primary school of teachers becomes able to deal with child who has ADHD effectively.

*The researcher prepared videos, pictures and power point presentations to be used in the educational program.

*Colored booklets were developed to be distributed to every teacher for enforcement.

*The researcher modified number of program sessions based on the assessment phase to be five sessions instead of four sessions.

c-Implementation phase:

The educational program was implemented by the researcher and these sessions aimed to increase teacher's knowledge about (attention deficit hyperactivity disorder). Each educational session took about 2 hours for 2 days. The program was implemented on a small group basis. Each sub group was encompassing 5 teachers attending a total of 4 sessions. These sessions were being scheduled as 1 sessions per week for duration of about 4 weeks (one session lasted for 2 days). Total duration of session was 8 hours for each school as it was conducted in two schools include the following sessions;

Session 1: This session was include Introduction, definition, history of attention deficit hyper activity disorder, causes (genetics causes, societal causes and environmental causes) of attention deficit hyper activity disorder to increase teacher knowledge about attention deficit hyper activity disorder.

First day the researcher divided this session, first half hour was introduction about ADHD, definition, history of attention deficit hyper activity disorder, supported by power point, and then gave teachers break for 10 minutes after that researcher give teachers 10 minutes to ask any question, and then researcher give teachers 20 minutes to give situation that they meet with such children.

On the second days a researcher divided this session, first half hour was for discussing causes (genetics causes, societal causes and environmental causes) of attention deficit hyper activity disorders with teachers. And then gave teachers a break for 10 minutes. After that researcher gave teachers 10 minutes to ask any question, and then give teachers 20 minutes to summarize all the outlines of the two days.

Session 2: This session covered the topic Epidemiology, path physiology of attention deficit hyper activity disorders, signs & symptoms (diagnosis) according to DSM5 criteria of attention deficit hyper activity disorder.

The researcher divided this session, as follow; first 30 minutes was explanation for Epidemiology, path physiology of attention deficit hyper activity disorders, supported by power point presentations, pictures and then gave teachers break for 10 minutes, after that researcher give teachers 20 minutes to ask any question and make free discussion.

While second days a researcher divided this session, first half hour was discuss signs & symptoms (diagnosis) according to DSM5 criteria of attention deficit hyper activity disorder with teachers. then gave teachers a break for 10 minutes, after that the researcher gave teachers 10

minutes to discuss case study with them that include all signs & symptoms of attention deficit hyper activity disorder. And then the researchers gave teachers 10 minutes to summarize all the outlines of the two days.

Session 3: This session covered the topic, prognosis and impact of attention deficit hyper activity disorders on the suffered children and their family, teachers, learning outcomes. The researcher divided this session, first 30 minutes was explanation for prognosis and impact of attention deficit hyper activity disorder on the suffered children and their family, supported by power point shows, pictures and then gave teachers break for 10 minutes, after that researcher give teachers 20 minutes to ask any question.

While second days a researcher divided this session, first half hour was discussion impact of attention deficit hyper activity disorders on teacher and learning out come with teachers then gave teachers break for 10 minutes. After that the researcher gave teachers 10 minutes to make free discussion .And then gave teachers 10 minutes to summarize all the outlines of the two days.

Session 4:This session covered the topic, method of management (How to deal with attention deficit hyper activity disorders), and barriers of implementation. The researcher divided this session, as follow the first 30 minutes were for the explanation for method of management (How to deal with attention deficit hyper activity disorders), supported by power point shows, pictures and role plays. Then gave teachers a break for 10 minutes, after that the researcher gave teachers 20 minutes to ask any question.

While one the second days a researcher divided this session ,as the follow ,the first half hour was discussing barriers of implementation that face teachers then gave teachers a break for 10 minutes. After that, the researcher gave teachers 10 minutes to discuss case study about ADHD. And then gave teachers 10 minutes to summarize all the outlines of the two days.

-The program was presented through a discussion between the researcher and the teachers. Visual aids, and handouts was used whenever needed to supplement discussions, and guidance booklet were distributed to the teachers during the study.

d-Evaluation Phase:

The evaluation of the implemented program was done by:

-Reapplying Knowledge of Attention Deficit hyper activity Disorders -Scale (KADDS) and Teacher Intervention Survey was being done as follows:

- Immediately after implementation of the program (post test 1).
- One month later after program implementation (post test 2).
- Data were collected over a period of 6 month starting from October 2014 to Mars 2015.

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 (X²). When chi square was not appropriate Monte Carlo exact testes were used. The relations between two variables were tested by Pearson's correlation coefficient. The level of significant was adopted at $p < 0.05$.

Results

Table 1 ; presents Socio-demographic and clinical characteristics of the studied teachers. The results revealed that the most of teachers (92.0%) were married with a mean age of (39.00±9.28 years). Regarding their residence, half of teachers (50%) lived in rural areas. In relation to teaching classes of the teachers, more than half of teachers (64.0%) teaching the Fourth to Sixth classes. Regarding to Post graduate educational training in education most of them (88.0%) had Post graduate educational training.

Table (2) show distribution of studied teachers in relation to their experience in giving students verbal and non verbal, positive and negative reactions (intervention).The results revealed that there was statistically significant relation between knowledge, skills and opinion of the teachers regarding intervention before the educational program and immediately after the educational program and after one month of implementation of the educational program as ($P=0.001^*$).

Regarding knowledge that teachers have about this intervention (question 1) (22%) of the studied teachers have low knowledge regarding this intervention before the implementation of the educational program but immediately after the implementation of the program about (38 %) of studied teachers have high knowledge regarding this intervention.

In relation to skills that teachers have regarding this intervention (question 2) the results revealed that about (22%) of the studied teachers have low skill before the educational program. While after one month from the implementation of the educational program, (86 %) of the them have high skill regarding this intervention .Regarding the degree of effectiveness that the teacher think about these intervention (question 3), the results revealed that about (18%) of the studied teachers have low knowledge about it before the educational program, while after one month from the implementation of the educational program these percentage become decreased to (0.0%), and teachers who have high knowledge became increased to (66.0%).

Table (3) show distribution of studied teachers in relation to their experience regarding response cost (intervention). The results revealed that there was statistically significant relation between knowledge, skills and opinion that teachers have regarding to response cost (intervention) before the educational program and immediately after the educational program and after one month of implementation of the educational program as ($P=0.001^*$).

Regarding knowledge that teachers have about this intervention (question 1) ,(24%) of the studied teachers have a low knowledge regarding this intervention before the implementation of the

educational program but after one month the implementation of the program these percentage of the studied teachers decreased to (0.0 %) ,and the teachers have high knowledge became (84.0%). In relation to skills that the teachers have regarding this intervention (question 2) the results revealed that about (20%) of the studied teachers have low skill about this intervention before the educational program. While after one month from the implementation of the educational program (92%) of them studied teachers have high skill regarding this intervention.

Regarding degree of effectiveness that teacher think about these intervention (question 3) ,the results revealed that (20%) of the studied teachers have a low knowledge about it before the educational program. While after one month from the implementation of the educational program, (88%) of studied teachers have a high skill regarding this intervention.

Table (4) show distribution of studied teachers in relation to their experience regarding providing organization at classroom (intervention). The results revealed that there was statistically significant relation between knowledge, skills and opinion of the teachers regarding to these intervention before the educational program and immediately after the implementation and after one month as ($P=0.001^*$).

Regarding the knowledge that the teachers have about this intervention (question 1) ,(16%) of the studied teachers have low knowledge regarding this intervention before the implementation of educational program but after the implementation of the program these percentage of the studied teachers decent to (2.0 %),and teachers who have a high knowledge became(86%) , In relation to the skills that the teachers have regarding this intervention (question 2) the results revealed that about (50%) of them have a high skill about this intervention before the educational program. While after one month from the implementation of the educational program this percentage become (84%).

Regarding the degree of effectiveness that the teachers think about this intervention (question 3), the results revealed that (14%) of the studied teachers have a low knowledge about it before the educational program, while after one month from the implementation of the educational program (86%) of them have a high skill regarding this intervention.

Table (5) show distribution of studied teachers in relation to their experience regarding time out from positive reinforcement (intervention).The results revealed that there was statistically significant relation between knowledge, skills and attitude that teachers have regarding to these intervention before the educational program and immediately after the educational program and after one month of implementation of the educational program as ($P=0.001^*$).

Regarding the knowledge that the teachers have regarding this intervention (question 1), (40%) of the studied teachers have low knowledge regarding this intervention before the implementation of the educational program but after the implementation of the program these percentage of decreased to (4.0 %), and the teachers have a high knowledge became (68%).

In relation to the skills that the teachers have regarding this intervention (question 2), the results revealed that about (30%) of the studied teachers have a high skill about this intervention

before the educational program, while after one month from the implementation of the educational program this percentage became (74%). As regards the degree of effectiveness that the teachers think about this intervention (question 3) the results revealed that (24%) of the studied teachers have a high knowledge about it before the educational program, while after one month from the implementation of the educational program these percentage become (80%) of they have a high skill regarding this intervention.

Table (6): Correlation between total knowledge and experience score in relation to age in years. The results revealed that there was statistically significant relationship between total knowledge in relation to age in years, in which $r=0.362$ and $P=0.011$ and experience score in which $r=0.295$ and $P=0.044$

Table (7); Shows correlation between knowledge and experience total scores before, immediately after and after one month from implementation of educational program. The results revealed that there was statistically significant relation between total score of knowledge immediately after implementation of educational program in which $r=0.362$ and $P=0.001^*$. Also there was statistically significant relation between total score of knowledge after one month from implementation of educational program in which $r=0.423$ and $P=0.002^*$.

Figure (1) Shows Distribution of studied teachers in relation to total knowledge score in dealing with children with attentive hyperactivity disorder. The results revealed that there is statistically significant relation between total knowledge score pre, immediate and after the educational program in dealing with children with attentive hyperactivity disorder .The results showed that 22.0% of studied teachers had good knowledge regarding attentive hyperactivity disorder before the educational program. While it increased to 96.0% in the same category immediately after the educational program implementation and then become 98.0% of studied teachers in the same category one month after the educational program implementation

Figure (2): Shows Distribution of studied teachers in relation to total experience score in dealing with children with attentive hyperactivity disorder. The results revealed that there is statistically significant relation between total experience score pre, immediate and after the educational program in dealing with children with attentive hyperactivity disorder. The results showed that 12.0%of studied teachers had good experience regarding attentive hyperactivity disorder before the educational program. While it increased to 50.0% in the same category immediately after the educational program implementation and then become 74.0% of studied teachers in the same category one month after the educational program implementation.

Figure (3); Shows relation between total knowledge score and residence. The results showed that 12% of studied teachers who live in urban area had poor knowledge regarding attentive hyperactivity disorder. And only 8% of studied teachers who live in rural area had poor knowledge, While 24% of studied teachers who live rural area had good knowledge regarding attentive hyperactivity disorder, while 10% of studied teachers who live in urban area had good knowledge. And there was no significant relationship between urban and rural teachers in their knowledge regarding attentive hyperactivity disorder.

Figure (4); Shows relation between total practice experience score and residence. The results

showed that 20% of studied teachers who live in rural area had poor experience more than teachers who live in urban area who had 12% poor experience. While the same percent 12% of teachers who live in rural and urban area had good experience about attentive hyperactivity disorder. And there was no significant relationship between urban and rural teachers in their experience regarding attentive hyperactivity disorder

Table (1): Socio-demographic characteristics of studied teachers

Socio-demographic characteristics	Number (N=50)	%
Age in years:		
25-	13	26.0
35-	14	28.0
45-55	23	46.0
Range		25-55
Mean \pm SD		39.00 \pm 9.28
Marital status:		
Single	4	8.0
Married	46	92.0
Residence:		
Urban	25	50.0
Rural	25	50.0
Teaching classes:		
First to third	10	20.0
Fourth to sixth	32	64.0
All class	8	16.0
Post graduate training in education	44	88.0

Table (2): Distribution of studied teachers in relation to their experience in giving students verbal and non verbal response, positive and negative reaction (n=50)

Variables	Before		Immediately after		After one month		X ²	P
	No	%	No	%	No	%		
How much knowledge/ understanding do you have regarding this intervention							23.617	0.001*
Low	11	22.0	4	8.0	0	0.0		
Moderate	23	46.0	11	22.0	12	24.0		
High	16	32.0	35	70.0	38	76.0		
How skilled do you perceive yourself to be in implementing this intervention?							20.467	0.001*
Low	11	22.0	3	6.0	1	2.0		
Moderate	12	24.0	6	12.0	6	12.0		
High	27	54.0	41	82.0	43	86.0		
To what degree do you think this intervention is suitable and effective for most child with ADHD							25.513	0.001*
Low	9	18.0	2	4.0	1	2.0		
Moderate	23	46.0	16	32.0	9	18.0		
High	18	36.0	32	64.0	40	80.0		

*Significant

Table (3): Distribution of studied teachers in relation to their experience regarding response cost (n=50)

Variables	Before		Immediately after		After one month		X ²	P
	No	%	No	%	No	%		
How much knowledge/ understanding do you have regarding this intervention							32.610	0.001*
Low	12	24.0	2	4.0	0	0.0		
Moderate	22	44.0	12	24.0	8	16.0		
High	16	32.0	36	72.0	42	84.0		
How skilled do you perceive yourself to be in implementing this intervention?							35.436	0.001*
Low	10	20.0	1	2.0	1	2.0		
Moderate	22	44.0	16	32.0	3	6.0		
High	18	36.0	33	66.0	46	92.0		
To what degree do you think this intervention is suitable and effective for most child with ADHD							30.213	0.001*
Low	10	20.0	2	4.0	2	4.0		
Moderate	24	48.0	17	34.0	4	8.0		
High	16	32.0	31	62.0	44	88.0		

*Significant

Table (4): Distribution of studied teachers in relation to their practice experience in providing organization at classroom (n=50)

Variables	Before		Immediately after		After one month		X ²	P
	No	%	No	%	No	%		
How much knowledge/ understanding do you have regarding this intervention							17.538	0.001*
Low	8	16.0	1	2.0	1	2.0		
Moderate	12	24.0	3	6.0	6	12.0		
High	30	60.0	46	92.0	43	86.0		
How skilled do you perceive yourself to be in implementing this intervention?							24.257	0.001*
Low	7	14.0	0	0.0	1	2.0		
Moderate	18	36.0	4	8.0	7	14.0		
High	25	50.0	46	92.0	42	84.0		
To what degree do you think this intervention is suitable and effective for most child with ADHD							8.205	0.017*
Low	7	14.0	0	0.0	1	2.0		
Moderate	12	24.0	11	22.0	6	12.0		
High	31	62.0	39	78.0	43	86.0		

*Significant

Table (5): Distribution of studied teachers in relation to their practice experience in time out from positive reinforcement (n=50)

Variables	Before		Immediately after		After one month		X ²	P
	No	%	No	%	No	%		
How much knowledge/ understanding do you have regarding this intervention							28.114	0.001*
Low	20	40.0	2	4.0	3	6.0		
Moderate	13	26.0	14	28.0	11	22.0		
High	17	34.0	34	68.0	36	72.0		
How skilled do you perceive yourself to be in implementing this intervention?							34.032	0.001*
Low	17	34.0	2	4.0	2	4.0		
Moderate	18	36.0	9	18.0	11	22.0		
High	15	30.0	39	78.0	37	74.0		
To what degree do you think this intervention is suitable and effective for most child with ADHD							35.317	0.001*
Low	16	32.0	4	8.0	2	4.0		
Moderate	22	44.0	15	30.0	8	16.0		
High	12	24.0	31	62.0	40	80.0		

*Significant

Table (6): Correlation between total knowledge and experience score in relation to age in years

Total score	Age in years	
	R	P
Knowledge	-0.362	0.011*
Practices experience	0.295	0.044*

*Significant at $p < 0.05$

Table (7): Correlation between knowledge and experience total scores

Total score	Knowledge and Experience total score	
	r	P
Before	0.191	0.183
Immediately after	0.362	0.001*
After one month	0.423	0.002*

Figure (1): Distribution of studied teachers in relation to total knowledge score in dealing with children with attentive hyperactivity disorder

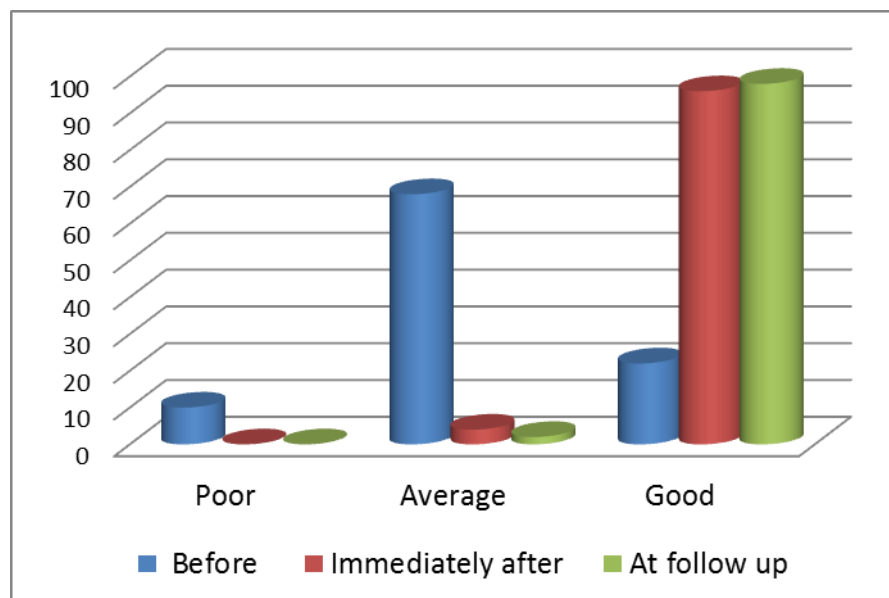


Figure (2): Distribution of studied teachers in relation to total experience score in dealing with children with attentive hyperactivity disorder

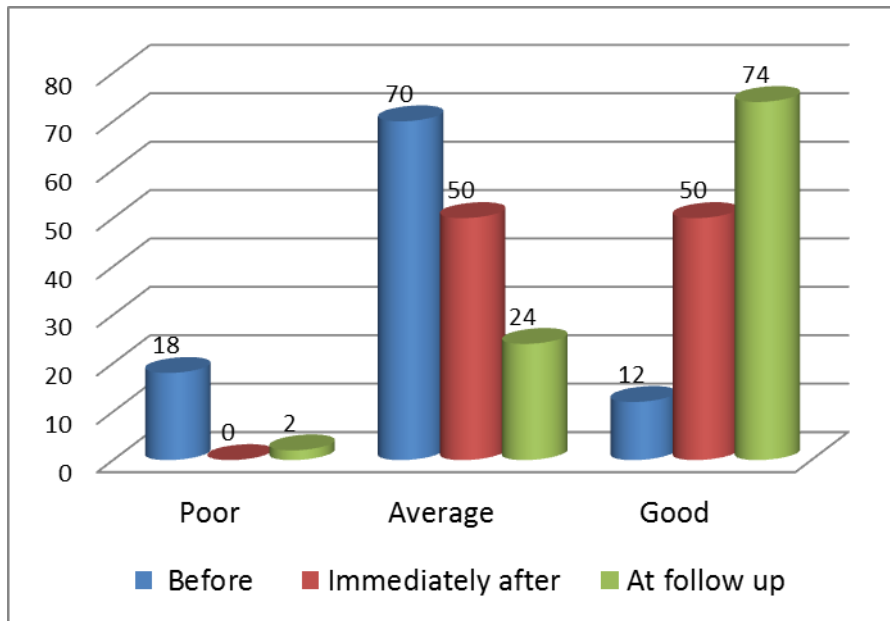


Figure (3): Relation between total knowledge score and Residence

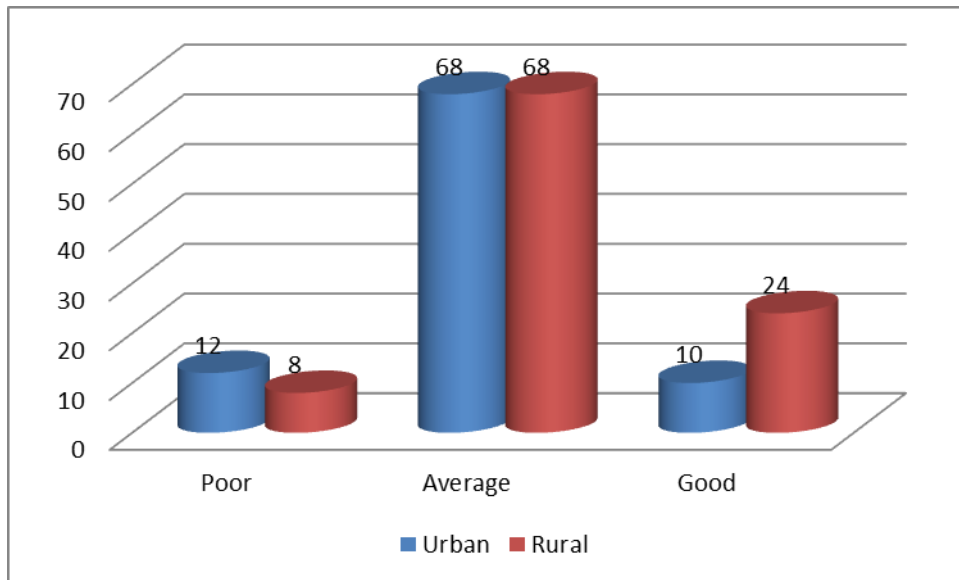
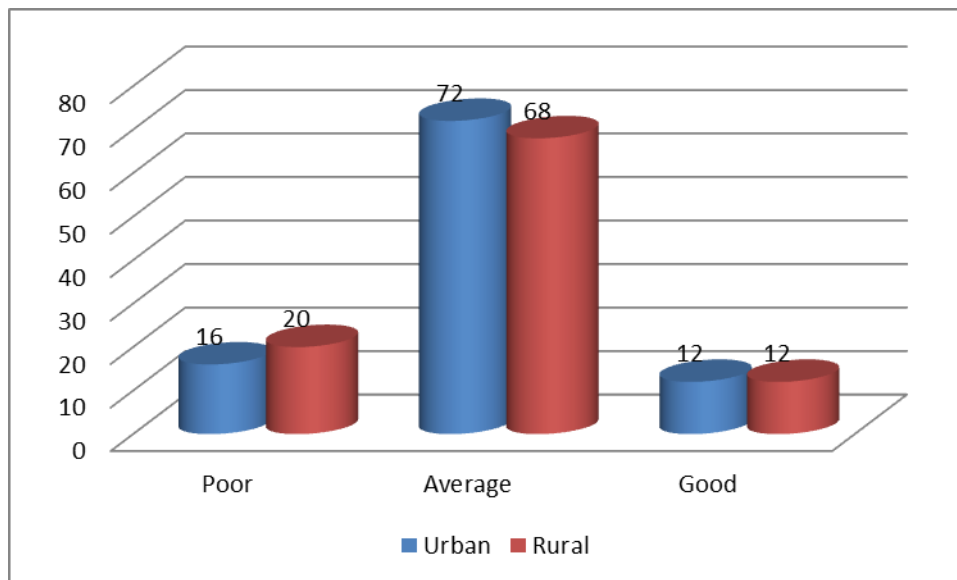


Figure (4): Relation between total practice experience score and residence



Discussion;

Attention Deficit Hyperactivity Disorder is one of the most prevalent childhood and adolescent behavioral disorders affecting children worldwide. It is estimated that it found in three to five percent of the school-age population. This disorder causes grave problems for children, teachers, family and siblings. This research determine the teacher's knowledge, attitudes and behaviors towards the children with ADHD, and giving them in-service educational programs to provide teachers with knowledge and skills that are necessary to manage challenging classroom behaviors and improve academic and social/emotional outcomes⁽²⁰⁻²⁴⁾. So the aim of this study is to evaluate the effect of an educational program about Attention Deficit Hyper Activity Disorder on primary schools teachers' knowledge and skills.

Regarding the personal characteristics of the studied teachers, the study result revealed that more than half of the studied teachers had more than 31years old, This result may be due to that there aren't any chance of appointment by the government for a new jobs except by contract so that more than half of teachers are old generations. This supported by the Bussing et al., (2002)⁽²⁵⁾& Barnet T, Corkum O, & Elik L, 2012⁽²⁶⁾ in their study of general education for primary school teachers about Attention-deficit/hyperactivity disorder that aimed to increase teacher knowledge and experience regard ADHD, This revealed that 54% of the teachers were 30-50 years old.

On the other hand, Piccol O, Torsky J &Waishwell L (2007)⁽²⁷⁾ in their study of primary school teachers knowledge and misperception regarding ADHD that aimed to recognize knowledge of primary school teachers about ADHD which disagreed with this study as they revealed that 65% of primary school teachers were younger than 33years old. Regarding years of teaching experience, the present study result showed that nearly half of teachers had work experience about 25-30 years. This result may be due to the same previous reasons in these days that there isn't any chance of appointment by the government for a new job except by contracts so that nearly half of teachers are old generation.

This result is similar to Bussing et al, (2002)⁽²⁵⁾ that revealed that half of teachers had work experience from 24-30 years. But this study is not similar to the Scicutto M ,Terjesen M⁽²⁸⁾ in their study of the knowledge and attitude of primary school teachers towards childhood attention deficit hyperactivity disorder that aimed to recognize knowledge of

primary school teachers about ADHD. It revealed that the average number of years of teaching experience was between 12-14 years. Regarding the Post graduate educational training the present study result showed that majority of the studied teachers had post graduate educational training, this result may be due to that now in all schools there are mandatory training for all teachers, as there are training units and responsible teachers for it and these teachers must make at least one training course in areas according to the teachers' needs by borrowing lecturers or trainers from outside school. This result was similar to Salend S & Rohena E, 2003⁽²⁹⁾ who mentioned that 77% of the studied teachers had post graduate educational training.

In the same direction Sciqutto M ,Terjesen M ⁽²⁸⁾ & Bender H, Frank A⁽³⁰⁾ who were congruent with the present study as they revealed that 80% of the studied teachers had post graduate educational training. But on the other hand, Schlozman S ,Schlozman R ,2000⁽³¹⁾& Bender H, Frank A ⁽³⁰⁾ who disagreed with this study as they revealed that 70% of the studied teacher's hadn't post graduate educational training.

Regarding the total knowledge score, the present study represented an improvement in the total knowledge level immediately after and after the implementation of the educational program compared with before the implementation of the educational program. This result may be probably due to the immediate effect of educational program session which was supported by booklets about ADHD while one month after the implementation of the educational program this improvement decreased but it was still significant which may be probably due to the absence of continuing training and education in this area, and work overloads. This result agreed with Barnet T, Corkum O & Elik L ,2012⁽²⁶⁾ who revealed that there are improvements in the teacher's total knowledge score. On the other hand, this result disagreed with Stern H ,Garg A& Stern P, 2007⁽³²⁾ in their study as it represented that the majority of the teachers have a low level of knowledge regarding ADHD.

Regarding the total experience score, the present study represented an improvement in the total experience score immediately after and after one month of the implementation of the educational program compared with before the implementation of the educational program. This result may be probably due to the immediate effect of educational program session which was supported by booklets about ADHD .While one month after the implementation of the educational program, this improvement decreased but it was still significant .This may be probably due to the absence of continuing training and education, and work overload.

This result was in agreement with Pisecco S ,Hamilton R, (2006) ⁽³³⁾ who revealed that majority of the studied teachers have good experience regarding ADHD intervention. On the other hand Schlozman S ,Schlozman R ,2000⁽³¹⁾ who disagreed with this study as they revealed that the majority of the studied teachers have poor experience regarding ADHD intervention. Regarding teachers' experience about giving students verbal and non verbal, positive and negative reinforcement, the present study represented that the majority of the teachers have good knowledge, experience and positive attitudes towards this intervention after the implementation of the educational program. This result may be probably due to the effective educational program sessions which gave the teachers the necessary and right knowledge about ADHD management. This result agreed with Ghanizadeh A et al.,2006⁽³⁴⁾, Perold M et al., 2010⁽³⁵⁾ & Rodrigo M et al., 2011⁽³⁶⁾ who revealed that 85% of the studied the teachers have good knowledge, experience towards this intervention.

Regarding the teacher experience about response cost intervention, the present study represented that majority of the teachers have good knowledge, experience and positive

attitudes towards this intervention after the implementation of the educational program. This may be probably due to the presence of technological facilities in the work place such as computers and libraries that effectively facilitate the implementation the educational program. This result was in agree with Curtis D, Pisecco S & Hamilton R, 2006⁽³⁷⁾ who revealed that 80% of studied teachers were knowledgeable with response cost intervention.

Regarding the teachers' experience about providing organization at classrooms, the present study represented that the majority of the teachers have good knowledge, experience and positive attitudes towards this intervention after the implementation of the educational program. This result may be probably due to that majority of the studied teachers were highly educated and have desire for change practice, this study was similar to Baughman, K, 2006⁽³⁸⁾ & Stolzer K, 2009⁽³⁹⁾ who revealed that there are improvements in teachers knowledge and experience regarding this intervention.

Regarding the teachers experience about time out from positive reinforcement, the present study represented that majority of the teachers have good knowledge, experience and positive attitudes toward this intervention after implementation of the educational program. This result may be probably due to the effective educational program sessions which gave the teachers the necessary and right knowledge about ADHD management. This result was in agreement with Hawkins J, et al. ,(2006)⁽⁴⁰⁾ in their study who represented that 65% of the studied teachers have good knowledge about how to use the intervention that called time out from positive reinforcement. In the same direction ,Bekle M, 2004⁽⁴¹⁾ & Curtis D et al., 2006⁽³⁷⁾, their study agreed with the study as they revealed that 83% of studied teachers have good knowledge about how to use the intervention that called time out from positive environment.

The present study represented that there is no relationship between the total knowledge, experience score and residence. This result may be probably due to that on these recent days new technology and E-learning become available in all places, all teachers either from urban places or rural areas log on to web sites and onto the external worlds at any time and at any places easily. This result not similar to Boylan C & Bandy H, 2003⁽⁴²⁾, in their study of assessing the effect of residence on the teachers' knowledge and experience regarding ADHD. Who revealed that residence affects on teachers on their knowledge and experience as teachers in urban places have more knowledge than other teachers in rural areas. But with the researcher's respect to this study and its opinion, this study was implemented in 1994, and there are large differences between 1994 and 2015 in all things; especially, in technology and its related topics.

On the other hand, West J, et al., 2005⁽²¹⁾, were congruent with this study as they revealed that there is no relationship between the total knowledge, experience score and residence. But Timimi N & Taylor D, 2004⁽⁴³⁾ in their study agreed with the present study, as they revealed that there is no relationship between the total knowledge, experience score and residence.

The present study results revealed that there is a statistically significant relationship between the total knowledge and experience score in relation to the age in years. This result may be probably due to that the new generations of teachers are recently graduated and they still have some knowledge from their educational courses that may contain knowledge about ADHD, but they haven't experience as older generations. While the older generations of teachers became more satisfied with the traditional knowledge and had no the capacity to deal with the new concepts but at the same time they have experience more than new generations. This result was congruent with West L, et al., 2005⁽²¹⁾, who revealed that older generations of teachers are less knowledgeable and more experienced than new generation of teachers.

Also Aguiar et al., 2014⁽⁴⁴⁾, Barnet T, Corkum O & Elik L ,2012⁽²⁶⁾ in their study agreed with the present study as it revealed that new generation of teacher is more knowledgeable and less experienced than old generation of teachers. On the other hands Baughman K, 2006⁽³⁸⁾, Stolzer K, 2009⁽³⁹⁾ who disagreed with the present study as it reported that the new generations of teachers are less knowledgeable and more experienced than older generations.

Conclusion

Based on the results of the present study, The Findings confirmed the important role of teacher in management of children who have Attention Deficit Hyper Activity Disorder, and also confirmed the effect of the educational program on enhancing teacher's knowledge and experience regarding ADHD. It can be concluded that the majority of studied teachers had a high level of knowledge and experience that enable them to deal with student who has ADHD after the implementation of this educational program. Total score of knowledge and experience of teachers regarding ADHD before intervention was significantly different from immediately after, and at follow up.

Recommendations

Recommendations related to teachers:

-Teachers should be offered in-service training program in ADHD, as well as behavioral management and academic interventions (curriculum adaptations) regarding ADHD.

-In-service training for teachers should be supplemented with ongoing consultation or support (collaboration with educational psychologists)..

Recommendations related to parents.

-Teachers should be encouraged to involve the parents in the learning process for their children.

-Parent training should focus on promoting social and self- regulating behavior, managing disruptive child behavior at home and reducing parent-child conflict.

Recommendations related to future researches.

-There should be an investigation about the relationship between teachers' behaviors and school policies, resources, to gain a better understanding of the impact of ADHD across our educational system.

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Communication problems facing nursing staff during their interaction with hospitalized mentally ill patients.

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Abstract

Good communication between nurses and patients is essential for the successful outcome of individualized nursing care of each patient. Psychiatric nurses have been criticized for their lack of interaction and therapeutic engagement with patients. Many variables within the psychiatric setting affect communication. For example, factors related to the individual nurse, environment, patient and organization. **This study aimed to** assess communication problems that face nursing staff during their interaction with hospitalized mentally ill patients in psychiatric hospitals. The study was conducted in Tanta Mental Health Hospital which is affiliated to Ministry of Health & population. **The study subjects** include all nurses working in Tanta Mental Health Hospital (80) of both sexes. Two tools were used by the researcher to collect the necessary data. **Tool (1)** Factors that hinder effective communication between nurses & patients, structured questionnaire, and **Tool (2)** Nurses

communication skills observational sheet. **The main results** revealed that all nursing staff are facing problems during their interaction with hospitalized mentally ill patients in psychiatric hospital, it was found that 70% of nurses reported that the failure to clarify roles and responsibilities of each member of the team always hinder communication, and also three-quarters of nurses (75.1%) reported that too much papers work and waste of time always hinder communication, It was obvious that more than half of the sample 63.3% reported that patients who are slow in response always hinder communication, 67.6% reported that the aggressive behaviors of patients always hinder communication, **It was concluded that** all nursing staff face problems during their interaction with hospitalized mentally ill patients in psychiatric hospitals but with varying degrees. Also, all nursing staff experience difficulties in communication skills but with varying degrees, **so it was recommended that** nurse communicators need support in order to be effective. Training programs are needed for hospital staff about effective communication to improve their interaction with patients.

Key terms; communication, problems, nurses, mentally ill patient

Introduction

Mental health nurses operate in an interpersonal context and at the center of this is nurse–patient communication. The ability to establish therapeutic communication with patient is one of the most important skills a nurse can develop. In spite of its importance in all nursing specialties, the therapeutic communication is especially crucial to the success of intervention with patient requiring psychiatric care. ^(1,2) If the nurse – patient communication develops well, it can play a large part in sustaining the patient in the face of emotional difficulties, bring about insight and behavior change in them. ⁽³⁾

Accordingly communication can be defined as dynamic information-sharing process that occurs between people and their environment. Communication occurs between and among all people in all situations and circumstances of life. It occurs between family members, friends, and colleagues, as well as between nurses and clients. so communication is an essential tool of psychiatric nurses. ^(1,4) Moreover communication is a complex process that consists of a combination of verbal and nonverbal behaviors used in various ways to share information. Communication therefore requires much practice in order to be effective. ⁽⁵⁾

Competent communications enhance patient satisfaction, health outcome, and adherence to treatment. Learning communication skills enable nurses to break bad news in a way that is less uncomfortable for them and more satisfying for the patient. Certain studies stated that, communication is the true answer to make appropriate connection with the patient and establish their trust. ⁽⁶⁾ **The Joint Commission Association Health Organization (JCAHO)** emphasizes that poor nurse – patient communication can affect patient safety and feeling , noting that the nurse is an important source of information which can avoid potential adverse effects and hazardous consequence in patient condition. Furthermore, breakdowns in communication between nurse and patient have been shown to be a factor in malpractice litigation. ⁽⁷⁾ For these reasons, nurses need to understand and master the general principles of communication especially the psychiatric nurses for whom the therapeutic communication is the primary tool for working effectively with patient. This enables psychiatric nurses to meet standards of care and perform their role. ⁽⁸⁾

Providing appropriate communication with the patients is one of the necessary tools for nurses in psychiatry wards, which is useful in management of the patients with psychiatric disorders.⁽⁹⁾ Some important reasons for inappropriate relationship between the nurse and patient can be lack of necessary skills to communicate with patients because of insufficient training.^(10, 11)

In a certain studies on the factors of effective communication of the nurses with the hospitalized psychiatric patients, it was demonstrated that the ability to understand the patient; empathize with him/her; appropriately communicate with him/her has a deep effect on the bilateral relationship of nurses and patients in emergency psychiatry wards.⁽¹²⁾

The quality of the interactions and the ability to improve it is frequently governed by diverse factors including the nurse's attitude, his or her ability to understand behavior within a social context, and his or her openness to listening and responding empathetically to others. Research of (**Cooper et al;2003**) indicates that quality communication among the patient, health care providers, families, and other stakeholders can improve health care and help patient adapt to illness and adhere to interventions.⁽¹³⁾

Many factors have been reported as influencing effective communication in healthcare. These include individual abilities and characteristics, team behaviors and systemic factors and the lack of organizational support of a culture safety. In addition, it has been suggested that improving communication requires a detailed understanding of the setting and context in which patient care is delivered and a commitment on behalf of a healthcare organization to a culture of safety and quality improvement, such as supporting team-based delivery of care. Sustainable improvements towards effective communication in healthcare settings involve synchronizing efforts across the three levels that is, the individual, the team and the organization.⁽¹⁴⁾

In addition certain obstacles occur in the nurse-patient relationship that affects the nature of the communication. These obstacles are due to the patient's disorder or lack of knowledge, and the nurse's own inability to be effective because of inexperience, or personal problems for the relationship to grow in a healthy manner.⁽¹⁵⁾ Nurses entering psychiatric-mental health settings bring with them values, beliefs and perspectives that influence their interactions with patients. At the same time, these patients usually have intense emotions and complex behaviors, their care can pose unique challenges for nurses to control their own emotional reactions and check their social biases.⁽¹⁶⁾

Attitudes and behaviors that may block effective interaction with patients experiencing mental health problems include judgmental attitudes, excessive probing, and lack of self-awareness. Nurses need to approach each patient with unbiased perspectives, and during discussions, nurses need to make sure to remain focused on essential problems and avoid explorations unrelated to the issue or challenge of concern. Additionally, nurses must be able to monitor and contain their own responses when patients discuss frightening incidents or relate tragedies that generate feelings of hopelessness, despair, anxiety, disgust, fear, anger, or distress.^(15,16)

Nurses must also understand the role that culture plays "in professional communication, experienced nurses are aware that transcultural differences may create barriers to verbal and

nonverbal communication that in turn, can negatively affect patient outcomes by recognizing that these barriers may exist and continually striving for cultural competence, nurses can increase the likelihood of effective communication with individuals who identify with another culture or ethnic group.⁽¹⁷⁾

Fakhoury and Wright (2008) carried out various studies on physical harms of the therapists working in psychiatry centers, and stated that the nurses who have lower scientific and professional competence and do not have adequate knowledge about how to deal with and provide an appropriate relationship with psychiatric patients are more susceptible.⁽¹⁸⁾ An important reason of inappropriate nurse-patient communication is the insufficient skill of the nurse in providing the relationship, because of the inadequate education.⁽¹⁹⁾ Although communication skill training is an important part of education in medicine and Para-medicine fields, it was demonstrated that the theoretical communication skills cannot necessarily be used in clinical settings, and education in clinical fields is also necessary.⁽²⁰⁾

Aim of the study

To assess communication problems that face nursing staff during their interaction with hospitalized mentally ill patients in psychiatric hospitals.

Research question

What are the communication problems that face nursing staff during their interaction with hospitalized mentally ill patients in psychiatric hospitals?

Materials & Method

Materials

Research Design

The present study follows a descriptive research design.

Setting-:

The study was conducted at Tanta Mental Health Hospital which is affiliated to the Ministry of Health and population with a capacity of 107 beds, divided into four wards, two wards for male patients and two wards for female patients. This hospital serves three governorates; namely, El-Gharbeya, ElMenofeya, and Kafr-El-Sheikh.

Subjects-:

The study subjects include all available nurses working at Tanta Mental Health Hospital (80 nurses) of both sexes who have the following inclusion criteria:

- Nurses who provide a direct care to hospitalized patients.
- Nurses who agree to participate in the study.

Tools of the study

The data of this study were collected using the following tools;

Tool (1) Factors that hinder effective communication between nurse & patient questionnaire, It consists of two parts-:

Part (1) includes: Socio-demographic and occupational data questionnaire for psychiatric nurses. It was developed by the researcher to elicit data about the nurse such as, age, sex, marital status, level of education and occupation. Occupational data, which include, department, years of experience, pervious training in mental health hospital...etc.

Part (2): Factors that hinder effective nurse- patient Communication questionnaire; It

was developed by the researchers after review of recent literature to determine factors that hinder communication between nurses & patients. It consists of 66 items instrument distributed over 4 subscales. These subscales include:

1- Patient related factors involve 14 items such as slow patient response, aggressive behavior on part of patient and the patient symptoms such as delusions and hallucinations

2- Physical environmental factors. This involves 11 items, such as the presence of noise, unclean environment and poor ventilation.

3- Organization environmental factors that hinder nurse's communication this involves 30 items divided into;

a- 13 items related to work with colleagues such as frequent attribution of inventory to nurse from other colleagues, shortage of nurses ,increased work load and lack of support from colleagues.

b- 17 items related to hospital management and work with supervisors such as large efforts award to them cause stress, suffer from a lack of information and skills to work with enthusiasm and too much papers to work and waste of time that hinder communication with patient.

4- Nurses ' s related factors that hinder them to communicate with patients this involves 11 items such as their work in the psychiatric hospital causes them embarrassment with family and society. Nurse's negative attitudes and beliefs about mental illness and their feeling of lack of self confidence and self-esteem.

Scoring system of Factors that hinder effective nurse- patient communication was classified as follows: Each item is scored on a 3-point Likert scale from 1(never) to 3(always) It has been changed from a 5-point Likert scale to a 3-point Likert scale according to statistical experts .Each nurse can receive a score ranging from 66 to 198 points. Evaluation of this questionnaire was as follows.

<50 % means weak factor

50-75 % means moderate factors

> 75% means strong factors

Tool (2) Nurses' communication skills observational sheet, It was developed by Bayer-Fetzer Group in (2011) ⁽²¹⁾ to determine nurse's communication skills with patient. It consists of 36 items distributed in 7 sub scales:

1-Building a relationship with patient. It involves 4 items such as greeting and showing interest in patient as a person and using words that show care and concern throughout the warm & professional interview.

2-Opening discussion with patient. It involves 3 items such as allowing patient to complete opening statement without interruption.

3-Gathering information from patient. It involves 11 items such as clarifying details as necessary with more specific, summarizing and giving patient an opportunity to correct or add information and communicate using good non-verbal and verbal techniques.

4-Understanding the patient. It involves 5 items such as asking about life events, circumstances and supporting and encouraging patient to benefit from his special abilities and capacities.

5-Sharing information with patient. It involves 4 items such as assessing patient understands of problem and desire for more information and explaining using words that patient can understand / using educational aid.

6-Reaching agreement with patient. It involves 4 items such as includes patient in choices

and decisions to the extent he/she desires and checking for a mutual understanding of diagnostic and/or treatment plan.

7-Providing closure with patient. It involves 5 items such as asking if the patient has questions, concerns or other issues and discussing / clarifying follow-up or contact arrangements.

Scoring system of Nurses' communication skills observational sheet was done as follows; each item is scored on a 5-point Likert scale from 1(poor) to 5(excellent).

Each nurse can receive a score ranging from 36 to 180 points. Evaluation of this observational sheet will be as follows;

- 1- From 36 to 90 indicated poor communication skills.
- 2-From 91 to108 indicated fair communication skills.
- 3-From109 to 135 indicated good communication skills.
- 4-From 136 to153 indicated very good communication skills.
- 5-From 154 to180 indicated excellent communication skills.

Methods;

The study was accomplished according to the following steps;

- A written official letter from the Faculty of Nursing, Tanat University was directed to the director of Tanta Mental Health Hospital to take their permission to collect data after explaining the goal of the study and the way of data collection.
- Informed consent obtained from every nurse after explaining the purpose of the study.
- Informing study subjects that confidentiality and privacy of any obtained information will be ensured. Respecting the right of the study subject to withdraw from the study at any time.
- Tool (1) was developed by the researcher after review of recent literature.
- Tool (2) was translated into Arabic language by the researchers and was tested for translation.
- Tools (1&2) were presented to a Jury composed of five experts, in the psychiatric nursing fields and Nursing services administration fields to ensure its content and validity. It was valid and required modifications were done.
- Tools' reliability was checked by Cronbch's alpha test and the result was highly reliable (0.929) (0.761). It was done on 8 nurses
- A pilot study was carried out before embarking in the field of work to ascertain clarity and applicability of the study tools and to identify obstacles that may be faced during data collection. It was carried out on 10 nurses according to inclusion criteria. They were selected randomly from the hospital ward after obtaining their written consent to participate in the study. After its implementation and according to the result of the pilot study, the statements are suitable to ensure understanding of the studied nurses. The pilot study subjects were later excluded from the actual study.

Actual Study;

- A written consent was obtained from each selected nurse according to the previous criteria for participation in the study after explaining the aim of the study, establishing rapport and trusting relationship with the studied nurses.
- **Tool one Factors that hinder effective nurse- patient Communication questionnaire;** It was implemented on an individual basis. And was implemented by the researcher using

the interview questionnaire sheet to determine the factors hindering communication between nurse and patient regarding the following;

1- **Patient related factor that hinder nurses to communicate with patients**, such as slow to speak, repeat talking in one subject, speechless uneven, stutter speaks, reply with inappropriate answer to the question.

2-**Physical environmental factor that hinder nurses to communicate with patient**, such as the presence of noise, the environment unclean, poor ventilation, insufficient and inappropriate lighting, sitting in uncomfortable places for the patient, the temperature of the place is not appropriate

3- **Organizational environmental factor that hindering nurses to communicate with patient**, such as nurse's success at work lead to problems with other colleagues and is reflected negatively on the communication with the patient, frequent attribution of the inventory to nurses from other colleagues leads to stress and affects communication with the patient and work load awarded to nurse leads to stress which affects their communication with the patient.

4- **Nurses' problem, such as nurses** who work in the Psychiatric Hospital are embarrassed with family and society which affects nurse's connection with the patient.

• **Tool two Nurse's communication skills observational sheet**, the researcher observed nurses while communicating with patient regarding the following:

I- Building a therapeutic Relationship such as;

Greeting and showing interest in patient as a person, using words that showing care and concern throughout the warm & professional interview.

II: Opening the Discussion

Allowing patient to complete opening statement without interruption, asking "Is there anything else? To elicit full set of concerns.

III- Gathering information from patient

Begins with patient's story using open-ended questions, clarifying details as necessary with more specific, use of "yes/no" questions.

IV Understanding the Patient's Perspective

Asking about life events, circumstances, asking about other people that might affect patient health.

V- Sharing information with patient

Assessing patient's understanding of problem and desire for more information. Explaining using words that patient can understand / using educational aid.

VI: Reaching Agreement (new / changed plan)

Includes patient in choices and decisions to the extent s/he desires.

Checking for mutual understanding of diagnostic and/or treatment plans.

VII: Providing Closure

Asking if patient has questions, concerns or other issues. Summarizing, affirming agreement with plan of action.

- Each observation was implemented on an individual basis.
- Each observation lasted for about 20-30 minutes according to nurses' attention and willing to cooperate or talk with patient.
- Data were collected over a period of four months starting from September,2014 and ending in December, 2014.

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 numerical values the range, mean and standard deviations were calculated. The differences between two mean values were calculated using student's t test. For categorical variable the number and percentage were calculated. The relations between two variables were tested by Pearson's, correlation coefficient. The level of significance was adopted at $p < 0.05$.

Limitations of the study;

The study was conducted with only 80 psychiatric nurses working in a large state hospital. The small sample size limited the overall generalization of the findings to the greater population of Public Psychiatric Hospital.

Results:

Figure (1): Distribution of studied nurses by age groups in years. Regarding the range of nurses age years was 22-56 and the mean age was 32.03 ± 9.33 years. Less than half of nurses (43.8%) aged 20 to less than 30 years and (33.7%) of them aged 30 to less than 40 years and 8.7% aged more than 50

Figure (2) :Distribution of studied nurses in relation to their work, qualifications, and occupation of studied nurses. Regarding the place of work more than half of the sample (65%) work in male ward. Concerning qualifications 41.3% had a technical institute of nursing while 18.8 % had a bachelor degree of nursing. Regarding their occupation, the majority of the sample 80% was nurses while the 8.8% were head nurses.

Figure (3); Distribution of studied nurses in relation to their experience in general nursing and psychiatric care in years ; In relation to the experiences in general nursing indicate that more than half of the sample 51.3 % had 1 to less than 5 years, while 15% of them had 10 to less than 15 years. However, the range of experience years in general nursing was 1-20 years, the mean of experience was 5.99 ± 4.99 years and the median was 4.0 years. In relation to experiences in psychiatric nursing it indicate that 38.7% of the sample had 1 to less than 5 years and 20% of them had more than 15 years, the range of experience years in psychiatric nursing was 1-30 years; the mean of experience was 8.61 ± 7.05 years and the median was 6.0 years.

Figure (4): Distribution of studied nurses by previous training; Regarding the previous training sessions in communication skills for nurses, 20% had attended one session and 23.8% had attended two sessions , 13.8 % had attended three sessions , 21.3% had attended 4 sessions, while 21.3% had not attended any session.

Table (1):- Distribution of the studied nurses by patient related factor hindering nursing- patient communication. It was obvious that more than half of the sample 63.3% reported that patients who are slow in response strongly hinder communication, while 35% reported that this had moderate effect. Only 1.3% reported that they weakly hinder communication. More than half of nurses 67.6% reported that the aggressive behaviors of patients strongly hinder communication, while 30.1% reported that this had moderate effect, compared to a minority 1.3% reported that they weakly hinder communication. More than half of nurses 52.6% reported that the patient suffering from delusions and hallucinations had moderately hinder communication, while 40% reported that they are

strongly hinder communication. However, 7.5% reported that they weakly hinder communication.

Table (2):- Distribution of the studied nurses by factors of co-workers hindering nursing- patient communication. It was found that more than half of nurse's 61.3% reported that frequent attribution of inventory to them from other colleagues strongly hinder communication, while 10% reported that this weakly hinder communication. Also, 68.8% reported that the shortage of nurses and the increased work load strongly hinder communication, while 23.8% reported that this had a moderate effect, compared to 7.5% who reported that this weakly hinder communication. More than half of nurses 58.8% reported that non-parity or justice in distributing the incentives strongly hinder communication, while 26.3% reported that this had a moderate effect. Only 15% reported that this weakly hinder communication.

Table (3):- Distribution of the studied nurses by hospital management and work with supervisors factors hindering nursing- patient communication. It was found that 70% of nurses reported that the failure to clarify roles and responsibilities of each member of the team strongly hinder communication, while 23.8% reported that this had a moderate effect. Only 6.3% reported that this weakly hinder communication. More than three-quarters of nurses 75.1% reported that too much papers and waste of time strongly hinder communication, while 17.6% reported that this had a moderate effect. However, 6.3% reported that this weakly hinder communication. More than two thirds of nurses 70% reported that deficit in all possibilities for action strongly hinder communication, while 25% reported that this had a moderate effect and 5% reported that this weakly hinder communication.

Table (4) illustrates Distribution of the studied nurses by physical environmental factors that hindering nursing- patient communication. It was noticed that the majority of nurses 83.8% reported that the presence of noise strongly hinder communication, while 15% reported that this is had a moderate effect and 1.3% reported that they weakly hinder communication. Around 85% reported that unstructured location strongly hinder communication, while 12.5% of those reported that this is had a moderate effect, compared to 2.5% who reported that they weakly hinder communication. More than three-quarters of nurses 77.6% reported that the lack of privacy of the place strongly hindering communication, while 20.1 % reported that this is had a moderate effect. However, 2.5% reported that this weakly hinder communication.

Table (5):-Shows Distribution of the studied nurses according to nurses' s problems that hindering nursing- patient communication. It was obvious that more than half of nurses 56.3% reported that their work in the psychiatric hospital cause embarrassment with their family and society strongly hinder communication with patient, while 22.5% reported that this weakly hinder communication. More than half of nurses 60.1% reported that their negative attitudes and beliefs about mental illness strongly hinder communication with patient, while 40.1% reported that this is had a moderate effect. Also, more than half of nurses 58.8% reported that lack of information and skills in dealing with psychiatric patients had a moderate effect, while 15% reported that this is weakly hinder communication. Around 57.5% reported that feeling the relationship between nurses and patient's is psychologically boring had a moderate effect, while 13.8% reported that this weakly hindering communication.

Table (6):- Correlation between both the nurse's age and duration of nurses' experience and the total score of hindering factors and observational nurses communication skills. It was found that a statistical significant difference between the

nurse's age and the hindering factor such as co-workers related factors ($r = 0.232$ & $p=0.039$). The table also displays that a statistical significant difference was observed between the experience in nursing and the hindering factors such as patient related hindering factors ($r = 0.223$ & $p=0.047$) and also the hospital management and work with supervisors hindering factors ($r = 0.235$ & $p= 0.037$). This table also shows the correlation between age and duration of nurses' experience in relation to nurse's observational communication skills. A statistical significant difference was observed between the nurse's age and providing closure ($r = 0.274$ & $p= 0.014$). The table also demonstrates that a statistical significant difference was observed between experience in psychiatric nursing and observational communication skills in gathering information ($r =0.228$ & $p= 0.042$), sharing information with patients ($r= -0.243$ & $p= 0.030$), reach agreement ($r = 0.283$ & $p= 0.011$) and providing closure ($r= -0.257$ & $p= 0.022$).

Table (7):- Comparison between both the mean total score of hindering factors and observational nurse's communication skills in relation to the nurses' residence. No statistical significant difference was observed between hindering factors and nurses' residence such as patient related factors ($t= 0.138$ & $p =0.891$). A statistical significant difference was observed between building therapeutic relationship and nurses' residence ($t= 2.254$ & $p = 0.027$).

Table (8):- Comparison between both the mean total score of hindering factors and observational nurse's communication skills in relation to nurses' gender. A statistical significant difference was observed between co-workers as a hindering factors and nurses' gender ($t =3.016$ & $p =0.003$), while a statistical significant difference was observed between hospital management and work with supervisors and nurses' gender ($t =2.058$ & $p =0.043$). The table also clarifies that a statistical significant difference was observed between observational communication skills in building therapeutic relationship ($t =4.337$ & $p =0.001$), open the discussion ($t = 3.328$ & $p=0.001$), gathering information ($t = 3.018$ & $p =0.004$), understanding patients' perspectives ($t= 2.736$ & $p =0.008$), sharing information with patients ($t = 2.797$ & $p = 0.008$). Also a statistical significant difference was observed between reach agreement ($t =2.718$ & $p =0.010$), providing closure and nurses' gender ($t = 2.718$ & $p = 0.010$) respectively.

Figure (1): Distribution of studied nurses by age groups in years

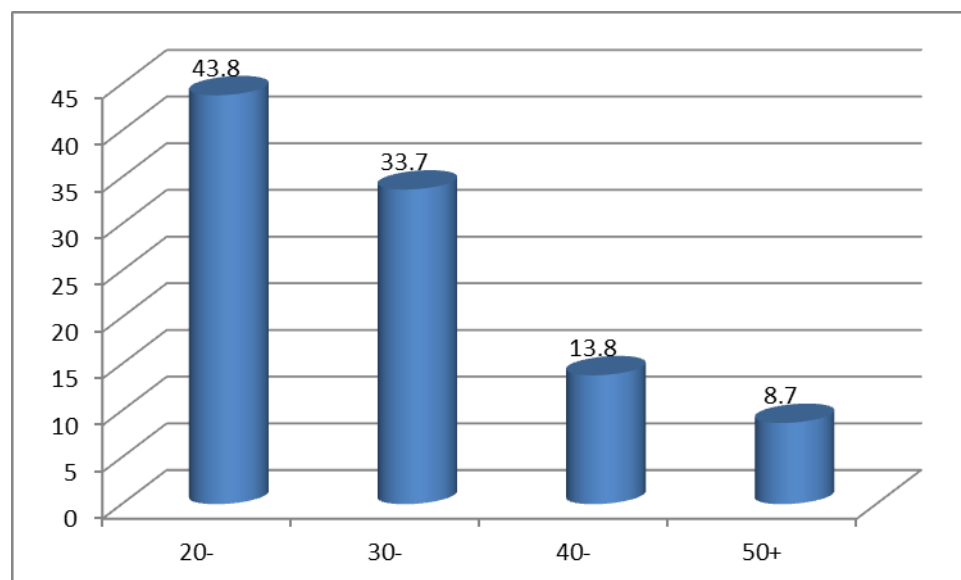


Figure (2) Distribution of studied nurses in relation to their work, qualifications, and job of studied nurses

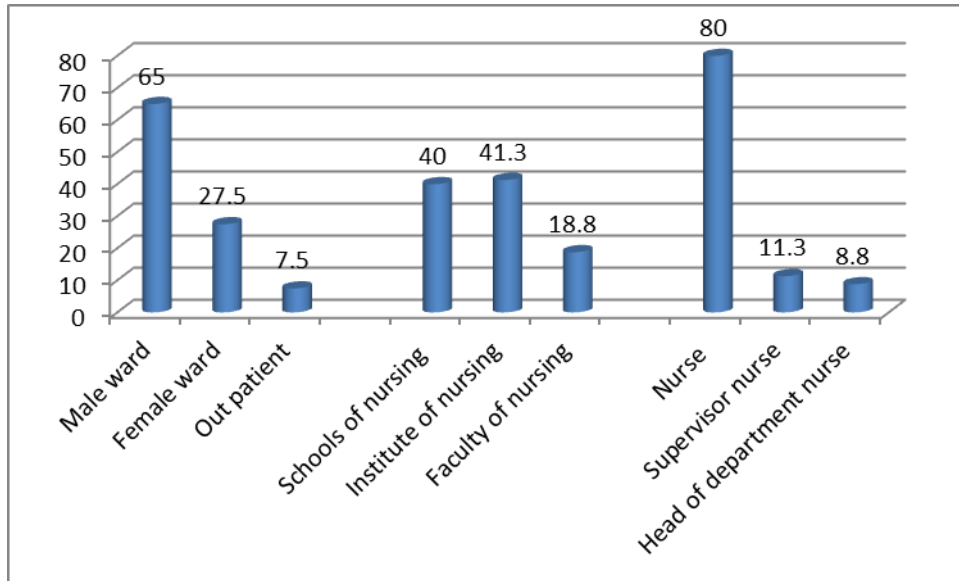


Figure (3): Distribution of studied nurses in relation to their experience in nursing and psychiatric care in years

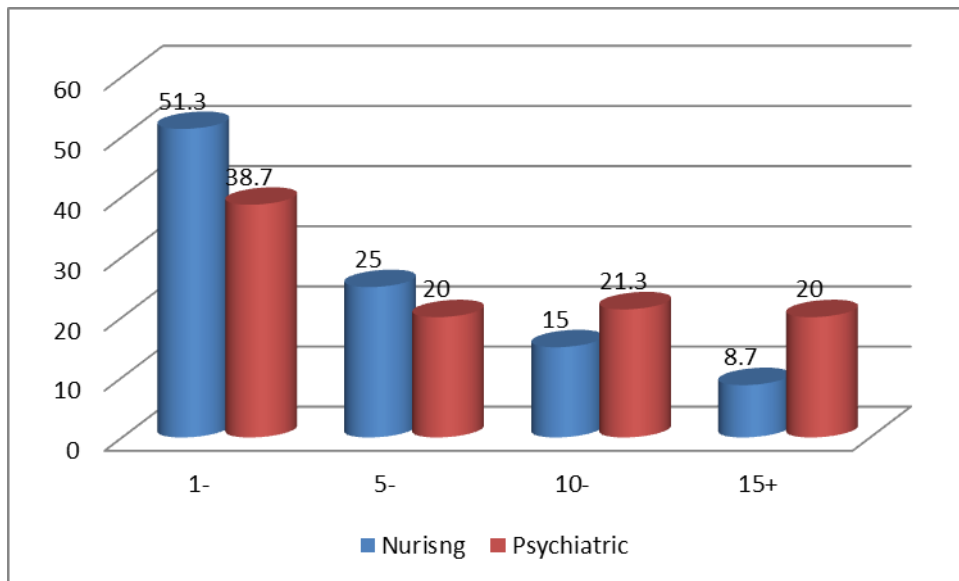


Figure (4): Distribution of studied nurses by previous training

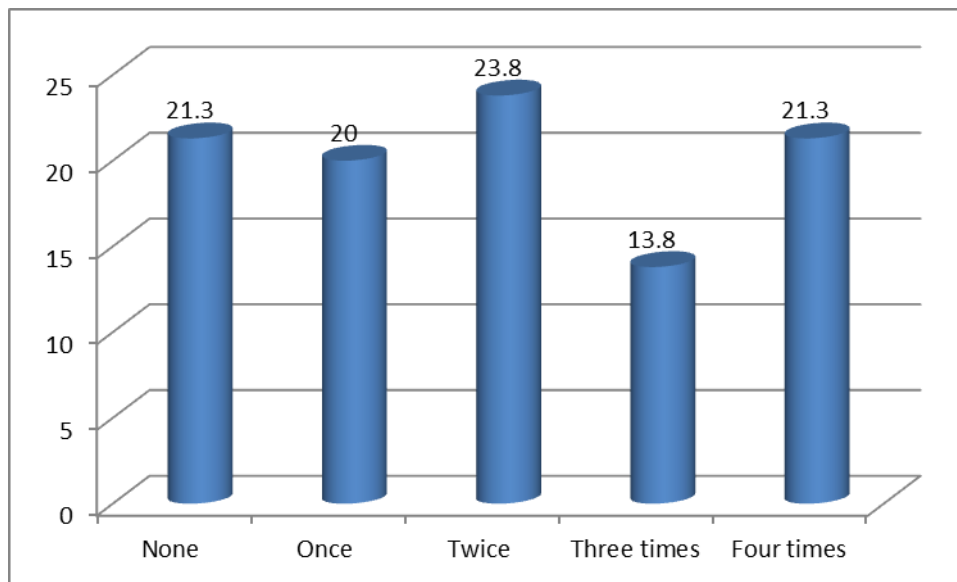


Table (1) Distribution of the studied nurses by patient related factor hindering nursing-patient communication. Number (n=80)

Patient related causes	Weak		Moderate		Strong	
	No	%	No	%	No	%
1-Slow to speak	3	3.8	48	60	29	36.3
2-Slow response	1	1.3	28	35	51	63.3
3-Repeat talking in one subject	2	2.5	28	35	50	62.5
4-Speechless uneven	2	2.5	28	35.1	50	62.6
5-Stutter speak	4	5.0	40	50	36	45.1
6-Reply with Inappropriate answer to questions	0	0.0	38	47.5	42	52.6
7-Pause during speech	4	5.0	34	42.6	42	52.6
8-Aggressive behavior of patient	2	2.5	24	30.1	54	67.6
9-Inability to speak	1	1.3	25	31.3	54	67.5
10-Inability to understand speech playback	2	2.5	35	43.8	43	53.8
11-Inability to express in writing	8	10.0	37	46.3	35	43.8
12-Lack of patient's insight into the nature of his illness	3	3.8	42	52.5	35	43.8
13- The patient suffers from delusional and hallucinations	6	7.5	42	52.6	32	40
14-Patient's escape from the hospital and inclination to suicide	5	6.3	18	22.5	57	71.3

Table (2) Distribution of the studied nurses by factors of co-workers hindering nursing- patient communication. Number (n=80).

Coworkers related factors	Weak		Moderate		Strong	
	No	%	No	%	No	%
1-Your success at work cause you problems with other colleagues	21	26.3	39	48.8	20	25
2-Personal problems	19	23.8	39	48.8	22	27.6
3-Frequent attribution of inventory to you from other colleagues	8	10.0	23	28.8	49	61.3
4-Shortage of nurses and the great efforts	6	7.5	19	23.8	55	68.8
5-Not hearing and paying attention of co-workers to your opinion	7	8.8	35	43.8	38	47.6
6-There are conflicts and disagreements between you and your co-workers	18	22.5	41	51.3	21	26.3
7-Inability to adjust your passivity with co-workers	12	15.0	40	50.1	28	35
8-There is no support from your colleagues when you face a problem with the patient	12	15.0	48	60	20	25.1
9-Not accepting any criticism or suggestions from your colleagues	12	15.0	46	57.6	22	27.6
10-Individual differences between you and your colleagues at work	19	23.8	42	52.6	19	23.8
11-Non-parity or justice in distributing the incentives	12	15.0	21	26.3	47	58.8
12-Not convincing your colleagues work at the psychiatric hospital at the beginning	12	15.0	49	61.3	19	23.8
13-There is no collaboration between you and your colleagues on performance and job tasks	13	16.3	41	51.3	26	32.6

Table (3) Distribution of the studied nurses by hospital management and work with supervisors factors hindering nursing- patient communication. Number (n=80).

Hospital management factors	Weak		Moderate		Strong	
	No	%	No	%	No	%

1-Great effort in work cause you stress and affect your communication with the patient.	5	6.3	21	26.3	54	67.5
2-Not participating in the adoption of decisions of the patient	7	8.8	25	31.3	48	60.1
3-Failure to clarify roles and responsibilities of each Member in the team.	5	6.3	19	23.8	56	70
4-Suffer from a lack of information and skills to lead your business with enthusiasm.	9	11.3	26	32.6	45	56.3
5-Your boss never listens to you when you express your opinion.	9	11.3	34	42.5	37	46.3
6-Many papers to be filled from the administrative waste of time.	5	6.3	14	17.6	60	75.1
7-Your boss never accepts any information or new ideas from you and reduce your communication with the patient.	6	7.5	41	51.3	33	41.3
8-Your business doesn't evaluate in an equitable manner.	7	8.8	38	47.5	35	43.8
9-You have a deficit in all possibilities for action.	4	5.0	20	25	56	70
10-Not trusting and praise you in working with the patient	12	15.0	35	43.8	33	41.3
11-Your boss doesn't understand the problems you encounter as you work with the patient and do not help you resolve.	10	12.5	30	37.6	40	50
12-Not an encouraging and motivating of superiors to achieve the required objectives.	8	10.0	32	40.1	40	50
13-There are conflicts and disagreements with superiors at work.	11	13.8	37	46.3	32	40.1
14-Not allow for further University education and graduate practitioners.	9	11.3	41	51.3	30	37.5
15-Do not take your opinion in scheduling work.	8	10.0	16	20	56	70.1
16-Discounts from money feel dissatisfaction.	14	17.5	11	13.8	55	69
17- Failure to clarify relations between the functional roles of each member in the team with others reflected negatively on your communication with the patient.	10	12.5	14	17.5	56	70.1

Table (4) Distribution of the studied nurses by physical environmental factors that hindering nursing- patient communication. Number (n=80)

Physical Environmental factors	Weak		Moderate		Strong	
	No	%	No	%	No	%
1-The presence of noise	1	1.3	12	15.1	67	83.8
2-The place is clean	1	1.3	12	15.1	66	82.6
3-Location of unstructured	2	2.5	10	12.5	68	85
4-Location of bad ventilation	1	1.3	15	18.8	64	80.1
5-Insufficient lighting and inappropriate	2	2.5	18	22.6	60	75
6-Sitting in uncomfortable place for the patient	1	1.3	31	38.8	47	58.8

7-The temperature of the place are not appropriate	3	3.8	33	41.3	44	55
8-The presence of distracting stimuli	1	1.3	26	32.6	53	66.3
9-The lack of Privacy of the place	2	2.5	16	20.1	62	77.6
10-The timing of the speech is not appropriate in the place	0	0.0	32	40	48	60.2
11-A number of inappropriate patients in the room	5	6.3	30	37.5	45	56.3

Table (5): Distribution of the studied nurses according to nurses' s problems that hindering nursing- patient communication. Number (n=80).

Personal factors and nursing staff problems	Weak		Moderate		Strong	
	No	%	No	%	No	%
1-Your work in the psychiatric hospital cause you embarrassment with family and society	18	22.5	17	21.3	45	56.3
2-Personality is characterized by sharpness that affect the patient's psychological connection	16	20.0	51	63.8	13	16.3
3-Inability to control emotions and concerns of patient behavior	9	11.3	53	66.3	18	22.5
4-Your style of dealing and communicating with patients with mental disorders are not distinguished by consistent	17	21.3	49	61.3	14	17.5
5-Your negative attitudes and beliefs about mental illness hindering communication with patient	0	0.0	32	40.1	48	60.1

6-Problems with family or career structure	12	15.0	51	63.8	17	21.3
7-You do not have the ability to build a therapeutic relationship with the patient and remedial conservation	17	21.3	47	58.8	16	20.1
8-The fear of the patient's psychological problem	11	13.8	50	62.5	19	23.8
9-You feel lack of self confidence and Self-esteem	12	15.0	50	62.5	18	22.5
10-Lack of information and skills in dealing with patients with mental disorders	12	15.0	47	58.8	21	26.3
11-Feel that the relationship between you and the patient's psychological boring and has no-interest	11	13.8	46	57.5	23	28.8

Table (6) Correlation between both the nurse's age and duration of nurses' experience and the total score of hindering factors and observational nurse's communication skills

Variables	Age in years		Experience in nursing		Experience in psychiatric nursing	
	r	P	r	P	R	P
Hindering factors:						
Patient related factors	-0.071	0.530	-0.223	0.047*	-0.146	0.195
Environmental related factors	0.037	0.747	-0.060	0.604	0.001	0.996
Co-workers related factors	0.232	0.039*	-0.114	0.314	0.195	0.083
Hospital management and work with supervisors	0.026	0.821	-0.235	0.037*	0.012	0.915
Nursing staff related factors	0.032	0.775	-0.161	0.153	0.032	0.775
Observational communication skills:						
Building therapeutic relationship	-0.039	0.728	0.024	0.835	-0.140	0.215
Open the discussion	0.040	0.725	0.145	0.199	-0.022	0.844

Gathering information	-0.171	0.130	-0.069	0.544	-0.228	0.042*
Understanding patients' perspectives	-0.058	0.608	0.069	0.543	-0.131	0.245
Sharing information with patients	-0.162	0.150	-0.063	0.578	-0.243	0.030*
Reach agreement	-0.208	0.064	-0.025	0.825	-0.283	0.011*
Providing closure	-0.274	0.014*	-0.006	0.957	-0.257	0.022*

*Significant at p- value < 0.05.

R. correlation coefficient

Table (7) Comparison between both the mean total score of hindering factors and observational nurse's communication skills in relation to the nurses' residence

Variables	Urban	Rural	T	P
Hindering factors:				
Patient related factors	35.61±7.08	35.36±8.80	0.138	0.891
Environmental related factors	31.3±7.29	31.12±7.21	0.147	0.883
Co-workers related factors	28.37±9.77	24.31±12.22	1.629	0.107
Hospital management and work with supervisors	46.45±15.14	41.80±15.95	1.324	0.189
Nursing staff related factors	21.68±9.39	20.29±10.27	0.633	0.528
observational Communication skills:				
Building therapeutic relationship	11.11±3.24	9.40±3.48	2.254	0.027*
Open the discussion	5.97±2.49	5.60±2.52	0.675	0.502
Gathering information	23.18±9.25	22.07±9.07	0.543	0.589
Understanding patients' perspectives	9.34±4.33	9.38±4.56	0.039	0.969
Sharing information with patients	6.05±3.30	5.76±3.02	0.411	0.382
Reach agreement	5.94±3.14	5.90±2.77	0.064	0.949
Providing closure	8.61±5.11	8.24±4.33	0.340	0.737

*Significant at p- value < 0.05.

T. student's t test

Table (8) Comparison between both the mean total score of hindering factors and observational nurse's communication skills in relation to nurses' gender

Variables	Males	Females	T	P
Hindering factors:				
Patient related factors	35.89±7.93	35.26±8.07	0.329	0.743
Environmental related factors	31.07±6.98	31.31±7.38	0.139	0.890
Co-workers related factors	31.30±9.99	23.66±11.05	3.016	0.003*
Hospital management and work with supervisors	48.96±15.22	41.48±15.38	2.058	0.043*
Nursing staff related factors	23.85±11.43	19.47±8.65	1.917	0.059
Observational Communication skills:				
Building therapeutic relationship	12.33±3.12	9.13±3.08	4.337	0.001*
Open the discussion	7.00±2.73	5.15±2.13	3.328	0.001*
Gathering information	27.07±10.29	20.32±7.58	3.018	0.004*
Understanding patients' perspectives	11.19±4.42	8.43±4.17	2.736	0.008*
Sharing information with patients	7.30±3.37	5.19±2.79	2.797	0.008*
Reach agreement	7.26±3.45	5.24±2.40	2.718	0.010*
Providing closure	10.56±5.59	7.31±3.77	2.718	0.010*

*Significant at p- value < 0.05.

T. student's t test

Discussion;

Communication is the key factor in providing and managing the care of patients with mental illness. Peplau stated that the nurse-patient relationship is the core of mental health nursing and that the behaviors of both nurse and patient interacting together play a significant role in the quality of patient care and its outcomes. Although communication is the foundation of the nurse-patient relationship, psychiatric nurses have been criticized for

their lack of interaction and therapeutic engagement with patients (Sharac et al., 2010).⁽²²⁾ This study aims to assess communication problems that face nursing staff during their interaction with hospitalized mentally ill patients in psychiatric hospitals. This study indicates that the factor of patient, environment, organization and nurses can play a decisive role in the effectiveness of this communication.

The result of the present study was considered some factors that hinder communication between the psychiatric nurses and patients. It revealed that, more than half of nurses reported that factors related to psychiatric patient always hindering communication. This may be due to that the patient is slow to response, has an aggressive behavior, pause during speech and the patient suffers from delusions and hallucinations, these symptoms make nurses unable to communicate with psychiatric patients. The previous interpretation was emphasized by a study done by **Bowers et al., (2012)** described the results of a study regarding experienced nurses in their interactions with patients who exhibited acute mental illness, the behaviors of these patients were challenging and confusing, having perceptual disturbances, delusions and hallucinations, made it difficult for the nurse- patient interaction to occur.⁽²³⁾ In this respect. The result of **Ward, L. (2013)** shows that inpatient psychiatric units consist of a number of patients who suffer from various types of mental illnesses which can be difficult for the nurse to maintain effective communication with such patients. According to **Ward (2013)**, the majority of nurses working in an inpatient psychiatric unit have experienced aggressive or violent behaviors by patients at least once in their career.⁽²⁴⁾

Erchul et al, 2010 reported that communication with the patient who is admitted with mental health challenge is complex. When the patient is in a crisis, most patients undergo physical or psychological changes. Pain, anxiety or fear can cause patients to deal with their problems differently than they are healthy and in a familiar environment.⁽²⁵⁾ According to **Rose L. Moss(2015)** reported that some psychiatric patients on an acute inpatient or long-term psychiatric unit who are diagnosed with major depressive disorder, psychotic disorder, or a personality disorder may experience a severe psychosis, may be severely depressed, may express suicidal or thoughts of self-injury and display aggressive behaviors. These patients need to be maintained in a safe environment. Many psychiatric nurses feel that their ability to communicate, assess, and treat such patients appropriately is inadequate. This creates tension in providing care and hinders the development of the nurse-patient relationship.⁽²⁶⁾

According to **Anderson & West,(2011)** reported that Psychiatric units, whether acute or long-term, experience high levels of conflict or unpredictable behaviors from psychiatric patients have shown increases in physical and psychological injuries with staff. Psychiatric patients' aggressive behaviors have generated high acuity levels causing an unsafe milieu. Aggression by psychiatric patients represents a serious threat to the safety and security of both patients and staff. Work pressure, poor communication skills, stress, and time constraints have all contributed to psychiatric patients' conflict behaviors.⁽²⁷⁾

The current study showed that, more than half of nurses reported that factor of co-workers strongly hinder nursing- patient communication. This may be due to the problem between them in work due to refusing their criticism or suggestions and there is no collaboration between them on the performance of the job tasks. This can be interpreted that the difference in gender, culture, level of education, knowledge and experience between nurses leads to conflicts and disagreements between them as well as hindering them from interaction with patient. This result is similar to the study of **Kelly, J. (2006)** which indicated that the conflict among colleagues can have an indirect influence on the therapeutic nurse-client relationship. Poor relationships among members of the health care team negatively affect the delivery of care and communication with patient.⁽²⁸⁾

In the present study, it was observed that 75% of nurses reported that factors related to hospital management and work with supervisors strongly hinder nursing- patient communication. This may be explained as too much papers and waste of time, shortage for action and high work load they extend to them lead to stress. This may be due to that the number of nurses is smaller than the number of patient, so the administration work, stress of job and unsatisfying relation with supervisors hinder nurses from communication with patients. In this respect, the study of **Kwadwo Ameyaw Korsah** (2011) reported that there were human resource factors which undermined effective nurse-client interactions. Staffing shortages lead to nurses who did not have enough time for their clients. Few nurses who were coupled with high workload lead to inadequate interaction with clients. ⁽²⁹⁾ In addition, the study of **Vahid Zamanzadeh et al** (2014) indicated that organizational dimension; factors such as time, workload, and imbalance between such factors to minimize communication with patients. These findings indicated that the lack of monitoring on communication processes by nursing managers influences the nurse-patient communication.. ⁽³⁰⁾

The present study represented that, the majority of nurses reported that environmental factors always hinder nursing- patient communication. This may be due to that the hospital environment was overcrowded, unclean, presence bad ventilation and the lack of privacy of the place, these factors are considered an important barrier that lead to the nurse and patient not concentrate on the topic of communication. In this aspect the result of **Neumann et al, 2012** reported that barriers to effective communication can impede or deform the message. There may be physical barriers that often occur due to the environment. Example of this is the lack of time and improper building. The unit allotted for psychiatry was undersized; nurses and the patients were locked in the small unit, where they could not easily listen to each other's conversations. ⁽³¹⁾ **Rose L. Moss** 2015 showed that current practice on inpatient psychiatric units has been associated with overcrowded and chaotic environments; high stimulus atmosphere that contributes to escalating behaviors; conflict over patient's course of treatment. ⁽²⁶⁾

The result of the current study revealed that less than half of nurses reported that the factor related to nurse's problem sometimes hinder communication with patient. This may be due to that the nurses suffer from stigma about mental illness, lack of communication skills and training lead to their negative attitudes and beliefs about mental illness and often hinder communication with patient. In this respect, the study of **Mavundia** (2009) showed that mental health challenges have a negative influence on nurses ' attitude and patients who have mental health disorders are perceived as dangerous. Such stigmatizations of patient with mental health challenges could interfere with the nurses' ability and willingness to facilitate communication or relationship with patient. ⁽³²⁾ Therefore, the study of **Kwadwo Korsah** (2011) indicated that the nurses noted that stress and overwork lead to frustration and anger in the work place. Personal life issues of some nurses affected their interactions and communication with clients. ⁽²⁹⁾ The study of **Vythilingum** (2009) also recognized that nurses who were not specifically educated and experienced in psychiatric nursing found it difficult to attend to the patients' mental health need and communicate with them. ⁽³³⁾

Moreover, the study of **Vahid Zamanzadeh et al (2014)** indicated that professional and psychological characteristics of the nurses were other influential factors on the nurse-patient communication. The lack of holistic perspective among nurses inclined them towards doing physician orders and physical care. ⁽³⁰⁾

In a study of Jordanian nurses conducted by **Hamdan-Mansour & Wardam** (2011), 60% of Jordanian nurses exhibited negative attitudes towards patients with mental illness. It also emphasized that establishing and maintaining appropriate communication can be extremely difficult, especially when nurses perceive mentally ill persons to be "dangerous, immature, dirty, cold hearted, harmful, and pessimistic" . Also, mental health professionals' attitudes about mentally ill patients can impede communication and therefore have implications on

the patient's treatment.⁽³⁴⁾ According to **Jacob, J. D., & Holmes, D. (2013)** Who reported that nurses need to build a caring and trustful relationship to enables patients to feel more secure and to help them open up and share their true feelings.⁽³⁵⁾

The result of this study revealed that there was a statistically significant difference between nurses' age and duration of nurses' experience in relation to hindering factors of communication. Significant differences appear between co-workers factors and nurses' age. This can be interpreted that the younger nurses may have no experience about their roles and responsibilities. So many problems may arise between them and affects their communication with patient.

According to the present study, the result indicated that there was a statistically significant difference between experience in nursing, patient specific and hospital management and work with supervisors. This may be due to that the years of experience and number of training sessions in psychiatric nursing are low so the nurses suffer from difficulties in how to deal with their problem especially with psychiatric patients. Also, the number of nurses is smaller than to number of patient, so heavy work load, stress of job and unsatisfying relation with supervisor hinder nurses from communication with patients.

There was a statistically significant difference between the nurse's age and providing closure in communication skills. This may indicate that the young age of nurses may be a barrier for them because this skill is special value in health communication process because it includes very important skills, about guidance, follow-up or contact arrangements. According to the present study, the result indicated that there was a statistically significant difference between experience in psychiatric nursing and communication skills items including (gathering information, sharing information with patients, reach agreement and providing closure). This may be due to that the nurses suffer from inadequate knowledge and training of communication skills and use it with psychiatric patient but working with psychiatric patient needs communication skills, so, the nurses complain from how to deal with them.

The present finding showed that there was a statistically significant difference between nurses' residence and building therapeutic relationship in communication skills. This may indicate that the difference in culture and belief between nurses and patient and the distance between the hospital and their residence may hinder building the therapeutic relationship between nurses and patients. In conclusion, nurses may commit errors but practice can make them perfect; especially, in a skill like communication. Thus, nurses must practice as much as possible and try reducing communication errors. As discussed, there are several causes and effects of poor communication; especially, in psychiatric nursing. But nurses should use themselves as a therapeutic instrument, so that they can help the psychiatric patients for their early recovery.⁽³⁶⁾

Conclusion;

According to the findings of the present study, it can be concluded that all nursing staff facing problems during their interaction with hospitalized mental ill patients in psychiatric hospitals but with various degrees. It was found that their problem was related to many factors such as patient, environment, organization and nurses' problems, the most common factors were related to patient and environment that hinder communication. Also, it can be concluded that all nursing staff experience difficulties in communication skills but with various degrees, more than half of them having weak scores in communication skills.

Recommendations;

Based on the results of this study, the following recommendations are suggested. -Even the best nurse communicators need support in order to be effective, Practical measures are necessary such as having sufficient time and psychological support.

- Practical supports are needed to foster and maintain effective communication in order to promote effective nurse-patient communication.

-Conducting workshops and holding seminars to help the nurses refresh their knowledge and discuss their daily problems facing them in work place.

-Training programs are needed to be designed for hospital staff about effective communication and self-awareness to improve their interaction with patients.

-Nursing staff need to be integrated in educational programs about communication skills. Enhancing the therapeutic nurse –patient relationship to avoid their daily problem when communicate with patient.

-There is a need for further researches regarding barriers that hinder nursing staff from communication with patients

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Effect of Reflexology on Quality of Life of Preschool Children

Suffering from Bronchial Asthma

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Abstract:

Bronchial asthma is one of the most common chronic respiratory diseases that affect children. Children with bronchial asthma symptoms have significantly lower health related quality of life scores. The nurse can play an important role in management of asthma by applying a safe and an effective assistant method beside the standard medical care as reflexology that can promote well-being, relaxation

and improve asthma severity symptoms. **The present study aimed** to evaluate the effect of reflexology on quality of life of preschool children suffering from bronchial asthma. **Materials and Method:** The study was conducted at Inpatient Pediatric Chest Unit at Tanta University Hospital. Sixty preschool children suffering from asthma and their mothers were included in the study. They were divided into two equal groups. The study group received the routine hospital medical care plus reflexology. Data were collected by using a structure interview sheet, the basic reflexology technique and outcome measurement scales **Results:** The present study revealed that applying reflexology beside medical care for study group children improved their overall quality of life 3 days and one month post-program in a degree more than that of applying medical care only for control group children. **The study recommended** in-service training programs and workshops should be conducted periodically and regularly for nurses working in Pediatric Chest Unit about skills of applying reflexology for asthmatic children.

Key words: reflexology, quality of life, bronchial asthma

Introduction:

The preschool stage is the period in a child's life from the age of three to the age of five or six that ordinarily precedes attendance at school.⁽¹⁾ During this stage of life the child may be exposed to certain medical conditions or diseases that may slow the child's development as infections, head injuries and chronic diseases such as bronchial asthma.⁽²⁾

Bronchial asthma is a chronic lung condition in which the airways are inflamed and narrowed, making it harder to breathe normally. It is the most common, long-term condition among people in the UK. It affects about five million people and more than a million children in the UK. Bronchial asthma often starts in childhood, but it can happen for the first time at any age.⁽³⁾

About twenty million Americans have bronchial asthma, including nine million children. In fact, bronchial asthma is the most common chronic childhood illness. About half of all cases develop before the age of 10, and many children with bronchial asthma also have allergies.^(4, 5) The prevalence of bronchial asthma among Egyptian children aged 3 - 15 years was estimated to be 8.2%. Of major concern is the annual increase in mortality.⁽⁶⁾ It is estimated that bronchial asthma accounts for about one in every 250 deaths worldwide, many of the deaths are preventable, being due to suboptimal long-term medical care and delay in obtaining help during acute exacerbation.⁽⁷⁾

Bronchial asthma probably results from a combination of inherited (genetic) and environmental factors. However, no one knows for sure why some children get bronchial asthma while others do not.⁽³⁾ More and more evidence suggests that allergies can play an important role in whether children develop bronchial asthma. Bronchial asthma can either be allergic or non-allergic. In allergic bronchial asthma, an allergic reaction occurs due to an inhaled irritant as pet dander, pollen and dust mites, some drugs as penicillin and aspirin, and some foods as milk, egg and fish, so the immune system springs into action, but instead of helping, it causes inflammation that triggers an attack. It is the most common cause of bronchial asthma in children older than five years of age. Non-allergic bronchial asthma does not involve the immune system. Attacks can be triggered by stress, anxiety, strenuous exercise, cold air, fumes, dust, strong odors, smoke, or viral infection. It is the most common cause of bronchial asthma in the first five years of life.^(8,9)

Bronchial asthma symptoms vary from one child to another. The most common symptom of childhood bronchial asthma is coughing which is typically non-productive and can frequently be the only symptom. When it is the only symptom, this is termed cough-variant bronchial asthma.⁽¹⁰⁾ Other common symptoms include wheezing, difficult breathing, chest tightness and poor exercise endurance. Children with bronchial asthma often have a history of recurrent bronchitis or even a recurrent croup-like cough.⁽¹⁰⁾

Quality of life measures convey an overall sense of well-being. Having uncontrolled bronchial asthma can negatively affect quality of life. Bronchial asthma not only affects the person who has bronchial asthma, but other family members as well, with unscheduled trips to the doctor or emergency department, modifications to the home environment to reduce triggers, and increased caregiver responsibilities.^(11, 12) High prevalence of bronchial asthma puts a considerable burden on health care resources, and effective bronchial asthma management is important to reduce morbidity and to optimize utilization of health care facilities. This has led to the development of guidelines for bronchial asthma diagnosis and management.^(13, 14)

It is assumed, based on earlier research that bronchial asthma nurse is able to provide good bronchial asthma care by reinforcing knowledge, ensuring adherence to management plan, checking inhalation technique, and adjusting medication according to guidelines.^(14, 15) Management goals for childhood bronchial asthma are fairly consistent between the different guidelines. The aims are for a "normal life" free of any symptoms (e.g., cough, wheeze and breathlessness), the ability to have a restful sleep, to grow and develop normally, to participate in all activities including sports, to minimize the number of attacks of acute bronchial asthma, to avoid hospitalization and to avoid medication related side effects.⁽¹⁶⁾

While there is no cure for bronchial asthma, it can be controlled. Children with moderate to severe bronchial asthma should use conventional medications to help control symptoms. Complementary and alternative therapies, used under doctor's supervision, may help, but shouldn't replace conventional treatment.^(4, 8) It is important to be aware that some complementary and alternative modalities may have adverse effects that trigger an allergic response or exacerbate bronchial asthma. These include case reports of serious allergic reactions to Echinacea, bee pollen/ propolis/ royal jelly, garlic. Other types of complementary therapies of bronchial asthma as buteyko breathing exercise, yoga, massage, Vitamin E and D supplementation and reflexology may affect positively on some of these clinically relevant outcomes of bronchial asthma as symptoms, lung function, need for medication and quality of life of the child.⁽¹⁷⁾

Reflexology is a form of Chinese medicine that applies therapeutic pressure involving stimulating reflex points that are located on the foot or hand. These reflex points correspond to specific areas of the body and when used singly or in combination, produce therapeutic benefits; increase energy and bring about a state of well-being.⁽¹⁸⁾ The goal for bronchial asthmatics is to improve circulation, help relaxation, increase the intake of oxygen and improve the overall health. In general, reflexology cannot take the place of conventional medicine that treat and prevent bronchial asthma, but it can supplement bronchial asthma management plan. Since it reduces anxiety and enhances circulation, reflexology promotes overall health for the troubled bronchial asthmatics.⁽¹⁹⁾

Aim of the study: To evaluate the preschool children suffering from bronchial asthma the beneficial complementary effect of reflexology, its influence on relevant outcomes of asthmatic symptoms, lung functions, need for medications and quality of life would be surveyed.

Research Hypothesis: The use of reflexology may improve the quality of life of preschool children suffering from bronchial asthma.

Materials and Method: Experimental research design was used in the present study. **Setting:** The present study was conducted at Inpatient Pediatric Chest Unit at Tanta University Hospital.

Subjects: Sixty preschool children suffering from asthma and their mothers. They were divided into two groups; study and control group which were selected randomly. The **study group** consisted of 30 preschool children suffering from asthma and their mothers where they received the routine medical care of the hospital plus reflexology. However, the **control group** consisted of other 30 preschool children suffering from asthma and their mothers where they received the routine medical care of the hospital only.

The children had **the following criteria:** both sexes, aged from 3 to 6 years, had asthma with attack, free from foot or hand injury, abscess, tingling, numbness or pain, and free from any disease other than asthma that could affect quality of life.

Tools of data collection: Three tools were used in this study for data collection. They were developed based on recent literature.

Tool I: "A Structured Interview sheet": It was developed by the researcher after review of literature. It included the **socio-demographic characteristics** to obtain the following data:

- **Related to the child:** such as age, sex, child's order among his siblings, and date of admission, weight, and length.

Present medical history includes:

- Onset of asthma, present manifestations, name and frequency of inhaler used by the child daily.
- History of allergy and relating testing, type of allergy (food, drugs, insects or others).
- History of asthma triggering factors as exposure to allergens or non- allergens stimuli

Past medical history includes:

- History of the first attack of asthma, duration of illness, repeated admission, frequency of attack, when and how asthma evoked.
- History about using any type of complimentary therapies in reducing severity of asthma symptoms.
- **Related to:** - **Child's Mother as** age, level of education, religion, occupation and opinion about using any type of complimentary therapies for management of asthma.
 - **Child's Father as** age, level of education, religion, occupation and cigarette smoking habit.
- **Socioeconomic condition** as: family size and number of rooms and residence and family income
 - **Family medical history** of bronchial asthma or other chronic physical or mental disorders.

Tool II: "Outcome measurement scales" which included the primary and secondary measures which were evaluated by the researcher before, 3 days and one month after applying reflexology course for the preschool asthmatic children to assess its effects on quality of life of the preschool asthmatic children.

Primary Measures: Using **PedsQL™ 3.0 Asthma Module** which was integrated with the **PedsQI™ 4.0 generic core scale**

- **Pediatric Quality of Life Inventory™ 3.0 Asthma Module (PedsQL™ 3.0 Asthma**

Module): It was developed to measure asthma-specific aspects of HRQOL in children aged 2-18 which comprised of child self-report and parent proxy-report formats. Both formats contained the same items/questions about how much problems the child faced in the past one month in relation to different aspects of life. One format (child self-report) is answered by the child himself in about 10-15 minutes. However, the other format (parent proxy-report) is answered by the mother in about 5-10 minutes. This scale included 28 items consisted of 4 subscales for each format: Asthma Symptoms (11 items), Treatment Problems (11 items), Worry (3 items), and Communication (3 items). Responses were rated on a 5-point Likert scale across child self-report for children and parent proxy-report (0 = never a problem, 1 = almost never a problem, 2 = sometimes a problem, 3 = often a problem, 4 = almost always a problem). Items were reversed scored and linearly transformed to a 0-100 scale (0 = 100, 1 = 75, 2 = 50, 3 = 25, 4 = 0), so that higher scores indicated better HRQOL. HRQOL regarding asthma was graded and categorized into three categories: **-Good** when the total score was (76-100%)

-Fair when the total score was (51-75%) **-Poor** when the total score was (0-50%)

Both formats (child self-report and parent proxy-report) were translated into Arabic and revised by 3 experts for content validity.

- Pediatric Quality of Life Inventory™ 4.0 generic core scale (PedsQL™ 4.0 generic core scale):

It is an instrument with 23 items grouped into four subscales: Physical functioning (8 items), Emotional functioning (5 items), Social functioning (5 items) and School Functioning (5 items). This scale was modified by removing the fourth subscale (School Functioning) to be consistent of 18 items which were suitable for assessment of asthmatic preschool children. The formats, instructions, Likert scales, and scoring methods, required time were the same as those of the PedsQL™ 3.0 Asthma Module.

Both formats (child self-report and parent proxy-report) were translated into Arabic and revised by 3 experts for content validity.

Secondary Measure: It included **Pediatric asthma severity score (PAS)** which was used by the researcher to assess asthma severity regarding the following variables: respiratory rate, oxygen requirements (the skin color), chest auscultation, retractions, dyspnea. The scale was translated into Arabic, and revised by 3 experts. A 3-point Likert scale was used. The scoring system was done and each item in the Pediatric asthma severity score/scale was scored either (1 point) for mild asthma, (2 points) for moderate asthma, or (3points) for severe asthma. The overall asthma score was calculated by adding the scores for each of the five previous variables. The total score involved 15 points with a range of (5-15 points). Asthma severity was categorized as follows:

5-7 points = mild asthma

8-11 points = moderate asthma

12-15 points = severe asthma

• Pediatric asthma severity score (PAS):

Table 1. The Pediatric Asthma Score (PAS)*

Clinical features (Variables)	1	2	3
Respiratory rate			
2-3 years	≤34	35-39	≥40
4-5 years	≤30	31-35	≥36
Skin color	Good skin color (pink)	Normal or pale skin color	Blue skin color
Oxygen requirements	>95% on room air	90% to 95% on room air	<90% on room air or on any oxygen
Auscultation	Normal breath sounds to end-expiratory wheeze only	Expiratory wheezing	Inspiratory and expiratory wheezing to diminished breath sounds
Retractions	None or intercostal	Intercostal & substernal	Intercostal, substernal and supraclavicular
Dyspnea	Speaks in sentences, coos and babbles	Speaks in partial sentences, short cry	Speaks in single words/short phrases/grunting
Scoring Reference			
Asthma severity	Mild	Moderate	Severe

Method

1- An official permission was obtained from the directors of hospital of the selected setting (Inpatient Pediatric Chest Unit at Tanta University Hospital).

2- Meeting with children and their mothers before starting data collection procedure was done to establish a good relationship, check the availability of conducting the research and to explain the purpose and importance of the study in a simple way.

3- Oral consent was taken from children and their mothers to participate in the study. The researcher emphasized that the participation in the study is voluntary and anonymous.

4-**Ethical considerations:** children and their mothers were informed of the confidentiality of their names, all data obtained from them, nature of the study and their right to withdraw from the study at any time.

5- Study tools were structured and developed based on review of the related literature.

6-**"A Structured Interview sheet"** was developed to collect the basic data including socio-demographic data of the studied children and their families. (**Tool I**)

7-**"The Basic Reflexology Technique"** was applied on the studied children individually for one session/day for 3 subsequent days and then for two sessions/ week for one month using therapeutic pressure and massage of the reflex points found on the feet or the hands. Massage was applied to each point for about 2-3 minutes. The total procedure had taken about 20-30 minutes for both feet. (**Tool II**)

The following basic steps were applied:

-The child was asked to relax and take in deep breaths (by imitating the researcher) before starting the massage (**relaxation breathing technique**).

-The child was laid down on the back in a comfortable position with adequate support to (head, back, knees, feet), legs were straight and arms were uncrossed.

-The researcher also was in a comfortable position facing the child's feet and correctly seated (feet flat, set apart, back straight, head up, shoulders down/back).

-The child's feet were held simply, **warm-up technique** and a **general or relaxation reflexology session** were used before working on different reflex sections. This will last about **10 minutes** for both feet. In a general reflexology session, one did not focus on any particular area of the foot; the researcher rubbed firmly both feet and moved along the entire foot. Warm-up technique included stretching the Achilles' tendon, rotating the ankle, loosening the foot, loosening the ankle, twisting the foot, popping and rotating the toes, wringing the foot and pressing the arch.

-The researcher applied a suitable diluted amount of **therapeutic-quality essential oils** to the relevant reflex areas to enhance the child's reflexology session as (eucalyptus oil "Eucalyptus radiata" can be used on the lung, bronchial, sinus reflexes) and (lavender oil "Lavendula angustifolia" on the spinal reflexes). An extra-virgin olive oil can be used on the child's feet in a ratio of one drop essential oil to one teaspoon

olive oil. Also a blend of these essential oils can also be used on the feet. The essential oils can be diluted with hazelnut or sweet almond oil.

-The researcher started the **spot therapy** which was applied to the reflex areas and using the foot reflexology chart as a guide. It was taken about 10 to 20 minutes for both feet. In which the researcher rubbed or applied firm, gentle, not too hard massage to reflex points on the affected areas related to asthma (which included **the lung, thoracic spine and heart**) using thumb or forefinger that moved like an inchworm and in a straight lines so the reflexes received greater stimulation. The right foot was worked first and then the left.

"Outcome measurement scales" which represent the children's responses to reflexology were assessed before, 3 days and one month after applying reflexology course for the child. (**Tool III**)

A pilot study: pre-test of the used tools was carried out at the above mentioned setting before starting the data collection. It was done on (10%) of preschool asthmatic children and their mothers to assess clarity, applicability, reliability of the study tools, the time needed for each and to identify obstacles that might be faced during data collection. This sample was excluded from the total study sample.

- After implementation of the pilot study and according to its results, the necessary modifications were done in the form of questions rearrangement, restatement of some items as "replacement of the item of "oxygen requirement" which is one item of clinical features of pediatric asthma severity score (PAS) with " skin color on room air" as there were not monitors at Inpatient Pediatric Chest Unit. Also, deletion of some question for its inapplicability as the question about "using inhaler by the child during hospitalization" and the question about "allergy tests which were done for the asthmatic child during hospitalization"

- Data of this study were collected over a period of one year, from January 2014 to January 2015.

Statistical analysis: For ordinal data, to compare between the different periods Friedman test was applied. Significance of the obtained results was judged at the 5% level.

Results:

Table (1) presents the percent distribution of the studied preschool asthmatic children regarding socio-demographic characteristics. In relation to age in study group, it was revealed that the mean age of children was (4.5 ± 0.75) . However in control group, the mean age of children was (4.37 ± 0.51) . Regarding sex, more than two thirds of the study group children (70%) were males. Also, the majority of control group children (80%) were males as illustrated in figure (26). Concerning the child's birth order, less than half of study group children (46.7 %) their birth order was the second. However, more than half of the control group children (53.3%) their birth order was the second.

As regards to period of stay in hospital of the study group, it was found that more than two thirds of children (70%) spent less than 7 days in hospital. However, less than three quarters (73.3%) of control group children spent 7-14 days in hospital. Regarding the child's weight on admission, it was clear that less than two thirds of study group children (63.3%) their weight was less than normal. However more than two thirds of control group children (70%) their weight was less than normal. As regards to the child's height on admission, less than two thirds of study group children (63.3%) their length was less than normal. However, less than three quarters of control group children (73.3%) their length was less than normal.

Table (2-a) presents the percent distribution of the preschool asthmatic children regarding their present medical history. In relation to onset of asthma attack, it was revealed that half of study group children (50%) their asthma attack began 4-6 days ago. However, less than half of control group children (43.3%) their asthma attack began 4-6 days ago. Regarding the presence of cough, it was clear that all children of both groups (100%) had cough. All study group children (100%) had wheezing. However, the majority of control group (93.3%) had wheezing. All children of both groups (100%) had dyspnea.

Table (2-b) illustrates the percent distribution of preschool asthmatic children regarding their present medical history. In relation to using of nebulizers before program, it was revealed that more than one third of study group (36.7%) used nebulizers every 4 hrs/day, more than one quarter (26.7%) used nebulizers every 6 hrs/day while 3 days after program, one quarter of study group (26.7%) used nebulizers every 8 hrs/day. Also, more than one quarter (26.7%) used nebulizers every 12 hrs/day and 20% of them used nebulizers every 24 hrs/day. In control group, before program it was found that 40% of asthmatic children used nebulizers every 4 hrs/day, less than one quarter of them (23.3%) used nebulizers every 3 hrs/day, 3 days after program it was revealed that more than one quarter (26.7%) used nebulizers every 6 hrs/day and 20% of them used nebulizers every 4 hrs/day.

Regarding the present history of asthma triggering factors, it was clear that the majority of study group (83.3%) was sensitive to common cold and influenza, but only 3.3% were sensitive to emotional stress. However, the majority of control group (80%) was sensitive to common cold and influenza, but only 3.3% were sensitive to medications as penicillin or aspirin.

Table (3) illustrates the percent distribution of the studied preschool asthmatic children regarding their past medical history. In relation to age of onset of asthma, it was revealed that more than three quarters of study group (76.7%) their asthma attack began at age of less than 2 years and the rest of them (23.3 %) began at age of 2-4 years. However, the majority of control group (83.3%) began at age of less than 2 years; however the minority of them (16.7 %) began at age of 2-4 years.

Regarding duration of illness, more than two thirds of study group (70%) had asthma attack for 2-4 years but only 10% for 4-6 years. However, the majority of control group (80%) began for 2-4 years however the minority of them (3.3%) for 4-6 years. In relation to readmission to hospital during the past year, two thirds of both groups (66.7%) admitted to hospital 1-3 times during the past year. Regarding the frequency of asthma attack, 46.7% of study group and 43.3% of control group their asthma attack was repeated every two months. Regarding the season in which asthma episodes evoked mostly, both groups (100%) during winter. In relation to past history of asthma triggering factors, it was clear that both groups (100%) had common cold, influenza and cold air.

Table (4) shows levels of total scores of generic quality of life scale of asthmatic children (young child report). There were statistical significant differences in relation to levels of total scores of generic quality of life scale among children of study and control groups one month after program ($p= 0.008$)

Table (5) shows levels of total scores of generic quality of life scale of asthmatic children (parent report for young child). There were statistical significant differences in relation to levels of total scores of generic quality of life scale between study and control groups 3 days and one month after program ($p= 0.004$, $p= 0.001$ respectively).

Table (6) shows levels of total scores of asthma quality of life scale of asthmatic children (young child report). There were statistical significant differences in relation to levels of total scores of asthma quality of life scale between study and control groups 3 days and one month after program ($p= 0.001$ for each).

Table (7) shows levels of total scores of asthma quality of life scale of asthmatic children (parent report for young child). There were statistical significant differences in relation to levels of total scores of asthma quality of life scale between study and control groups 3 days and one month after program ($p= 0.023$, $p = 0.002$ respectively).

Table (8) presents levels of total scores of overall quality of life scales of asthmatic children (young child report). In study group 3 days after program less than two thirds of children (60%) their level of overall quality of life scales was fair, less than one quarter of them (20%) their level of overall quality of life scales was good and poor (for each level). One month after program, less than three quarters of children (73.3%) their level of overall quality of life scales was good, but only 6.7% of children their level of overall quality of life scales was poor. However, in control group 3 days after program more than half of children (56.7%) their level of overall quality of life scales was poor but only 3.3% of them their level of overall quality of life scales was good. One month after program, half of children (50%) their level of overall quality of life scales was fair, but only 20% of them their level of overall quality of life scales was poor. There were statistical significant differences among children of study and control groups in relation to levels of total scores of overall quality of life scales 3 days and one month after program ($p= 0.005$, $p= 0.004$ respectively).

Table (9) presents levels of total scores of overall quality of life scales of asthmatic children (young child report). In study group 3 days after program less than two thirds of children (60%) their level of overall quality of life scales was fair, less than one quarter of them (20%) their level of overall quality of life

scales was good and poor (for each level). One month after program, less than three quarters of children (73.3%) their level of overall quality of life scales was good, but only 6.7% of children their level of overall quality of life scales was poor. However, in control group 3 days after program more than half of children (56.7%) their level of overall quality of life scales was poor but only 3.3% of them their level of overall quality of life scales was good. One month after program, half of children (50%) their level of overall quality of life scales was fair, but only 20% of them their level of overall quality of life scales was poor. There were statistical significant differences among children of study and control groups in relation to levels of total scores of overall quality of life scales 3 days and one month after program ($p=0.005$, $p=0.004$ respectively).

Table (١٠) presents the levels of total scores of overall asthma severity score of asthmatic children. There were statistical significant differences among children of study and control groups in relation to levels of total scores of overall asthma severity scores 3 days and one month after program ($p=0.011$, $p=0.002$ respectively)

Table (١١) presents the correlation between demographic data related to the child and severity of asthma with generic quality of life (parent report for young child). In study group it was found that there were statistical significant differences with negative correlation before program, 3 days and one month after program among generic quality of life (parent report for young child) and period of stay ($p<0.001$ for each), using nebulizers ($p=0.006$, $p=0.001$, $p<0.001$ respectively), frequency of attack ($p=0.022$, $p=0.012$, $p<0.001$ respectively) and severity of asthma ($p=0.161$, $p<0.001$, $p<0.001$ respectively). There was a statistical significant difference with negative correlation 3 days and one month after program between generic quality of life (parent report for young child) and onset of asthma ($p=0.027$, $p=0.041$ respectively)

In control group, it was found that there were statistical significant differences with negative correlation before program, 3 days and one month after program among generic quality of life (parent report for young child) and period of stay ($p<0.001$ for each), and severity of asthma ($p<0.001$ for each).

Table (١٢) shows the correlation between demographic data related to the child and severity of asthma with asthma quality of life (parent report for young child). In study group it was found that there were statistical significant differences with negative correlation before program, 3 days and one month after program among asthma quality of life (parent report for young child) and period of stay ($p=0.001$, $p<0.001$, $p<0.001$, respectively), using nebulizers ($p=0.001$, $p<0.001$, $p<0.001$, respectively), frequency of attack ($p=0.030$, $p=0.005$, $p<0.001$ respectively) and severity of asthma ($p=0.001$, $p<0.001$, $p<0.001$ respectively). There was a statistical significant difference with negative correlation one month after program between asthma quality of life (parent report for young child) and onset of asthma ($p=0.009$). In control group, it was found that there were statistical significant differences with negative correlation before program, 3 days and one month after program among asthma quality of life (parent report for young child) and period of stay ($p<0.001$ for each), and severity of asthma ($p<0.001$ for each).

Table (1): Percent distribution of the studied preschool asthmatic children regarding their socio-demographic characteristics

Socio-demographic characteristics of preschool asthmatic children	Study group (n = 30)		Control group (n = 30)	
	No	%	No	%
Age in years:				
3<4	9	30	7	23.3
4<5	17	56.7	21	70
5<6	4	13.3	2	6.7
	Range	3-6	Range	3-5.5
	Mean± SD	4.5± 0.75	Mean± SD	4.37±0.51
Sex :				
Males	21	70	24	80
Females	9	30	6	20
Child's birth order:				
first	13	43.3	12	40
second	14	46.7	16	53.3
third	2	6.7	2	6.7
fourth	1	3.3	0	0
Period of stay in hospital:				
Less than 7	21	70	1	3.3
7-14	5	16.7	22	73.3
15-22	2	6.6	6	20
23-30 days	2	6.6	1	3.3
Weight on admission:				
Under normal	19	63.3	21	70
Normal	10	33.3	7	23.3
Over normal	1	3.3	2	6.7
Height on admission:				
Below normal	22	73.3	19	63.3
Normal	8	26.7	9	30
Above normal	0	0	2	6.7

Table (2-a): Percent distribution of the preschool asthmatic children regarding their present medical history

Present medical history	Study group (n = 30)		Control group (n = 30)	
	No	%	No	%
Onset of asthma attack: Since				
1-3 days	12	40	11	36.6
4-6 days	15	50	13	43.3
↑ 6 days	3	10	6	20
<i>Present manifestations of respiratory system</i>				
Cough:				
Continuous	5	16.7	1	3.3
Intermittent	10	33.3	15	50
At night only	15	50	14	46.7
Wheezing:				
Yes	30	100	28	93.3
No	0	0	2	6.7
Dyspnea:				
Yes	30	100	30	100
No	0	0	0	0
Nasal secretions:				
Yes	26	86.7	28	93.3
No	4	13.3	2	6.7
Sore throat:				
Yes	26	86.7	21	70
No	4	13.3	9	30
<i>Present manifestations of digestive system</i>				
Cough + vomiting:				
Yes	11	36.7	4	13.3
No	19	63.3	26	86.7
Eating + vomiting:				
Yes	7	23.3	4	13.3
No	23	76.7	26	86.7
Abdominal pain more than once/week:				
Yes	23	76.7	20	66.7
No	7	23.3	10	33.3
Mouth odor:				
Yes	24	80	21	70
No	6	20	9	30

Table (2- b): Percent distribution of preschool asthmatic children regarding their present medical history

Present medical history	Study group (n = 30)		Control group (n = 30)	
	No	%	No	%
Using of nebulizers before program is every:				
1	0	0.0	1	3.3
2	1	3.3	2	6.7
3	6	20.0	7	23.3
4	11	36.7	12	40.0
6	8	26.7	6	20.0
8 hrs/ day	4	13.3	2	6.7
Using of nebulizers 3 days after program is every:				
1	0	0.0	1	3.3
2	1	3.3	2	6.7
3	1	3.3	4	13.3
4	0	0.0	6	20.0
6	6	20.0	8	26.7
8	8	26.7	5	16.7
12	8	26.7	4	13.3
24 hrs/ day	6	20.0	0	0.0
History of asthma triggering factors				
House dust:				
Yes	21	70	18	60
No	9	30	12	40
Insecticide odor:				
Yes	3	10	5	16.7
No	27	90	25	83.3
Medications as Penicillin or Aspirin:				
Yes	2	6.7	1	3.3
No	28	93.3	29	96.7
Foods as eggs or milk or fish:				
Yes	3	10	2	6.7
No	27	90	28	93.3
Pollens:				
Yes	5	16.7	3	10
No	25	83.3	27	90
Cold air:				
Yes	22	73.3	21	70
No	8	26.7	9	30
Smoking or fumes:				
Yes	13	43.3	13	43.3
No	17	56.7	17	56.7
Common cold or influenza:				
Yes	25	83.3	24	80
No	5	16.7	6	20
Exercise:				
Yes	15	50	8	26.7
No	15	50	22	73.3
Emotional stress:				
Yes	10	33.3	6	20
No	20	66.7	24	80

More than one answer was allowed

Table (3): Percent distribution of preschool asthmatic children regarding their past medical history

Past medical history	Study group (n = 30)		Control group (n = 30)	
	No	%	No	%
Age of onset of asthma:				
Less than 2 years old	23	76.7	25	83.3
2- 4 years old	7	23.3	5	16.7
4-6 years old	0	0	0	0
Duration of illness:				
Less than 2 years old	6	20	5	16.7
2- 4 years old	21	70	24	80
4-6 years old	3	10	1	3.3
Readmission to hospital during past year:				
1-3 times	20	66.7	20	66.7
4-6 times	6	20	7	23.3
7-9 times	4	13.3	3	10
Frequency of attack is every:				
One week	1	3.3	2	6.7
Two weeks	4	13.3	3	10
One month	11	36.7	12	40
Two months	14	46.7	13	43.3
Season in which asthma episodes evoked mostly: #				
Summer :				
Yes	3	10	22	73.3
No	27	90	8	26.7
Winter:				
Yes	30	100	30	100
No	0	0	0	0
Spring:				
Yes	17	56.7	15	50
No	13	43.3	15	50
Autumn:				
Yes	13	43.3	12	40
No	17	56.7	18	60
Asthma evoked mostly by: #				
House dust	12	40	10	33.3
Insecticide odor	5	16.7	3	10
Medications	2	6.7	2	6.7
Foods	3	10	1	3.3
Pollens	6	20	8	26.7
Cold air	30	100	30	100
Smoking	10	33.3	10	33.3

Common cold	30	100	30	100
Exercise	4	13.3	9	30
Emotional stress	5	16.7	4	13.3

More than one answer was allowed

Table (4): Levels of total scores of generic quality of life scale of asthmatic children (young child report)

Levels of total scores of generic quality of life (young child report)	Study group (n=30)						Control group (n=30)					
	Before Program		3 days after program		1 month after program		Before program		3 days after program		1 month after program	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Poor (0-50%)	20	66.7	6	20.0	2	6.7	22	73.3	13	43.3	4	13.3
Fair (more than50%-75%)	10	33.3	17	56.7	6	20.0	8	26.7	13	43.3	16	53.3
Good (more than75%-100%)	0	0.0	7	23.3	22	73.3	0	0.0	4	13.3	10	33.3
χ^2 (p)							0.317(0.573)		3.930(0.140)		9.645* (^{MC} p= 0.008*)	

*: Statistically significant at $p \leq 0.05$

**T able (°) : Total scores of levels of generic quality of life scale of asthmatic children
(Parent report for young child)**

Levels of total scores of generic quality of life scale (parent report for young child)	Study group (n=30)						Control group (n=30)					
	Before program		3 days after program		1 month after program		Before Program		3 days after program		1 month after program	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Poor (0-50%)	20	66.7	4	13.0	1	3.3	21	70.0	16	53.3	8	26.7
Fair (more than50%-75%)	10	33.3	20	66.7	6	20.0	9	30.0	10	33.3	13	43.3
Good (more than75%-100%)	0	0.0	6	20.0	23	76.7	0	0.0	4	13.0	9	30.0
χ^2 (p)							0.077(0.781)		10.933*(0.004*)		14.097 (^{MC} p= 0.001*)	

*: Statistically significant at $p \leq 0.05$

Result

Table (٦): Levels of total scores of asthma quality of life scale of asthmatic children (Young child report)

Levels of asthma quality of life scale (Young child report)	Study group (n=30)						Control group (n=30)					
	Before Program		3 days after program		1 month after program		Before program		3 days after program		1 month after program	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Poor (0-50%)	20	66.7	5	16.7	1	3.3	22	73.3	19	63.3	5	16.7
Fair (more than50%-75%)	10	33.3	19	63.3	6	20.0	8	26.7	10	33.3	16	53.3
Good (more than75%-100%)	0	0.0	6	20.0	23	76.7	0	0.0	1	3.3	9	30.0
χ^2 (p)							0.317(0.573)		14.491* (0.001*)		13.143* ($^{MC}p=0.001^*$)	

*: Statistically significant at $p \leq 0.05$

**Table (V): Levels of total scores of asthma quality of life scale of asthmatic children
(Parent report for young child)**

Levels of asthma quality of life scale (Parent report for young child)	Study group (n=30)						Control group (n=30)					
	Before Program		3 days after program		1 month after program		Before program		3 days after program		1 month after program	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Poor (0-50%)	19	63.3	5	16.7	2	6.7	22	73.3	15	50.0	6	20.0
Fair (more than50%-75%)	11	36.7	19	63.3	5	16.7	8	26.7	11	36.7	15	50.0
Good (more than75%-100%)	0	0.0	6	20.0	23	76.7	0	0.0	4	13.3	9	30.0
χ^2 (p)							0.693(0.405)		7.533* (0.023*)		13.013* (^{MC} p= 0.002*)	

*: Statistically significant at $p \leq 0.05$

Table (A): Levels of total scores of overall quality of life scales of asthmatic children (young child report)

Levels of overall quality of life scales (young child report)	Study group (n=30)						Control group (n=30)					
	Before program		3 days after program		1 month after program		Before program		3 days after program		1 month after program	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Poor (0-50%)	20	66.7	6	20.0	2	6.7	22	73.3	17	56.7	6	20.0
Fair (more than50%-75%)	10	33.3	18	60.0	6	20.0	8	26.7	12	40.0	15	50.0
Good (more than75%-100%)	0	0.0	6	20.0	22	73.3	0	0.0	1	3.3	9	30.0
χ^2 (p)							0.317 (0.573)		9.844* (^{MC} p= 0.005*)		11.151* (^{MC} p=0.004*)	

*: Statistically significant at $p \leq 0.05$

**Table (9): Levels of total scores of overall quality of life scales of asthmatic children
(Parent report for young child)**

Levels of overall quality of life scales (parent report for young child)	Study group (n=30)						Control group (n=30)					
	Before program		3 days after program		1 month after program		Before program		3 days after program		1 month after program	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Poor (0-50%)	20	66.7	6	20.0	2	6.7	22	73.3	16	53.3	8	26.7
Fair (more than50%-75%)	10	33.3	18	60.0	5	16.7	8	26.7	10	33.3	13	43.3
Good (more than75%-100%)	0	0.0	6	20.0	23	76.7	0	0.0	4	13.3	9	30.0
χ^2 (p)							0.317(0.573)		7.231* (0.027*)		13.281* (0.001*)	

*: Statistically significant at $p \leq 0.05$

Result

Table (10): Levels of total scores of overall asthma severity score of asthmatic children

Levels of overall asthma severity score	Study group (n=30)						Control group (n=30)					
	Before program		3 days after program		1 month after program		Before program		3 days after program		1 month after program	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Mild attack (5-7 points)	2	6.7	9	30.0	22	73.3	1	3.3	4	13.3	9	30.0
Moderate attack (8-11 points)	15	50.0	18	60.0	8	26.7	14	46.7	13	43.3	18	60.0
Severe attack (12-15 points)	13	43.3	3	10.0	0	0.0	15	50.0	13	43.3	3	10.0
χ^2 (p)							0.610 (^{MC} p = 0.839)		8.980* (0.011*)		11.862* (^{MC} p = 0.002*)	

*: Statistically significant at $p \leq 0.05$

Table (11): Correlation between demographic data related to the child and severity of asthma with generic quality of life

(Parent report for young child)

Variable		Study group (n=30)			Control group (n=30)		
		Before program	3 days after program	1 month after program	Before program	3 days after program	1 month after program
Age of child	r	0.011	0.075	0.134	0.096	0.109	0.106
	p	0.953	0.694	0.481	0.613	0.567	0.576
Child's order	r	-0.232	-0.207	-0.208	0.045	0.014	0.034
	p	0.217	0.273	0.271	0.815	0.942	0.858
Period of stay	r	-0.629*	-0.752*	-0.844*	-0.726*	-0.759*	-0.802*
	p	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Weight	r _s	-0.109	0.036	-0.020	0.139	0.089	0.073
	p	0.568	0.850	0.918	0.464	0.641	0.700
Height	r _s	0.166	0.214	0.201	0.292	0.268	0.263
	p	0.381	0.257	0.288	0.118	0.153	0.160
Onset of asthma	r _s	-0.301	-0.403*	-0.375*	0.039	0.073	0.057
	p	0.106	0.027*	0.041*	0.840	0.700	0.764
Using of nebulizers	r	-0.487*	-0.595*	-0.731*	0.168	0.168	0.154
	p	0.006*	0.001*	<0.001*	0.374	0.374	0.418
Age of onset of asthma	r _s	-0.219	-0.096	-0.078	-0.098	-0.093	-0.057
	p	0.244	0.615	0.684	0.605	0.624	0.765
Duration of illness	r _s	0.278	0.253	0.176	-0.126	-0.103	-0.122
	p	0.137	0.178	0.353	0.509	0.587	0.519
Readmission to hospital during past year	r _s	-0.426*	-0.367*	-0.434*	0.034	-0.040	-0.001
	p	0.019*	0.046*	0.017*	0.859	0.832	0.996
Frequency of attack	r _s	-0.418*	-0.454*	-0.620*	-0.068	-0.057	0.104
	p	0.022*	0.012*	<0.001*	0.720	0.764	0.585
Severity of asthma	r _s	-0.263	-0.668*	-0.768*	-0.831*	-0.815*	-0.850*

Result

	p	0.161	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
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*: Statistically significant at $p \leq 0.05$

Table (١٢): Correlation between demographic data related to the child and severity of asthma with asthma quality of life

(Parent report for young child)

Variable		Study group (n=30)			Control group (n=30)		
		Before program	3 days after program	1 month after program	Before program	3 days after program	1 month after program
Age of child	r	0.118	0.075	0.217	0.119	0.118	0.207
	p	0.536	0.694	0.249	0.535	0.536	0.273
Child's order	r	-0.051	-0.170	-0.132	0.038	0.069	0.136
	p	0.791	0.369	0.488	0.841	0.717	0.472
Period of stay	r	-0.560*	-0.738*	-0.878*	-0.759*	-0.760*	-0.732*
	p	0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Weight	r_s	0.005	-0.073	-0.097	0.009	0.028	0.113
	p	0.977	0.702	0.611	0.963	0.882	0.551
Height	r_s	0.205	0.166	0.170	0.201	0.212	0.177
	p	0.277	0.382	0.368	0.287	0.261	0.350
Onset of asthma	r_s	-0.352	-0.346	-0.469*	-0.048	0.041	0.098
	p	0.057	0.061	0.009*	0.800	0.829	0.608
Using of nebulizers	r	-0.563*	-0.604*	-0.719*	0.145	0.122	0.062
	p	0.001*	<0.001*	<0.001*	0.444	0.520	0.744
Age of onset of asthma	r_s	0.009	-0.091	-0.123	-0.021	-0.021	-0.191
	p	0.962	0.632	0.516	0.914	0.914	0.311
Duration of illness	r_s	0.186	0.244	0.077	-0.186	-0.153	-0.040
	p	0.324	0.194	0.685	0.325	0.421	0.832
Readmission to	r_s	-0.326	-0.456*	-0.381*	0.145	0.108	-0.059

Result

hospital during past year	P	0.078	0.011*	0.038*	0.444	0.570	0.756
Frequency of attack	r_s	-0.396*	-0.503*	-0.692*	-0.019	-0.005	0.071
	p	0.030*	0.005*	<0.001*	0.919	0.981	0.707
Severity of asthma	r_s	-0.554*	-0.707*	-0.769*	-0.783*	-0.815*	-0.801*
	p	0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*

*: Statistically significant at $p \leq 0.05$

Discussion:

Asthma is a highly prevalent chronic respiratory disease affecting 300 million people world-wide. Asthma is the most frequent chronic disorder in childhood. It is an inflammatory disorder of the airways characterized by recurring symptoms, airway obstruction, and bronchial hyper-responsiveness.⁽²⁰⁾ Asthma puts a serious burden on children's health related quality of life, despite the availability of effective and safe treatment. Preschool children with asthma symptoms have significantly lower health related quality of life scores for lung problems, sleeping, appetite, communication and positive mood health related quality of life scales.⁽²¹⁾

Many asthma children seek alternative therapies such as reflexology.⁽²²⁾ Reflexology is a natural and very relaxing, holistic therapy that works by stimulating reflex points on the feet or hands, which are believed to correspond with organs, systems and structures within the entire body. Reflexologists believe that by stimulating the circulation and autonomic nervous system, Reflexology may help with the elimination of toxins, improve circulation and help to boost the immune system, restoring energy and balance.⁽²³⁾

The present study revealed that, in relation to age of asthmatic children in study group, it was revealed the mean age of asthmatic children was 4.5 ± 0.75 , however in control group, it was clear that the mean age of asthmatic children was 4.37 ± 0.51 . This is in consistent with **Fasseh et al. (2003)** who found that the prevalence of asthma is increasing especially in the younger age group (less than 10 years). This may be explained as increasing airway caliber is proportional with age and less exposure to environmental factors with increasing age.⁽²⁴⁾

Regarding sex in the study group, it was clear that more than two third of children were males. Also, in control group, it was found that the majority of children were males. The risk of developing bronchial asthma was higher for boys than for girls, as shown from the result of the present study. This observation may reflect a sex-linked influence, boys have smaller airway caliber when they were young or may be due to different environmental exposure patterns. This result is in agreement with **fasseh et al. (2003)** who found that asthma was approximately double in boys than in girls before puberty.⁽²⁴⁾ This finding is supported by the findings of **Al-**

Gewely et al. (2013) and **Hossney et al. (2009)** who revealed that bronchial asthma was more common in males than in females in a ratio of 2.1:1. ^(25, 26)

As regard to period of stay of asthmatic children in hospital in study group, it was found that more than two third of children spent less than 7 days in hospital. While in control group, it was revealed that less than three quarters of children spent 7-14 days in hospital. The difference between study and control groups in relation to this finding may be attributed to the positive and rapid effect of reflexology which was combined with conventional therapy thus it improved circulation and blood flow resulting in better oxygen and nutrient supply to all the cells of the body especially lungs as well as strengthening the immune system therefore decreasing asthma symptoms and period of stay in hospital. This finding was in agreement with **Fengchun (1998)** who treated 81 children aged 3 to 6 years with foot reflexology massage. It is asserted that foot reflex-therapy, in combination with appropriate medical therapy, can not only shorten the clinical course and prevent complication, but also improve the immune activity, promote the child's recovery and reduce the recurrence of the disease. It is concluded that foot reflex-therapy is an excellent way to treat both the symptoms and the disease. ⁽²⁷⁾

Asthma should be treated as soon as it is diagnosed as in children asthma can have a negative impact. ⁽²⁸⁾ In the present study, regarding the asthmatic children weight on admission in study group, it was clear that less than two third of children their weight was less than normal, However in control group, it was found that more than two third of children their weight was less than normal. Also, as regard to the asthmatic children length on admission in study group, it was clear that less than two third of children their length was less than normal. However in control group, it was found that less than three quarters of children their length was less than normal. These findings were shown that the physical growth of the asthmatic children was affected by their disease. The reason for this may be owing to the growth hormones that helps in growth of the body is into full swing in sleep and while doing vigorous exercises. In asthmatic condition the child will not be able to get proper sleep and may not be able to do vigorous exercise leads to minimal growth which leads to the child being underweight. This finding is differed from the finding of the study that was done by **Gandhi (2013)** who mentioned that more than half of the studied asthmatic children were obese. ⁽²⁹⁾

Regarding the presence of cough in study and control groups, it was clear that all children coughed. This may be due to the hyper-responsiveness of the airways as a response to allergens or foreign bodies that irritate the respiratory system. This result is in contrast with **Hossney et al. (2009)** who analyzed the data of 422 consecutively numbered files of asthmatic children from the Pediatric Allergy and Immunology Unit of Ain Shams University Children's Hospital. It concluded that only about half of children (49.1%) had cough. ⁽²⁶⁾

In relation to the presence of wheezing in study group, it was clear that all children had wheezing. However, in control group, the majority of children had wheezing, while the minority of them had no wheezing. This result is in accordance with **El- Khedr (2005)** who estimated that wheezing is manifested in 82.5% of the studied asthmatic children. ⁽³⁰⁾

Result

As regard to the presence of dyspnea, in study and control groups, it was revealed that all children had dyspnea. This result is in agreement with **El- Khedr (2005)** who estimated that dyspnea is manifested in the majority of the studied asthmatic children.⁽³⁰⁾ This may be due to underestimation of asthma controllability and severity, and under diagnosis that will end in under treatment. Lack of mothers' knowledge about the management of aggravating factors, and ways to control asthma are other factors that cause persistent asthma. On contrast, **Hossney et al. (2009)** who concluded that only about half of asthmatic children had dyspnea.⁽²⁶⁾

In relation to using of nebulizers, In study group, it was revealed that the need of study group children for using nebulizer treatments is decreases markedly than that of control group children. This could be related to the positive effect of reflexology which can improve circulation and blood flow resulting in better oxygen and nutrient supply to all the cells of the body as well as strengthening the immune system thus the asthmatic child's need for nebulizers or spray treatments is decreased. These findings go with **FDZ Research committee (1988)** which runs a study on sixteen patients received ten reflexology sessions each. At the end of treatment three patients reported a complete cure, they no longer required spray or nebulizer treatments; nigh patients felt considerable improvement and could reduce their spray and nebulizer treatments from 8 - 10 per day to 1 - 2 per day; two patients felt better; one patient felt a little better, and, one patient felt no improvement.⁽³¹⁾

Regarding present history of asthma triggering factors in both groups, it was clear that the majority of children were sensitive to common cold and influenza, and then they were sensitive to cold air. This may be due to lack of immunity of asthmatic children and bad ventilated environment that may make them susceptible to recurrent bacterial or viral respiratory tract infection which is one of the common asthma triggering factors. These results were in agreement with **Hossny et al. (2009)** who reported that viral infections were the commonest precipitating factor of bronchial asthma exacerbation in 38.6% of asthmatic children which was followed by exposure to cold in 36.7% of asthmatic children in this study.⁽²⁹⁾

Concerning age of onset of asthma in study group, it was revealed that more than three quarters of children their asthma attack began at age of less than 2 years. While in control group, it was clear that the majority of children their asthma attack began at age of less than 2 years. This finding could be attributed to lack of immunity of children during this period of life or due to the large percentage of low educated mothers who are not able to care adequately with their young children who may expose to may triggers and infections during their infancy period. This result is in accordance with **Hopkins (2008)** who reported that the peak incidence of asthma occurs during the first year of life, and 8 to10 children who develop asthma experience their first episode of wheezing was before their third birthday. The onset of more than 80% of cases of persistent asthma is estimated to occur before the age of 3 years.⁽³²⁾

Regarding season in which asthma episodes evoked mostly, in both groups, it was found that all children their asthma episodes evoked mostly during winter followed by spring and autumn. This could be attributed to exposure to cold air during this time of the year hence increase the incidence of viral respiratory tract infections beside overcrowded and badly ventilated environment. This finding is in accordance with **Fasseh et al. (2003)**,

El-Khedr (2005) who mentioned that the frequency of asthma exacerbation increased significantly during winter and autumn. ^(24, 30)

Asthma might have physical, emotional and psychosocial impact on children's lives. Compared to preschool children without asthma symptoms, preschool children with asthma symptoms have significantly lower health related quality of life scores for lung problems, sleeping; appetite, communication and positive mood health related quality of life scales. ⁽²⁹⁾ The present study revealed that more than two third of asthmatic children of both groups had poor generic (young child and parent reports) quality of life and asthma (young child and parent reports) quality of life before program. This may be related to lack of asthma control and lack of parents' knowledge about proper asthma strategies of management and control. This result go with the result of **Al-Gewely (2013)** who reported that the level of asthma control significantly affected overall and domains of QOL scores where uncontrolled asthma was associated with the lowest Quality of Life scores. ⁽²⁵⁾ **Guilbert et al. (2011)** who mentioned that poorly controlled asthma symptoms impair health related quality of life in children. ⁽³³⁾

The use of complementary and alternative medicines (CAM) for asthma treatment is of great interest in patient care. The reasons why patients in general seek complementary or alternative medicines have been investigated in previous studies, and include a positive valuation of complementary treatment, the ineffectiveness of some treatments for their complaint, concern about the adverse effects of medicine, and dissatisfaction with care, particularly communication with doctors. Asthma patients may particularly seek complementary therapies because the chronicity of their illness necessitates long-term and continuing self-care, thus leading to disaffection with the outcomes of care by providers, and their perceived toxicities of modern prescription medicines, such as from inhaled corticosteroids. ⁽³⁴⁾ There are a number of safe complementary medicines and therapies that may be of help to asthma as reflexology. While the science may not be strong for some of these, overall they are generally safe and can improve quality of life for the asthmatic patient. With consumer interest in CAM, nurses have increasingly incorporated these modalities into their practice. ⁽³⁵⁾

It was notified that there is an improvement in generic, asthma and overall quality of life of both groups 3days and one month post-program but the improvement in study children group who received reflexology beside the hospital medical care was higher than that of control children group who received hospital medical care only. This may be because reflexology helps balance organs and tissues throughout the body and, acting through the nervous system, it can actually help strengthen and normalize the circulatory and respiratory system. In this way, it can help activate the body's own healing force to strengthen lung and bronchial tissue. This result was in agreement with the study conducted by **Brygge et al. (2001)** who observed marked improvement in asthma symptoms and quality of life of a group of 40 outpatients with asthma who received ten weeks of active or simulated reflexology. ⁽³⁶⁾ In contrast to this finding of current study, **Petersen et al. (1992)** did not find that investigations demonstrated that foot zone therapy was of effect on the disease bronchial asthma. It is concluded, however, that the favorable effects in both of the groups are due to increased care and control that occurred in both patient groups. ⁽³⁷⁾

In relation to asthma severity score, it was clear that there were statistical significant differences in relation to mean of total asthma severity scores between study and control groups pre-program, 3 days post-program and one month post- program. This may attributed to the positive effect of reflexology, because reflexology helps to relax the body, it could be beneficial to an asthmatic child. Once stress and anxiety is removed from the parts of the body that is ill, it can function properly. Also, it can improve circulation and blood flow resulting in better oxygen and nutrient supply to all the cells of the body particularly lungs as well as strengthening the immune system and thus decreases the severity of asthma attacks.

Most studies have focused on severity of symptoms to examine the impact of asthma symptoms on children's health related quality life; the results are conflicting. ⁽⁷¹⁾**Vila et al (2003)** mentioned that disease severity is not consistently associated with children's health related quality of life. Other study conducted by **Merikallio et al (2005)** report that children with moderate or severe asthma have a worse level of functioning in several domains of their health related quality of life compared to children with mild asthma suggesting there may be a 'dose-response' relationship between the frequency and intensity of children's asthma symptoms and their health related quality of life. ^(38, 39)

There were statistical significant differences with negative correlation pre-program, 3 days post-program and one month post program between asthma quality of life (young child report and parent report) of study group and period of stay, using of nebulizers, frequency of attack and severity of asthma. Resolving or decreasing of all asthma, treatment, worry and communication problems that affect asthmatic children will enhance asthma quality of life of asthmatic children thus it will decrease using of nebulizers frequency of attack and severity of asthma, hence period of stay will reduce and this will be achieved better when reflexology is used together with medical care. This finding was in agreement with **Waters et al. (2000)** who showed that there was a statistically significant relationship between asthma severity and the child's Emotional quality of life subscale. ⁽⁴⁰⁾ On the other hand, this result is not supported by **Dalheim-Englund et al (2004)** who reported that No significant relationship was seen between asthma severity and the child's Asthma Quality Of Life subscale. ⁽⁴¹⁾ **Magid et al, 2004** have concluded that poor health related quality of life is predictive of subsequent asthma-related emergency department visits, which implicates poor asthma control. ⁽⁴²⁾ **Pont et al. (2004)** show that proper asthma management improves health related quality of life. ⁽⁴³⁾

Recommendations:

Based on the findings of the present study, the following can be recommended:

- In-service training programs and workshops should be conducted periodically and regularly for nurses working in Inpatient Pediatric Chest Unit about skills of applying reflexology for asthmatic children.
- Protocol of care for asthmatic children should include applying reflexology beside the medical care to achieve better improvement of health status and quality of life of asthmatic children.
- Health education program of asthmatic children and their caregivers about using complementary therapies beside medical care especially reflexology and how to apply.

- Teaching public about using of complementary therapies in care of asthma especially reflexology through mass media.
- Provision of handouts of up- to- date guidelines about using of reflexology in care of asthmatic children.

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