
EVALUATING THE PRIMARY HEALTH CARE SERVICES PROVIDED BY NURSES BASED ON DONABEDIANS' MODEL AT MANSOURA CITY

¹Shymaa Abdullah Hamed, ²Dr.Samar El- Hoseiny Abd El-Raouf ,³Dr .
Mona Emad Eldien Hussein.

¹B.Sc, Faculty of nursing, Mansoura University ,

²Associated Professor of Community Nursing, Faculty of Nursing, Mansoura University,

³Lecturer of Community Nursing, Faculty of Nursing, Mansoura University, Egypt

Abstract:

Background: Donabedian Model was the most common evaluation framework of quality in health system in the context of structure, process and outcome (SPO). A cross sectional descriptive study aimed to evaluate the PHC services provided by nurses based on Donabedians' Model at Mansoura City. Stratified random sample involved (16) PHC units at Mansoura City, purposive sample composed of all nurses on duty during the study they were 100 nurse and convenient sample of 400 clients. The data were collected through seven tools: to evaluate structure 1) An observational checklist to assess PHC units' services, 2) An observational checklist to assess PHC units' infrastructure, 3) An observational checklist to assess PHC units' infection control measures, 4) Nurses' knowledge assessment questionnaire which include: (a) Demographic data sheet of the nurses and (b) Nurses' knowledge assessment questionnaire, to evaluate process 5) Nurses' performance observational check list, and to evaluate outcome 6) Nurses' satisfaction assessment scale and 7) clients' satisfaction assessment scale which include: (a) Demographic data sheet and (b) Clients' satisfaction. **Results** of the present study illustrated that all of the studied PHC units provide the services of vaccination, early detection of thyroid hormone deficiency, family planning, and registration of births and deaths, while the minority (12.5%) of the studied PHC units provide health education about breast feeding, diagnosis, and treatment of infectious, and parasitic diseases, dealing with the emergency cases, and monitoring of food hygiene. More than two thirds (68.8%) of the studied PHC units had unsatisfactory safety measures, nursing staff, and laboratories. More than half (56.3%) of the studied PHC units had unsatisfactory personal protective equipment, environments, and health care teams' role in infection control. All the nurses had a poor knowledge about principles, dimensions of quality services, and quality standards. The means of nurses' performance in vaccinations, family services and practitioner role were 11.75 ± 1.25 , 5.50 ± 1.50 , and 11.31 ± 2.56 respectively. Nurses' job satisfaction means in relation to salaries, and incentives, organizational policy, interaction components, and methods of autonomy were 4.74 ± 8.93 , 8.21 ± 3.85 , 2.96 ± 11.02 , and 18.74 ± 5.50 respectively. Finally means of clients' satisfaction from quality of nursing care related to nurses' knowledge, and information, professional behavior, clinical skills, and nursing care, and decision-making skills were 8.11 ± 2.90 , 17.38 ± 4.38 , 16.21 ± 5.51 , and 4.48 ± 2.90 respectively. The study recommended that continuous assessment and evaluation for PHC units' quality of services. On job training programs for nurses working at PHC units regarding quality should be provided periodically. Equipping PHC units with standard structured and process of care to achieve desirable outcome. Estimate clients' satisfaction via different tools as questionnaire and suggestions boxes and other valuable channels must be available to pick relevant feedback from the clients. The outlined areas of clients' dissatisfaction should be addressed by concerned.

Keywords: Primary health care, quality, Donabedian Model, Client satisfaction.

Introduction

Primary health care as defined by Alma Ata declaration is the essential health care made universally accessible to individuals and families in the community by means acceptable to them, through their full participation and at a cost that the community and country can afford^(1,2).

Disease Control Priorities Project, (2007)⁽³⁾ emphasized that **PHC** is an integral component of health systems, provides families with close-to-home, cost-effective services. **The IOM, (2010)**⁽⁴⁾ was provide the most widely used definition of quality of care as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. This definition is consistent with **Donabedian's** proposal to assess quality in terms of structure, process, and outcomes, as it involves adherence to the recommended processes to achieve the desired outcomes⁽⁵⁾. Several models have been proposed in order to assess health care quality, and among these, **Donabedian model**, as the most common evaluation framework of quality assessment and analysis, which involved observing quality of care in terms of three approaches: structure, process, and outcomes.

Starting with the structure approach, it refers to the setting where the process of care takes place and it includes both physical and staff characteristics⁽⁶⁾. According to **Donabedian (1966)**⁽⁷⁾, the structure is concerned with the organizational structure including facility and equipment, qualifications of the medical staff, the operation of programs, and fiscal organization.

The second approach that should be taken into consideration when assessing quality is examining the process of care itself emphasis is directed toward whether good medical care has been applied rather than just relying on the power of medical technology to achieve results^(7,8).

The last approach of assessing quality is the measure of the outcomes. Indicators of the outcomes include recovery and restoration of function and survival⁽⁷⁾.

Van Driel et al.⁽⁹⁾ provided multiple examples of outcomes indicators such as symptoms and complaints of the patient, health parameters, quality of life, customer satisfaction, compliance to treatment, and social equity.

The cause of ensuring quality in PHC units is to improve the quality of providers, increase patients' satisfaction, improve health facilities, and improve

information technology⁽¹⁰⁾. Quality of care is an important determinant of PHC units outcome; since outcome assessment concerns the results of care on the health status of clients, including changes in client's knowledge, perception and behavior, client's satisfaction with health care, biologic changes in disease, complications of treatments, morbidity, and mortality^(11,12).

Nurse play an important role in primary health care that include health promotion, illness prevention, maternity and child care, treatment and care of sick people, rehabilitation, community development, population and public health education and research and policy development and advocacy⁽¹³⁾.

Aim of the study The aim of this study was to evaluate the primary health care services provided by nurses based on Donabedians' Model at Mansoura City.

MATERIAL AND METHODS:

Research design

Cross sectional descriptive study design was used to carry out this research

Setting The study was conducted at primary health care units at Mansoura City.

Subjects and sampling

The study included (16) PHC units, purposive sample composed of all nurses on duty during the study and providing health care at

the selected primary health care units were included in the study; they were (100) nurse, and convenient sample of (400) clients to assess their satisfaction with quality of primary health care services provided by nurses.

Study tools

Data were collected by using seven tools, based on Donabedian Model which composed of; structure, process, and outcome.

Part I:-Concerning with the structure

Tool I: An observational checklist to assess PHC units' services which include services for individuals and public health services. **Scoring system** ranged from 0 to 2 points. Zero indicates that the services were not available, '1' point sometimes available and '2' points the services were always available. The total scores of services provided by the PHC units were 44 points.

Tool II : An observational check list to assess PHC units' infrastructure including: location, building, medical record, safety measures, equipped of the clinic, laboratories, the furniture, PHC nursing staff, the pharmacies, warehouses and radiology departments. **Scoring system** ranged from 0 to 1 point, each present item scored '1' point and the absent items scored '0'. The total scores were (99) and considered as the following: Satisfactory if the

score was 60% or more (59.4 from the total sores or more). Unsatisfactory if less than 60% (less than 59.4 from the total sores). **Tool III:** An observational check list to assess PHC units' infection control measures including: measures related to hand washing, personal protective equipment, reuse of the equipment, dealing with the furniture and sheets, PHC environments, dealing with waste, disinfection methods, and health care teams' role in infection control. **Scoring system** ranged from 0 to 1 point, each present item scored '1' point and the absent item scored '0'. The total scores were 53 and considered as follows: Satisfactory if the score was 60% or more (31.8 from the total sores or more). Unsatisfactory if less than 60% (less than 31.8 from the total sores).

Tool IV: Nurses' knowledge assessment questionnaire which consists of 2 parts:

Part 1: Demographic data sheet

Part 2: Nurses' knowledge assessment questionnaire. **Scoring system,** total scores of the knowledge were 44 points, each correct answer scored '1' point and each incorrect answer scored '0'. The knowledge level was categorized into three categories:

- Poor < 50% of total scores (<22).
- Fair = 50% to 75% of total sores (22-33).
- Good >75% of total scores (>33).

Part II:-Concerning with the process

Tool V: Nurses' performance observational check list adopted from (MOHP, 2007)⁽¹⁴⁾ and covers the following items nurses' role in vaccination, nurses' role in family services, and practitioners' role of nurses. **Scoring system,** the total scores of nurses' performance were 38 points, using three points likert like scale ranging from 0 to 2 points where '0' indicate that the skill was not done, '1' point sometimes done and '2' points always done

Part III:-Concerning with the outcome

Tool VI: Nurses' satisfaction assessment scale which consists of 30 statements and divided into four main parts: Pay and benefits (9 items), organizational policy (6 items), interaction components (5 items), and methods of autonomy (10 items). **Scoring system,** using four points likert like scale ranging from 0 to 3 points where '0' indicate that was strongly dissatisfy, '1' points dissatisfy, '2' points satisfy, and '3' ' points strongly

Tool VII: Clients' satisfaction assessment scale which consists of 2 parts

Part 1: Demographic data sheet

Part 2: Clients' satisfaction sheet which consists of four main parts; nurse knowledge and information (5 items), professional behavior of the nurses (9 items), clinical skills

and nursing care (10 items) and nurse's decision-making skills (3 items). **Scoring system**, using four points likert like scale ranging from 0 to 3 points where '0' indicate that was strongly dissatisfy, '1' point dissatisfy and '2' points satisfy, and '3' points strongly satisfy.

Methods

An official letter was issued from the Faculty of Nursing Mansoura University to PHC Administrative Authority to obtain approval to conduct the study.

Ethical approval on the study was obtained from the research ethics committee of the faculty of nursing, Mansoura University.

Verbal approval was obtained from nurses and clients to participate in the study.

Data generated was analyzed using Statistical Package for Social Sciences (SPSS version 16). Statistical techniques employed include descriptive statistics.

Results

Table (1) illustrates distribution of the services provided by the PHC units; it revealed that all the studied PHC units (100.0%) provide vaccination, early detection of thyroid hormone deficiency, family planning and registration of births and deaths. More than half (56.2%), and half (50.0%) of the studied PHC units provide fortification with vitamin A and iron and maintain disbursed of the medication from the pharmacy

(essential drugs list) respectively. Only (12.5%) of the studied PHC units provide health education about breast feeding, diagnosis and treatment of infectious and parasitic disease, dealing with the emergency cases and monitoring of food hygiene.

Table (2) illustrates the infrastructure of the PHC units; it revealed that more than two thirds (68.8%) of the studied PHC units had satisfactory location, more than half (56.3%) of the studied PHC units had satisfactory equipped of the clinics and pharmacies, and the majorities (87.5%) of the studied PHC units were provided with satisfactory medical record, furniture and warehouses. On the other hand more than half (56.3%) of the studied PHC units had unsatisfactory building, more than two thirds (68.8%) of the studied PHC units had unsatisfactory safety measures, nursing staff, and laboratories and the majority (87.5%) of the studied PHC units had unsatisfactory radiology department.

Table (3) illustrates that the majority (81.3%) of the studied PHC units had satisfactory dealing with wastes and disinfected methods while more than two thirds (68.8%) of the studied PHC units had satisfactory measures of reuse of the equipments. On the other hand more than three fourths (68.8%) of the studied PHC units

had unsatisfactory hand washing measures, more than half (56.3%) of the studied PHC units had unsatisfactory personal protective equipment, environments, and health care teams' role in infection control, and three fourths (75.0%) of the studied PHC units had unsatisfactory dealing with the furniture.

Table (4) shows that all (100%) the nurses were females. with mean age of was 37.19 ± 6.33 years, In relation to nursing qualification more than half (56.0%) of the nurses had nursing diploma and the mean of their years of experience was 17.23 ± 5.93 . This table also demonstrates that, less than two thirds (64.0%) of the nurses were working as a nurses. Regarding to previous training programs about quality 34.0% of the nurses had been trained for one time, 31.0% of them had attended training for (1-2 day) and 70.0% of the nurses had the last training from more than 1 year.

Table (5) shows that less than two thirds (63.0%) and more than two thirds (68.0%) of the nurses had poor knowledge about definition and benefits of quality with the mean of 0.822 ± 1.48 , and 2.30 ± 2.77 respectively and all the nurses (100.0%) had poor knowledge about principles, dimensions of quality services, and quality standards with the mean of 3.37 ± 3.00 , 3.80 ± 3.89 , and

3.34 ± 3.73 respectively.

Table (6-a) illustrates nurses' performance during providing vaccinations at the PHC units; it revealed that all the nurses (100.0%) give the proper dose of vaccines using new syringe with all type of vaccines, even if the same child. Most (91.7%) of the nurses give vaccination with a proper manner and position of the child, Less than half (44.4% & 41.7) of the nurses wash hands or change gloves after each child and review children vaccination dates respectively.

Table (6-b) illustrates nurses' performance during providing family services at the PHC units; it was obvious that less than two thirds (62.5%), the minority (81.8%), more than three fourths (75.8%), and more than half (56.0%) of the nurses sometimes provide health education program for the families about diseases prevention such as: (HTN – DM – cancer- asthma), registration of pregnant women during the first three months of pregnancy, registration of women who do examination during eight weeks following delivery, health education program for pregnant women about breastfeeding and do family planning counseling respectively.

Table (6-c) illustrates that more than three fourths (79.2%) of the nurses implement different types of

treatment according to doctor's instructions (oral therapy, IM injection, IV injection, SC injection, intra dermal, and topical treatment), while more than two thirds (68.8%) of the nurses treat simple wounds. In the same time more than one third (39.6%) of the nurses carry out the patient's discharge procedures such as cleaning and disinfection of the place to receive another patient. Also more than one fourth (29.2%) of the nurses give health education about types of treatment, permitted foods and dates of follow-up.

Table (7) illustrates nurses' job's satisfaction during working at the PHC units. It revealed that nurses were satisfied with the methods of autonomy and salaries

and incentives at PHC unit, with the mean of 18.74 ± 5.50 and 8.93 ± 4.74 , while nurses were less satisfied with organizational policy and interaction components with the mean of 8.21 ± 3.85 and 2.96 ± 11.02 .

Table (8) illustrates clients' satisfaction with quality of services provided by nurses at PHC units, it was observed that the clients were satisfied with the professional behavior and the clinical skills of PHC unit's nurse, with the mean of 17.38 ± 4.38 and 16.21 ± 5.51 , while clients were less satisfied with nurses' knowledge and information, and decision making skills of the nurses with the mean of 8.11 ± 2.90 and 4.48 ± 2.90 .

Table (1) Distribution of PHC units according to the services provided

Items	Available		Sometimes		Not available	
	N=(16)	%	N=(16)	%	N=(16)	%
(1) Services for individuals						
A- For children						
1- Vaccinations	16	100	/	/	/	/
2- Follow-up for growth and development	12	75.0	4	25.0	/	/
3- Integrated patient care, such as:	13	81.2	2	12.5	1	6.2
a- Diarrheal disease						
b- Respiratory system diseases	12	75.0	2	12.5	2	12.5
c- Malnutrition disease	7	43.8	3	18.8	6	37.5
d- Measles	6	37.5	5	31.2	5	31.2
4- Newborn care	13	81.2	2	12.5	1	6.2
5- Fortification with vitamin A and iron	9	56.2	5	31.2	2	12.5
6- Early detection of thyroid hormone deficiency	16	100.0	/	/	/	/
B- For women						
1- Reproductive health care	5	31.2	3	18.8	8	50.0
2- Family planning services	16	100.0	/	/	/	/
3- Follow-up of pregnancy and discover risk pregnancies to allocate	10	62.5	5	31.2	1	6.2
4- Tetanus immunization for pregnant women	15	93.8	1	6.2	/	/
5- Health education about breast feeding	2	12.5	2	12.5	12	75.0
C- For all ages						
1- Health education	3	18.8	3	18.8	10	62.5
2- Treatment and follow-up of chronic diseases	3	18.8	6	37.5	7	43.5
3- Diagnosis and treatment of infectious and parasitic diseases	2	12.5	9	56.2	5	31.2
4- Laboratory services	4	31.2	8	50.0	4	31.2
5- Dental care services	5	31.2	9	56.2	2	12.5
6- Disbursed medication from the pharmacy (essential drugs list)	8	0.0	8	50.0	/	/
7- Dealing with the emergency cases	2	12.5	3	18.8	11	68.8
8- Registration of births and deaths	16	100.0	/	/	/	/
(2) Public health services						
1- Prevention and control of communicable diseases	10	62.5	6	37.5	/	/
2- Monitoring of environmental health	7	43.8	8	50.0	1	6.2
3- Monitoring of food hygiene	2	12.5	3	18.8	11	68.8

Table (2) Distribution of the PHC units according to their infrastructure

Items	Satisfactory		Unsatisfactory	
	No=(16)	%	No=(16)	%
1- location of the PHC units	11	68.8	5	31.0
2- Building of the PHC units	7	43.8	9	56.3
3- Medical record	14	87.5	2	12.5
4- Safety measures	5	31.3	11	68.8
5- Equipped of the clinics	9	56.3	7	43.8
6-The furniture	14	87.5	2	12.5
7- PHC nursing staff	5	31.3	11	68.8
8- The pharmacies	9	56.3	7	43.8
9- Warehouses	14	87.5	2	12.5
10-Laboratories	5	31.0	11	68.8
11- Radiology departments	2	12.5	14	87.5
Total infrastructures of the units	12	75.0	4	25.0

Table (3) Distribution of the PHC units according to infection control measures

Items	Satisfactory		Unsatisfactory	
	No=(16)	%	No=(16)	%
1- Hand washing measures	5	31.2	11	68.8
2- Personal protective equipment	7	34.8	9	56.3
3- Reuse of the equipments	11	68.8	5	31.3
4- Dealing with the furniture	4	25.0	12	75.0
5- PHC units' environments	7	34.8	9	56.3
6- Dealing with wastes	13	81.3	3	18.8
7- Disinfected methods	13	81.3	3	18.8
8- Health care teams' role in infection control	7	43.8	9	56.3
Total infection control measures	7	43.8	9	56.3

Table (4) Distribution of nurses according to their socio demographic characteristics		
Items	No=(100)	%
Gender		
1)Female	100	100.0
Age	Mean \pmSD = 37.19\pm6.33	
Marital status		
1) Single	9	9.0
2) Married	89	89.0
3) Widow	2	2.0
Residence		
1)rural	82	82.0
2)urban	18	18.0
Nursing qualification		
1) Nursing Diploma	56	56.0
2) Technical Institute of Nursing	28	28.0
3) Bachelor of Nursing	16	16.0
Years of experience	Mean \pmSD =17.23 \pm 5.93	
Occupation		
1) Head of the department	16	16.0
2) Head of section	20	20.0
3) Nurse	64	64.0
Department		
1) Immunization	36	36.0
2) Administration	16	16.0
3) Emergency	16	16.0
4) Family health clinics	16	16.0
5) Other clinics*	16	16.0
Previous training programs about quality		
1) Once	34	34.0
2) Two times	16	16.0
Duration of training programs about quality		
1) (1-2) day	31	31.0
2) (3-4) day	10	10.0
3) (5-6) day	8	8.0
Last training time		
1) 1 month – 1 year	30	30.0
2) More than 1 year	70	70.0
Place of training		
Dakahlia Directorate for Health	100	100.0
Training Subject		
Quality management	100	100.0

Other clinics* Medical, Surgical and Dermatology Clinics

Table (5) Distribution of nurses according to their knowledge about quality

Items	N= (100)	%	Mean ± SD
Definition of Quality			
Poor	63	63.0	0.822±1.48
Fair	21	21.0	
Good	16	16.0	
Benefits of quality			
Poor	68	68.0	2.30±2.77
Fair	32	32.0	
Principles of quality			
Poor	100	100.0	3.37±3.00
Dimensions of quality services			
Poor	100	100.0	3.80±3.89
Quality components			
Poor	31	31.0	2.02±1.23
Fair	14	14.0	
Good	55	55.0	
Steps to improve the quality			
Poor	57	57.0	1.41±1.23
Fair	12	12.0	
Good	31	31.0	
Improvement process			
Poor	56	56.0	1.7±1.63
Fair	18	18.0	
Good	26	26.0	
Quality standards			
Poor	100	100.0	3.34±3.73

Table (6-a) Distribution of nurses according to their performance at the PHC units, cont...

Items	Always done		Sometimes		Never	
	N=36	%	N=36	%	N=36	%
1- Nurses role in vaccinations						
1- Wash hands or change gloves after each child	16	44.4	16	44.4	4	11.1
2- Children vaccination dates are reviewed	15	41.7	21	58.3	/	/
3- The proper dose is given	36	100.0	/	/	/	/
4- Vaccination is given with a proper manner and position of the child	33	91.7	3	8.3	/	/
5- A new syringe are used with all type of vaccination, even if the same child	36	100.0	/	/	/	/
6- Using safety boxes to dispose of needles properly	32	88.9	3	8.3	1	2.8
7- Provide healthy messages such as (parents notification dates for the follow-up ,development of the child or the next visit date clearly)	5	13.9	29	80.6	2	5.6
Mean ± SD = 11.75±1.25						

Table (6-b) Distribution of nurses according to their performance at the PHC units, cont...

Items	Always done		Sometimes		Never	
	N=16	%	N=16	%	N=16	%
2- Nurses role in family services						
1- Health education program for the families about diseases such as (HTN – DM –cancer- asthma)	3	18.8	10	62.5	3	18.8
2- Registration of pregnant women during the first three months of pregnancy	3	18.8	13	81.2	/	/
3- Registration of women who do examination during eight weeks following delivery	3	18.8	13	81.2	/	/
4- Health education program for pregnant women about breastfeeding	4	25.0	12	75.8	/	/
5- Family planning counseling	3	18.8	9	56.0	4	25.0
Mean ± SD = 5.50±1.50						

Table (6-c) Distribution of nurses according to their performance at the PHC units, cont...

Items	Always done		Sometimes		Never	
	N=48	%	N=48	%	N=48	%
3- Practitioner role of PHC nurses						
1- Providing of all types of treatment according to doctor's instructions(oral therapy ,IM ,IV ,SC, intra dermal injection, and topical treatment)	38	79.2	10	20.8	/	/
2- Treat simple wounds	33	68.8	13	27.1	2	4.2
3- Measuring the vital signs	24	50.0	19	39.6	5	10.4
4- Prepare the necessary tools and equipments	30	62.5	15	31.2	3	6.2
5-Registration of all nursing procedures	29	60.4	17	35.4	2	4.2
6- Carry out the patient's discharge procedures such as cleaning and disinfection of the place to receive another patient	19	39.6	21	43.8	8	16.7
7- Give health education about ((types of treatment , permitted food and dates of follow-up)	14	29.2	7	14.6	27	56.2
Mean ± SD = 11.31±2.56						

Table (7) Mean and standard deviation of nurses' satisfaction during working at the PHC units.

Items	Min	Mix	N
			Mean± SD
1- Salaries and Incentives	0	27.00	4.74±8.93
2-Organizational policy	0	18.00	3.85±8.21
3-Interaction components	2.00	15.00	11.02 ± 2.96
4-Methods of autonomy	6.00	32.00	5.50±18.74

Table (8) Mean and standard deviation of clients' satisfaction from quality of nursing care

Items	Min	Mix	n=400
			Mean± SD
Nurse knowledge and information	0	15.00	2.90±8.11
Professional behavior	5.00	27.00	4.30±17.38
Clinical skills and nursing care	1.00	40.0	5.51 ± 16.21
Decision-making	0	9.00	2.90±4.48

Discussion:

PHC is a universally accessible to all individuals, and responsible for the treatment and prevention of the majority health problems of the population ^(15, 16). Several models have been proposed to assess health care quality, among these, Donabedian Model, as the most common evaluation framework, focuses on the outcome of the provided health care for the patients. In this model, outcome is considered desirable only if it reflects the patients' preferences rather than the caregivers ^(17, 6). Donabedian posit that a good structure increases the likelihood of good process, which increases the likelihood of good outcome ^(18, 19). Discussion of the current study presented according to Donabedian Model of quality which consist of: structure, process, and outcome. First part concerning with the

structure including the services provided by the PHC units including individuals, and services public health services, The findings of the present study revealed that all the studied PHC units provide vaccination services for children; this was supported by **Zare et al** ⁽²⁰⁾.who assess client's satisfaction with primary health care in Jahrom in Iranian Health Centers through a cross-sectional study in 2014, four urban PHC centers were selected through stratified random sampling and 302 participants, they found that all health centers in their study provide vaccination services. As well **Disease Control Priorities Project** ⁽³⁾ stated that PHC units provide immunization. **In relation to health education services**, the minority of PHC units provide health education. This findings was agreed with **Hassan and Ahmed** ⁽²¹⁾ who mentioned that the

minority of nurses in their study maintain the quality criteria of health education for health maintenance during pregnancy, and in the mean time they revealed incorrect and incomplete answers of knowledge scores regarding most of the health teaching items, also these finding was agreed with **Shaikh** ⁽²²⁾ who mentioned that health teaching is an integral part of any maternal and infant programs. Lack of health education is comparable to lack of necessary knowledge about health promotion, diseases prevention, avoid the progress of diseases and cope with chronic diseases. **As regarded to the building of PHC units**, the present study revealed that less than half of the PHC units had satisfactory building this was disagreement with **Rebekka Grun** ⁽²³⁾ who assess management and service quality in the primary health care facilities in Alexandria and Menoufia Governorates and found that only one fourth of the PHC units had a satisfactory building in Alexandria and the minority in Menoufia Governorate. **Concerning with the equipment of the clinics**, the present study showed that more than half of the PHC units had satisfactory equipped clinics; this was agreed with **Hassan and Ahmed** ⁽²¹⁾ who mentioned that more than half of equipment and supplies available but not enough in the antenatal

units. **In relation to the furniture**, the present study illustrated that the majority of the PHC units had satisfactory furniture, this was disagree with **Hassan and Ahmed** ⁽²¹⁾ who mentioned that less than half of the antenatal unit furniture's were available but not enough.

In relation to hand washing measures, the first step in all nursing procedures and one of the most important measures of infection control precautions is hand washing. Unfortunately, it was observed in the present study that more than two thirds of the studied PHC units' had unsatisfactory hand washing measures. This result was agree with **Hassan and Ahmed** ⁽²¹⁾ who mentioned that more than two thirds of the ante natal units had lacked hand washing facilities and lack of hand washing technique. Also this result was consistent with **Alqattan**, ⁽²⁾ who found that not all health care providers are compliant to hand washing policy or fail to follow the correct steps in effective hand washing. This could be attributed inadequacy of supplies as soap, antiseptic solutions, and disinfectants materials as alcohol and drying hands materials. **As regard to personnel protective equipment**, which composed of sterile gloves, non sterile gloves and respiratory masks the present study revealed that more than half of the studied PHC units had

unsatisfactory personnel protective equipment. This was agreed with **Malangu and Mngomezulu**,⁽²⁴⁾ who evaluate tuberculosis infection control measures at primary health care facilities in Kwazulu-Natal province of South Africa through cross-sectional survey collected from healthcare workers at (52) health facilities and found that more than half of the PHC unit's had unsatisfactory personnel protective equipment. This part will concerned with nurses' qualification, training programs and knowledge about quality in PHC units. **Related to qualification level of the nurses**, the result of this study illustrated that more than half of the nurses had nursing diploma. This result was consistent with **Banakhar**⁽²⁵⁾ who found that more than half of the nurses had nursing diploma. **Pointed to the previous training programs about quality**, the present study showed that half of nurses who attend previously training programs about quality. The result was agreed with **Hassan and Ahmed**⁽²¹⁾, who reported that about two thirds of the nurses did not attend any conferences or training programs about quality of nursing performance in the antenatal period. **As regarded to nurses' knowledge about definition and benefits of quality**, the present study revealed that less than two thirds and more than two thirds of

the nurses had poor knowledge about definition and benefits of quality respectively. These result was agreed with **Hassan**⁽²⁶⁾ who assess health care providers awareness about quality system and its relation to quality of performance at maternal and child health centers and reported that about two thirds of the nurses had poor knowledge about definition and benefits of quality. On the other hand, this result inconsistent with **Hassan and Ahmed**⁽²¹⁾ who reported that most of the nurses in their study before the implementing the interventions had poor knowledge related to concept of quality definition. **Concerning nurses' knowledge about principles and dimensions of quality**, the present study revealed all of the nurses had poor knowledge about principles and dimension of quality. The most frequently used dimensions of quality according to **Donabedian**⁽¹¹⁾, **IOM**,⁽²⁷⁾ **JCAHO**⁽²⁸⁾, and **Fleming**⁽²⁹⁾ are included: Effectiveness, efficiency, safety, equity, appropriateness, timeliness, acceptability, patient responsiveness or patient-centeredness, satisfaction, and continuity of care. The result was inconsistent with **Hassan**⁽²⁶⁾ who found that majority of nurses in accredited centers were aware about principles and dimensions of quality and about third of nurses in

non a accredited centers not aware of items of dimension of quality. **In relation to nurses' knowledge about quality standards**, the present study revealed that all of the nurses in the study had poor knowledge about quality standards. This result was agree with **Hassan and Ahmed** ⁽²¹⁾ who reported that almost all the nurses before the implementing of the interventions had poor level of knowledge related to, the definition of standards of quality nursing performance during antenatal period. The Egyptian Ministry of Health and Population Grants Accreditation to Primary Health Care Units based on the following eight Standards for Quality [patients rights, patients care, safety, support services, management of information, quality improvement program, integration of care: family practice model and management of the facility] and that accreditation expires after two years, after which it needs renewal (**Ministry of Public Health and Population Accreditation Standards document, 2007**) ⁽¹⁴⁾. The obvious nurses' poor knowledge related to the concept of quality may be attributed to half of the nurses did not attend any conferences or training programs about quality and the fact that nurses in-need for refreshing training courses about quality.

Second part dialed with the process. Nurse performance can improve quality of health services. Nurse performance during providing health care at the PHC units was divided to three main parts including nurses' role in vaccination, family services and practitioner's role. **Related to nurses' role in vaccination**, the present study showed that all nurses give the proper dose of vaccines and use new syringe with all type of vaccination, even if the same child. This result was consistent with **Hassan** ⁽²⁶⁾ who found that all nurses in his study give the proper dose of vaccines and use new syringe with all type of vaccination. **In relation to nurses' role in family services**, the present study showed that one fourth of the nurses provide health education program for pregnant women about breastfeeding. This was consistent with **Hassan and Ahmed** ⁽²¹⁾ who found that the one fourth of nurses provides health education for health maintenance during pregnancy, breast and skin care, and breastfeeding. **Concerning practitioner's role of nurses**, the present study indicated that more than two thirds of the nurses treat simple wounds. This result was consistent with **Mohammed**, ⁽³⁰⁾ who reported that more than two thirds of the nurses in his study treat simple wounds. Furthermore, the present study

showed that half of the nurses measure patients' vital signs. This result is in consistent with **Modes(and Gavia** ⁽³¹⁾ who found that most of the nurses in their study measure the children's vital signs.

Third part concerning with the outcome. Nurses' satisfaction during working at the PHC units in relation to salaries and incentives. The result of the present study revealed that, less than half of the nurses were satisfied with salary according to the work effort, and half of the nurses were satisfied with salary according to their knowledge, experience and level of education. This was agreed with **El Sayed** ⁽³²⁾ who reported that the salary is satisfactory. On the other hand, this result was disagreed with **El-hehe,** ⁽³³⁾ who reported that the minority of nurses in MUCH were satisfied with salaries in relation to skills and efforts. This may be due to the last incentives offered by MOHP. This study showed that less than half of the nurses were satisfied with their participation in decisions making in the department they work in. This was in the same line with **El-hehe,** ⁽³³⁾ who found that nearly half of nurses were satisfied with having the chance to participate in decisions related to work. Also this result showed that more than one third of the nurses were satisfied with vacations system. This was agreed with **Al**

Malki, ⁽³⁴⁾ who reported that one third of the nurses were satisfied with the vacations system. , this study showed that less than two third of the nurses was satisfied with the relationship with their colleagues. This was disagreed with **El-hehe,** ⁽³³⁾ and **Al Malki,** ⁽³³⁾ who reported that the majority of nurses were satisfied with the relationship with their colleagues. Also this study showed that more than half of the nurses were satisfied with their relationship with the doctors. This was supported by **El Sayed,** ⁽³²⁾ who reported that nurses had a satisfactory relationship with the doctors.

Clients' satisfaction with quality of services provided by nurses at the PHC units related to nursing care is the subjective evaluation of the cognitive-emotional response that results from the interaction of the clients' expectations of nursing care and their perception of actual nurse behaviors/characteristics ⁽³⁵⁾. **Clients' satisfaction with quality of services provided by nurses at the PHC units. Clients' satisfaction with nurse's knowledge and information,** this study showed that less than two thirds of PHC clients were satisfied with providing the nurses complete information about their case (child case), and responding to their questions and interests with a satisfied manner, These findings

were consistent with the results of **Agosta**,⁽³⁵⁾ who reported that almost two thirds of PHC clients were satisfied nurses knowledge and information and satisfied that nurses' respond to their questions in a satisfied and respectful manner. On the other hands, this result disagree with **Alqattan**,⁽²⁾ who reported that the least satisfaction is related to nurses answering clients' questions and telling health education messages. , the present study showed that less than two thirds of PHC clients were satisfied that nurses supported them when needed and more than two thirds of PHC units' clients were strongly dissatisfied about maintaining calm environment, this was in the same line with **Changee et al.**,⁽³⁶⁾ who assess client satisfaction of maternity care in Lorestan Province Iran and found that less than two thirds of PHC units' clients were satisfied that nurses supported them when needed and more than two thirds of PHC units' clients were dissatisfied about maintaining calm environment in delivery room. On the other hands, this result disagrees with **Al- Fozan**⁽³⁷⁾ who reported that majority of patients in his study were satisfied with maintaining calm environment. **Clients' satisfaction in relation to decision-making skills**, this study showed that more than half of PHC units' clients were satisfied that nurses show confidence in

making a decision about them (their children), this was agree with **Changee et al.**,⁽³⁶⁾ who found that more than half of the clients were satisfied about nurses decision making abilities. On the other hands, these results disagree with **Al- Fozan**,⁽³⁷⁾ who reported that majority of patients in his study were satisfied with nurses decision making skills.

Conclusion:

The results of the present study concluded on highlighting of Donabedian Model; firstly in relation to structure all of the studied PHC units provide the services of vaccination, early detection of thyroid hormone deficiency, family planning, and registration of births, and deaths. There were apparent unsatisfactory infrastructure of the studied PHC units representing more than half up to the majority in relation to building of the units, safety measures, nursing staff, laboratories, and radiology departments. According to infection control measures; the majority, and more than two thirds of the studied PHC units satisfactory dealing with wastes, disinfected methods, and reuse of the equipments, on the other hand three fourths, and more than half of the studied PHC units had unsatisfactory dealing with the furniture, personal protective equipment, environments and

health care teams' role in infection control. It was obviously that poor level of nurses' knowledge about quality occupied the highest percentage. Secondly the process related to nurses' performance in vaccinations, family services and practitioner role, all and decline to the majority of the nurse always done most of their role in vaccination, on the posit side more than half up to the majority of the nurses sometimes done most of their role in family services while half and upgrading to more than three fourths of the nurses always done most of their role as practitioner. Finally the outcome which emphasized on clients' satisfaction, relatively the highest percentages of clients' satisfaction with almost items related to nurses' knowledge and information, professional behavior, clinical skills, nursing care and decision-making skills lied in category of satisfied.

Recommendations:

On the light of the current study, the following recommendations are suggested:

1. Continuous assessment and evaluation for PHC units' quality of services.
2. On job training programs for nurses working at PHC units regarding quality should be provided periodically.
3. Equipped PHC units with standard of structure and process

of care to achieve desirable outcome.

4. Estimate clients' satisfaction via different tools as questionnaire and suggestions boxes and other valuable channels must be available to pick relevant feedback from the clients.
5. The outlined areas of clients' dissatisfaction should be addressed by concerned.

References

- (1) **World Health Organization, (1978).** Declaration of Alma-Ata. International Conference on Primary Health Care, Alma-Ata, USSR, 6-12 September 1978.
- (2) **Alqattan H. A., (2012).** Assessment of Some Aspects of Service Delivery and Client Satisfaction in Primary Health Care Setting in Kuwait. Thesis submitted for partial fulfillment of Master Degree in Public Health and Community Medicine Faculty of Medicine Cairo University.
- (3) **Disease Control Priorities Project, (2007):** Primary health care: key to delivering cost-effective interventions. Available at: http://www.dcp2.org/file/77/D_CPP_PrimaryHealthCare.pdf (Last accessed 1 January 2015).
- (4) **Institute of Medicine., (2010):** crossing the quality chams, aNew Health System for 21stCentury, Committee on

-
- Quality of Health care in America, 2001, Lohck, vol2, Washington, DC: National Academy Press,P:52.
- (5) **Rubin, H., Pronovost, P., & Diette G., (2001).** The advantages and disadvantages of process-based measures of health care quality. *International Journal for Quality in Health Care*, 13(6), 469-474.
- (6) **Bernz S, & Geru N., (2009).** Research method of nursing. Translated by Dehghan Nayeri N, Seylani Kh, Fakhr movahedi A, Farsi Z, Babamohammadi H and Isheye Rafie; 1st ed. Tehran.
- (7) **Donabedian A., (1966).** Evaluating the quality of medical care. *The Milbank Memorial Fund quarterly* 44, Supply: 166-206.
- (8) **Jaber H. M , (2014).** The Impact of Accreditation on Quality of Care: Perception of Nurses in Saudi Arabia. Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy, Health Care Administration, Walden University. 11(3), Pp 120-180.
- (9) **Van Driel, Sutter M., Christiaens A., & Maeseneer T., (2005)** .Quality of care: The need for medical, contextual and policy evidence in primary care. *Journal of Evaluation in Clinical Practice*, 11(5), 417-429.
- (10) **Abdel Latif A., (2013).** Improving the Quality of Public Health Services in lower income areas in Cairo, Egypt. A Thesis Submitted to the Public Policy and Administration Department in partial fulfillment of the requirements of the degree of Master of Public Policy. The American University in Cairo 5-120
- (11) **Donabedian A., (2003).** An Introduction to Quality Assurance in Health Care, (Oxford University Press 2003).
- (12) **Nnebue C. C., Ebenebe U.E., Adinma E.D., Obionu C.N., & Ilika A.L., (2014).** Clients' knowledge, perception and satisfaction with quality of maternal health care services *Vol(17): Pp 594-601.*
- (13) **Australian Primary Health Care Research Institute (APHCRI), (2009).** cited in *Primary Health Care Reform in Australia: Report to Support Australia's First National Primary Health Care Strategy.*
- (14) **Ministry of Health and Population, (2007).** General Directorate of Quality, Standards of Primary Health Care Centers and Units.
-

- (15) **Biscaia A.R., Martins J.N. & Carreira M.F., (2005).** Cuidados de Saúde Primários em Portugal, Reformar para Novos Sucessos. Applied Science ISSN: 2319-7706 Volume 4 Number 3 (2015) pp. 84-89
- (16) **Fialho A. S., (2008).** Family Health Units vs. Primary Health Care Centres development of discrete event simulation models to compare the performance of the two organizational models in the Portuguese primary care sector, Pp 1-50.
- (17) **Aghlmand S. & Akbari F., (2005).** Method to assess the quality of health services. Sixth International Conference on Quality Management in Iran, Tehran.
- (18) **Khamis K. & Njau B., (2014).** Patients' level of satisfaction on quality of health care at Mwananyamala hospital in Dar el Salaam,
- (19) **Agency for Healthcare Research & Quality, (2010).** The effective health care program stakeholder guide. Retrieved from <http://www.ahrq.gov/research/findings/evidence-base-reports/>.
- (20) **Zare A., Taheri L. & Jahromi M.K., (2015).** Clients Satisfaction with Primary Health Care in Jahrom: A Cross-Sectional Study on Iranian Health Centers. International Journal of Current Microbiology and
- (21) **Hassan A. A. and Ahmed M. H., (2013).** Impact of Protocol of Care on Quality of Nursing Performance at the Antenatal Unit , Benha University and Tanta University Pp30: 70.
- (22) **Shaikh B.T., (2008).** Using SERVQUAL for assessing and improving patient satisfaction at a rural health facility in Pakistan. Eastern Mediterranean Health Journal, 14: 447-456.
- (23) **Rebekka G., Cho Y.& Ekman B., (2010).** Management and service quality in the primary health care facilities in Alexandria and Menoufia Governorate. Report Middle East and North Africa Document of the World Bank.
- (24) **Malangu N. and Mngomezulu M. (2015).** Evaluation of tuberculosis infection control measures implemented at primary health care facilities in Kwazulu-Natal province of South Africa. BMC Infectious Diseases (2015) 15:117 DOI 10.1186/s12879-015-0773.
- (25) **Banakhar S. A., (2008).** Quality improvement of neonatal care. Mansoura Univeristy, Faculty of medicine, department of pediatrics Pp1-154.

-
- (26) **Hassan M. F., (2013).**Health care providers' awareness about quality system and its relation to quality of their performance at maternal and child health center. Benha University faculty of nursing and Pp1: 98.
- (27) **Institute of Medicine, (2001).** Crossing the quality chasm: A new health system for the 21st century. Washington, DC: The National Academies Press.
- (28) **Joint Commission on Accreditation of Healthcare Organizations. (JCAHO), (2006).** Facts about the Official "Do Not Use" List. Jun, 2011. [Cited; [www.jointcommission.org/assets/1/18/Official_64\(11\):1170-3](http://www.jointcommission.org/assets/1/18/Official_64(11):1170-3)].
- (29) **Fleming M. & Wentzell N., (2008).** Patient Safety Culture Improvement Tool Development and Guidelines for Use, Healthcare Quarterly, Vol.11, pp. 10-15.
- (30) **Mohamed, S. M., (2012).** Effect of applying quality system on the nurses' performance at Benha teaching hospital and Aga central hospital / Vol (24) pp 8-118.
- (31) **Modes B. & Gaíva M. , (2013).** User's satisfaction concerning the care delivered to children at primary health care services.
- (32) **El sayed E. M., (2006).**Study of factor affecting nursing performance at Benha University Hospital
- (33) **El-hehe I. A., (2014).** Association between performance obstacles and quality of work life among intensive care nurses Thesis submitted for partial fulfillment of the requirements of the master degree in nursing administration Pp41- 62.
- (34) **Al Malki M., (2012).** Quality of work life among primary health care nurse in the Jazan region, Sudia Arabia Pp45-85.
- (35) **Agosta L.,(2009).** Patient satisfaction with nurse practitioner-delivered primary healthcare services. Journal of the American Academy of Nurse Practitioners **21**,610-617.
- (36) **Changee F., Irajpour A., Simbar M. & Akbari S, (2015).** Client satisfaction of maternity care in Lorestan province Iran. Iran Journal Nursing Midwifery Research v.20 (3); May-Jun 2015.
- (37) **Al- Fozan H., (2013).** patients & family caregivers' satisfaction with care delivered by Saudi nurses at National Guard Health Affairs Hospitals in Saudi Arabia King Saud bin Abdul-Aziz University for Health Sciences, Riyadh-Saudi Arabia. Journal of Natural Sciences Research Vol.3, No.12, 2013.
-