

# The Effect of a Midwifery Educational Program on Graduates' Knowledge, Attitudes, and Practices in Gaza Strip: Perception of Graduates

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## Abstract

The perceived Knowledge, Attitudes, Practices (KAP), and satisfaction of graduates from an educational program is important as a kind of evaluation for program's success. Although the professional diploma in midwifery program was started in Palestine College of Nursing (PCN) in the year 2013 as a postgraduate specialty for nurses and it had about 72 graduates from three courses, it was not evaluated by the graduates for its effect on the KAP of the graduates. This study aimed to assess the perception of the graduates of the professional diploma in midwifery educational program about the effect of the educational program on graduates' KAP as well as their satisfaction from the program. The researcher used a cross-sectional design and used purposive samples of 60 graduates who were eligible to participate. The researcher used one valid and reliable questionnaires for the graduates. The findings of this study revealed that, the mean percentage in knowledge and attitude according to graduates' perception was 86.0 % for each, while for practice it was 88%. The overall mean percentage of the graduates' satisfaction from the professional diploma in midwifery was 78%, the highest satisfaction was from lecturers, clinical instructors and number of hours by 92%, 90%, and 86% respectively, while the lowest satisfaction was from class teaching environment, skill laboratory, and clinical training environment by 52%, 60%, and 70% respectively. The study showed no statistically significant relationship between age and both practice and knowledge while there was statistically significant difference between attitude and age, as well there was positive significant correlation between KAP as total and satisfaction ( $r=0.271$ ,  $P<0.036$ ). The study concluded that the perceived effect of the program on the KAP of graduates was high positive as well as for the quality of faculty members, while the learning environment in theory and clinical placement needs to be improved, thus the study recommended further strategies to be taken in future courses regarding improving the learning environment of students.

**Keywords:** A midwifery; Educational program; Knowledge; Attitudes; Practices; Gaza strip; Perception of graduates

## Introduction

Nurses who have postgraduate professional diploma in midwifery educational program are expected to have better knowledge, attitude, and practice in midwifery than their original experience from their original bachelor of nursing program. General Nurses who are working in obstetric and women's health areas need to develop reflective skills and valid midwifery knowledge and practice [1]. Midwife educators and practitioners can promote nurses and enhance their learning by expanding the scope of practice, encouraging self-assessment and the development of reflective and professional skills for obstetric and delivery department [2]. Clearly, nurses can work in a wide different of medical specialties, so nurses plan and provide nursing care to patients in the hospital, at home or in other settings [3]. It is also possible for nurses to develop career pathways in research, clinical, management and education roles [4].

Last statistics for 2010 in the Ministry of Health (MOH) in Gaza strip reported a lot of complication during pregnancy and immediate postnatal period, especially among obstetric and delivery department and lowering satisfied patients about delivery department services [5]. Therefore, MOH in Gaza strip suggested and induced the Norwegian Aid Committee (NORWAC) as an international organization supports the Palestinian people to help employed nurses in obstetric and delivery department to be enrolled without study fees in the professional diploma of midwifery educational program at Palestine College of Nursing (PCN) in Gaza Strip after being accredited in the year 2012. The program aimed to improve the knowledge, attitudes, and practice of nurses working in maternity departments in Gaza strip. The program is designed to reflect the academic and professional development needs of midwives and to prepare competent midwives as practitioners, educators, leaders, researchers, and counselors who can contribute to health promotion of women and newborns in Gaza strip [6].

In March 2013 the first program of professional diploma in midwifery for nurses with bachelor degree was started in PCN that affiliated to the MOH. Number of them and classification as place of work are Twenty-seven participants from nurses in obstetric and delivery in MOH hospitals and primary health care clinics and Non-governmental Organizations (NGOs) hospitals and clinics. In addition, lecturers and instructors in the professional diploma in midwifery program were with high experiences. In the same way, after the first group of the diploma graduated in November 2014, second group was enrolled with 18 participants and started directly in December 2014 with NORWAC financial support. Finally, in July 2016 third group was started by 25 participants and graduated in November 2017. The diploma curriculum is consisted of 38 credit hours (23 theory and 15 clinical practice), which is distributed into five semesters including the summer semesters. First semester: theory normal midwifery (4 hr), Women's health issues (1 hour), Theory neonatology (2 hours), Ethics for midwifery (1 hr) and research (2 hours), 2) second semester: theory normal midwifery II (2 hr), practice normal midwifery II (2hr), theory complicated child I (3 hr), practice normal midwifery I (2 hr), practice neonatology (1 hr). 3) Third semester: complication child (2 hr), theory gynecology (2 hr), theory complicated child II (2hr), practice complicated child II (2hr), theory community for midwifery (2 hr), practice gynecology (1 hr) 4) fourth semester community for midwifery (2 hr), management and clinical teaching (2 hr), Fifth semester: practice internship (3 hr). The curriculum includes both theory and practice elements that have 30% theory to 70% practice within the range of International Confederation of Midwives (ICM) standards [7], the program was based on the credit hour system of which mean one credit hour of theory equals 16 classroom contact hours and one credit hour of practice equals 56 hours of clinical practice per semester (16 weeks) [8]. The study was aimed to assess graduates' perception of the effect of professional diploma in midwifery educational program on graduates' knowledge, attitudes, and practices (KAP).

## Population and Methods

### Study design

The design of this study was cross-sectional research. It is an appropriate design to study the effect of a midwifery educational program on graduates' knowledge, attitudes, and practices from the perception of graduates since this design is efficient in assessing the perception of the study subjects.

### Study population

The study population was 70 graduates from the 3 courses of the professional diploma program in midwifery at Palestine College of Nursing [9].

### Study settings

This study was conducted at MOH & NGOs hospitals and primary healthcare clinics where the program's graduates are currently working mainly in Al-Shifa Medical Complex, Nasser Medical Complex, Al-Aqsa Hospital, El-Emaratti Hospital, Al-Kiwitti Hospital, Millitary Hospital and clinics, Al-Awda Hospital, and other places in clinics and colleges.

### Study period

The study started in November 2017 and finished in July 2018.

### Sampling and sample size

The researcher used a purposive sample from 60 participants who

are the graduates of the three courses of the professional diploma in midwifery program.

### Inclusion criteria

All program graduates who are currently employed in healthcare organization from the 3 courses of the program.

### Exclusion criteria

Employed graduates in long vacation or outside the Gaza Strip during data collection period.

### Ethical consideration

An ethical approval was obtained for the study from the ethical body of health research in Gaza Strip (Helsinki Committee) through the DGHDR-MOH. As well as an informed consent was obtained from all the graduates of the program. An administrative approval from MOH & other relevant NGOs (employers of graduates). The researcher has explained the purpose and objectives of the study to all participants.

### Data collection and tools

Data was collected through self-administered questionnaire for knowledge, attitudes and practice. The information gathered in these questionnaires revolves around the effect of professional diploma in midwifery educational program on graduates' knowledge, attitudes, and practices.

### Questionnaires

One questionnaire were developed by the researcher after a long time of reading in the professional diploma in midwifery educational program at PCN documents and searching related perception of knowledge, attitudes, and practices questionnaires and how to measure or explore such topics using a Likert Scale. The questionnaires were reviewed by a panel of experts to evaluate its facie and content validity, to ensure the reliability of the questionnaires reliability test was conducted to evaluate the ambiguity, length, and misunderstanding of the questionnaires. The questionnaires included 5 domains, first is demographic data for example including age, governorate, marital status, educational level, etc, the second is for the perception of graduates' knowledge in relation to curriculum courses and topics which included 16 statements with 5 points score ranged from strongly agree (5 points) to strongly disagree (1 point) for each, the third is for attitudes in relation to professional and ethical attitudes of the midwives which included 10 statements with 5 points score ranged from strongly agree (5 points) to strongly disagree (1 point) for each, the fourth is for practice in relation to dimensions of midwifery practice in obstetrics and gynecology which included 16 statements with 5 points score ranged from strongly agree (5 points) to strongly disagree (1 point) for each, the levels of KAP were classified as high=80-100, moderate=60-79.9, and low=less than 60. The last one was for assessing their satisfaction level from the program in relation to duration of the program, faculty members, curriculum, clinical environment, ...etc. which included 3 statements regarding KAP with 5 point score for each (5 points=high, as well as their recommendation to improve the future courses.

### Duration of data collection

After examining the validity of the questionnaires by the experts and after conducting the pilot study, the researcher and another data collector collected the data by using the self-administrated questionnaire with graduates, it continued for three months from January to March 2018.

## Response rate

About 86% (60/70) of surveyed graduates answered the questionnaire properly and returned it in due date.

## Data entry and analysis

The researcher used Statistical Package of Social Science (SPSS-version 23) program for data entry and analysis. Frequency tables were used to describe the frequency of specific characters. Some statistical tests were used as appropriate such as percentage (%), means and standard deviation (SD), t-test to assess whether the means of two groups are statistically different from each other, one way analysis of variance (ANOVA) test to determine whether there are any significant differences among the means of more than two independent groups. As well as the researcher used Person correlation (r) to test correlation between KAP and satisfaction. Finally, Probability value (P-value) less than 0.05 was considered statistically significant, with confidence interval (CI) of 95%.

## Pilot study

A pilot study of 10 participants of midwifery diploma in health care institutions was done to test the reliability of the research questionnaires and check the feasibility of the study, minor modifications of the questionnaires were done as appropriate and the questionnaires were included in the study sample.

## Scientific rigor

**Validity of the questionnaires:** The questionnaires were evaluated by experts to assess all the components and the context of the instrument, in order to ensure that it is highly valid and relevant and their comments were taken in consideration, the questionnaires were formatted in order to ensure face and content validity, this including appealing layout, and logical sequences of relevant and clear questions.

**Reliability of the data:** Training of data collectors on the interviewing steps and the way of asking questions. This was assured standardization of questionnaire filling. Data entry was entered in the dataset on the same day of collection. Re-entry of 5% of the data after finishing data entry was done to assure correct entry procedure and decrease entry errors.

Cronbach's alpha for each field of the questionnaire and the entire questionnaire. For the fields graduate's questionnaire, values of Cronbach's alpha were in the range from 0.751 and 0.937. Cronbach's alpha equals 0.938 for the entire questionnaire, which indicates good reliability of the entire questionnaire.

## Results

### Distribution of the graduates according to governorates and age

Table 1 illustrated the distribution of the graduates' according to their socio-demographic information. The number of graduates from North, Gaza, Middle zone, KhanYounis and Rafah Governorates was 7 (11.7%), 13 (21.7%), 6 (10%), 16 (26.7%) and 18 (30%), respectively. the table showed that about two thirds (42 (70.0%)) of the graduates have age 30 years while 18 (30.0%) have age less than 30 years. the average (SD) of age was 35.2 (6.7) years. About three fourths 44 (73.3%) of the graduates were married while 16 (26.7%) were unmarried. Additionally, demonstrated about half 23 (52.3%) of married graduates have more than 4 children with an average of children was about 5 children. Regarding educational level before entry to the program, most of the graduates were had bachelor certificate 56

(9.3.3%) while 4 (6.7%) were with a master degree. The distribution of the graduates according to their place work were 15 (25%), 10 (16.7%), 4 (6.7%), 6 (10%), 5 (8.3%) and 20 (33.3%) in Al-Shifa, Nasser, Alaqsa, Emaraty, PHC and others, respectively. Classification of the work type from governmental hospitals, governmental PHC clinics, NGOs PHC clinics, NGOs Hospitals were 49 (81.7%), 7 (11.7%), 1 (1.7%) and 3 (5%), respectively. The distributions of the graduates' according to their years of experience were the same between more than 10 years or 10 years less. On the other hand, the experience in the maternity department was four years or less were 26 (43.3%) while 34 (56.7%) more than 4 years. Regarding work position, the prevalence of head nurse, senior staff nurse, staff nurses and supervisor were 11 (18.3%), 11 (18.3%), 28 (46.7%) and 10 (16.7%), respectively. Most of the graduates 45 (75.0%) were period graduation 5 years or less while 15 (25%) were more than 5 years. On the other, the average (SD) period from graduation from last qualification and entry into the Professional diploma in midwifery program were 7.1 (5.3) years. Finally, 49 (81.7%) of the graduates were work in Obstetrics & gynecology departments department area and 11 (18.3%) work in other departments.

### Distribution of the graduates' according to their responses about knowledge

Distribution of the graduates' according to their responses about knowledge is illustrated in table 2. The graduates were asked 16 questions by a five-point Likert related to the knowledge gained from the professional diploma of midwifery program. It was found that mean percentage of graduates' knowledge=86.0 % and SD=8.5 (minimum 63.8% and maximum 100%), Most of graduates' knowledge level was high (93.3%), and the rest were at the moderate levels by (6.7%).

### Mean score of graduates' perceptions about Knowledge items

The mean scores of participants' perception about knowledge pointed out in table 3. The items of the highest scores were "my knowledge about the care of normal pregnancy case is improved and my knowledge about steps of normal vaginal delivery is improved (94%) while the items of the lowest scores were "my knowledge about research and evidence-based practice is improved (80%), My knowledge about management is improved (80%) and" My knowledge about violence as women issue is improved (78%)". There was statistically significance in the all items regarding the perceived knowledge gained from the professional diploma in midwifery educational program p-value  $\leq$  0.001. The result was logic since the knowledge in a specialty area is expected to increase after exposure to long and specialized educational program.

### Distribution of the graduates' according to their responses about attitude

Table 4 summarized levels and mean score of graduate's attitude regarding to professional diploma. The graduates were asked 10 questions by a five-point Likert related to the attitude gained from the professional diploma of midwifery program. It was found that mean percentage of graduates' attitude 86% and SD=11.1 (minimum 46% and maximum 100%). Most of graduates' attitude level was high and the rest were at the moderate levels by (10.0%) and low (3.3%). This study finding is congruent with the findings of Wilson, et al. (2016).

### Mean scores of the graduates' perceptions about attitude items

The mean scores of the graduate's responses about the attitude as demonstrated in table 5. It was found that the ranking of the highest

**Table 1:** Distribution of the graduates' according to their socio-demographic data.

Socio-demographic data		n	%
<b>Governorates</b>	North	7	11.7
	Gaza	13	21.7
	Middle zone	6	10
	KhanYounis	16	26.7
	Rafah	18	30
<b>Age groups (years)</b>	Less than 30	42	70
	30 or more	18	30
<b>Mean (SD) 35.2 (6.7)</b>			
<b>Marital status</b>	Married	44	73.3
	Unmarried	16	26.7
<b>If married, Children number (n=44)</b>	≤ 4	21	47.7
	>4	23	52.3
<b>Levels of education before entry to the program</b>	Bachelor	56	93.3
	Master	4	6.7
<b>Place work</b>	Al-shifa	15	25.0
	Nasser	10	16.7
	Alaqsa	4	6.7
	Emaraty	6	10.0
	PHC	5	8.3
	Others	20	33.3
<b>Workplace</b>	Governmental Hospitals	49	81.7
	Governmental PHC clinics	7	11.7
	NGOs PHC clinics	1	1.7
	NGOs Hospitals	3	5.0
<b>Experience (years)</b>	≤ 10	30	50.0
	>10	30	50.0
<b>Experience in maternity (years)</b>	≤ 4	26	43.3
	>4	34	56.7
<b>Work position</b>	Head nurse	11	18.3
	Senior staff nurse	11	18.3
	Staff nurse	28	46.7
	Supervisor	10	16.7
<b>Period graduation groups (years)</b>	≤ 5	45	75.0
	>5	15	25.0
<b>Your work department area</b>	Gynecology	49	81.7
	Others	11	18.3

NGOs: Non-governmental organizations and PHC: Primary healthcare

**Table 2:** Distribution of graduates according to their perception about knowledge.

Variable and level	n (%)	Mean (SD)	Min	Max	level
<b>Graduates' knowledge</b>		86 (8.5)	63.8	100	High
High (80-100)	56 (93.3)				
Moderate (60-79.9)	4 (6.7)				

n: number of the subjects; SD: standard deviation; Min: minimum and Max: maximum

**Table 3:** Mean score of graduates' perceptions about Knowledge items.

Knowledge	Mean ± SD	WM	t	P-value	Rank
1. My knowledge about care of normal pregnancy case is improved	4.7 ± 0.5	94	23.368	<0.001	1
2. My knowledge about steps of normal vaginal delivery is improved	4.7 ± 0.5	94	23.368	<0.001	1
3. My knowledge about complicated pregnancy cases is improved	4.6 ± 0.6	92	20.114	<0.001	3
4. My knowledge about postnatal dangerous signs of the mother is improved	4.4 ± 0.7	88	16.494	<0.001	4
5. My knowledge about use of partogram is improved	4.4 ± 0.7	88	19.703	<0.001	4
6. My knowledge about neonatal assessment is improved	4.4 ± 0.6	88	16.494	<0.001	4
7. My knowledge about complicated delivery is improved	4.4 ± 0.7	88	17.737	<0.001	4
8. My knowledge about dangerous neonatal signs is improved	4.4 ± 0.6	88	15.860	<0.001	4
9. My knowledge about gynecology cases is improved	4.3 ± 0.5	86	21.726	<0.001	9
10. My knowledge about non-pharmacologic management of labor pain is improved	4.3 ± 0.7	86	14.311	<0.001	9
11. My knowledge about communicable diseases of mothers and children is improved	4.2 ± 0.8	84	11.795	<0.001	11
12. My knowledge about ethical dilemmas in maternal health is improved	4.1 ± 0.6	82	13.563	<0.001	12
13. My knowledge about ministry of health obstetric protocols is improved	4.0 ± 1.0	80	9.729	<0.001	13
14. My knowledge about research and evidence-based practice is improved	4.0 ± 0.8	80	7.876	<0.001	13
15. My knowledge about management is improved	4 ± 0.8	80	9.652	<0.001	13
16. My knowledge about violence as women issue is improved	3.9 ± 0.7	78	10.545	<0.001	16
<b>Total</b>	<b>4.3 ± 0.4</b>	<b>86</b>	<b>23.674</b>	<b>&lt;0.001</b>	

\*P ≤ 0.05: Significant, P>0.05: Not significant; SD: standard deviation; WM: weighted mean & t: one sample t-test

responses were for the items “my respect for family-centered care is improved an “My respect for patient privacy is improved and my respect to the role of the midwife is improved (90%)” while the lowest scores were for the items “my scope to handle ethical dilemma in maternal health is improved (82%) and my valuing to research is improved (80%).”

### Distribution of the graduates’ according to their responses about practice

Distribution of the graduates’ according to the mean scores of their perception regarding the practice items as illustrated in table 6. It was found that the mean percentage of graduates’ practices=88% and SD=10.9 (minimum 60% and maximum 100%), Most of graduates’ practices level was high (76.7%), and the rest were at the moderate levels by (23.3%).

### Mean scores of the graduates’ perceptions about practice items

Table 7 showed the mean scores of the graduates’ perception regarding the practice items. The weighted mean for the domain of the graduates practice was 88% and statistically significant at less than 0.05 by using one sample t-test. According to the results, the highest score was for the paragraph “my practice in giving instructions to mother about postnatal problems is improved” with weighted mean 92% and statistically significant at less than 0.05, followed by the paragraphs “my practice in family planning is improved and after finishing the diploma my practice to give instructions to the mother about dangerous neonatal signs is improved” with a weighted mean of 90 % for both. While the lowest score was for the paragraph “my managerial abilities in practice are improved” with weighted mean 82% and statistical significance at less than 0.05, followed by the paragraphs “I much better utilize the research findings & best evidence in my practice and my practice with complicated delivery cases is improved” with a weighted mean 84% and statistically significant at 0.05.

### Distribution of the graduates’ according to their responses about KAP

Table 8 summarized the distribution of the graduates’ according to their responses to KAP. Overall, it was found that graduates’ KAP mean was=84.1% and SD=8.0 (minimum 60.8% and maximum 94.8%), which was at the high level. In addition, the levels of the graduates’ KAP was analyzed, it was found that most of the graduates were at the high level (80.0%), while the rest were at the moderate level (20.0%).

### The mean differences in KAP related to age groups among graduates

The mean differences in KAP related to age among graduates pointed out in table 9. The results showed there were no statistically significant differences in mean of KAP for age, experience, experience in maternity, work position (P>0.05). On the other hands, there were no statistically significant differences between married and unmarried for KAP (P<0.05) environment so the result showed no significant differences in the attitude and practice in relation to marital status. The result showed the significant statistical difference between KAP and workplace area.

### The correlation between KAP among graduates

The correlation between KAP items among graduates in table 10. Pearson correlation showed positive significant correlation between knowledge and attitude perception of graduates (r=0.597, P<0.001); practice (r=0.696, P<0.001). Also, attitude there is positive significant correlation with practice (r=0.800, P<0.001) among nurse participants.

**Table 4:** Distribution of graduates according to their perception about attitude.

Variable and level	n (%)	Mean (SD)	Min	Max	level
<b>Graduates’ attitude</b>		86 (11.1)	46	100	High
High (80-100)	52 (86.7)				
Moderate (60-79.9)	6 (10.0)				
Low (less than 60)	2 (3.3)				

n: number of the subjects; SD: standard deviation; Min: minimum and Max: maximum

**Table 5:** Mean scores of the graduates’ perceptions about attitude items.

Attitude	Mean ± SD	WM	t	P-value	Rank
1. My respect to family centered care is improved	4.5 ± 0.6	90	20.711	<0.001	1
2. My respect to patient privacy is improved	4.5 ± 0.6	90	18.222	<0.001	1
3. My respect to the role of the midwife is improved	4.5 ± 0.9	90	12.098	<0.001	1
4. My respect to patient needs is improved	4.4 ± 0.8	88	13.442	<0.001	4
5. My willingness to client advocacy is improved	4.4 ± 0.6	88	17.263	<0.001	4
6. My willingness to cooperation with other professionals is improved	4.3 ± 0.6	86	15.424	<0.001	6
7. My respect for the role of the family in supporting client is improved	4.3 ± 0.9	86	11.056	<0.001	6
8. My willingness to use therapeutic communication is improved	4.2 ± 0.7	84	12.649	<0.001	8
9. My scope to handle ethical dilemma in maternal health is improved	4.1 ± 0.7	82	11.631	<0.001	9
10. My valuing to research is improved	4 ± 0.9	80	8.643	<0.001	10
<b>Total</b>	<b>4.3 ± 0.6</b>	<b>86</b>	<b>18.039</b>	<b>&lt;0.001</b>	

\*P ≤ 0.05: Significant; P>0.05: Not significant; SD: standard deviation; WM: weighted mean & t: one sample t-test

**Table 6:** Distribution of graduates according to their perception about practice.

Variable and level	n (%)	Mean (SD)	Min	Max	level
<b>Graduates’ practice</b>		88 (10.9)	60	100	High
High (80-100)	46 (76.7)				
Moderate (60-79.9)	14 (23.3)				

n: number of the subjects; SD: standard deviation; Min: minimum and Max: maximum

**Table 7:** Mean scores of the graduates' perceptions about practice items.

Practice	Mean ± SD	WM	t	P-value	Rank
1. My practice in giving instructions to mother about postnatal problems is improved	4.6 ± 0.6	92	22.193	<0.001	1
2. My practice with women in antenatal care is improved	4.5 ± 0.7	90.0	19.050	<0.001	2
3. My practice in family planning is improved	4.5 ± 0.7	90	16.212	<0.001	2
4. After finishing the diploma my practice to give instructions to the mother about dangerous neonatal signs is improved	4.5 ± 0.6	90	15.533	<0.001	2
5. My use to non-pharmacological approach to relive labor pain during delivery is improved	4.4 ± 0.7	88	17.886	<0.001	5
6. My practice in health education is improved	4.4 ± 0.9	88	12.350	<0.001	5
7. My use of partograph to detect any abnormality is easier	4.4 ± 0.7	88	14.333	<0.001	5
8. My practice in assessment of neonates is improved	4.4 ± 0.7	88	16.212	<0.001	5
9. After finishing the diploma my practice to teach my colleagues is increased	4.4 ± 0.6	88	16.085	<0.001	5
10. My communication with other professionals is improved	4.4 ± 0.8	88	15.967	<0.001	5
11. My practice in situations threaten client safety is more effective	4.3 ± 0.7	86	17.176	<0.001	11
12. My practice in gynecological cases is improved	4.3 ± 0.6	86	13.547	<0.001	11
13. My practice with complicated delivery cases is improved	4.2 ± 0.9	84	9.327	<0.001	13
14. I much better utilize the research findings & best evidence in my practice	4.2 ± 1.0	84	10.425	<0.001	13
15. My managerial abilities in practice are improved	4.1 ± 0.9	82	9.776	<0.001	15
<b>Total</b>	<b>4.4 ± 0.5</b>	<b>88</b>	<b>19.723</b>	<b>&lt;0.001</b>	

\*P ≤ 0.05: Significant; P>0.05: Not significant; **SD**: standard deviation; **WM**: weighted mean & **t**: one sample t-test

**Table 8:** Distribution of graduates according to their overall KAP levels.

Variable and level	n (%)	Mean (SD)	Min	Max	level
<b>Graduates' KAP</b>		84.1 (8.0)	60.8	94.8	High
High (80-100)	48 (80.0)				
Moderate (60-79.9)	12 (20.0)				
Low (less than 60)	0 (0.0)				

**n**: number of the subjects; **SD**: standard deviation; **Min**: minimum and **Max**: maximum

## Discussion

Although nurses can work all previous jobs, nevertheless they have little practices and experiences for pregnant woman care, labor, delivery, childbirth and newborns that cause many complications during pregnancy, childbirth and the immediate postnatal period in obstetric and delivery department [10]. The new Studies showed about 800 women and more than 8000 newborns die every day due to complications during pregnancy, childbirth and the immediate postnatal period [11]. So, in the late 20th century, many countries start teaching nurse-midwives that have the formal education of a nurse and the hands-on experience of a midwife [12].

Therefore, MOH in Gaza strip and the NORWAC as an international organization supports employed nurses in obstetric and delivery department to be enrolled without study fees in the professional diploma of midwifery educational program at PCN in Gaza Strip to improve the knowledge, attitudes, and practice of nurses working in maternity departments in Gaza strip. Our study aimed to assess the perception of the graduates of the professional diploma in midwifery educational program regarding the effect of the program on graduates' knowledge, attitudes, and practices (KAP).

The results of study showed that the high percentage of graduates' knowledge and the most of graduates' knowledge level was high (93.3%). These results are congruent with the findings of study about the effect of education programs on KAP among several categories of health care employees on nosocomial infections that found significant relation between continuing education and improvement of employees' knowledge [13]. The professional midwifery program as any new education program for postgraduate nurse added more and specific knowledge that may help in health care. There was statistically significance in the all items regarding the perceived knowledge gained from the professional diploma in midwifery educational program p-value ≤ 0.001. The result was logic since the knowledge in a specialty area is expected to increase after exposure to long and specialized educational program. Clearly, Participants' level of knowledge increased, attitudes become more positive to work towards caring for clients after completing education program and all items about the perception of the attitude were statistically significant p ≤ 0.001 this means the level of attitude increased according to graduates' perception as study result about education program can improve the attitudes of nursing staff [14]. These results are congruent to another study that concluded that educational programs are effective means of improving nurses' attitudes [15].

Distribution of the graduates' according to the mean scores of their perception was found that the most of graduates' practices level was high and the rest were at the moderate levels. The practice had high level also that's similar to Higgins A, et al. [16] that suggested evaluation provides evidence that a module on prenatal mental health is effective at improving the self-reported skills of student midwives towards women with health issues. That's mean that the professional

**Table 9:** The mean differences in KAP in relation to age groups among graduates.

		n	Mean ± SD	WM	t	P-value
Age groups	Less than 30	18	4.2 ± 0.6	84	-1.582	0.119
	30 or more	42	4.4 ± 0.4	88		
Marital status	Married	44	4.4 ± 0.4	88	2.147	0.036
	Unmarried	16	4.1 ± 0.5	82		
Child number	≤ 4	21	4.3 ± 0.5	86	-1.283	0.207
	>4	23	4.5 ± 0.4	90		
Work Place	Obstetrics & gynecology	49	4.2 ± 0.4	84	-4.752	<0.001
	Others	11	4.8 ± 0.1	96		
Experience	≤ 10	30	4.3 ± 0.6	86	-0.262	0.794
	>10	30	4.3 ± 0.3	86		
Experience in Maternity	≤ 4	26	4.3 ± 0.5	86	-0.382	0.704
	>4	34	4.3 ± 0.4	86		
Work position	Head nurse	11	4.5 ± 0.2	90	1.888	0.142
	Senior staff nurse	11	4.1 ± 0.4	82		
	Staff nurse	28	4.3 ± 0.5	86		
	Supervisor	10	4.5 ± 0.3	90		
	Total	60	4.3 ± 0.5	86		

\*P ≤ 0.05: Significant, P>0.05: Not significant; **SD**: standard deviation; **WM**: weighted mean & **t**: two sample t-test

**Table 10:** The correlation between KAP among graduates.

KAP items	Knowledge		Attitude		Practice	
	r	P	r	P	r	P
Knowledge	-	-	0.597	<0.001	0.696	<0.001
Attitude	0.597	<0.001	-	-	0.800	<0.001
Practice	0.696	<0.001	0.800	<0.001	-	-

\*P ≤ 0.05: Significant; P>0.05: Not significant & **r**: Correlation coefficient

diploma in midwifery educational program succeeded to have high perception of graduates regarding their practice improved skills and performance in midwifery related practice areas. These results agreed with Crooks D, et al. [17] that stated any post diploma programs should be built on skills and abilities nurses implement thus influence improvement in their practice.

The rank of KAP from highest to lowest was practice knowledge and attitude, respectively. The findings of this study agree with Suchitra JB and Lakshmi Devi N [13] study which concluded that education has a positive effect on the maintenance of KAP in all the categories of employees.

The study showed KAP not association age, experience, experience in maternity and work position. This result is similar to Okobia MN, et al. [18] study about KAP of Nigerian ladies towards breast cancer that found no significant relationship between knowledge and age group of ladies. The findings of this study may be explained also by the young age of the graduates as of them less than 46 years so the ability to learn is still mostly similar in both age groups. On the other hands, there are statistically significant association between marital status and KAP. These results maybe may be explained by that the married women may have more commitment and motivated to show

success for their husbands and children compared to the unmarried women, while in practice and attitude they have the same environment as unmarried in the clinical. The result showed there are association between KAP and workplace area, the result may be explained by the graduates who are working in other areas rather than obstetrics & gynecology departments have more KAP benefit about midwifery from the program than those who already work in these departments and familiar to the specialty which may decrease their interest.

Pearson correlation indicates there is positive association between KAP items. These results agree with [19]. They illustrated there are positive relation between knowledge, attitudes and practices among university students in Portugal regarding to contraceptive and transmitted infection.

## Conclusion and Recommendations

This study used descriptive and analytic approach to assess the effect of the professional diploma in midwifery educational program on graduates' knowledge, attitudes, and practices from the perspectives of graduates'. The researcher used a purposive sample from 60 graduates. The researcher collected the data through self-administered questionnaires. The researcher used questionnaire for graduates. The graduates' perception about KAP mean=84.1% and SD=8.0 (minimum 60.8% and maximum 94.8%), which was at the high level. The practice was highest rank of the KAP (88.0%) followed by knowledge and attitude (86.0%). The study illustrated the level of satisfaction among graduates as moderate level with mean=77.1%, which is relatively high. While the study showed no statistically significant relationship between age and practice and knowledge while there was statistically significant difference between attitude and age. Finally there was positive significant correlation between KAP items. The study concluded that the educational program succeeded in improving the KAP of graduates as they perceived. Finally, Palestine

College of Nursing as program owner to increase number of credit hours of research course and make application by implementing full research project as well as emphasizing the evidence-based practice as strategy in teaching and practice and enhance the use of skill lab to train students during the program before their training in hospitals and clinics to increase their self-confidence. Also, Palestine College of Nursing must be modify the classroom environment especially by wide place, good chairs, and air conditioning to provide comfortable environment for study and pay more attention in future courses to violence issues among women in our country and how to deal with this problem. However, ministry of health must be improve clinical environment by making more co-operation and coordination with the ministry of health to put the priority for training to professional diploma in midwifery students and clinical instructors from the program's graduates to motivate them. Finally, for further research should be conducted to assess the KAP of program graduates by more ways rather than perception and assess the impact of program's graduates on the quality of practice in work place settings.

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