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Enhancing Health Education Knowledge, Skills and Self Efficacy of Female Community Health Workers: Basis for Improving Woman Health Services at Menoufia Governorate- Egypt

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Abstract:
Background: *Health education (HE) is an important intervention for who work as a part of community health workers in Egypt. Female community health workers (FCHWs) provide many services to enhance woman heath like; family planning counseling, antenatal advices and /or premarital counselling.*
Aim: *Enhance health education knowledge, skills and self efficacy of female community health workers: basis for improving woman health services provided in Menoufia governorate- Egypt.*
Methods: Design: *A quasi-experimental research design (one group pre-post-test) was used.*
Setting: *Six primary health care centers (PHCCs) affiliated to Ministry of Health in Menoufia governorate; were chosen.*
Sampling: *A multi stage random sample to select PHC centers, convenience sample to select 160 female community health workers and also convenience sample of 100 women attended PHC centers' clinics.*
Tools: *Self administered questionnaire for (FCHWs) contained: I- socio-demographic data. II- pre-post knowledge assessment questionnaire about HE, III- pre-post observational checklist, IV- Modified 3 points Likert scale to assess self-efficacy (SE) at pre and posttest and V- Women awareness (pre-posttest) assessment.*
Results: *Current study illustrated that, mean age of studied FCHWs was 36.26 ± 4.2, mean of years of experience were 13.27 ± 3.3, the main qualification (93.75%) was diploma education; the majority of studied FCHWs (93.75%) working about 6-8 hours per day, more than half of studied FCHWs (57.5%) working at rural health unit. Related to previous health education training; about (61.25%) of FCHWs had received training before. Also, 55% of FCHWs have shortage of time which causing barriers for conducting effective health education. In addition; there were a highly statistical significant difference among mean total scores of knowledge, skills and self-efficacy on pre-and posttest among studied female community health workers. Finally, there was a highly statistically significant difference regarding to women's awareness about different services they were received at PHCCs at post test than in pre test.*
Conclusions: *Health education program significantly improves knowledge, skills and self-efficacy of female community health workers about health education which in return reflected on the health services provided to women at primary health care centers.*
Recommendation: *Highlighting woman's health services and empowerment for improving the quality of care given to women in rural areas, comprehensive and extensive programs for promoting FCHWs capabilities should be applied as they are a part of health care system and community building capacity. Furthermore, use the finding of this study to be a basis for improving woman health services at different settings.*
Keywords: *female community health workers, health education, women health.*

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I. Introduction:

Health education (HE) is an important intervention for all settings of healthcare. It helps in increasing the knowledge and influences the attitudes of individuals and communities to improve their health. HE encourages clients to practice suitable behaviors, assist them to overcome diseases and sustain good health [1, 2].

Health education services introduced to women in PHC centers is an essential factor in enhancing women satisfaction, autonomy, and sharing in healthcare programs and promoting healthy behaviors, leading to useful outcomes such as enhanced quality of life and better mental status by decreasing diseases complications and reducing anxiety. In addition to, access to comprehensive information about their own health, disease, and treatment [3, 4, 5, 6, 7].

Female community health workers (FCHWs) are responsible for providing many services to women such as family planning services, antenatal care and breast self-examination. So that, the success of these services needs successful communication. Adequate communication enhances acceptance and client satisfaction, as well as effective and constant use of the services needed to promote the supply of quality of services through better training and supervision of providers through promoting higher quality services to the community [8, 9, 10].

The FCHWs embrace a variety of community health aides selected, trained and working in the communities from which they come. WHO proposed it as female community health workers should be members of the communities where they work, should be selected by the communities, should be accountable to the communities needs and priorities such as primary care services, maternal and child services, family planning services and pre-marital counselling. It should be supported by the health system but not necessarily a part of the government and have shorter training than professional health workforce. They have many names in different countries, such as Raeda Refiya in Egypt, Community Health Agents in Ethiopia, Basic Health Workers in India, Kader in Indonesia and Behvarz in the Islamic Republic of Iran [11]. FCHWs have been employed in a number of low and middle-income countries as part of primary health care strategies [12, 13, 14].

The services provided by the female health workers to clients can be in the form of awareness-building, preventive care, home visits, clinical services, follow-up procedures and timely referral of cases in need of advanced health care facilities. All must be tailored to meet the needs of communities and families. Additionally, they advocate on behalf of their clients and community at large by supporting causes that help optimize health, such as nonprofit organizations and educational campaigns [15].

Female health employees sometimes referred to as female health leaders, enabling or empowering their patients by striving for equal access to health facilities regarding race, gender and ethnicity. Finally, the function of mediator between healthcare suppliers, governments, companies and the media is to encourage health for all people, nurses and health employees. Collaboration between various institutions is the only way to ensure the health of a population [16, 17].

Services provided by female community health workers who called (Raedat Refiyate) are believed to be more appropriate to the health needs of populations than those provided by clinic-based services, and to be less expensive and to foster self-reliance and local participation. Furthermore, because they are more accessible and acceptable to clients within their communities, they are expected to improve the overall coverage of services as well as increasing equity through increased service use by poor individuals and households [18, 19].

Female community health workers' programs have emerged as one of the most effective strategies to address human resource shortages in remote areas while improving access to, and quality of, primary health care. For decades, FCHWs have been part of the health care delivery system in countries around the world [20]. As cited by [21] standardized curricula within a country can improve FCHW knowledge, skills and performance based on local needs and priorities. There should be core competencies for all FCHWs, with additional training modules based on epidemiological variation within a country.

Previous studies have highlighted that educators' self-efficacy (their perception of their abilities) plays an significant role in the performance of their educational and training duties [22, 23]. Additionally, individuals' anticipations and expectations depend on their judgments about their capabilities to perform an exacting behavior in a specific situation. Therefore, individuals with higher self-efficacy are likely to visualize constructive outcomes [24, 25, 26].

1.1. Significance of the problem

As stated by [27], the PHC idea might be traced back to 1920 although Alma-Ata Conference of 1978 put it firmly on the global agenda. The Alma-Ata Conference reaffirmed commitment to health as a fundamental human right and universally accessible and affordable comprehensive health care that does not neglect the poor through community participation and self-reliance[17,28], anyhealth personnel who wish to be an effective educator must first learn to communicate. Good communication skills enable health personnel to get to know their clients and ultimately, to meet their needs for HE [29].

The government of Egypt has demonstrated continued political commitment to improving woman's health and empowering women. FCHWs who are assigned to rural primary health centers are not adequately prepared or recognized for education, skills and SE they are expected to fulfill. This research paper highlights opportunities to support rural health centers FCHW in effectively leading front-line health teams to deliver primary healthcare to rural communities through improving their capabilities of HE, performance to be a basis for providing good health services to the women who will attend the primary health care centers.

1.2. Aim of the study

To enhance female community health worker's knowledge, skills and self-efficacy about health education as a basis for improving woman health services in Menoufia Governorate, Egypt.

1.3. Hypothesis: the current study hypothesized that:
- Female community health workers, who were involved in intervention program; experienced enhancement in knowledge level.
- Health education skills of female community health workers, who attended the intervention program, were enhanced at posttest than in pretest.
- Self-efficacy of female community health workers, who attended the intervention program, was enhanced at posttest than in pretest.
- There was statistical significance difference regarding women level of awareness about different woman health services provided by FCHWs.

1.4. Key terms\operational definition:

1.4.1. Primary Health Centre (**PHC**) is the basic structural and functional unit of the public health services in developing countries. PHCs were established to provide accessible, affordable and available primary health care to people, in accordance with the Alma Ata Declaration of 1978 by the member nations of the World Health Organization[28].

1.4.2. Female Community Health workers: FCHW are non-nursing staff provide services to women attended to PHCCs and MCH. They play a significant role in obtaining information from families, providing basic education, and facilitating access to medical care.

1.4.3. Self-efficacy: is an individual's belief in his or her ability to accomplish something in a certain situation. Bandura [26] described these beliefs as determinants of how persons think, behave, and sense.

1.4.4. Woman health services: including comprehensive healthcare; premarital counseling, prenatal care, health screenings, family planning services and providing care about dangers of female genital mutilation and early detection of cancer breast.

2. Subjects and Methods

2.1. Study design: A quasi-experimental design with pre-posttest was used to conduct this study.

2.2. Settings: The study was carried out at six primary health centers (3 MCH and 3 rural health units) in rural areas. These centers affiliated to Ministry of Health in Menoufia governorate, Egypt.

2.3. Sampling: A multi stage random sample was used to select settings of the. All centers was written in pieces of paper then folded; the researchers picked 6 papers which carried the names of different centers. Finally, convenience sample was applied for choosing of a hundred and sixty female health workers and 100 women, who attended to these health centers to ask for health services as antenatal care, premarital counseling (PMC), family planning services etc, were involved in the study to assess their awareness about the woman health services before and after the nursing program.

2.3.1. Inclusion criteria:
- Accept to participate in the study.
- At least 6 months' work experience for FCHWs.
- Irrespectively to age, educational level and economical status

2.3.2. Exclusion criteria:
- Health problem that interfere in attending the intervention program as hearing or speech problems.
- Newly employed; less than 6 months For FCHWs
- Refuse to participate.

2.4. Instruments: Self-administered questionnaire were used to collect data; developed by the researchers based on reviewing of literatures and contained of :
- **Socio-demographic data** such as: age, level of education, social status, qualification, working situation as; working hours, past experience and previous programs of training.
- **Knowledge assessment questionnaire (pre-post):** it was developed to assess knowledge of FCHWs about health education. It was including; definition of HE, objectives, importance, characteristics of good health educator, health education levels, components, stages of behavioral change, methods of health education and recommended skills of good communication (regarding maternal health services as family planning, antenatal care, post-natal care and premarital counseling).
- **Observational checklist of female health worker's skills during health education (pre-post**): was designed to assess performance during health education; it was constructed in simple English language then translated to simple Arabic. It covered the following skills; appropriate communication skills and health education conduction skills.
- **Modified 3 points Likert scale (Pre-posttest):** developed and validated by 30 which consists of 12 questions. It was administered to measure FCHWs self-efficacy to perform health education. SE questionnaire translated into Arabic language then re-translated to English to confirm its accurateness, it was validated by academic professors from psychiatric health nursing, family and community health nursing and maternal and newborn nursing care department.

- **Women awareness assessment (pre-posttest) questionnaire:** An interviewing questionnaire was designed to assess women level of awareness about different woman services included: Female genital mutilation (4 questions), Cancer breast screening measures (4 questions), Food safety practices (3 questions), Antenatal care services (4 questions) and Family planning services (5 questions).

2.5. Scoring system:

- FCHWs knowledge about health education: contained nine questions; its total scores were 18 scores distributed as the following scores: Poor knowledge start from 9 scores which equal (≤ 50%) of total knowledge degree, fair knowledge 10-14 scores (>50-75%) and good knowledge >14-18 scores (>75 %). The knowledge data were coded as (1= incomplete, 2= complete).
- Pre-post Observational checklist of FCHWs skills during health education: it was consisting of two main parts; appropriate communication skills (9 questions) and conduction of health education skills (19 questions). Total questions 28. The data of performance was coded (1= not done, 2= incompetently done, 3= competently done). Then not done response and incompetently done response had been summated together to be as the following scores: Incompetently done <63 scores (≤75%), competently done 63-84 degree (>75%). its total scores 84 marks.
- Self-efficacy questionnaire consists 12 items of 3 points Likert scales distributed as (very uncertain=1, uncertain=2 and very certain=3). Total scores were 36 scores; uncertain equal ≤ 24 scores (≤75%) and certain equal from 24-36 scores (>75%).
- Women awareness questionnaire contained main five topics related to woman health services, coded as 0= don't know (when the woman signed don't know and 1= know (when the woman signed at least two given correct answer) for each questions.

2.6. Validity and Reliability of tools

Content validity of the tool with peer review was developed by a committee of experts; composed of three academic professors with experience in family and community health nursing, maternity and new-born nursing care, to make certain relevance and comprehensiveness and the required modification was carried out accordingly. Self-efficacy was confirmed as evidence for content validity and indicated unify-dimension with highly linked items [30].

Reliability was applied for testing the internal consistency of the tools by use Test-retest maneuver. It is the running of the same instruments to the same subjects under the same conditions on two or more occasions. Scores from frequent testing were compared using Cronbach's co-efficiency Alpha. This turned to be R= 0.82. The reliability of self-efficacy questionnaire was a cronbach's alpha of 0.95 and a Loevinger's H coefficient of 0.71 provided evidence of statistical reliability and scalability. The test-retest reliability using intra class correlation had a value of 0.71 when evaluated.

2.7. Pilot study:

A pilot study was done after constructing the tools, 10 % of the sample who were excluded from the total study sample. Based on the results of the pilot study; some modifications were done to ensure clearness and to be simply understood.

2.8. Ethical Considerations:

The proposal of the study was submitted to research ethics committee in the nursing colleague to be revised and evaluated. The current study fulfilled standards of ethics in research involving human subjects. Administrative procedure and written approval permission were taken to get permission for conducting the study at pre-mentioned centers. Active informed consents prior to study enrolment were taken from the study sample. Existing study was run with vigilant attention to moral principles.

2.9. Methods

The study was conducted on three main phases:

Phase I: assessment phase: The data was collected from 6 PHCs as mentioned above. The study was conducted through 6 months; from October 2018 to end of March 2019. The studied samples were interviewed at their places of work. At each place; all subjects who have fulfilled the inclusion criteria were included in the research. The tools were read carefully by the participants. Pre test toke about 30 minutes using the tools of data collection. Women awareness about health services provided by the FCHWs was assessed.

Phase 2: Implementation phase: Intervention program was applied to participants developed by the researchers based on reviewing of pertinent literature and findings related similar researches. FCHWs were attended for 45 minutes educational classes. Multi groups sessions weekly for eight weeks. Every session was included; power point presentation, followed by 15-minutes group discussion about the issues arises during the educational session. The course was delivered in an interactive style. Handouts about the main topic of the study

were offered. Intervention program sessions were included: (definition of ideal health education, objectives of health education, importance of health education, components of health education, levels of health education, characteristics of good health educator, stages of behavior change, methods of health education), and recommended skills of good communication, self-efficacy items were manipulated and interpreted for the participants in order to realize that how can high self-efficacy shape competent performance of health education.

Phase 3: Evaluation phase: post test was taken after finishing intervention program for the FCHWs to identify its effect on target sample also evaluate the similarities, differences and areas of enhancement as well as deficiency. This was done through pre and post administration of the questionnaires on three occasions (pretest, immediate posttest and retention test). Self-efficacy questionnaire and observation checklist of health education had been evaluated (pre and posttest). Immediate posttest had been obtained directly after educational program for assessing FHWs knowledge about HE; while the follow up test obtained after 2 months from the application of the nursing program. Furthermore, women awareness about health services provided by the FCHWs was assessed immediately after every topic explanation on different times.

2.10. Statistical data analysis:

Data was entered and analyzed using Statistical Package for Social Science statistical package version 22(SPSS) program. Graphics were done using Excel program. Quantitative data were expressed as mean & standard deviation ($\chi \pm SD$) and analyzed by applying paired t-test for comparison of the same group on pre and post test and ANOVA test for comparison of the same group on pre, immediate posttest and retention test. Qualitative data were articulated as number (No.) and percent %. It was analyzed by using chi-square test ($\chi 2$) for 2X2 tables. Pearson correlation was used for explaining relationship between normally distributed quantitative variable. All data was considered statistically significant at P value <.05.

II. Results

Table 1: illustrates that, mean age of studied FCHWs is 36.26 ± 4.2. Regarding to experience per years; mean of years are 13.27 ± 3.3. Concerning to qualification of studied FCHWs the main qualification (93.75%) is diploma education; the majority of studied FCHWs (96.2%) is married. As regards to number of work hours per day, the majority of studied FCHWs (93.75%) working about 6-8 hours per day, more than half of studied FCHWs (57.5%) working at rural health unit. Related to previous health education training; about (61.25%) of FCHWs had received training before. Finally, 55% of FCHWs have shortage of time which causing barriers for conducting effective health education.

Table 2: interpreted that, the mean age of studied women is 24.26 ± 5.19. On the subject of educational level of the studied women, more than half (60 %) have secondary and high education. Regarding to marital status, 57% of studied women are married. Regarding to women's job, 73.3% are house wife. Concerning to the income, about 59% of studied women have enough income. Regarding to number of children, about 57% have 3-4 children. Finally, about 70% of studied women verbalized that PHC center was the main source of information about different services.

Table 3: illustrates that, there are high statistical significant differences between pretest and posttest 1 regarding to all knowledge items among studied FCHWs. On the other hand, there are no statistical significant differences between pretest and posttest 2 except at the points of; components of health education, levels of health education and stages of behavior change. As shown in the table there was highly statistical significant differences among mean scores of total knowledge about health education at pre, posttest 1 and posttest 2 among studied FCHWs.

Figure 1: shows that, good level of total knowledge about health education was 36.90 % at pretest, improved to 83.80 % at posttest 1 and return to 71.90 % at posttest 2.

Figure 2: shows observable improvement in HE performance in posttest (38.1%) when it compared with pretest (26.2%).

Table 4: illustrates that, there are statistical significant differences between pretest and posttest regarding to total of appropriate communication, total health education conduction and total score of performance.

Table 5: illustrates a high statistical significance difference between pretest and posttest regarding to self-efficacy items among the studied female health workers. Additionally, there is high statistical significant difference between pretest and posttest regarding to mean scores of self-efficacy among studied FCHWs.

Table 6: shows that, there are no statistical significance differences between FCHWs total score of knowledge (pretest, post test1, post test 2) and total performance of health education (pretest and posttest). In addition to, there are no statistical significance differences between FCHWs total score of knowledge (pretest, post test1) and total score of self- efficacy while, there is statistical significant difference between total knowledge score at post test 2 and self efficacy (posttest) at p value .05 levels.

Table 7: shows that there is a highly statistically significant difference regarding to the women' awareness about different selected services provided by female community health workers; after intervention when it compared to before intervention.

Table (1): Sociodemographic Characteristics of studied female community health workers (FCHWs)

Sociodemographic characteristics	No. (n=160)	%
Age		
≤30 Yrs	22	13.8
>30 Yrs	138	86.2
Mean ± SD	36.26 ± 4.2	
Years of experience		
≤15 Yrs	112	70.0
> 15 Yrs	48	30.0
Mean ± SD	13.27 ± 3.3	
Qualification		
Diploma education	150	93.75
Technical institute	5	3.125
University education	5	3.125
Marital status		
Single	2	1.2
Married	154	96.2
Divorced	2	1.2
Widow	2	1.2
Number of work hours		
6-8 hours	150	93.75
More than 8 hours	10	6.26
Place of work		
Rural h. unit	92	57.5
MCH	68	42.5
Previous health education training		
Yes	98	61.25
No	62	38.75
Barriers for conducting effective health education:		
Shortage of time	88	55.0
Stresses of work	22	13.75
High attendance rate	13	8.125
Shortage in number of FHLs	20	12.5
Unsuitable environment for health education	17	10.625

Table (2): Sociodemographic characteristics of studied women attended PHCs:

Sociodemographic characteristics	No. (n=150)	%
Women's age		
Mean ± SD	24.26 ± 5.19	
Educational level		
Illiterate	15	15
Primary and preparatory education	25	25
Secondary and high education	60	60
Marital status		
Single	5	5
Married	87	87
Divorced	5	5
Widowed	3	3
Women's job		
House wife	83	83
Working	17	17
Income		
Enough	59	59
Not enough	41	41
Number of children		
Not have	5	5
1-	9	9
2-	29	29
3-4	57	57
Source of information		
PHC center	70	70
Special clinic	18	18
others	12	12
Total	100	100 %

Table (3): Effect of intervention program on FCHWs' knowledge regarding health education at pre-immediate posttest and follow up test

Knowledge items	Pre-test (n= 160)		Immediate posttest (n=160)		follow up test (n=160)		χ21 P- Value 1	$\chi^2$2 P- Value 2
	Incomplete	Complete	Incomplete	Complete	Incomplete	Complete		
	No %	No %	No %	No %	No %	No %		
1. Definition of HE	102 63.8%	58 36.2%	65 40.6%	95 59.4%	70 43.8%	90 56.2%	12.10 (HS) .001	.320 > 0.05
2. Objectives of HE	102 63.8%	58 36.2%	48 30.0%	112 70.0%	60 37.5%	100 62.5%	15.64 (HS) <.001	2.013 > 0.05
3. Importance of HE	108 67.5%	52 32.5%	45 28.1%	115 71.9%	56 35.0%	104 65.0%	22.51 (HS) <.001	1.75 > 0.05
4. Components of health education	94 58.8%	66 41.2%	58 36.2%	102 63.8%	74 46.2%	86 53.8%	8.12 (S) .004	3.98 (S) .044
5. Levels of HE	110 68.8%	50 31.2%	40 25.0%	120 75.0%	55 34.4%	105 65.6%	30.74 (HS) <.001	4.38 (S) .036
6. Characteristics of good female health educator	114 71.2%	46 28.8%	38 23.8%	122 76.2%	51 31.9%	109 68.1%	32.42 (HS) <.001	2.630 > 0.05
7. Stages of behavior change	104 65.0%	56 35.0%	47 29.4%	113 70.6%	64 40.0%	96 60.0%	15.62 (HS) <.001	3.986 (S) .046
8. Methods of HE	96 60.0%	64 40.0%	42 26.2%	118 73.8%	46 28.8%	114 71.2%	20.05 (HS) <.001	.251 > 0.05
9. Recommended skills of good communication	122 76.2%	38 23.8%	32 20.0%	128 80.0%	41 25.6%	119 74.4%	46.23 (HS) <.001	1.438 > 0.05
Total knowledge score about health education.	***Mean* ± *SD:*** 12.10 ±3.1		***Mean* ± *SD:*** 15.42 ± 2.0		***Mean* ± *SD:*** 14.78 ±2.8		***t- test*** 84.317 (HS)	<.001

NB: ns= not significant (p>0.05) *(S) = (p<0.05)* *(HS) = (p<0.001)*

Figure (1): Effect of intervention program on FCHWs Levels of total knowledge regarding health education at pretest-posttest (immediate and follow up)

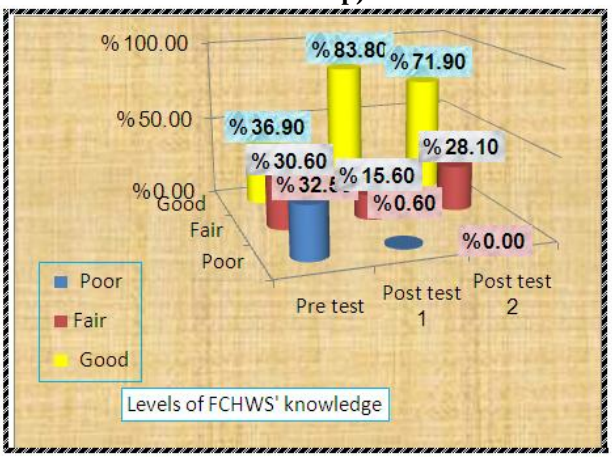

Figure (2): Effect of intervention program on FCHWs levels of total performance of health education skills at pre-posttest.

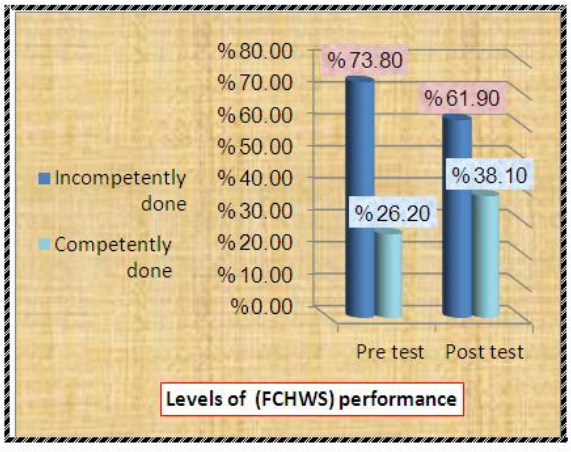

Table (4): Effect of intervention program on mean total scores of FCHWs performance of health education at pre and posttest

Health education items	Mean total scores of performance (n=160)		t- test	p-value
	Pretest Mean ± SD	**Posttest** Mean ± SD		
Total of appropriate communication	19.82±1.5	20.23±1.4	-2.426-	.016*
Total health education conduction	36.70± 7.5	39.78 ±6.9	-2.465-	.014*
Total score of performance	56.52 ±7.2	60.01 ± 7.2	-2.668-	.008*

Table (5): Effect of intervention program on self-efficacy of FCHWs about health education at pre post test

Self-efficacy items	Pre-test (n= 160)			Post-test 1 (n=160)			χ^2	P-Value
	Very uncertain	Uncertain	Very certain	Very uncertain	Uncertain	Very certain		
	No %	No %	No %	No %	No %	No %		
1. Identify the issues the women wishes to address during the dialogue.	38 23.8%	78 48.8%	44 27.5%	29 18.1%	56 35.0%	75 46.9%	12.89	.002*
2. Make a plan for the dialogue with the women.	62 38.8%	68 42.5%	30 18.8%	28 17.5%	8452.5%	48 30.0%	18.68	< .001*
3. Support the patient to expand on her problems/worries.	73 45.6%	68 42.5%	19 11.9%	30 18.8%	66 41.2%	64 40.0%	42.37	< .001*
4. Listen attentively without interrupting or changing of hub.	67 41.9%	66 41.2%	27 16.9%	22 13.8%	70 43.8%	68 42.5%	40.56	< .001*
5. Encourage the women to convey thoughts and feelings.	65 40.6%	66 41.2%	29 18.1%	33 20.6%	68 42.5%	59 36.9%	20.70	< .001*
6. Structure the dialogue with the women	60 37.5%	69 43.1%	31 19.4%	23 14.4%	52 32.5%	85 53.1%	44.02	< .001*
7. Demonstrate suitable non-verbal behavior (eye contact, facial expression, placement, posture, and voicing).	58 36.2%	70 43.8%	32 20.0%	14 8.8%	44 27.5%	102 63.8%	69.38	< .001*
8. Show empathy (accept the women's views and feelings).	54 33.8%	67 41.9%	39 24.4%	19 11.9%	37 23.1%	104 65.0%	54.98	< .001*
9. Clarify what the women know in order to communicate the accurate information.	55 34.4%	67 41.9%	38 23.8%	18 11.2%	40 25.0%	102 63.8%	54.82	< .001*
10. Check women understands of the information provided.	56 35.0%	62 38.8%	42 26.2%	14 8.8%	6842.5%	78 48.8%	36.27	< .001*
11. Make a plan based on shared decisions between you and the women.	57 35.6%	65 40.6%	38 23.8%	21 13.1%	57 35.6%	82 51.2%	33.27	< .001*
12. Close the dialogue by emphasizing the client's questions have been answered.	65 40.6%	59 36.9%	36 22.5%	30 18.8%	56 35.0%	74 46.2%	26.10	< .001*
Mean scores of total self-efficacy	***Mean ± SD:*** 22.09 ± 5.8			***Mean ± SD:*** 28.12 ±5.4			**Wilcoxon Test** -9.596-(HS)	<0.001 *

Table (6): Pearson Correlation among FCHWs' total scores of knowledge, performance and self- efficacy
**Correlation is significant at the 0.05 level (2-tailed).*

Items	Total knowledge score at pre, post 1 and post 2					
	Pre		Post 1		Post 2	
	R	P value	R	P value	R	P value
Total score of performance	-.034-	.673	.103	.196	-.001-	.986
Total score of self- efficacy	.059	.455	-.099-	.212	- .157	.047*

Table (7): Effect of health education provided by FCHWs in PHCs on women awareness about selected health services items before and after program intervention:

Selected woman health services	Total mean score of women awareness about health services Mean ± SD (n= 100)		T test	P value
	Before	After		
1. Female genital mutilation (definition, causes, who are responsible to performs it and short and long term complications).	1.64 ±.77	3.06±.89	-11.679-	.000
2. Cancer breast screening measures (risk factors, signs and symptoms, early detection methods and breast self exam performance).	1.66 ± 1.047	3.10 ± .94	-10.016-	.000
3. Food safety practices (definition of food safety, food born illness and WHO recommendation for keeping food safe (keep clean, keep food in safe temperature, separate raw meat and fresh food, use safe utensils)	2.13 ± 1.060	4.15 ± 1.37	-11.723-	.000
4. Antenatal care services (definition, objectives, component and suitable health education for pregnant women)	2.37 ± .84	3.41 ± .71	-10.92-	.000
5. Family planning (FP) services (definition, objectives, types of FP methods, advantages and disadvantages of each method, follow up return visits)	3.32 ± 1.25	4.42 ± 1.49	-6.19-	.000

III. Discussion

Female community health workers act an important role in promoting health, preventing disease and changing the individuals' behaviors with respect to their health. Their role as promoters of health is more complex, since they have multi-disciplinary knowledge, experience, their nursing practice and self-efficacy [31].

The current study showed that the mean age of studied FCHWs were 36.26±4.2 , their work experience years were 13.27±3.3 and more than ninety percent of them were married, have diploma education and working 6 to 8 hours per day in rural health centers. This study was incongruent with [32] who studied "Enhancing of Female Rural Leaders' Awareness about First Aid Activities Using Capacity Development Approach" they were demonstrated that: the mean age were 34.55 years. Most of them were married, near half of the studied subject had basic education. On the other face [33] demonstrated that; more than half of the samples were at age group30 to 40, with the mean age 39.1 ± 6.5 years. Most of them (90.2%) were married and having middle education. The majority (86.6%) of them was from rural area and 78% have more than 10 years of experience as rural pioneers. Regarding to previous health education training; near two thirds of studied FCHWs had attended HE training before. More than half of the sample reported the barrier for conducting effective health education was lack and shortage of time followed by work stress. In contrast of this finding [34] who studied improving health education skills for nurses working in MCH centers in Egypt to enhance women awareness regarding family planning; found that unsuitable place for health education followed by work stress and lack of time are barriers to effective heath education. Additionally [35] stated that the world is confronting a noteworthy deficiency and shortage in trained health workers who provide health education. From other face; [36] stated that; there is a shortage of nurse leaders together with this shortage of nurses. It's imperative for a healthy society to cultivate new nursing leaders. A technique to make sure quality health look after the longer term is to accumulate data to become a good nurse leader.

Furthermore, [37] reported in a systematic review which included 140 studies that; multiple intervention design as types of supervision, incentives, training, accountability and communication structures, logistics and supplies, influence the performance of female community health workers.

Great improvement in the level of knowledge of FCHWs was incontestable in this study and a highly significant difference was observed between the mean of pre-test and the two post-tests. Additional the current study showed that more than three fourths of the sample had a good knowledge. In congruence with this study the finding of studies carried out by [34, 32, 34] who found improvement of knowledge of the studied subjects in posttest compared with posttest. Also; [38] its study showed that the mean scores of knowledge different significantly before and after intervention, the respondent showed high score in posttest than pretest in the intervention group than control group. Furthermore, [39] reported that, to provide better care to the community in the future, the clinical exposure at the primary care clinics should be promoted for allied health staff.

Furthermore, the finding of the current study was consistent with the study carried out by [40] who studied "The training and fieldwork experiences of community health workers conducting population-based, noninvasive screening for CVD in LMIC" and [41] who studied "Diabetes prevention education program for community health care workers in Thailand". They stated that: in spite of the base line knowledge scores of the trained FCHWs, most of the post-training knowledge scores ranged between 70% and 80%. The two studies that calculated knowledge at 6–8 months post-training showed that the majority of FCHWs had a small decline in their scores, demonstrating their retention of knowledge to confident degree over a period of 6–8 months.

Regarding to the performance of FCHWs; the present study showed detectable improvement in the performance in the post than pretest and there was a highly statistical significant difference between pre and posttest. In the same line of this finding was [42] who studied "Impact of health education on lifestyles in central Saudi Arabia" reported that; enhancing the quality and scope of health education to patients visiting the primary health centers would improve the awareness and practice of healthy behaviors. Additionally [43, 44] found that: a review of FCHWs training for maternal and child health-related circumstances and mental health without retraining, acquired skills and knowledge are missed over time. Diverse time intervals of updated training were found to be effective to maintain the capability and performance of FCHWs.

Self-efficacy of female health workers is an important determinant for their motivation and intention to pursue a leadership career [45]. In the current study; the Likert scale of three levels was used to detect the self-efficacy of female health leaders which demonstrated a highly significant difference as the certain score was 81.9% in the post test. This finding supported by study of [46] which demonstrated that; awareness of self-efficacy help health professionals to identify patients who are in need of enhanced self-management support. Additionally [23, 47, 48] have been indicated that educators' self-efficacy acting a significant role in the practice of their educational and training duties. Furthermore, the current study was consistent with the study conducted by [49] self-efficacy stems from personal features, but the amount of understanding and social interactions in relation to work impacts the professional self-efficacy of individuals. In addition, respondents stated factors such as the use of unsuitable educational techniques, casting distrust on healthcare personnel's science and technical skills, thus influencing their self-efficacy.

The current study showed great improvement in women's awareness regarding female genital mutilation, breast screening interventions, food safety procedures, antenatal care and family planning counseling as women's health services offered in PHCs and MCH centers in post-intervention when compared to prior intervention. In the same line of this study was the study carried out by [50] who demonstrated that improved training of community health workers can improve quantity and quality of women interactions with health care providers and leading to improvements in women' awareness and knowledge regarding different practices and procedures. Furthermore, [51] reported that, nursing programs empower women health employees by offering them with access to advantaged medical knowledge, connecting FCHWs to the official health care system and offering them with the chance to do useful and effective job.

IV. Conclusion:

The current study concluded that:

- Nursing intervention program significantly improves knowledge, skills and self-efficacy of FCHWs about health education.
- Women's health services have been directly impacted and enhanced by improving FCHW's knowledge, health education abilities and self-efficacy
- Female genital mutilation, breast screening interventions, food safety procedures, antenatal care services and family planning counseling have shown enhancement in women's health services offered in PHCCs in post-intervention compared to prior intervention.

Recommendations:

The current study recommended that:

- Highlighting women's health services and empowerment for improving the quality of care given to women in rural areas in all primary health centers including maternal and child health centers**.**
- Comprehensive and extensive programs for promoting FCHWs capabilities should be applied as they are a part of health care system and community building capacity.
- Manipulate barriers of conducting health education properly at any health care settings.
- Further studies should be provided to replicate the study at different settings using larger samples.
- Use the findings of this study to be a basis for improving woman health services.

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