Women's General Knowledge Regarding Abortion: Impact of Counseling Based on PLISSIT Model

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ABSTRACT

Background: Pregnancy loss and abortion are psychologically impactful events leading to pain, hospitalization, social limitations, and lifestyle changes. Societal responses to abortion are influenced by religious, cultural, and psychosocial factors, and a woman's comprehension of abortion affects her access to safe reproductive health services. Post-abortion care counseling, utilizing frameworks like PLISSIT, assists women in making informed decisions by addressing psychological, emotional, and social complications, thereby enhancing their well-being and adaptation. **Aim:** The current study was conducted to evaluate women's general knowledge regarding abortion after implementation counseling based on PLISSIT model. **Subjects and Methods:** *Design*: A quasi-experimental (pre- and post-test) research design was used. *Subjects & Settings***:** A convenient sample of 92 women who had abortions affiliated obstetrics & gynecology unit at Beni-Suef University Hospital. *Tools***:** (1) structured interview questionnaire. (2) women's knowledge regarding abortion and management. (3) post-abortion counseling based on the PLISSIT model. **Results**: the mean age 28.13±5.824 years, 87% were married and 42.4% had intermediate education. Results proved satisfactory answers were among women's aged 20-30 years. It revealed that 7.6% of the studied women pre-counseling improved to 54.3% satisfactory answer post implementation of counseling sessions. Moreover, 7.6% of studied women who married had satisfactory answer knowledge before the counseling which improved into 69.5% satisfactory answer post implementation of counseling sessions. **Conclusion:** Based on the results of the current study, it was observed that there was no There was no statistically significant relation between the studied women' total knowledge level and their age, marital status, and educational level. However, post counselling; satisfactory answers were more proven among young, married women who had intermediate education. **Recommendations**: Implement an educational counseling program based on PLISSIT and provide model for nurses to improve their knowledge to improve women's knowledge, so, they will be able to counseling for women after that.

KEYWORDS: General Knowledge, Abortion, Counseling, PLISSIT Model

INTRODUCTION

The term "abortion" often carries emotional connotations for women and their families dealing with the loss of a pregnancy. Using the term "abortion" is even more challenging in countries where termination of pregnancy is illegal. Although the 10th version of the International Statistical Classification of Diseases (ICD) and related health problems still uses the term "abortion", it has been replaced in recent years by "miscarriage" to describe pregnancy loss before 20 or 24 weeks of gestation [1-2]**.**

Abortion represents a globally prevalent issue that elicits different reactions underpinned by religion, culture, and psychosocial factors. Women's knowledge and attitude toward abortion play a pivotal role in determining access to reproductive health services. Previous studies have reported that level of knowledge concerning abortion serves as a predictor for the likelihood of seeking a safe abortion procedure [3]**.**

The causes of miscarriage remain largely unknown, but several suggested causes are widely accepted. These include parental chromosomal abnormalities, antiphospholipid antibody syndrome, and acquired or congenital uterine abnormalities. Other suspected causes, though not proven, include environmental factors, autoimmune conditions, obesity, endocrinopathies, inflammation, advanced maternal age, and personal habits such as excessive smoking (paternal or maternal), high alcohol consumption, and high caffeine intake, all of which have been linked to an increased risk of miscarriage and recurrent miscarriage [4].

The most common risk factor for miscarriage is advanced maternal age, very low or high body-mass index (BMI), Black ethnicity, previous miscarriages, smoking, alcohol, stress, working night shifts, air pollution, and exposure to pesticides. Chronic diseases,

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such as obesity, diabetes, hyperprolactinemia, celiac disease, thyroid disease, and autoimmune conditions like antiphospholipid syndrome, can also predispose a pregnant woman to miscarriages [5-8].

Symptoms of miscarriage depend on the type or stage of loss. An asymptomatic pregnancy loss (e.g., missed abortion) may only be notable due to the regression of common pregnancy signs and symptoms (such as nausea or fatigue). Women with threatened, incomplete, or complete pregnancy losses commonly report pelvic cramping and vaginal bleeding symptoms [9].

Abortion can be classified according to a number of criteria, including the procedure, the timing of the pregnancy, and its legality. The primary groups according to timing are: early abortion, which is usually carried out up to 12 weeks into the first trimester of pregnancy. Abortion is most frequently performed during this period. Late-term abortion, conducted after 20 weeks of gestation, is frequently more complicated and might only be permitted in certain situations, such as when the mother's health is in jeopardy or when there are serious fetal abnormalities [10].

A maternity nurse is essential to the health care of women through Physical examinations, clinical treatment and symptoms, recording of previous abuse, injuries, or symptoms, screening, and referral to support or legal services are all possible components of nursery care. Through various roles as a counselor, educator, manager, care provider, and researcher, this may also involve counseling regarding abortion information [11-15].

Counseling aims to address and overcome issues causing emotional pain or discomfort. It provides a safe and regular space for women to talk and explore difficult emotions. The counselor is there to support and respect the woman's views, typically not offering advice but helping women find their own insights and understanding of the problems [16-20].

AIM OF THE STUDY

The current study was conducted to evaluate women's general knowledge regarding abortion after implementation counseling based on PLISSIT model.

RESEARCH HYPOTHESIS:

Women's general knowledge will be improved after counseling sessions based on the PLISSIT model.

I. TECHNICAL DESIGN:

Research design: A quasi-experimental (pre- and post-test) research design was used in this study.

Settings: The current study was conducted at the post-natal unit, which is affiliated with the department of obstetrics and gynecology at Beni-Suef University Hospital.

Subjects: A convenient sample of 92 women who had abortions in the previously mentioned setting

TOOLS OF DATA COLLECTION:

Tool I: A Structured Interview Questionnaire

This questionnaire was designed by the researcher based on reviewing related literature, and it was written in simple Arabic. It was concerned with demographic characteristics of the studied women after abortion, which included age, marital status, educational level.

Tool II: Women's knowledge regarding abortion and management

This tool was adapted from *Foster et al.* **(2016);** it was used to assess women's knowledge regarding abortion after being translated into Arabic by the researcher [21]. It consists of (35) questions and reflects general knowledge about abortion, such as the definition of abortion, the most common factors for the occurrence of abortion, and causes of abortion **(35 items with 35 point**s).

Scoring system: Total global score of 35 questions with 35 points, formed of multiple choice (incorrect = zero and correct = 1). These points were summed and converted into a percent score. It was classified into two categories according to the following:

Ø Unsatisfactory knowledge if total score < 60%, which means < 21 points.

Ø Satisfactory knowledge if the total score is ≥ 60%, which means ≥ 21 points.

Tool III: Post-Abortion Counseling Based on the PLISSIT Model

This program was developed by the researcher in the Arabic language after reviewing related literature reviewing and used for counseling the women post-abortion based on the PLISSIT model about abortion and lifestyle post-abortion [22-24]. It included abortion definition, signs & symptoms, causes, risk factors of abortion, types of abortion, complications, management of abortion, and lifestyle post-abortion.

TOOL VALIDITY AND RELIABILITY:

Face and content validity for the study tools were confirmed by five maternal and newborn health nursing experts from Beni-Suef University's faculty of nursing and obstetrics & gynecology. Following expert review for clarity, relevance, comprehensiveness,

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simplicity, and applicability, minor adjustments were made to finalize the forms. The reliability of the women's knowledge tool was established with a Cronbach's alpha coefficient of 0.815.

II. OPERATIONAL DESIGN:
The operational design includes a preparatory phase, supportive material, tools validity and reliability, a pilot study, and fieldwork.

A) Preparatory phase: The study involved a literature review to develop data collection tools and post-abortion counseling protocols aligned with the PLISSIT model program. Approval was secured from the Faculty of Nursing dean and communicated to the Beni-Suef University Hospital manager.

B) Supportive material (Arabic booklet)
A booklet has been developed to offer women comprehensive information and counseling regarding the post-abortion period, aiming to raise awareness, improve lifestyles, help overcome unhealthy habits, and provide tips for faster physical, psychological, and emotional recovery.

C) A pilot study: A pilot study was carried out on 10% of the sample size to test the applicability, clarity, and efficiency of the tools.

D) Fieldwork: Data collection included 4 phases as follows:
Phase I: Assessment (preparatory) phase:
The socio-demographic characteristics, were collected by the researcher through interviewing each woman individually pre-counsel the women. Each woman took about 10-20 minutes to fill out the questionnaire as baseline data.

Phase II: Planning phase:
The researcher planned and determined the suitable time for providing and explaining post-abortion counseling based on the PLISSIT model for each woman. Once the initial assessment was finished, the researcher planned the sessions and implemented the study according to the research's objectives.

Phase III: Implementation (Intervention) Phase:
The intervention involved individual, 45-minute to one-hour interactive sessions in the post-natal unit waiting area. The program aimed to educate women on abortion definition, causes, risk factors, signs, symptoms, and types. It also covered complications, prevention methods, dietary and lifestyle influences on abortion, accurate pregnancy lifestyle management, and abortion treatment. Furthermore, sessions addressed post-abortion lifestyle changes, natural uterine cleansing techniques, and provided clarification for women's post-abortion concerns.

THE SESSION WAS RUN BASED ON THE PLISSIT MODEL AS FOLLOWS:
Step (1) Permission (P):
The researcher initiated the study by welcoming each woman individually in a private, confidential setting within the post-natal unit. Verbal consent was obtained after a clear explanation of the study's purpose, benefits, and voluntary nature, with an emphasis that participation would not affect their care. To foster rapport, the researcher used open-ended questions like, "Would you like to share how you've been feeling after the abortion?" and actively listened without interruption or judgment. The discussion then progressed to open- and closed-ended questions regarding women's information about abortion, coping strategies, and lifestyle changes, covering the definition, common factors, causes, signs, symptoms, types, and complications of abortion.

Step (2) limited information (LI): -
The researcher delivered accurate information on abortion, covering its causes, complications, and post-abortion lifestyle practices. Misconceptions, such as abortion always preventing future pregnancies or physical exertion being a direct cause, were clarified. The session emphasized correcting unhealthy habits like alcohol consumption and smoking, assessing nutritional lifestyle, maintaining a healthy weight, and engaging in regular physical activity. Guidance was also provided on improving personal hygiene, fostering healthy social relationships, encouraging spiritual connection, and resuming sexual activity safely. Participants were encouraged to ask questions.

Step (3) specific suggestions (SS):
Advice for managing post-abortion conditions was individualized, focusing on nutritional support with an iron-rich diet, smoking cessation, stress management techniques (deep breathing, light physical activity), and addressing concerns about future pregnancies and sexual discomfort through open communication and normalization. The goal was to promote healthy lifestyle choices, including nutrition and exercise, with practical and tailored suggestions.

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Step (4) Intensive Therapy (IT):

The research's final step focused on women, referring those with severe emotional or psychological distress to specialized mental health services like psychologists or social workers, while respecting privacy. Participants received advice on smoking cessation, natural post-abortion uterine care, adequate sleep, social support, healthy habits, using vaginal lubricant, and employing vibrators for sexual enhancement. No referrals to sex therapists, social workers, or medical/psychological specialists were indicated. This phase, lasting 4 months, involved using PLISSIT model-based counseling booklets with visual aids, a laptop, and videos.

Phase IV: Evaluation phase:

A researcher evaluated the effects of post-abortion counseling, utilizing the PLISSIT model, on women's lifestyles. The assessment occurred four months post-intervention, employing the same measurement tools as the initial evaluation, with the process repeating a one-month programmed format.

ETHICAL CONSIDERATIONS AND ADMINISTRATIVE DESIGN:

Research approval was obtained from the Faculty of Medicine, Beni-Suef Scientific Ethical Committee (Approval number: FMBSUREC/03102023). Participants were informed of the study's objectives, assured of anonymity and confidentiality, and informed of their right to withdraw. Official permission was secured through letters from the dean of the faculty of nursing, Beni-Suef University, to the manager of Beni-Suef University Hospital, outlining the study's details and expected outcomes.

III. STATISTICAL DESIGN

Data were summarized using descriptive statistics (means, standard deviations for quantitative data; percentages for qualitative data), with SPSS version 26 used for analysis. Significance was determined by the chi-square test (qualitative) and student's t-test (quantitative), with $P < 0.05$ indicating significance ($P < 0.001$ for high significance). Pearson correlation was used for correlation analysis.

RESULTS

Table (1) shows that, two-thirds (66.3%) of the studied women their age group was 20- 30 years with mean age 28.13±5.824 years, most (87%) of the studied women were married, and less than half (42.4%) of the studied women had intermediate education

Table (2) shows that, around one-half (48.9%) of the studied women had correct knowledge regarding the appropriate intervention when signs of abortion occur pretest which improved posttest to (70.7%). Moreover, more than one-half (52.2%) of the studied women had correct knowledge regarding the psychological state affect a woman after an abortion pretest which improved posttest to (65.2%). Additionally, more than one-half (54.3%) of the studied women had correct knowledge regarding reduce post-abortion problems by following the doctor's advice and guidance which improved posttest to (68.5%). There was a statistically significant improvement among the studied women regarding all item of general knowledge about abortion posttest at (p value ≤0.05).

Figure (1): illustrates that, minority (13%) of the studied women had satisfactory general knowledge level regarding abortion during pretest which improved to 79.30% of them during posttest. There was a statistically significant improvement among the studied women regarding general knowledge about abortion posttest at (p value ≤0.01).

Figure (2) summarizes the relation between women's age and their knowledge post abortion during pre and post counseling. There was no statistically significant relation between the studied women' total knowledge level and their age. However, the results proved that satisfactory answers were among women's aged 20-30 years'. It revealed that 7.6% of the studied women pre-counseling improved to 54.3% satisfactory answer post implementation of counseling sessions.

Figure (3) illustrates the relation between women's marital status and their knowledge post abortion during pre and post counseling. There was no statistically significant relation between the studied women' total knowledge level and their marital status. However, it proves that 7.6% of studied women who married had satisfactory answer knowledge before the counseling which improved into 69.5% satisfactory answer post implementation of counseling sessions.

Figure (4) portrays the relation between women's educational level and their knowledge post abortion during pre and post counseling. There was no statistically significant relation between the studied women' total knowledge level and their educational level. However, it proves that 39.1% of studied women who had intermediate education had unsatisfactory answer knowledge before the counseling which improved to 8.7% unsatisfactory answer post implementation of counseling sessions.

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Table (1): Percentage distribution of the studied women regarding to their socio-demographic characteristics

Items	No.	%
Age		
< 20 years	6	6.6
20-30 years	61	66.3
31-40 years	21	22.8
≥ 40 years	4	4.3
Mean±SD	28.13±5.824	
Marital Status		
Married	80	87.0
Divorced	9	9.7
Widowed	3	3.3
Educational level		
Illiterate	16	17.4
Read & write	29	31.5
Intermediate	39	42.4
University	5	5.4
Postgraduate	3	3.3

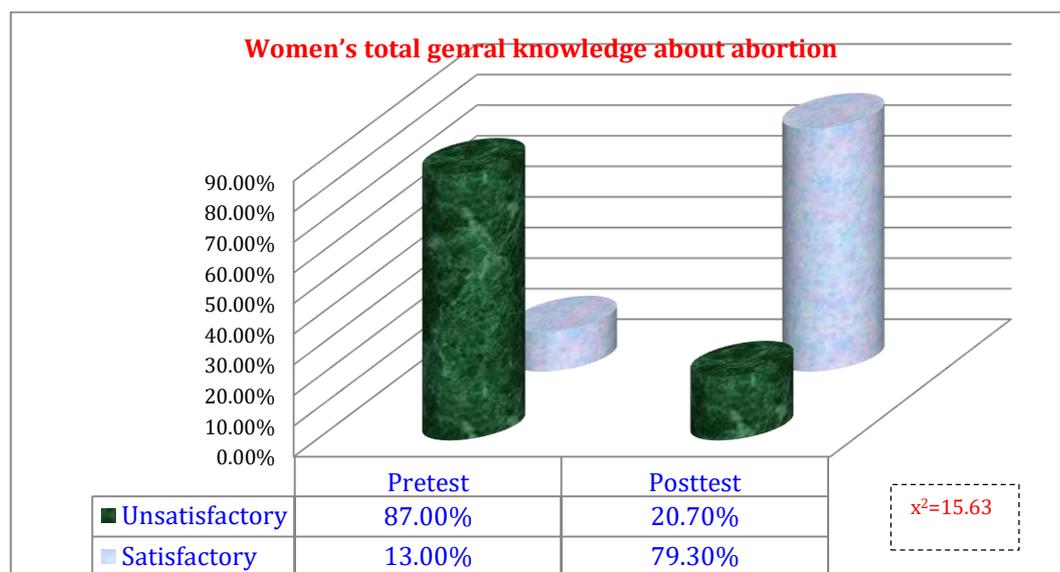**Table (2): Percentage distribution of the studied women regarding to their general knowledge about abortion**

General knowledge about abortion	Pretest				Posttest				X^2	p value
	Correct		Incorrect		Correct		Incorrect			
	No.	%	No.	%	No.	%	No.	%		
Definition of abortion	41	44.6	51	55.4	57	62.0	35	38.0	4.252	0.039*
The most common factors for occurrence of abortion	43	46.7	49	53.3	52	56.5	40	43.5	6.852	0.009**
Causes of abortion	39	42.4	53	57.6	60	65.2	32	34.8	3.859	0.049*
Foods that prevent/reduce risk of abortion	33	35.9	59	64.1	63	68.5	29	31.5	6.773	0.009**
Signs and symptoms of abortion	40	43.5	52	56.5	67	72.8	25	27.2	7.501	0.001**
Types of abortion	26	28.3	66	71.7	61	66.3	31	33.7	8.140	0.004**
Complications of abortion	37	40.2	55	59.8	69	75.0	23	25.0	6.783	0.009**
Appropriate intervention when signs of abortion occur	45	48.9	47	51.1	65	70.7	27	29.3	4.206	0.040*
Way to find the reason behind the abortion to avoid	31	33.7	61	66.3	62	67.4	30	32.6	7.908	0.005**
How to avoid abortion	44	47.8	48	52.2	68	73.9	24	26.1	7.994	0.005**
Previous medical history is the most common factors for abortion	37	40.2	55	59.8	65	70.7	27	29.3	7.849	0.005**
Maintaining a healthy weight before pregnancy does not affect abortion process	39	42.4	53	57.6	56	60.9	36	39.1	8.087	0.003**
Regular exercise leads to abortion	35	38.0	57	62.0	59	64.1	33	35.9	6.434	0.010**
Viral diseases such as measles & herpes don't affect occurrence of abortion	36	39.1	56	60.9	55	59.8	37	40.2	10.740	0.001**
Abortion in the hospital reduces the incidence of complications	45	48.9	47	51.1	63	68.5	29	31.5	6.036	0.014*
Signs/symptoms of abortion is sudden bleeding from the vagina	42	45.7	50	54.3	66	71.7	26	28.3	7.155	0.007**
Fever isn't a complication of abortion	40	43.5	52	56.5	58	63.0	34	37.0	9.195	0.002**
complications of abortion are severe sadness & sense of guilt	33	35.9	59	64.1	67	72.8	25	27.2	7.775	0.005**
Feeling of complete weakness in body isn't a sign of abortion	44	47.8	48	52.2	61	66.3	31	33.7	8.371	0.004**
Daily vitamin intake is crucial for preventing abortion by providing adequate nutrients to both mother & fetus	38	41.3	54	58.7	64	69.6	28	30.4	10.492	0.001**

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General knowledge about abortion	Pretest				Posttest				X^2	p value
	Correct		Incorrect		Correct		Incorrect			
	No.	%	No.	%	No.	%	No.	%		
Women can practice normal life immediately after abortion	43	46.7	49	53.3	62	67.4	30	32.6	5.168	0.023*
Woman's psychological state affected after abortion	48	52.2	44	47.8	60	65.2	32	34.8	7.511	0.006**
Husband has an effect on improving the woman's mood after abortion	50	54.3	42	45.7	61	66.3	31	33.7	10.005	0.002**
A woman's body will change after an abortion	35	38.0	57	62.0	75	81.5	17	18.5	4.284	0.038*
Walking improves the chances of pregnancy after an abortion	43	46.7	49	53.3	63	68.5	29	31.5	5.272	0.022*
Healthy foods necessary after abortion	47	51.1	45	48.9	60	65.2	32	34.8	7.233	0.007**
Certain foods that should be avoided after abortion	41	44.6	51	55.4	62	67.4	30	32.6	8.073	0.004**
Abortion affects general life and daily life style	38	41.3	54	58.7	65	70.7	27	29.3	4.985	0.026*
Abortion by traditional methods at home relieve pain	40	43.5	52	56.5	70	76.1	22	23.9	11.957	0.000**
Getting enough rest helps to clean uterus after abortion	32	34.8	60	65.2	59	64.1	33	35.9	8.411	0.004**
Drinking too much water and fluids help to clean the uterus after abortion	37	40.2	55	59.8	61	66.3	31	33.7	4.972	0.026*
Psychological support is helpful after abortion	44	47.8	48	52.2	55	59.8	37	40.2	10.697	0.001**
Go to the doctor to make sure that the uterus is clean after abortion is important	37	40.2	55	59.8	58	63.0	34	37.0	5.652	0.017*
Reduce post-abortion problems by following the doctor's advice and guidance	50	54.3	42	45.7	63	68.5	29	31.5	9.390	0.003**
Life style change in the post-abortion period help to recover from of any problems	34	37.0	58	63.0	65	70.7	27	29.3	10.959	0.001**

* Statistically significant at p≤0.05   ** High statistical significant at p≤0.01

	Pretest	Posttest
Unsatisfactory	87.00%	20.70%
Satisfactory	13.00%	79.30%

$x^2=15.63$

Statistically significant at p≤0.05   ** *High statistically significant at p≤0.01*

Figure (1): Percentage distribution of the studied women regarding to their total general knowledge about abortion

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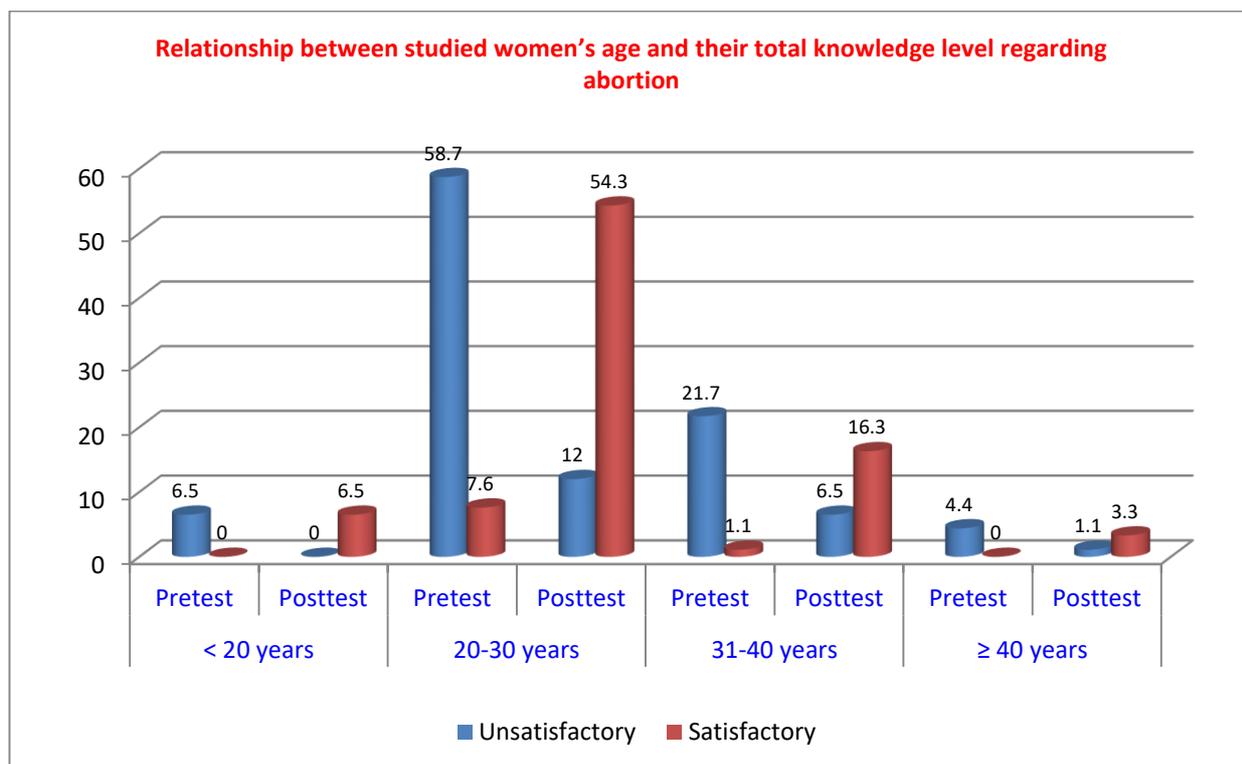

Figure (2): Relationship between studied women's age and their total knowledge level regarding abortion
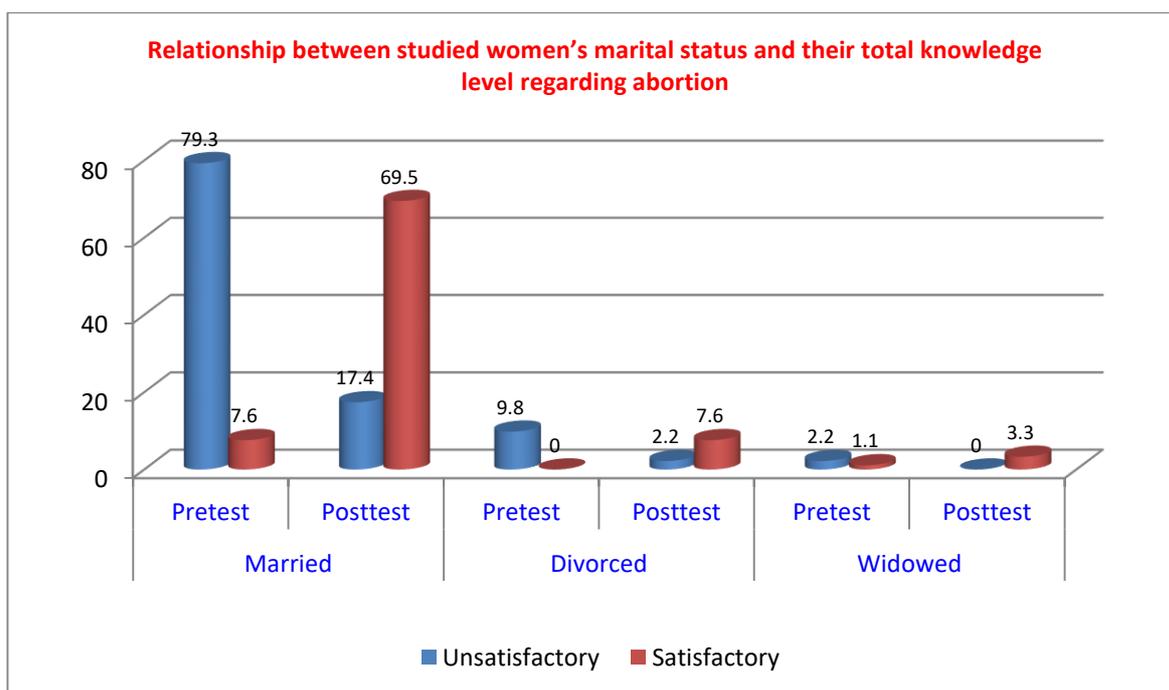

Figure (3): Relationship between studied women's marital status and their total knowledge level regarding abortion

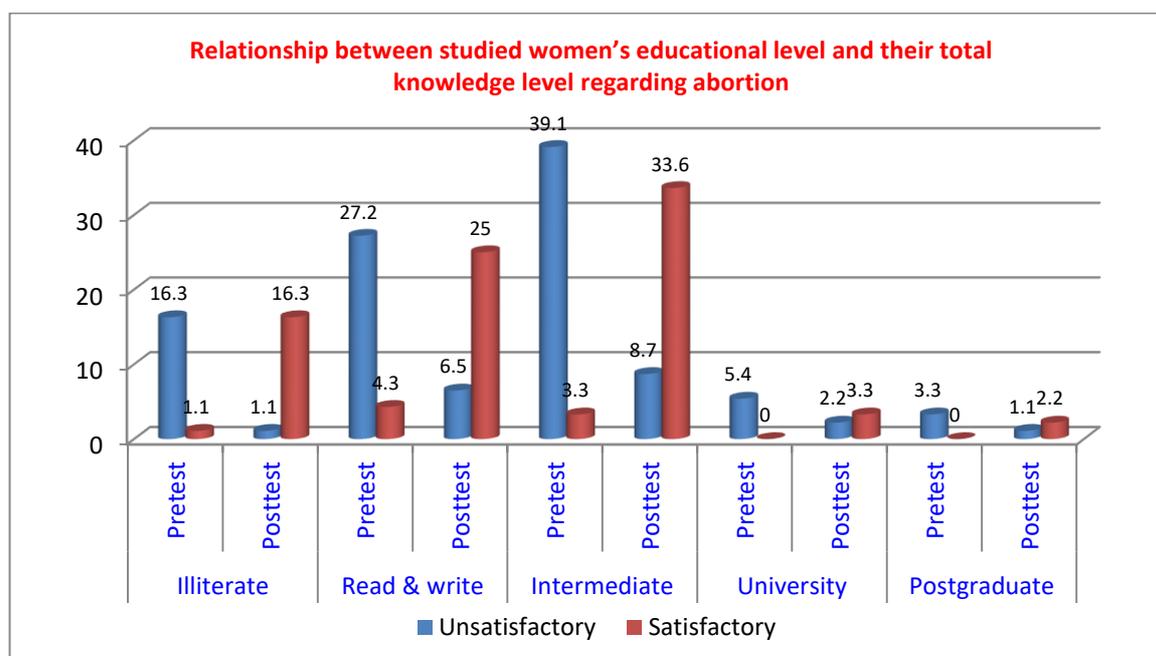**Women's General Knowledge Regarding Abortion: Impact of Counseling Based on PLISSIT Model**

Relationship between studied women's educational level and their total knowledge level regarding abortion

Figure (4): Relationship between studied women's educational level and their total knowledge level regarding abortion

DISCUSSION

Pregnancy loss is typically experienced as a traumatic, critical event, which may lead to secondary psychological health disorders. This burden involves both the experience of loss and related medical issues, which are associated with pain, hospitalization, limitation in one's social roles, decreased sense of security, and changes in women's life style [25].

The current study was conducted to evaluate women's general knowledge regarding abortion after implementation counseling based on PLISSIT model. Concerning the sub-items of general knowledge about abortion, the current study revealed that around half of the studied women had correct knowledge regarding the appropriate intervention for signs of abortion before counseling, which improved to about three-quarters after the counseling session. Additionally, more than half of the studied women had correct knowledge regarding the psychological effects on a woman after an abortion before counseling, which improved to more than two-thirds after counseling.

Additionally, more than half of the studied women had correct knowledge regarding the reduction of post-abortion problems by following the doctor's advice and guidance, which improved to more than two-thirds after the implementation of counseling sessions. There was a statistically significant improvement among the studied women in all items of general knowledge about abortion following the counseling sessions. This finding is in accordance with Ibrahim et al. (2020), who found that less than half of the studied women had correct knowledge regarding the management of abortion [26]. Similarly, Turner et al. (2018), in their study entitled "Values Clarification Workshops to Improve Abortion Knowledge, Attitudes, and Intentions", reported a statistically significant improvement among the studied women regarding abortion [27].

Conversely, this study's finding disagrees with Vongxay et al. (2020), who conducted a study entitled "Knowledge of and Attitudes Towards Abortion Among Adolescents in Lao PDR", and revealed that more than half of the participants had incorrect knowledge regarding the negative effects of abortion on women [28]. This discrepancy may be due to the effectiveness of the health educational program, which was carried out using different materials and resources that helped women improve their knowledge.

A study found that women's knowledge about abortion significantly improved after counseling sessions. Initially, less than 10% of participants had satisfactory knowledge, but this rose to over 75% post-counseling. This improvement aligns with research by Turner et al. (2018) and Ngo et al. (2023), who also observed significant knowledge gains after educational interventions on abortion [27, 29] . The study suggests that the group setting and the PLISSIT model contributed to this positive impact by enhancing participant attention and motivation.

Maternity nurses significantly contribute to enhancing antenatal and postnatal care through education and support for pregnant and postpartum women. They offer health promotion and psychosocial services, which include health education and counseling [30-37]. Following the implementation of counselling sessions, aborted women exhibited improved knowledge regarding abortion, attributed to various teaching methods and the distribution of Arabic booklets designed for easy understanding [38-44]. These booklets, with visual elements, effectively supported knowledge retention, reinforcing Edgar Dale's NTL's Pyramid of Learning, which suggests that retention improves with audiovisual aids and discussions [45-54].

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Regarding relation between socio-demographic characteristics of the studied women and their total knowledge about abortion during pre and post counseling, the present results revealed that however, there was no statistically significant relationship between the studied women's total knowledge level and all their sociodemographic characteristics (age, marital status, and education). There was a noticeable improvement in knowledge among women aged 20-30 years post implementation of counseling sessions. From the researcher's point of view, women aged 20-30 years may have greater exposure to educational resources, social media, and health information campaigns, making them more receptive to new knowledge.

This aligns with the findings of Mohamed et al. (2022), who reported that younger women are more responsive to reproductive health education [55]. In contrast, a study by Ali et al. (2021) found a significant association between age and abortion-related knowledge [56]. As for marital status, although the relationship was not statistically significant, married women showed noticeable improvement in knowledge levels after the implementation of counseling sessions. This represents a transition into a new life stage that imposes multiple responsibilities, which in turn necessitate the acquisition of additional knowledge. This is consistent with the study of El-Sayed & Khalifa (2020), which indicated that married women tend to seek more information regarding reproductive health [57].

Regarding educational level however, there was no statistically significant relation between the studied women' total knowledge level and their educational level but there was an improvement in knowledge among women who had intermediate education post implementation of counseling sessions. From the researcher's point of view, women with an intermediate level of education often possess sufficient basic literacy and critical thinking skills that enable them to understand, seek out, and process new information effectively. Similar results were found in the study by Ahmed et al. (2020), where education positively influenced abortion-related knowledge [58]. However, other studies found a stronger significance [59-60].

CONCLUSION

Based on the results of the current study, it was observed that there was no There was no statistically significant relation between the studied women' total knowledge level and their age, marital status, and educational level. However, post counselling; satisfactory answers were more proven among young, married women who had intermediate education.

RECOMMENDATION

Implement an educational counseling program based on PLISSIT and provide model for nurses to improve their knowledge to improve women's knowledge, so, they will be able to counseling for women after that.

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