Impact of Post Abortion Counseling Based on PLISSIT Model on Women's Life Style

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ABSTRACT

Background: Abortion is a traumatic and stressful factors that leads to mental, physical, sexual and marital problems, so the post-abortion period is a very important time for woman which effect on a woman's life style and her family. ***Aim:*** This study was conducted to evaluate the impact of post abortion counseling based on PLISSIT model on women's life style. ***Design:*** A quasi-experimental research design (pre & post counseling) was used to achieve the aim of the current study. ***Setting:*** The study was conducted at post-natal unit at Beni-Suef University hospital. ***Sample:*** A convenient sample of 92 women with abortions in previously mentioned setting. ***Tools:*** Data were collected using four tools, Tool I: A Structured Interview Questionnaire, Tool II: Women's knowledge about abortion and its management, Tool III: Women's life style changes based on the PLISSIT model, Tool IV: Information technology. ***Results:*** There was a highly statistically significant improvement among the studied women regarding total mean of life style after abortion. It shows that, the highest mean of the studied women was improved from 38.17±10.99 pre-counseling to 68.33±10.38 post implementation of counseling sessions program. ***Conclusion:*** Women's knowledge and life style as well were improved after implementing of counseling sessions based on PLISSIT model. ***Recommendations:*** Developing educational program to enhance women's knowledge regarding on how to use social media properly, maximizing its advantages, introducing women to the most trustworthy and legitimate social media sites, and showing them how to use these resources to improve women's life style after abortion.

Keywords: Counseling, Lifestyle, PLISSIT Model, Post abortion.

INTRODUCTION

According to the World Health Organization ***(WHO, 2012)***, abortion is defined as the termination of pregnancy before 20 weeks of gestation or with a fetus weighing less than 500 grams. The incidence of miscarriage is correlated with gestational age, and is estimated at approximately 15%, out of which 80% occur within the first trimester. Recurrent miscarriages account for 1–2% of cases ***(Iwanowicz-Palus et al., 2021).***

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 one's life style ***(Cuenca, 2023).***

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 ***(Vallury et al., 2023).***

Abortion stigma is a major drawback for women seeking safe abortion services and the clinicians offering the services. Experienced stigma is the actual acts of discrimination and harassment by others whereas internalized stigma is the materialization of perceived and experienced stigma in feelings of guilt, shame, anxiety, and other negative feelings which influence on women's life style ***(Saeed et al., 2022).***

Women with a history of abortion experience an increase in depression symptoms and might be at enhanced risk of adverse psychological effects such as pregnancy-related anxiety, depression, irritability, exhaustion, fear, sleep disorders, and lack of concentration. The studies have also documented the increased prevalence of abortion induced mental illness among women. Abortion is a traumatic and stressful factors that leads to mental, physical, sexual and marital problems, including sexual and marital ones, caused by an abortion might affect women's life style by changing different aspects of women's life style ***(Frederico et al., 2020).***

Life style is a multidimensional and relative concept, influenced by time and individual and social values. Many variables affect individuals' perceptions of women's health and status in life, which encompasses physical and psychological aspects, independence, beliefs, emotions, social relations, and environment. Although the quality of life plays a critical role in the health of women with an abortion, and understanding the women's post-abortion health behaviors is of paramount importance in promoting women's optimal health, few studies have examined the life style among women who have experienced an abortion ***(Feizollahi et al., 2020).***

Awareness of individuals' life style and the detection of the factors that lower the life style can contribute to identifying effective strategies to improve the quality of service delivery and the quality of life in the community. Aborted women are more likely to experience major difficulties; therefore, life style counseling is an important part of post-abortion care. Concerns over the effects of food habits on women who have abortions, blood loss, smoking, sleep disruption, improper family planning techniques, and emotional state are causing alarm and major issues ***(Magnus et al., 2021).***

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 ***(Ramadan et al., 2021).***

Counseling about post-abortion care is a crucial component of reproductive health services and requires the application of structured models to support informed decision-making. One widely recognized model is the PLISSIT model, which stands for Permission, Limited Information, Specific Suggestions, and Intensive Therapy. This model provides a stepwise framework to address women's individual concerns, especially those related to psychological, emotional, and social complications following abortion. When effectively implemented, counseling based on the PLISSIT model can help reduce post-abortion complications and enhance women's knowledge, emotional adaptation, and overall life style ***(Rinehart et al., 1998).***

Life style is a way of living of individuals, families (households), and societies, which manifest in coping with women's physical, psychological, social, and economic environments on a day to-day basis. Moreover, is formed in specific geographical, economic, political, cultural and religious text. Life style is referred to the characteristics of inhabitants of a region in special time and *place* ***(Wesselink et al., 2022).***

Significance of the study

In 2020, there were 930,160 abortions, an 8% increase over 2017. The incidence of abortion rose in most states and all four regions of the nation between 2017 and 2020. While the number of facilities offering abortion services stayed constant nationwide, it rose in the Midwest and the West while falling in the Northeast and South. In 2020, there were 492,210 pharmaceutical abortions, which is 45% more than in 2017. ***(Jones et al., 2022).***

With an incidence of 10% to 15% of pregnant women, recurrent spontaneous abortion (RSA) is recognized as a common pregnancy problem. It has significant negative social, psychological, and bodily effects. Based on

estimates, roughly 1% to 2% of couples have had three or more miscarriages in a row, and 5% of all couples have had two miscarriages ***(Deng et al., 2022).***

The post-abortion period is a very important time for woman; it has an effect on a woman's life style and her family. Nurses play a multi-disciplinary role during post-abortion as a direct care provider, manager, educator, counselor, and researcher to promote post-abortion woman health, which sequentially reflected bone minimizing mortality, morbidity and correcting misconceptions and ill health behaviors post-abortion among patients. As well as improving women's life styles post-abortion ***(Arshad et al., 2023).***

AIM OF THE STUDY

Aim of the study is to evaluate the effect of post-abortion counseling based on PLISSIT model on women's life style

through the following objectives:

1- Assessing women's knowledge about abortion and its management.

2- Assessment of life style and problems for post-abortion women.

3- Developing and implementing counseling sessions based on the BLISSIT model for aborted women.

4- Evaluating the effect of post-abortion counseling Based on PLISSIT Model on women's knowledge and life style.

Research hypothesis:

Women's knowledge and life style will be improved after implementation of the counseling sessions Based on the PLISSIT model.

SUBJECTS AND METHODS

Subject and methods of the study have been portrayed under four main topics as following:

I. Technical design.
II. Operational design.
III. Administrative design.
IV. Statistical design.

I- Technical design:

The technical item includes research design, setting, subject and tools for data collection.

Research design:

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

Setting:

The current study was conducted at post-natal unit which affiliated to department of obstetrics and gynecological at Beni-Suef University hospital. Post-natal unit located on the fifth floor and consists of one room which contains 15 beds.

Subjects:

1-Sample type: A convenient sample of 92 abortion women in previously mentioned setting.

2-Sample size:

The total number of abortion women in one year, beginning in September 2022 and ending in August 2023, is 121 abortion women in Beni-Suef University Hospital, so the target population of this study is 92 women with abortions. The sample size calculation was done using the following equation using the Steven and Thompson equation to calculate the sample size from the next formula ***(Thompson, 2012):***

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

N= population size = 121

z^2= 1.96

d^2= 0.05

p= 0.50

n= sample size

$$n= \frac{121\times0.50(1-0.50)}{[121-1\times(0.05^2\div1.96^2)]+0.50(1-0.50)} = 92$$

Tools of data collection:

Data were collected using the following tools:

Tool I: A Structured Interview Questionnaire: (Appendix II)

This questionnaire was designed by the researcher based on reviewing related literatures and it was written in simple Arabic language, it consists of two parts:

Part 1: Socio-demographic data and general characteristics: -

It was concerned with demographic characteristics of the studied women after abortion which included; age, marital status, educational level, type of occupation, and area of resident.

Part 2: Present, past medical, obstetrical, and gynecological history: -

It was concerned with women's present, past medical, obstetrical and gynecological history of the studied women after abortion which included; chronic disease, autoimmune diseases, having an allergy to any medication, age at the time of marriage, numbers of previous pregnancies, numbers of previous delivery and the number of miscarriages.

Tool II: Women's knowledge regarding abortion and management: (Appendix II)

This tool was adapted from ***(Foster et al., 2016)*****,** it was used to assess woman's knowledge regarding abortion after translated into Arabic language by the researcher. It consists of (50) questions and reflecting (2) parts:

Part 1: General knowledge about abortion as definition of abortion, the most common factors for the occurrence of abortion and causes of abortion (35 items with 35 point).

Part 2: Modern educational information on abortion as normal weight gain during pregnancy, the responsible person for guidance and advice after abortion and the guidelines for the crisis after abortion (15 items with 15 point).

Scoring system: Total global score of 50 questions with 50 point, 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:

- **Unsatisfactory knowledge** if total score < 60% which mean (< 30 point).
- **Satisfactory knowledge** if total score from ≥ 60% which mean (≥ 30 point).

Tool III: Women's life style after abortion: (Appendix II)

This tool was adapted from ***(Ramadan et al., 2021)***, and was used to assess women's life style post abortion after translated into Arabic language by the researcher. It consists of (48) items and reflecting (7) parts:

Part 1: Smoking and alcohol as smoking during the pregnancy, exposing to passive smoking during pregnancy, smoking after abortion and exposed to passive smoking after abortion (6 items with 12 points).

Part 2: Nutritional life style as drink carbonated (Soda) drinks as cola that contain preservatives and drink too much caffeine and tea (10 items with 20 points).

Part 3: weight and exercise life style as keep my ideal body weight after abortion, waking at least 30 min per day and do hard

work such as moving furniture (4 items with 8 points).

Part 4: Personal habits as wear high heels and not comfortable shoes, wearing cotton and wide clothes and use too hot water baths (14 items with 28 points).

Part 5: Sleeping as take medications for sleep after abortion, take a day naps and wake up a lot at night and find it difficult to go back to sleep (4 items with 8 points).

Part 6: Spiritual habits and relationships as regular in praying, keep a good relationship with my friends after abortion and receive psychological and social support from my family after the miscarriage (4 items with 8 points).

Part 7: Sexual intercourse as practice sexual intercourse normally after abortion, practice vigorous sexual intercourse after abortion and use safe topical medical preparations (cream) or medicinal herbs during sexual intercourse after abortion (6 items with 12 points).

Scoring system: Total global score of 48 questions with 96 scores, were rated on three likert scale as (always = 0, sometimes = 1 and never= 2). These scores were summed and converted into a percent score. It was classified into two categories according to the following:

- **Unhealthy lifestyle** if total score < 60% which mean (< 57.6 points).
- **Healthy lifestyle** if total score from ≥ 60% which mean (≥ 57.6 points).

Tool IV: Information technology: (Appendix II)

This tool was developed by the researcher after reviewing the related literature review **(*Gouy et al., 2024 & Zolfaqari et al., 2024),*** and was used to assess the impact of social networking sites on women after abortion. It consists of (10) items:

Scoring system: Total global score of 10 questions with 20 point, were rated on three likert scale as (always = 0, sometimes = 1 and never= 2). These scores were summed and converted into a percent score. It was classified into three categories according to the following:

- Poor if total score < 50% which mean (< 10 point).
- Moderate if total score 50% - <70% which mean (10- < 14 point).
- Good if total score from ≥ 70% which mean (≥ 14 point).

-Post Abortion Counseling Based on PLISSIT Model: (Appendix III)

This program developed by the researcher in Arabic language after reviewing related literature reviewing ***(Turesheva et al., 2023, Haghighi et al., 2022 & Keshavarz et al., 2021)*** and used for counseling the women post abortion based on PLISSIT model about abortion and life style post abortion included; abortion definition, signs & symptoms, causes, risk factors of abortion, types of abortion, complications, management of abortion and life style post abortion.

Tool validity:

Face and content validity was ascertained by a panel of five experts of Maternal & Newborn Health Nursing from Faculty of Nursing and obstetrics & gynecology from faculty of medicine, Beni-Suef University. The expertise reviewed the tools for clarity, relevance, comprehensiveness, simplicity, and applicability; minor modifications were done and the final forms were developed.

Reliability:

In the present study, reliability was tested using Chronbach's Alpha coefficients for women's knowledge (tool II) which was 0.815, women's life style after abortion (tool III) which was 0.773 and information technology (tool IV) which was 0.732.

II-Operational design:

The operational design includes preparatory phase, supportive material, tools validity and reliability, pilot study and field work.

A) Preparatory phase:

It was included reviewing of related literature and theoretical knowledge of various aspects of the study using books, articles and internet's periodicals and journals to develop tools for data collection and post abortion counseling based on PLISSIT model program. An official letter approval was obtained from the dean of the Faculty of Nursing, to the manager of Beni-Suef University Hospital. This letter includes a permission to conduct the study and explained the aim and nature of the study.

B) Supportive material (Arabic booklet)

A booklet was developed by the researcher to provides comprehensive knowledge and information to women about abortion and raises awareness about the post-abortion period. It includes all the counseling offered to women to improve women's life style, overcome unhealthy habits, and understand all the tips for a faster physical, psychological, and emotional recovery, aiming to enhance women's life style after abortion.

C) A pilot study:

A pilot study was carried out on 10% (9 women post abortion) of sample size to test the applicability, clarity and efficiency of the tools. Depending on the results of the pilot study no modifications or refinements were done and the women were included in the actual study sample.

D) Field work:

Once the permission was obtained from dean of faculty of nursing Beni-Suef University then written approval from director of Beni-Suef University Hospital, the researcher was interviewed with the women post abortion in post-natal unit and explained the aim of the study and took their approval to participate and cooperate in the study through oral consent.

- The researcher was presented in post-natal unit at Beni-Suef University hospital, 3 days/week (Sunday, Tuesday and Thursday) in morning and afternoon shifts from 9:00am to 7:00pm. Data collection took a period of 6 months started from the middle of February 2024 to the middle of August 2024.

- Data collection was included 4 phases as the following:

Phase I: Assessment (preparatory) phase:

The socio-demographic characteristics, past, present, obstetrical and gynecological history was collected by the researcher throughout interviewing each woman individually (tool I), knowledge questionnaire to determine their baseline level of knowledge about abortion by using (tool II), women's life style after abortion (tool III) and information technology (tool IV) pre counseling the women post abortion based on PLISSIT model about abortion. Each woman took about (10-20 minutes) to fill out the questionnaire as a baseline data.

Phase II: Planning phase:

The researcher planed and determined the suitable time for providing and explaining post abortion counseling based on PLISSIT model for each woman.

Once the initial assessment finished, the researcher planned the sessions and implemented the study according to the following objectives through:

- Setting sessions objectives
- Determine learning content of the program
- Preparing setting required for achieving sessions program
- Designing the methodology and media
- Determine evaluation tool

Phase III: Implementation (Intervention) phase:

-The intervention involved interactive session for each woman individually and the session was conducted for 45 min - one hour in waiting area of post-natal unit.

Implementing of the program through:

- The program objectives.
- Recognize definition, causes and risk factors of abortion.
- Determine sign & symptoms and types of abortion.
- Recognize complications of abortion and methods of avoiding the abortion.
- Demonstrate drinks, food and practices that can cause or lead to abortion.
- Explain the accurate life style during pregnancy.
- Describe management and treatment of abortion.
- Explain ways of change life style post abortion and the life style post abortion.
- Describe natural methods of cleaning uterus post abortion.
- A comprehensive explanation and clarification of all the questions that concern women after abortion.

The session was run based up on PLISSIT Model as following:

Step (1) Permission (P): -

❖ In the first step, the researcher began by welcoming each woman individually in a private, confidential setting within the post-natal unit. Verbal consent was obtained after clearly explaining the purpose, benefits, and voluntary nature of the study. The researcher emphasized that participation was optional and would not affect the woman's access to care.

❖ To build rapport and establish trust, the researcher initiated the conversation with open-ended questions such as: 'Would you like to share how you've been feeling after the abortion?' or 'What changes have you noticed in your life style recently?'. During this phase, the researcher actively listened without interruption or judgment, allowing the woman to express her emotions, concerns, and personal experiences freely.

❖ Then, the researcher discussed a closed–ended questions about Women's information about abortion and how to deal with abortion and women's life style changes like as: what is the definition of abortion, what are the most common factors, causes, signs and symptoms, types and complications for abortion, the researcher listen to women without any sentence.

Step (2) limited information(LI): -

❖ In the second step, the researcher provided clear and accurate information related to abortion, its causes, possible complications, and healthy post-abortion life style practices. Educational content was delivered both verbally and with the supportive material (Booklet).

❖ The researcher corrected common misconceptions, for example, clarifying that abortion does not necessarily prevent future pregnancies and that physical exertion is not always the cause of abortion.

❖ Additionally, the researcher emphasized the importance of correcting unhealthy habits, such as alcohol consumption and exposure to both active and passive smoking. Also addressed the need to assess the woman's nutritional life style, maintain a healthy weight, and engage in regular physical activity.

❖ In addition, the counseling session focused on improving personal hygiene habits, fostering healthy social relationships, and encouraging spiritual connection through prayer. Finally, the session included guidance on how to resume sexual activity safely and appropriately after abortion. Each woman was given the opportunity to ask questions and clarify doubts.

Step (3) specific Suggestions(SS): -

At this stage, the researcher offered individualized advice based on the woman's personal needs and expressed concerns to manage some conditions.

These specific suggestions included: -

- Encouraging a balanced, iron-rich diet to promote physical recovery.

-healthy nutritional habits.

- Advising women avoid negative smoke and reduce or quit smoking, and offering simple coping techniques.

- Recommending stress management practices like deep breathing or light physical activity.

- Addressing fears of future pregnancies and discomfort in sexual relations by normalizing these feelings and promoting open communication with-partners.

The goal of this phase was to support women in adopting healthy life style such as healthy nutritional style and appropriate physical activities and exercise post abortion. In this level of intervention should provide advanced knowledge and experience as a wide range thoroughly of a particular health aspect and practice to evaluate a women's unique situation depend on this health aspect and to develop a plan post intervention. Each suggestion was practical, realistic, and tailored to the woman's context.

Step (4) Intensive Therapy(IT): -

❖ This final step was applied to women, the researcher detected services to which women can be referred for more intensive or comprehensive management as psychologist for women who showed signs of severe emotional or psychological distress, such as persistent sadness, anxiety, or trauma-related responses. social worker and cardiologist specialist.

❖ These women were gently referred to specialized mental health services available within the hospital or through local community support programs. Referrals were made with full respect for privacy and without pressure. The researcher also offered reassurance and highlighted the importance of seeking help.

❖ The following advices were provided as stopping smoking and passive smoking, natural sources for cleaning the uterus after abortion, enough sleeping time post abortion, obtain social support, healthy habits, such as getting exercise and eating a healthy diet, vaginal lubricant for dryness or lessen pain during sex Vibrators and other tools to enhance lifestyle post abortion. There are no cases that need referral to sex therapist, social worker, medical and psychological specialist.

❖ Supportive materials were used for facilitate understanding Post abortion counseling booklet based on PLISSIT model as different illustrative pictures, laptop and videos. (this phase took 4 months).

Phase III: Evaluation phase:

The researcher evaluated the effect of post abortion counseling based on PLISSIT model on women's life style a post-test (four months from the application of the PLISSIT Model) using the same two tools through video call, zoom, or home visits.

The preprogram format repeated again to measure the effect of post-abortion counseling on women's life style. (this phase took a month).

Ethical Considerations:

The research approval was obtained from the Faculty of Medicine, Beni-Suef Scientific Ethical Committee before starting the study (Approval number: FMBSUREC/03102023). The investigator clarified the objectives and aim of the study to the women included in the study before starting. Researcher assured the anonymity and confidentiality of women included in the study. The women in the study was informed that they are allowed to choose to participate or not in the study and they have the right to withdraw from the study at any time without any reasons.

III-Administrative design:

An official permission was obtained by submission of official letters issued from the dean of faculty of nursing, Beni-Suef University to the manager of Beni-Suef University Hospital. The title and aim of the study was explained as well as the main data items and the expected outcomes.

4) Statistical design

Data were summarized, tabulated, and presented using descriptive statistics in the form of means and standard deviations as a measure of dispersion. A statistical package for the social science (SPSS), version (26) was used for statistical analysis of the data, as it contains the test of significance given in standard statistical books. Qualitative data were expressed as a percentage. Chi-square (X2) test of significance was used in order to compare proportions between qualitative parameters. For quantitative data, a comparison between two variables was done using a student's t-test. T-test is used when the cell sizes are expected to be large. If the sample size is small (or you have expected cell sizes <5). Probability (P-value) is the degree of significance, less than 0.05 was considered significant. The smaller the P-value obtained, the more significant is the result (*), less than 0.001 was considered highly significant (**) and the correlation coefficient was done by using the Pearson correlation test.

RESULTS

Table (1) shows percentage distribution of the studied women regarding to their socio-demographic characteristics. It reveals that two-thirds (66.3%) of the studied women their age group was 20- 30 years with mean age was 28.13±5.824 years. Related to Marital Status, it declares that the most (87%) of the studied women were married. Related to educational level, it declares that around more than two-fifths (42.4%) of the studied women had intermediate education.

Concerning to job it declares that, most of them (81.5%) were not working. For place of residence more than half (58.7%) of them were from rural areas, regarding to Monthly income more than three-quarters (76.1%) of them had insufficient monthly income from their point of view. Related to Family type, it declares that more than half (58.7%) of them had extended family type.

Table (2) reveals percentage distribution of the studied women regarding to their knowledge about modern educational information on abortion. It clarifies that there is a high statistically significant improvement in knowledge about sub items modern educational information on abortion for the responsible person for guidance and advice after abortion that more than two-fifths (45.7%) of the studied women in pre-counseling had correct knowledge which improved to around two-thirds (65.2%) had correct knowledge after implementation of counseling sessions at (p value ≤0.01).

Concerning using contraceptive method after an abortion that, more than two-fifths (43.5%) of the studied women in pre-counseling had correct knowledge which improved into more than two-thirds (70.7%) had correct knowledge after implementation of counseling sessions, there is statistically significant improvement (p value ≤0.05).

Also, there is high statistically significant improvement in knowledge about sub items modern educational information on abortion, about the environmental factor associated with improving the condition of women that, around one-third (32.6%) of the studied women in pre-counseling had correct knowledge which improved into more than three-fourths (75.0%) had correct knowledge after implementation of counseling sessions at (p value ≤0.01).

Moreover, there is high statistically significant improvement in knowledge that nutritional factors may help reduce the risk of abortion that. More than one-third (37.0%) of the studied women in pre-counseling had correct knowledge which improved into more than three-quarters (76.1 %) had correct knowledge after implementation of counseling sessions at (p value ≤0.01).

Concerning the main recommendation regarding physical activity to reduce the incidence of abortion. The results revealed that

around one-third (32.6%) of the studied women in pre-counseling had correct knowledge which improved into more than three-quarters (80.4%) had correct knowledge after implementation of counseling sessions at (p value ≤0.01).

Additionally, there is high statistically significant improvement in knowledge about sub items modern educational information on abortion, as the total Mean±SD pre-counseling increased from 5.65±2.78 to 10.38±2 post implementation of counseling sessions at (p value ≤0.01).

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. Also, less than one fifth (15.2%) of the studied women had satisfactory knowledge regarding modern educational information on abortion pretest which improved post counseling to 80.4%. Moreover, the minority (8.7%) of the studied women had satisfactory knowledge level during pretest which improved to (80.4%) of them during post counseling. There was a statistically significant improvement among the studied women regarding all general, modern educational information, and total knowledge about modern educational information on abortion after implementation of counseling sessions at (p value ≤0.01).

Table (3) shows that, the highest mean during pretest for personal a habit which was 11.08±8.01 pre-counseling and improved to 20.59±5.85 post implementation of counseling sessions. There was a statistically significant improvement among the studied women regarding mean of life style sub-items after abortion post counseling (p value ≤0.01).

There was a highly statistically significant improvement among the studied women regarding total mean of life style after abortion. It shows that, the mean of the studied women was improved from 38.17±10.99 pre-counseling to 68.33±10.38 post implementation of counseling sessions (p value ≤0.01).

Table (4) demonstrates the correlation between the total score of knowledge, lifestyle, and total impact level of social networking sites on women after abortion during pre- and post-counseling.

During the pre-counseling, a statistically significant positive correlation was found only between the knowledge score and the total impact level (p≤0.05), suggesting that women with better knowledge tended to perceive a greater impact of social networking sites.

However, no statistically significant correlation was found between life style and either knowledge or impact level.

On the other hand, during the post implementation of counseling sessions, a strong positive correlation was observed between knowledge and between life style and total impact level (p≤0.05).

This indicates that as knowledge improved post-counseling, women also demonstrated healthier life style choices, which in turn were associated with greater awareness of the impact of social networking sites.

The correlation between knowledge and impact level was not statistically significant, suggesting that although knowledge increased, it may not have been the sole influencing factor on perceived impact.

Table (1): Percentage distribution of the studied women regarding to their socio-demographic characteristics (n=92).

Items	No.		%
Age			
< 20 years	6		6.5
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		9.8
Widowed	3		3.3
Educational level			
Doesn't read and write	16		17.4
Read and write	29		31.5
Intermediate education	39		**42.4**
University education	5		5.4
Postgraduate education	3		3.3
Job			
Working	17		18.5
Not working	75		**81.5**
Place of residence			
Rural	54		**58.7**
Urban	38		41.3
Monthly income (from women's point of view)			
Sufficient	22		23.9
Insufficient	70		**76.1**
Family type			
Nuclear	38		41.3
Extended	54		**58.7**

(T-test= Paired t-test)

Table (2): Percentage distribution of the studied women regarding to their knowledge about modern educational information on abortion (n=92).

Modern educational information on abortion	Pretest				Posttest				X^2	p value
	Correct		Incorrect		Correct		Incorrect			
	No.	%	No.	%	No.	%	No.	%		
Normal weight gain during pregnancy	36	39.1	56	60.9	55	59.8	37	40.2	7.042	0.008**
The responsible person for guidance and advice after abortion	42	**45.7**	50	54.3	60	**65.2**	32	34.8	10.114	0.001**
The guidelines for the crisis after abortion	31	33.7	61	66.3	56	60.9	36	39.1	4.030	0.045*
The duration of rest after abortion	37	40.2	55	59.8	61	66.3	31	33.7	8.717	0.003**
The time that the woman return to normal after an abortion	39	42.4	53	57.6	63	68.5	29	31.5	10.886	0.001**
The time of starting of ovulation begin after an abortion	32	34.8	60	65.2	56	60.9	36	39.1	7.053	0.008**
Take a shower after abortion	34	37.0	58	63.0	64	69.6	28	30.4	4.544	0.033*
The period to the uterus return to normal after an abortion	29	31.5	63	68.5	62	67.4	30	32.6	5.297	0.021*
The time of sexual relationship begin to occur after an abortion	35	38.0	57	62.0	67	72.8	25	27.2	7.684	0.006**
Use a contraceptive method after an abortion	40	43.5	52	56.5	65	70.7	27	29.3	4.687	0.030*
The environmental factor associated with improving the condition of women	30	32.6	62	67.4	69	75.0	23	25.0	9.286	0.002**
The most effective lifestyle changes to reduce the incidence of abortion	38	41.3	54	58.7	66	71.7	26	28.3	4.576	0.032*
Nutritional factors may help reduce the risk of abortion	34	37.0	58	63.0	70	76.1	22	23.9	6.587	0.010**
The main recommendation regarding physical activity to reduce the incidence of abortion	30	32.6	62	67.4	74	80.4	18	19.6	11.822	0.000**
The basic recommendation regarding alcohol consumption to reduce the risk of abortion	33	35.9	59	64.1	69	75.0	23	25.0	7.684	0.006**

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

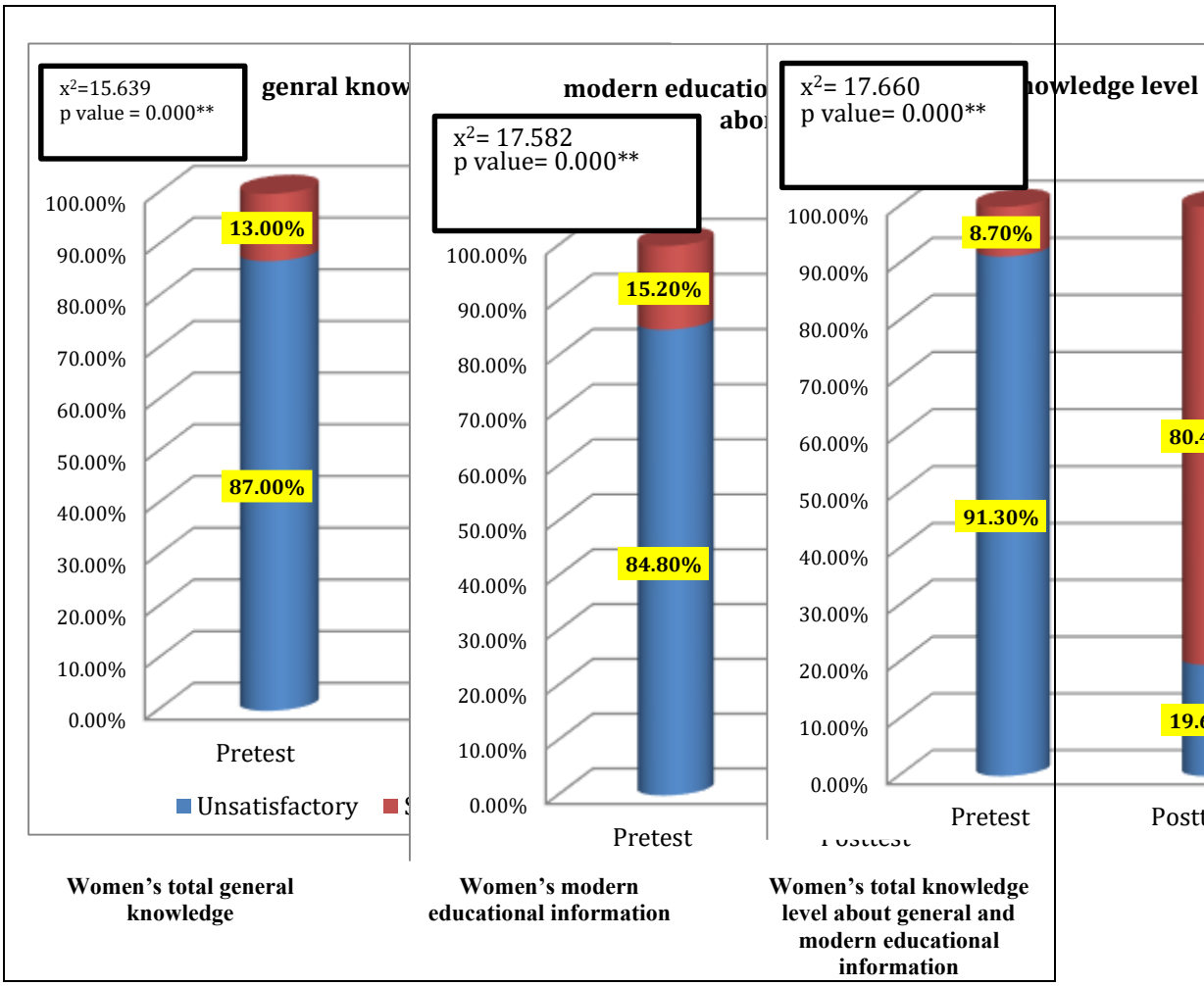

Figure (1): Percentage distribution of the studied women regarding to their total knowledge level about general and modern educational information on abortion

Table (3): Comparison between the studied women regarding to their life style means of sub-items after abortion

Items	Pretest			Posttest			t test	p value
	Mini	Max	Mean±SD	Mini	Max	Mean±SD		
Smoking & alcohol	6	11	8.35±1.26	8	12	11.17±0.96	16.932	0.000**
Nutritional life style	4	20	6.41±6.22	4	20	13.41±5.37	8.790	0.000**
Weight & exercise	2	8	1.85±2.11	2	8	5.49±2.30	10.7942	0.000**
Personal habits	2	27	**11.08±8.01**	2	28	**20.59±5.85**	8.935	0.000**
Sleeping	2	8	2.88±1.95	2	8	5.88±2.12	9.645	0.000**
Spiritual habits & relationships	2	7	3.26±1.884	2	8	5.76±1.78	10.452	0.000**
Sexual intercourse	4	10	4.35±2.75	4	12	8.52±2.17	11.636	0.000**
Total	16	62	38.17±10.99	38	89	68.33±10.38	19.951	0.000**

Table (4): Correlation between total score of knowledge, lifestyle and total impact level of social networking sites on women after abortion during pretest and posttest.

Control group		Knowledge	Lifestyle	Study group		Knowledge	Lifestyle
Knowledge	R			Knowledge	R		
	P				P		
Lifestyle	R	.003		Lifestyle	R	.438	
	P	0.978			P	0.000**	
Impact level	R	.220	.045	Impact level	R	.052	.698
	P	0.035*	0.670		P	0619	0.000**

* positive correlation at p≤0.05 ** strong positive correlation at p≤0.01

DISCUSSION

Abortion is defined as the termination of pregnancy and an expulsion from the uterus of an embryo or fetus before 20 week's gestation or fetal weight less than 500g. Approximately 26 million legal and 20 million illegal abortions estimated worldwide in 2018, resulting in a worldwide abortion rate of 35 per 1,000 women aged 15-44 ***Ramadan et al., (2021).***

The PLISSIT model is a therapy counseling model that can help any persuasive practitioner to tackle women's health. The four levels of the PLISSIT model are: Permit (P): Gives a woman permission to discuss these which adversely affect her Limited Information (LI), Abortion: Provides limited information on the physiological and psychological of post abortion issues without entering in detail. Specific Suggestions (SS) on how to deal with common problems encountered during management. In some cases, such as when the first three steps fail to resolve the problem. Internal conflict or psychological problems ***Buehler, (2021).***

Therefore, the current study was conducted to evaluate the effect of post-abortion counseling on women's life style Based on the PLISSIT model. In relation to socio-demographic characteristics of the studied women, the current study revealed that, more than two-thirds of the studied woman their age group was 20- 30 years with mean age 28.13±5.824 years.

This result is in agreement with ***Ibrahim et al., (2020)*** who conducted a study entitled "Investigate women's knowledge, attitude and their immediate intervention regarding habitual abortion" and reported that more than half of the studied women their age group was 20-30 years.

Contrariwise, this result was in disagreement with ***Sheehy et al., (2024)*** in their recent study entitled "Exploring women's knowledge of abortion legality and association with source of abortion care using population-based survey data in Cote d'Ivoire and Ghana" and mentioned that more than one-third of the studied women their age group was 20-29 years. In the researcher point of view, this might be related to that, the known age of marriage in Egypt is 20 to 30 years.

The present study reported that, majority of the studied women were married. This finding was on the same line with ***Elbadry et al., (2024)*** in their recent study entitled "Social support, self-efficacy and quality of life among women after miscarriage" and found that most of the studied women were married.

Also, this result was in agreement with ***Saeed et al., (2022)*** who carried out study entitled "Knowledge and attitude towards abortion among women in Afghanistan" and stated that more than three-quarters of the participants were married.

In the researcher point of view, this might be related to that, more than two-thirds of the studied woman their age group was 20- 30 years with mean age 28.13±5.824 years which the known age of marriage in Egypt, and according to the decisive customs and traditions of marriage in Egypt.

The current study found that, more than one third of the studied women had intermediate education. This study was in accordance with ***Ramadan et al., (2021)*** who conducted a study

entitled "Assessment of post abortion woman lifestyle" and mentioned that more than one-quarter of the studied women had secondary education.

On other hand, this finding was in congruence with ***Raphi et al., (2021)*** who carried out a study entitled "Effect of hope therapy on psychological well-being of women after abortion" and found that more than half of the studied women had secondary and diploma education.

The present study revealed that, majority of the studied women were not working, this result was agreed with ***Tavoli et al., (2018)*** who carried out a study entitled "Quality of life and psychological distress in women with recurrent miscarriage" and mentioned that more than one-half of the studied women were housewives.

While, this study was disagreed with ***Iwanowicz-Palus et al., (2021)*** who conducted a study entitled "Quality of life, social support and self-efficacy in women after a miscarriage" and revealed that less than one-quarter of the studied women weren't work.

The current study reported that, more than half of the studied women were from rural areas. This finding was disagreed with ***Shi et al., (2024)*** in their recent study entitled "Post-abortion needs-based education via the WeChat platform to lessen fear and encourage effective contraception" and found that less than one-quarter of the studied women were from rural areas.

The researcher believes that this is due to the excessive effort that women living in rural areas are exposed to it.

The present study revealed that, more than three-quarters of the studied women had insufficient monthly income and more than half of them had extended family type. This study was similar to ***Bantie et al., (2020)*** who conducted a study entitled "Knowledge and attitude of reproductive age group (15–49) women towards Ethiopian current abortion law and associated factors in Bahir DAR city, Ethiopia" and mentioned that less than three-quarters of the studied women had insufficient monthly income.

In contrast, this finding was dissimilar to ***Abd Elaziz & Abdel Halim, (2021)*** who carried out a study entitled "Risk factors for postpartum depression among Egyptian women" and revealed that less than half of the studied women had extended family.

In the researcher point of view that this is because there are women in Egypt do not work, and according to customs and traditions, they live in extended and family households.

Regarding knowledge about sub items of modern educational information on abortion, the present study reported that, more than two-fifths of the studied women had correct knowledge regarding the responsible person for guidance and advice after abortion which improved post-counseling to around two-thirds of them. There was a statistically significant improvement among the studied women regarding all items of modern educational information on abortion post counseling.

From the researcher point of view, women's knowledge was improved due to the use of an Arabic booklet that contained attractive images and simple, clear information.

This finding was in accordance with ***McMahon et al., (2024)*** in their recent study entitled "My health in my hands: Improving medication abortion knowledge and closing disparities with a community-led media intervention" and found that overall, the intervention appeared to be effective in improving participants' knowledge regarding abortion.

For total knowledge level about modern educational information on abortion, the current study revealed that, the mean knowledge of the studied women during pre-counseling was 5.65±2.78 which improved post counseling to became 10.38±2.97. Also, less than one-fifth of the studied women had satisfactory knowledge regarding modern educational information on abortion pre-counseling which improved post counseling to which was most of them. There was a statistically significant improvement

among the studied women regarding knowledge about modern educational information on abortion post implementation of counseling sessions.

In the researcher point of view, this might be related to that, counseling based on PLISSIT model was significantly effective in improving women's knowledge regarding abortion.

This result was similar to ***Ngo et al., (2023)*** who conducted a study entitled "Effectiveness of mobile health intervention on safe abortion knowledge and perceived barriers to safe abortion services among female sex workers in Vietnam" and mentioned that the intervention among women showed significant improvements in the knowledge related to safe abortion post mobile health intervention.

Also, this study was one the same line with ***Cleverley et al., (2024)*** in their recent study "Aya Contigo: Evaluation of a digital intervention to support self-managed medication abortion in Venezuela" and revealed that there was a statistically significant improvement among the studied women regarding their knowledge about abortion post digital intervention.

In relation to comparison between the studied women regarding to their total knowledge about general and modern educational information on abortion, the present study found that, the mean knowledge of the studied women during pre-counseling was 20.73±6.33 which improved post counseling to 34.04±6.76. There was a statistically significant improvement among the studied women regarding total knowledge about modern educational information on abortion post counseling.

This study was disagreed with ***McMahon et al., (2024)*** who mentioned that mean differences of knowledge regarding abortion in pre–post scores were statistically significant for all groups.

Also, total knowledge level about general and modern educational information on abortion, the current study reported that, less than one-tenth of the studied women had satisfactory knowledge level during pre-counseling which improved to more than three-quarters of them during post counseling, there was a statistically significant improvement among the studied women regarding total knowledge about modern educational information post abortion of counseling sessions.

This finding was on the same line with ***Turner et al., (2018)*** who reported that participant who began the workshop with the lowest level of knowledge experienced the greatest increase in knowledge score regarding abortion from

20.0 to 55.0 between pre- and post-workshop surveys. Also, this study was agreed with ***Ngo et al., (2023)*** who reported that there was a statistically significant difference between pretest and posttest among the studied women regarding total knowledge about abortion.

In the researcher point of view this could be related to that, the program was implemented on a group of women together using PLISSIT model, which made them attentive and motivated as the topic had a personal impact on them. As a result, the program made a significant difference for them.

Concerning comparison between the studied women regarding to their life style of sub-items after abortion, the present study revealed improvement in all items of life style after counseling (smoking, alcohol, nutrition, sleep, weight, exercise, spirituality and sexual intercourse). There was a highly statistically significant improvement among the studied women regarding mean of life style all sub-items from 38.17±10.99 pre-counseling about modern educational information on abortion to 68.33±10.38 post implementation of counseling sessions.

From the researcher point of view, this may be due to completeness, comprehensiveness, accuracy and success of counseling program based on PLISSIT model.

This result was similar to ***Zahmatkesh et al., (2024)*** who revealed that there was a statistically significant improvement among the studied women regarding their quality of life

post intervention in comparing to pre intervention. Also, this study was supported by ***Mirian et al., (2023)*** who mentioned that the mean of women's personal habits was 107.42 ±15.08 that improved post intervention to 126.72±31.01.

Concerning correlation between total score of knowledge, life style and total impact level of social networking sites on women after abortion during pre and post counseling, the current study revealed that, during the pre-counseling, a statistically significant positive correlation was found only between the knowledge score and the total impact level, suggesting that women with better knowledge tended to perceive a greater impact of social networking sites.

However, no statistically significant correlation was found between life style and either knowledge or impact level. These findings are supported by the study of ***Araban et al. (2014)***, which emphasized the role of health education in enhancing both knowledge and lifestyle behaviors among women.

Additionally, the study by ***Fakhri et al. (2021)*** supports the idea that counseling can significantly enhance lifestyle dimensions, particularly in the context of reproductive health.

In the researcher point of view, this might be related to that, women's knowledge, of course, affects their life style and deal with themselves after abortion. If they have good knowledge about abortion and the period after the abortion, the more well women deal with their lives and themselves. Also, the better information they gain through the internet and social media, the more it reflects positively on their life style post abortion, and vice versa.

On the other hand, during the post implementation of counseling sessions, a strong positive correlation was observed between knowledge and life style, and between life style and total impact level. This indicates that as knowledge improved post-counseling, women also demonstrated healthier life style choices, which in turn were associated with greater awareness of the impact of social networking sites.

The correlation between knowledge and impact level was not statistically significant, suggesting that although knowledge increased, it may not have been the sole influencing factor on perceived impact.

This finding was on the same line with ***Samila & Mboineki, (2024)*** in their resent study entitled "Knowledge level and constructs of the theory of planned behavior to the practice of unsafe abortion among postnatal mothers attending Mkonze health center, Dodoma region, Tanzania" and found that there was no significant association between knowledge level and self-care practices of women post abortion.

Also, this study was agreed with ***Aiken et al., (2023)*** who conducted a study entitled "Factors associated with knowledge and experience of self-managed abortion among patients seeking care at 49 US abortion clinics" and mentioned that there was positive correlation between the studied women's level of knowledge and perception regarding abortion and their level abortion perceptions/experiences and self-management behavior.

Additionally, this result was supported by ***Rezaee et al., (2022)*** who conducted a study entitled "Healthy life style during pregnancy: Uncovering the role of online health information seeking experience" and revealed that there was positive correlation between online health information-seeking behavior and a healthy life style among the studied women.

From the researcher point of view these results reflect the effectiveness of the PLISSIT-based counseling in strengthening the link between knowledge and healthy lifestyle. Even though knowledge alone did not significantly correlate with perceived impact post-intervention, the indirect effect via lifestyle is notable. This suggests the importance of integrating lifestyle counseling alongside informational education in post-abortion care programs.

Limitations of the study: -

Low Literacy Among Participants: A portion of the study participants were illiterate or had low educational levels. In these cases, the

researcher had to read and explain the questionnaire items verbally, which may have introduced a degree of interpretation bias despite efforts to remain neutral.

❖ Short Hospital Stay: Many women were discharged quickly after abortion, which limited the available time for in-depth counseling and follow-up.

❖ Generalizability: The study was conducted in a single university hospital and included a relatively small sample size, which may limit the generalizability of the findings to the wider population of post-abortion women in Egypt.

❖ Despite these limitations, the study provides valuable insights into the application of the PLISSIT model in post-abortion counseling and contributes to filling a gap in the local literature.

CONCLUSION

Based on findings of the present study, it can be concluded that:

Women's life style post abortion positively affected by their knowledge that also affected by social networking sites. Women's knowledge and life style as well were improved after implementing of counseling sessions based on PLISSIT model, so the research hypothesis is accepted.

RECOMMENDATIONS

Based on the finding of the current study the following recommendations were proposed:

❖ Developing an educational program to enhancing women's knowledge regarding the using of social media properly, maximizing its advantages, introducing women to the most trustworthy and legitimate social media sites, and showing them how to use these resources to improve women's life style after abortion.

❖ suggesting a safe environment and a good place in the obstetric outpatient unit to discuss the life style of women after abortion and provide enough knowledge about abortion freely using the PLISSIT model.

❖ Developing strategies to facilitate women's understanding and support life style adjustments after abortion by applying this study to a large sample in inpatient and outpatient departments.

Further Researches

❖ 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.

❖ There is a clear need for increased research on the efficacy of interventions and programs that seek to post-abortion woman in order to inform the establishment of best practices for post-abortion care.

❖ Conduct clinical trials with larger sample size and longer follow-up period.

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