

## Effect of Vasectomy Counselling Program on Women's Knowledge, Attitude and Acceptance

Heba Ahmed Galal Atia<sup>1</sup>, Fatma Ahmed Mohammed Sabry<sup>2</sup>, Heba Atef Osman<sup>3</sup>, Lamiaa Saad Abdallah<sup>4</sup>, Zainab Abd El-Rahim Ali Mohamed<sup>5</sup>

<sup>1</sup>Lecturer of Maternity, Obstetric and Gynecological Nursing Department, Faculty of Nursing, Suez Canal University, Egypt

<sup>2</sup>Lecturer of Obstetric and Gynecological Nursing Department, Faculty of Nursing, Sohag University, Egypt

<sup>3</sup>lecturer of Women Health and Obstetrics Nursing, Faculty of Nursing, Minia University, Egypt

<sup>4</sup>lecturer of Community Health Nursing, Faculty of Nursing, Cairo University, Egypt

<sup>5</sup>Lecturer of Obstetric and Gynecological Nursing Department, Faculty of Nursing, Sohag University, Egypt

### Abstract

**Background:** Vasectomy is a safe and permanent method of contraception. However, it is not widely used in developing countries. **Aim of the study:** To assess the effect of vasectomy counselling program on women's knowledge, attitude and acceptance. **Design:** A quasi – experimental one group pretest- post-test design was utilized. **Setting:** The study was carried out at family planning clinic in the obstetrics and gynaecology department, Sohag University /Egypt. **Sample:** A convenient sample of 100 women was involved. **Data collection tools:** Three tools were used to collect data: Tool (I) Women's personal data questionnaire, Tool (II) Women's knowledge questionnaire regarding vasectomy, Tool (III) Women's attitude and acceptance scale. **Results:** There was a highly statistical significant difference between pre and post total knowledge , attitude and acceptance scores of women to use vasectomy with  $P < 0.001$ . **Conclusion:** The counselling programme had a significant positive effect on women's knowledge, attitude, and acceptance, as evidenced by an increase in total mean scores in post-tests compared to pre-test mean scores. **Recommendations:** Community awareness campaigns via all types of multimedia to provide accurate information about the vasectomy is highly recommended to increase awareness and dispel myths about vasectomy & raise vasectomy acceptance.

**Keywords:** Vasectomy, Counselling, Knowledge, Attitude, Acceptance, Women.

### Introduction

Family planning is considered one of the most cost-effective interventions, with a critical role in reducing maternal, infant, and child health morbidity and mortality. Furthermore, the benefits of family planning go beyond promoting maternal or child health and can have a significant impact on improved opportunities for higher socioeconomic status, education, and employment (United Nations, Department of Economic and Social Affairs, 2019). Unfortunately, most family planning methods have primarily targeted women, and men are frequently excluded from discussions about reproductive health. (Chinnaiyan & Babu, 2021).

Family planning should be directed towards couples where both partners share equal responsibility and accountability. Women are given disproportionately more responsibility for contraception, child spacing, and family

formation in many societies around the world. As a result, family planning programmes are primarily geared towards female participation, with little or no consideration given to the male partner. Male participation is essential to the success of any family planning programme. (Nwankwo et al., 2022).

Vasectomy is a safe, effective contraceptive method for males to achieve permanent birth control by cleaving and closing off the vas deferens, preventing spermatozoa from being expelled during ejaculation. It is usually performed under either local or general anaesthesia. Complications such as scrotal hematoma, wound infection, chronic scrotal pain, and spontaneous recanalization may happen in a few instances. Fistulas, testicular infarction, and necrosis are unusual complications (Lamoury et al., 2023).

Vasectomy is just an effective tubal ligation but with less surgical risk and failure

rate. Despite the fact that the number of vasectomies appears to have declined over the last years (Venigalla et al.,2023). The cultural environment, as well as false beliefs, lack of knowledge, and misconceptions that vasectomy causes impotence and leads to ejaculatory problems, all contribute to low adherence to vasectomy (Chin naiyan & Babu,2021).

Community health nurses and gynaecological nurses are extremely important in enhancing vasectomy acceptance through increasing population 's knowledge about it, improve referral pathways and address any misconceptions (Harper et al, 2019).

Nurses hold positions in the community that could lead to increased involvement in providing family planning services to men. Community health nurses have traditionally provided preventive care such as health education and referral to individuals, families, and groups of childbearing women in such settings. In addition, administer or provide direct public family planning services. The nurse, as the first point of contact in the family planning clinic, can encourage both men and women to have a positive attitude towards family planning, evaluate the patient's knowledge, lead group discussions, facilitate communication, answer questions, and prepare the client for examination. (Janice, Swenson, Oakley and Marcy, 2023).

### Significance of the Study

Vasectomy use has decreased significantly around the world, even as overall contraceptive use has increased in the majority of countries. Vasectomy prevalence ranges from negligible to zero in almost all low- and middle-income countries (LMICs). Vasectomy is used by no more than one in every 1,000 partners in 56 LMICs. ( Jacobstein et al.,2023). Despite its safety and efficacy, vasectomy is not widely used in developing countries like Egypt due to gender biases, a lack of access to facilities, and a lack of support. (Nagar et al.,2023).

According to the Egyptian demographic health survey (EDHS) 2020, the use of long-acting and permanent methods such as

vasectomy is extremely low. A lack of knowledge, false beliefs such as fear of impotence, fear of surgical risks, and a desire for children in the future may all contribute to low vasectomy utilisation. As a result, there is a need for increasing community awareness regarding vasectomy as a potential vehicle to affect attitude change towards vasectomy use as in Egypt it remains low, so this study was carried out to assess the effect of a vasectomy counselling programme on women's knowledge, attitude, and acceptance.

After extensive literature review by the researcher, it was found that many Egyptian researches have been done to assess family planning knowledge and practice among married couples. However, few Egyptian studies have been conducted to assess the effect of vasectomy counselling program on women's knowledge ,attitude and acceptance. So, the current study's findings will contribute to the nursing body of knowledge and will be of great benefit to community and gynaecological health nurses in achieving the goal of the Egyptian Strategic Plan2030 by implementing a counselling programme that aims to improve women's knowledge and provides insight into misconceptions that may negatively impact their attitude and acceptance toward vasectomy.

### Aim of the Study

The study aimed to assess the effect of vasectomy counselling program on women 's knowledge, attitude and acceptance.

### Research Hypothesis

To fulfil the aim of the study, the following hypotheses were formulated:

H1: Women who exposed to the counselling programme will have higher post-test mean knowledge scores than pre test mean scores.

H2: Women who exposed to the counselling programme will have higher post-test mean attitude scores than pre-test mean scores.

H3: Women who exposed to the counselling programme will have higher post-

test mean acceptance scores than pre-test mean scores.

### Methods

#### Research Design

A quasi – experimental one group pre and post-test design was employed. A quasi-experimental research design, according to **Devin (2015)**, involves manipulating independent variables to observe the effect on dependent variables but does not use randomly assigned groups. A single case is observed at two time points, one before and one after the intervention, using a one-group pre & post-test design. Changes in a desired outcome are attributed to the intervention or treatment.

#### Setting

The study was carried out at family planning clinic of Obstetrics and Gynaecology Department at Sohag University Hospital. This hospital has a higher rate of attendance from both rural and urban areas in Sohag city, and it provides free services to women who live in the city.

#### Sample

A convenient sample of 100 women was selected to be included in the study sample. The sample size was calculated using (Epi-info statistical package, version 7.2, designed by the CDC (Centre for Disease Control and Prevention) with 80 percent power, a value of 2.5 is chosen at the acceptable limit of precision (D) at 95 percent confidence level (C1), with expected prevalence 10%, worst acceptable 25%.

#### Inclusion criteria:

- 1- Women agreed to take part in the study.
- 2- Women with more than 5 Para.
- 3- Women with a high-risk pregnancy, such as gestational diabetes, Pregnancy induced hypertension.

#### Tools for Data Collection

Data was collected by using four tools that was developed by the investigator as following:

**First tool:** Women's personal data questionnaire. It included two parts:

**1<sup>st</sup>part :** It included personal data of the women related to age, residence, educational level and occupation.

**2<sup>nd</sup> part:** Women's family planning history included: method used, duration& side effects.

#### Second tool: Women's Knowledge Questionnaire regarding vasectomy.

It was constructed by the researcher to assess women knowledge regarding vasectomy. It consisted of 10 multiple choice questions related to definition (1 item) , type of vasectomy (1 item), mechanism of action(1 item), effectiveness of vasectomy (2 item), sex and ejaculation again after a vasectomy (2 item), side effects of vasectomy (1 item), complications (1 item) and vasectomy reversal ( item).

#### Scoring system for Women's Knowledge Questionnaire regarding vasectomy.

Each correct answer was scored 1 point, for a total of ten points. Respondents were considered to have adequate knowledge if they answered 60% or more of the knowledge questions correctly. If their score is less than 60% (6 out of 10) they are considered to have inadequate knowledge

Third tool: Women's Attitude and acceptance scale.

It was used to assess women attitude and acceptance regarding vasectomy. It consisted of 10 Likert scale questionnaire rated as agree, neutral, or disagree.

#### Scoring system for Women's Attitude and acceptance scale.

It consisted of 3 point liker scale questionnaire. Question designed to be answered by (Agree =3, Neutral= 2, disagree = 1). It will be satisfactory during analysis of result to categorize the responses of women as total possible score is 30 for each respondent. Women considered have positive attitude and

acceptance (If the percentage score  $\geq 60\%$ ) (Score  $\geq 18$ ) & Negative attitude and acceptance (If the percentage score  $<60\%$ ) (Score  $< 18$ ).

### Validity and reliability

A panel of three experts in the fields of Women Health, Obstetric Nursing and Community health Nursing respectively.

### Ethical consideration.

The Research Ethics Committee at Sohag University's Faculty of Nursing provided ethical approval. The manager of the Sohag University Hospital's family planning Clinic gave his official approval. Women were informed of the study's purpose and nature prior to data collection. They agreed to participate in the study after learning about its purpose. They were also assured that the data would be kept private and used only for research purposes. They were also informed that their participation in the study was entirely voluntary and that they could opt out at any time.

### Pilot study:

It was performed on 10% of the total sample (ten women) to assess the clarity and applicability of the tools; no changes were made and the total sample was included.

### Procedure:

The actual fieldwork took place over four months, from July 2023 to October 2023, and was divided into four phases: assessment, planning, implementation, and evaluation.

### (1)Assessment phase.

In this phase, assessment of women knowledge, attitude and acceptance was done using vasectomy knowledge assessment questionnaire and attitude and acceptance scale. Tools were filled out by the researcher. Care was taken to simplify the questions to be at the level of the women understanding and explanations were given whenever questions arise. Time spent to fill the questionnaire ranged from 15- 20 minutes.

### (2)Planning phase.

In this phase, based on the results obtained from assessment and review of related literature, the researcher designed the counselling program. The aim of this counselling program was to provide women with Health knowledge, Obstetric Nursing and community health Nursing to help them to change their attitudes and increase their acceptance to this method. The number of sessions, number of women in each session, place and time of sessions were delineated. Teaching methods and media were planned during this phase.

### (3) Implementation phase:

The counselling programme was carried out during this phase. The designed programme was presented in basic Arabic. The designed programme was implemented in two sessions, each session consisting of a teaching class using pre-designed training materials. The researcher introduced the programme to each group of women in the same way, and the session lasted between 30 and 45 minutes.

An orientation to the session objectives took place at the start of each session. During the counselling programme, pamphlets and flyers were distributed. Hands out of contents were given. Each session concluded with feedback. During the program's implementation, lectures and discussions supported with photos, videos, and posters were used as teaching methods.

### The program sessions:

The first session was an introductory in which the researcher established rapport &relaxing atmosphere with the women as well as exploring false beliefs and misconceptions about vasectomy, followed by what is vasectomy and type of it, mechanism of action, and effectiveness of it. It was conducted in seminar room at the obstetrics and gynaecology department using Arabic language that was appropriate for women's understanding. The second session, the researcher explained the side effects, complications, and availability of vasectomy reversal.

#### (4)Evaluation phase:

To assess effect of the vasectomy Counselling program on improving knowledge, attitude and acceptance of women regarding vasectomy, a post-test (two month from the application of the counselling) was done using the same tools.

#### Statistical analysis

For data entry and statistical analysis, the statistical package for social science (SPSS, version 22) was used. To represent quantitative variables, frequencies, mean standard deviation, and percentages were used. All statistical analyses had a significant level of 0.05 (p value). A p value greater than 0.05 indicates an insignificant result. The p value of 0.05 indicates that the result is significant. The t-test was used to compare numerical variables.

#### Results

**Table (1):** Displays the women's personal data. It reveals that (70.0%) of the women were between the ages of 25 and 30 with a mean age  $28.8 \pm 5.8$ . In terms of residence, (80%) of them lived in rural areas. Regarding educational level, (70%) of the women has a low level of education. On the other hand, (72%) of women are unemployed. Furthermore, 58% of the studied women's husbands have a lower educational level.

**Table (2):** Reveals women's family planning history and clarifies that, that oral contraceptive pills and IUD are the most used methods (36%,30%) respectively and the most common side effect is menstrual irregularity (43%).

**Figure (1):** Shows that approximately (52%) of the studied women are unaware of vasectomy, and friends & relatives serving as the primary source of information for 26% of the women.

**Table (3):** Shows a highly statistical significance difference between pre & post-test regarding women's knowledge about vasectomy with p-value (0.001).

**Figure (2):** Demonstrates a highly statistically significant difference in total knowledge scores between pre- and post-test, with a p- value of 0.001. Where (100%) of the women had inadequate knowledge in the pre-test, compared to (90%) of the women had adequate knowledge in the post-test. These results support the first research hypothesis.

**Figure (3):** Shows a highly statistically significant difference in total women's attitudes scores towards vasectomy in the pre- and post-test, with a p- value of 0.001. Where (80%) of women had negative attitude toward vasectomy in pre-test, compared to (88 %) of women had positive attitude in post-test. These results support the second research hypothesis.

**Figure (4):** Clarifies a highly statistical significance difference between total women's acceptance scores of vasectomy in pre & post-test with p- value 0.001. Where (84%) of the women were not accepted vasectomy as contraceptive methods in pre-test, compared to (92 %) who were accepted it in post-test. These results support the third research hypothesis.

Table (1) Frequency distribution of women's personal data (N=100).

Personal data	N(100)	%
<b>Age group / years</b>		
• Less than 30 years	70	70
• 30 and more	30	30
<b>Age mean and SD</b>	<b>28.8±5.8</b>	
<b>women' education:</b>		
• Higher education	30	30
• Lower education	70	70
<b>Residency :</b>		
• urban	20	20
• Rural	80	80
<b>Women' working status:</b>		
• Employed	28	28
• Unemployed	72	72
<b>Husband ' education:</b>		
• Higher education	42	42
• Lower education	58	58

Table (2): Frequency distribution of the studied women according to their family planning history (N=100).

Variables	Studied women (N=100)	
	No	%
<b>Family planning method</b>		
• Oral contraceptive Pills	36	36
• Implanon	12	12
• Injections	22	22
• IUD	30	30
<b>Side effects</b>		
• No side effects	27	27
• Menstrual irregularity	43	43
• Mood changes	30	30
<b>Duration of use family planning: Mean ± SD</b>	<b>25.14±11.51</b>	
• 6 – 24 months	58	58
• > 24 months	42	42

Figure 1: Frequency distribution of women's source of knowledge regarding vasectomy before counselling program (N=100).

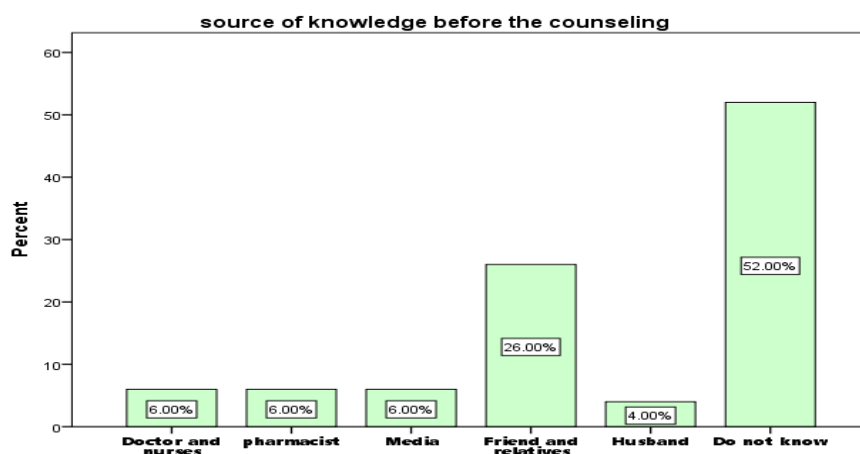


Table (3): Frequency distribution of studied women according to their knowledge about vasectomy in pre-test and post-test (N=100).

Variables		Pre		Post		P value
		No	%	No	%	
What is vasectomy	Correct	42	42	92	92	.001**
	In correct	58	58	8	8	
What is type of vasectomy	Correct	20	20	92	92	.001**
	In correct	80	80	8	8	
How does vasectomy work	Correct	28	28	92	92	.001**
	Incorrect	72	72	8	8	
When it is effective	Correct	22	22	92	92	.001**
	Incorrect	78	78	8	8	
How Effective Are Vasectomies	Correct	24	24	92	92	.001**
	In correct	76	76	8	8	
A man can ejaculate after vasectomy	Correct	22	22	92	92	.001**
	In correct	78	78	8	8	
Vasectomy prevent STI	Correct	42	42	90	90	.001**
	In correct	58	58	10	10	
When Can You Have Sex Again After a Vasectomy	Correct	20	20	90	90	.001**
	Incorrect	80	80	10	10	
Can a Vasectomy Be Reversed	Correct	28	28	92	92	.001**
	Incorrect	72	72	8	8	
What are Side effects of vasectomy	Correct	22	22	90	90	.001**
	Incorrect	78	78	10	10	
What are complications of vasectomy	Correct	24	24	90	90	.001**
	Incorrect	76	76	10	10	
Total knowledge scores		<b>Pre Mean ±SD</b> 2.9 ±3.6		<b>Post Mean ±SD</b> 10 ±2.9		.001 **

\*Significant at the 0.05 level

Figure (2): Percentage distribution of women’s total knowledge scores regarding vasectomy in pre-test and post-test (N=100).

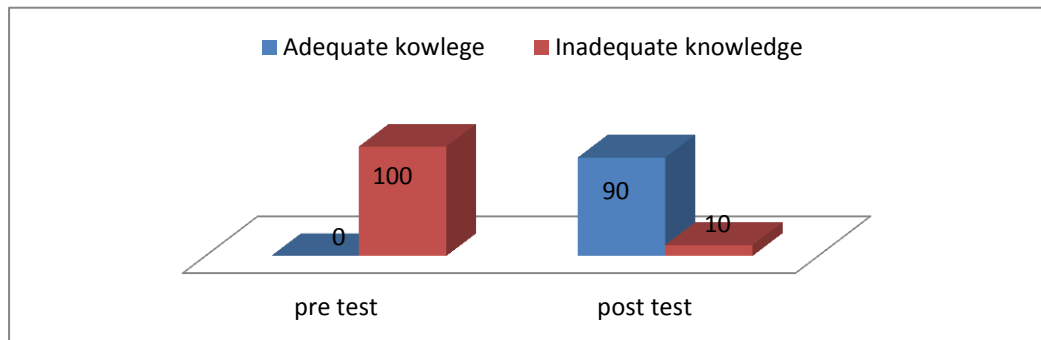


Figure 3: Percentage distribution of women’s total attitude score regarding vasectomy in pre-test and post test (N=100).

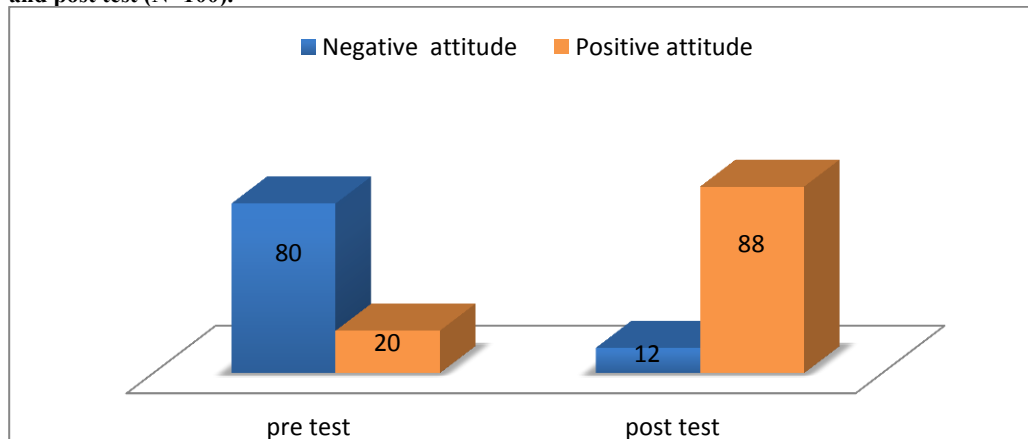
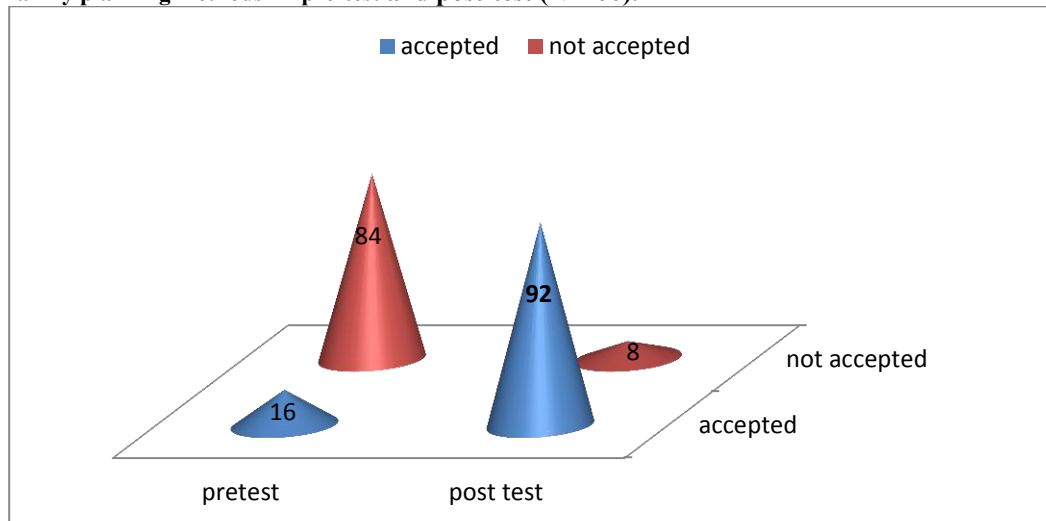


Figure 4: Percentage distribution of women’s total acceptance scores regarding use vasectomy as family planning methods in pre-test and post-test (N=100).





## Discussion

Vasectomy is a male permanent method of contraception that is both safe and effective. (Nwankwo et al., 2022). Despite its numerous benefits, the low adherence to vasectomy is related to false beliefs and with poor knowledge ( Arenas et al., 2020). So, the current study aimed to assess the effect of vasectomy counselling program on women's knowledge, attitude and acceptance.

Regarding to the source of women's knowledge about vasectomy before counselling program the current study results revealed that, friends and relatives were the primary source of knowledge .This is in the same line with (Nwankwo et al., 2022) who conducted research to assess the knowledge, perception, and acceptance of vasectomy among male teachers in secondary schools in Chikun Local Government Area of Kaduna State, Nigeria, and discovered that the majority of knowledge came from friends. In contrast to Ibrahim et al.,2022 who conducted their study in Egypt, Assuit to assess the effect of an educational programme on improving childbearing women's knowledge, attitude, and intention to use IUCD as an EC method, and reported that doctors and nurses were the primary sources of knowledge. This difference could be attributed to the type of family planning method studied.

Concerning women's knowledge, attitude, and acceptance towards vasectomy prior to the implementation of the vasectomy counselling programme, all of the studied women had inadequate knowledge, and more than two-thirds of them had a negative attitude and had not accepted vasectomy as a family planning method. This was similar to (Sukumar & John, 2022), who conducted a study in India's Vellore district of Tamil Nadu to assess married women's contraceptive knowledge, attitude, and practises and found that the majority of the women had little knowledge about vasectomy.

Furthermore, the study findings are consistent with those of (Malas et al.,2018) who conducted a study to assess the general Lebanese population's knowledge and attitude

towards vasectomy and tubal ligation and discovered a significant lack of knowledge and interest in vasectomy. In same line with (Nwankwo et al .,2022) who reported that The majority of respondents had poor knowledge and a negative perception of vasectomy, with many misconceptions, and vasectomy acceptance was also low. These findings could be attributed to false beliefs that family planning is only for women, and culture could be a barrier to public awareness or acceptance of this method.

However, the current study results contradicted with Arenas et al (2020) who did their study in Colombia to describe the level of knowledge, beliefs, and acceptance of vasectomy in a sample of Colombian medical students, and discovered that Colombian medical students have a high level of knowledge about vasectomy. This disparity could be attributed to a difference between the two studies in methodological methods (sample and study setting).

Concerning, total knowledge, attitude and acceptance of the studied women regarding vasectomy in pre-test and post-test, the current study clarifies that there is highly statistical significance differences between pre &post-test in knowledge, attitude and acceptance scores with p-value 0.000. In the harmony with Yadassa et al.,2023 who conducted a study to determine the effect of family planning education on knowledge, attitude, and practice towards family planning among married couples in Jimma Zone, Ethiopia and reported improvement in knowledge, attitude, and practice level following family planning education.

In addition, matched with Ibrahim et al (2022) who reported After the educational programme, there was a significant improvement in the total score of knowledge and attitude, and women's intention to use IUCD as EC increased. These findings may be attributed to the effect of a vasectomy counselling programme on improving women's knowledge, which is reflected in their attitudes and acceptance of vasectomy as a family planning method.

### Limitations of this study

**Firstly**, unavailability of national and International papers that study the effect of counselling program on women' knowledge, attitude and acceptance regarding vasectomy.

### Conclusion

The counselling program had significant positive effect on women's knowledge, attitude and acceptance which was evident by the increase in their total knowledge, attitude and acceptance scores in post-tests compared to pre-test mean scores. So that, the research hypotheses were accepted.

### Recommendations

- 1- Implementing vasectomy counselling program led by nurses in family planning clinics is strongly recommended as an effective strategy to enhance community awareness about using vasectomy as family planning methods.
- 2- Community awareness campaigns using various forms of media to provide more information about vasectomy in order to raise awareness, dispel myths, and increase vasectomy acceptance.
- 3- Implementing of vasectomy counselling program on a large scale sample of Egyptian women and men to validate the effectiveness of the program and to ensure the generalizability of results.
- 4- More research is needed to assess the barriers to vasectomy acceptance in order to devise an effective strategy to overcome them.

### References:

- Abbe, C. R., Page, S. T., & Thirumalai, A. (2020).** Male Contraception. *The Yale journal of biology and medicine*, 93(4), 603–613.
- Arenas D T, González J L, Ramírez-Blanco I J, Molano S C, Taborda L A & Agudelo J S (2020).** Knowledge and Acceptance towards Vasectomy in a Sample of

Medicine Students. *Urol Colomb*;29:71–76.

**Chinnaiyan, S., & Babu, B. (2021).** A Study of Attitude, Awareness, and Knowledge of Vasectomy among Married Men in Urban Slums of Chennai, Tamil Nadu, India. *International Journal of Infertility and Fetal Medicine* Volume 12 | Issue 3 | Year 2021. Available at: <https://doi.org/10.5005/jp-journals-10016-1226>

**Dejene Wolde, Y., Ali, M., Gebremeskel, F., Ukke, G. G., Gebreselassie, R., Demelash, M., ... & Hailu, M. (2023).** Knowledge, Attitude and Associated Factors Towards Vasectomy Among Married Men in Arba Minch Town, Southern Ethiopia, 2021; A Cross-Sectional Study. *Open Access Journal of Contraception*, 1-13.

**Egyptian demographic health survey, (2020).** Determinants of family planning use among currently married women. *Global Health, Population and Development Congress Press Conference*.

**Harper CC, Speidel JJ, Drey EA, Trussell J, Blum M, Darney PD (2019).** Copper intrauterine device for emergency contraception: clinical practice among contraceptive providers. *Obstet Gynecol.*;119(2 Pt 1):220–226.

**Ibrahim, HW., Maklof, M E., & Mohamed, RR. (2022).** Effect of educational program on knowledge and attitude of childbearing women about intrauterine copper device as emergency contraceptive method. *Egyptian Journal of Health Care*, 13(1), 99-113.

**Janice M., Swenson, I., Oakley, D., and Marcy, S. (2023).** Community Health Nurses and Family Planning Services for Men. *Journal of Community Health Nursing*, Vol. 7, No. 2 (1990), pp. 87-96 Published by: Taylor & Francis, Ltd. Stable URL: <https://www.jstor.org/stable/3427264> Accessed: 23-11-2023 08:26 +00:00

**Jacobstein, R., Radloff, S., Khan, F., Mimno, K., Pal, M., Snell, J., ... & Tripathi, V. (2023).** Down But Not Out: Vasectomy Is

- Faring Poorly Almost Everywhere—We Can Do Better To Make It A True Method Option. *Global Health: Science and Practice*, 11(1).
- Lamoury, R. P. A., Pauwels, J., De Wachter, S., & Brits, T. (2023).** Review of vasocutaneous fistulas and other rare complications after vasectomy. *Central European journal of urology*, 76(2), 155–161. <https://doi.org/10.5173/ceju.2023.04>
- MALAS, S, SALAMI, M, RAMADAN, A SHAHROUR, Z; and YASSIN, A. (2018)** ."knowledge and attitude regarding vasectomy and tubal ligation among the lebanese population," *BAU Journal - Health and Wellbeing*: Vol. 1: Iss. 3, Article 60. DOI: <https://doi.org/10.54729/2789-8288.1112>.
- Nagar, K. ., Thakor, R. ., Parmar, S. ., Bhatt, V. ., Zala, Y. ., & Raval, Y. . (2023).** Knowledge and Attitude Regarding Vasectomy among Married Men in Rural Area of Kheda District Gujarat: A Descriptive Study. *Journal of Advanced Zoology*, 44(S-3), 891–898. Retrieved from <http://www.jazindia.com/index.php/jaz/article/view/820>
- Nwankwo, B., Jonah, M., Usman, N. O., & Nmadu, A. G. (2022).** Knowledge, perception, and acceptance of vasectomy among male teachers in secondary schools in chikun local government area of Kaduna State, Nigeria. *Nigerian Journal of Medicine*, 31(3), 255-260.
- Sukumar, M. B. A., & John, S. M. (2022).** Knowledge, Attitude and Practices of Contraceptives Among Married Women of Rural Vellore. *Journal of obstetrics and gynaecology of India*, 72(Suppl 1), 68–74. <https://doi.org/10.1007/s13224-021-01552-4>.
- United Nations, Department of Economic and Social Affairs, Population Division.(2019).** *Family Planning and the 2030 Agenda for Sustainable Development*. New York: United Nations. [https://www.un.org/en/development/desa/population/publications/pdf/family/familyPlanning\\_DataBooklet\\_2019.pdf](https://www.un.org/en/development/desa/population/publications/pdf/family/familyPlanning_DataBooklet_2019.pdf)
- Venigalla, G., Kohn, T. P., Pozzi, E., & Ramasamy, R. (2023).** Vasectomy has no impact on future lower urinary tract symptoms diagnoses: a retrospective cohort claims database analysis. *JU open plus*, 1(4), e00015
- Yadassa, F., Debelew, G. T., & Birhanu, Z. (2023).** The Effect of Family Planning Education on Knowledge, Attitude and Practice Toward Family Planning Methods Among Married Couples in Kersa and Goma Districts of Jimma Zone, South West Ethiopia. *Risk management and healthcare policy*, 16, 2051–2062. <https://doi.org/10.2147/RMHP.S427176>