

Raaidat Refiat Awareness and their Role Regarding Emergency Contraception in El Behera Governorate

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Abstract

Background: Overpopulation is a global concern, with unintended pregnancies contributing to unsafe abortions. Emergency contraception (EC) is an effective method to prevent such pregnancies. In Egypt, community health workers (Raadat Refiat, RRs) play a key role in family planning and emergency contraceptive awareness. **Objective:** This study aims to assess the awareness and self-reported role of Raadat Refiat regarding EC in El Behera Governorate, Egypt. **Design:** A cross-sectional descriptive design was used to carry out this study. **Setting:** The study was carried out in 412 primary health care settings that representing 16 health districts in El Behera. **Subjects:** A total of 1,011 Raadat Refiat are employed by the Ministry of Health, who are working in 16 health directorates of El Behera Governorate were interviewed to assess their awareness and self-reported role. **Tools:** two tools were used in this study. **Tool I:** Raadat Refiat' Awareness Structured Interview. This tool covering three parts. Part I: Socio-demographics characteristics of RR, Part II: knowledge regarding Emergency Contraceptives (20-question scale), and part III: RR attitudes towards emergency contraception (14-statement Likert scale). **Tool II:** Raadat Refiat self-reported role Questionnaire. Analysis included descriptive statistics and correlation analysis. **Results:** The majority of the Raadat Refiat (86.2%) had high knowledge regarding emergency contraception, correctly identifying it as a post-coital method (98.6%) and differentiating it from abortion pills (81.3%). While 68.5% exhibited positive attitudes, misconceptions persisted—76.4% believed EC accelerates miscarriage, and 90.5% believed it causes infertility. Raadat Refiat actively promoted EC awareness (94.2%) and its role in preventing unsafe abortions (92.4%). A significant positive correlation was found between knowledge, attitudes, and self-reported role, with training significantly improving knowledge and attitudes. **Conclusion:** Raadat Refiat in El Behera Governorate possess a good knowledge level regarding EC, positive attitudes, and a partial functional role in EC promotion. However, misconceptions and socio-economic barriers limit their effectiveness. Targeted training, stronger community engagement, and improved EC access are essential to enhance their role and reduce unintended pregnancies. **Recommendations:** targeted training, community engagement, and improved access to EC are crucial to enhance their role and reduce unintended pregnancies.

Keywords:

Raaidat Refiat, Awareness, Role, Emergency Contraception, El Behera Governorate

Introduction

The rapid growth of the global population presents a significant challenge worldwide. Since 1950, the population has more than tripled, reaching 8.0 billion in November 2022, with projections indicating an increase to 9.7 billion by 2050 and a peak of 10.4 billion by the 2080s (United Nations Population Fund [UNFPA], 2023). Overpopulation contributes to several socio-economic and environmental issues, including poverty, unemployment, resource depletion, and poor health outcomes (Davis et al., 2020). A key factor for this crisis is unintended pregnancy, often followed by unsafe abortion, which remains a pressing public health concern across all regions and income levels (Mamuye et al., 2021).

Unintended pregnancy, whether mistimed or unwanted, has profound implications for women, families, and societies. It is estimated that 55.5 million pregnancies in Low and Middle-Income Countries (LMICs) are unplanned annually (Awopegba et al., 2021). Despite Egypt's extensive family planning programs, approximately 25% of pregnancies remain unplanned, indicating an unmet need for contraception (Mohammed et al., 2019). Addressing these gaps is essential in achieving reproductive health goals, reducing maternal mortality, and enhancing women's well-being (Lutalo et al., 2018).

Emergency contraception (EC) plays a vital role in preventing unintended pregnancies and reducing unsafe abortions. EC is a modern contraceptive method used within five days of unprotected intercourse, with emergency contraceptive pills (ECPs) and copper intrauterine devices (IUDs) being the most common forms (Panda et al., 2021). The World Health Organization (WHO) recognizes EC as a safe and effective method, capable of preventing up to 95% of unintended pregnancies when used correctly (World Health Organization [WHO], 2021). However, despite its availability in the Arab region, awareness and utilization remain low (Saleh et al., 2023).

Community health workers (CHWs), known as Raadat Refiats (RRs) in Egypt, serve as crucial links between health systems and communities. Their role in promoting EC awareness and adoption is vital for addressing unmet contraceptive needs (Abdelmegeid et al., 2015). Enhancing their knowledge and engagement can significantly impact contraceptive uptake and reduce the burden of unintended pregnancies (Lehmann et al., 2024). Therefore, assessing RRs' awareness and role in EC advocacy is essential for improving reproductive health outcomes.

Aims of the Study

This study aims to assess the awareness and role of Raadat Refiat regarding emergency contraceptives in El Behera Governorate.

Operational Definitions

Awareness refers to Raadat Refiat's knowledge and attitudes regarding emergency contraceptives.

Raadat Refiat are community health workers affiliated with the Ministry of Health, recruited from their local communities to visit women and their families at home.

Research questions

What is the knowledge level of Raadat Refiat regarding emergency contraceptives in El Behera Governorate? (2) What is their attitude toward emergency contraceptives? (3) What role do they play in educating and guiding women about emergency contraception?

Materials and Method

Materials

Design: A cross-sectional descriptive design was used to carry out this study.

Settings: The study was carried out in 412 primary health care settings that representing 16 health districts in El Behera. By using multistage sampling technique El Behera Governorate is divided into three

district regions based on the geographical features and closeness which affiliated to the Ministry of Health and Population (MOHP) namely: the prevailing agriculture region, the prevailing desert region and the prevailing coastal region.

Subjects: All available Raedat Refiat personnel in each health directorate affiliated to the Ministry of Health in El Behera Governorate were included in the study. The number of Raedat Refiat varies across districts, with the highest concentration in Damanhour, Kafr El Dawar, and Kom Hamada. In contrast, districts such as El Natroun Valley and Edco have the lowest numbers of Raedat Refiat. According to the Information Center Statistics of El Behera Governorate (2022), there are 16 health districts comprising 412 primary healthcare settings. Across these districts, a total of 1,011 Raedat Refiat are employed by the Ministry of Health, making them the study's target population. (n=1011).

Tools: Two tools were used to collect the required data:

Tool I: “Raedat Refiat Awareness Structured Interview Schedule”: This tool was developed by the researcher in Arabic language after reviewing the recent relevant literature (Alam et al., 2013; Perveen & Khan, 2017). It consists of three parts:

Part I: Socio-demographic Characteristics of Raedat Refiat. This part included the following data: age, marital status, level of education, religion, number of children, residence, family income and years of experience...etc.

Part II: Raedat Refiat' Knowledge Regarding Emergency Contraceptives. This part developed by the researcher after reviewing of recent literatures. It contains 20 questions that was measure knowledge level of Raedat Refiat regarding emergency contraception back ground information as: (definition, types, indication, mode of action, efficacy, side effect intervention and management).

They were scored on Three-point Likert-type scale as follow: correct/complete answer score (2), correct/incomplete answer score (1) and wrong / don't know answer score (0). The total score was ranged from 0 to 40. Scores classified into low knowledge (<50%), moderate knowledge (50–<75%), and high knowledge (75–100%).

Part III: Raedat Refiat' Structured Attitudes Scale: this part includes 14 statements for evaluating RR' perceptions regarding emergency contraception. Statements address concerns such as its potential abortifacient effect, ethical considerations, teratogenic risks, cultural acceptability, and cost. Responses were rated on a three-point Likert scale (0 = disagree, 1 = neutral, 2 = agree). Scores converted into percentage categories: negative attitude (<60%), neutral attitude (60–<75%), and positive attitude (75–100%).

Tool II: Raedat Refiat self-reported role Questionnaire: It composed of the following parts:

Part I: Raedat Refiat self-reported role: to assess Raedat Refiat' role regarding emergency contraception (Ballard & Furth, 2019) was adapted and translated by the researcher. This part included 15 evidence based best practices that define highly functional role of Raedat Refiat. Each component evaluated on a four-point scale, ranging from non-functional (level 1) to highly functional (level 4). The total score converted into percentage categories: negative functional response (<60%), neutral functional response (60–<75%), and positive functional response (75–100%).

Part II: Challenges encountered by RR in fulfilling their Role to raise awareness among rural women about Emergency contraception. This part adopted by the researcher from Shehata (2022) and Mohamed et al. (2023). Which included 7 questions to determine the level of difficulties faced by RR aimed at understanding the challenges in fulfilling their Role.

Part III: suggestions for enhancing their roles in raising awareness among women. Included 7 suggestions for enhancing RR roles in raising awareness among women.

Method

Approval of the Research Ethics Committee, Faculty of Nursing, Alexandria University was obtained. Official letters from the faculty of Nursing, University of Alexandria were directed to the Ministry of Health and Population (MOHP) in Cairo and the Directorates of Health of El Behera Governorate to obtain their approval for collecting the necessary data from the selected family health centers. Written approval also were secured from the relevant health authorities in El Behera Governorate. Meetings with health directorate officials were held to explain the study's objectives and gain their cooperation. The study tools were tested for content validity by a group of 5 experts in the fields of Community Health Nursing. The necessary modifications were made accordingly. A pilot study was carried out on 5% of Raedat from 10 family health center in Alexandria governorate to test the clarity and applicability of the research tools.

The study tools were tested for reliability using Cronbach's Alpha test. The reliability coefficient was 0.821 for the Raedat Refiat' Knowledge Regarding Emergency Contraceptive method and 0.737 for Attitudes Scale questionnaire and 0.877 for Raedat Refiat self-reported role Questionnaire which is acceptable.

The data was collected by the researcher during the period from February 2023 to July 2023.

Ethical considerations:

Informed written consent was obtained from each RR after explaining the aim of the study and the right to refuse to participate in the study and/ or withdraw at any time. Data confidentiality was maintained during the implementation of the study.

Statistical Analysis

The collected data were organized, coded, transferred into a specially designed format to be suitable for computer feeding and statically analyzed using the statistical package for social studies (SPSS) Version 25.0. Variables were analyzed using descriptive statistics which included: percentages, frequencies, range (minimum and maximum), arithmetic mean, and standard deviation. Finally, analysis and interpretation of data were conducted. P-values of 0.05 or less was considered statistically significant.

Results

Table 1: Shows the distribution of the Raedat Refiat according to their socio-demographic characteristics. The table revealed that the RR' age ranged from 25 to 54 years with a mean of 42.9 ± 8.3 years. Slightly less than two-thirds (63.8%) of RRs were 40 to less than 54 years old, more than one-third (35.4%) of them were 25 to less than 39 years old, while the minorities (0.8 %) of them aged less than 25 years. Nearly all participants (98.3%) were Muslims, and most (84.7%) were married. More than two-thirds (69%) had intermediate education, and the mean family size was 5, (55.1%) having 4-6 family members

In terms of monthly income, nearly two-thirds (62.2%) felt their income was insufficient, and a majority (76.3%) lived in rural areas. More than three-quarters (77.5%) had over 10 years of work experience. Finally, less than one-third (29%) had attended training courses, with about half (49.3%) attending in 2023.

Table 2 reveals that the majority of participants (86.2%) demonstrated high knowledge of emergency contraception, with scores ranging from 3.0 to 59.0 and a mean of 33.3 ± 4.3 .

Most participants (98.6%) correctly identified emergency contraception as a post-coital method, and 81.3% distinguished emergency contraceptive pills from abortion

pills. Awareness of the copper IUD as an emergency method was high (88.2%), though 72.1% misunderstood its applicability. Knowledge of hormonal methods was more varied; fewer than half (43.5%) identified combination pills as an option, while 67.1% understood their mechanism of action. Most (89.7%) were aware of the 72-hour efficacy window, and 62.0% recognized common side effects.

A strong majority (95.0%) acknowledged rape as an indication for emergency contraception, and 89.9% recognized its use after unprotected intercourse. Additionally, 86.0% understood its role in missed birth control pills, and 85.2% knew the copper IUD could be used within five days. However, only 16.5% were aware that trained Raadat Refiat (RR) in the Ministry of Health and Population (MOHP) could provide emergency contraception, indicating a knowledge gap. Additionally, misconceptions persisted, with 71.9% incorrectly identifying breastfeeding as a contraindication and 72.1% uncertain about the copper IUD's suitability for emergency use.

Table 3 reveals that the majority of Raadat Refiat (RR) participants held positive attitudes toward emergency contraception.

Most agreed it is necessary in cases of unprotected intercourse (96.2%) and condom rupture (96.3%), and viewed it as a valid option following rape (95.8%). A significant proportion (95.4%) also felt emergency contraception should be easily accessible. Additionally, 86.6% believed it helps prevent unwanted pregnancies, and 70.5% viewed it as a tool to address irregular family planning use.

However, concerns regarding its side effects were prevalent. A large majority (76.4%) thought it could accelerate miscarriage, and 90.5% believed it might cause infertility. Approximately half (48.5%) expressed discomfort with prescribing it, while 35.4% considered it unsafe for pregnant women.

Despite these concerns, two-thirds (68.5%) of RR participants displayed a positive overall attitude towards emergency contraception. They were also highly engaged in reproductive health awareness, with 93.2% continually developing their knowledge and 97.5% working with teams on health programs. Many (92.4%) took an active role in educating women about emergency contraception, its role in preventing unsafe abortions, and its benefits in family planning, with 92.9% helping to raise awareness about the risks of unwanted pregnancies.

Table 4 presents the correlation between total knowledge, attitude, and self-reported role scores. A moderate, statistically significant correlation was observed between total knowledge and attitude ($r = 0.277$, $p < 0.05$). Similarly, total knowledge showed a significant moderate correlation with self-reported role ($r = 0.358$, $p < 0.05$). Additionally, attitude and self-reported role were moderately correlated ($r = 0.284$, $p < 0.05$).

Table 5 shows the determining factors significantly affecting the knowledge, attitude and self-reported role of Raadat Refiat:

The analysis revealed significant associations between sociodemographic factors and knowledge, attitudes, and self-reported roles regarding emergency contraception (EC).

Knowledge was significantly influenced by marital status ($p < .05$), with married, divorced, separated, and widowed individuals displaying higher knowledge levels. Job title also played a crucial role, as rural pioneers, population educators, and family club personnel exhibited significantly greater knowledge. Rural and semi-urban residents had higher knowledge levels than urban dwellers ($p < .05$). Additionally, experience was a determining factor, with participants having fewer than five years of experience demonstrating the highest knowledge levels. Training courses

significantly impacted knowledge ($p < .001$), particularly specialized programs on family planning.

Attitudes toward EC were significantly associated with marital status ($p = .04$), education level ($p = .001$), housing location ($p = .01$), years of experience ($p = .03$), and training participation ($p = .003$). Positive attitudes were observed among 69.2% of married individuals, 71.4% of divorced/separated individuals, and 55.6% of widowed participants. Education played a role, with 75.0% of those with upper-intermediate education exhibiting positive attitudes. Rural and semi-urban residents had more favorable attitudes (70.6% and 70.0%, respectively) compared to urban residents (59.4%). Experience under ten years was linked to more positive attitudes, with 75.9% of those with less than five years and 73.6% of those with 5-10 years of experience showing positive attitudes. Training participation significantly enhanced attitudes, with 76.0% of trained individuals displaying positivity compared to 65.4% of untrained individuals.

Self-reported role perceptions were significantly influenced by income ($p < .001$), experience ($p = .004$), and training ($p < .001$). Higher-income individuals reported more positive role perceptions (20.9%), while those with insufficient income had lower positive self-assessments (15.3%). Experience also played a role, with individuals having more than ten years of experience reporting more positive role perceptions (19.1%). Training participation substantially improved self-reported roles, with 25.7% of trained individuals perceiving their role positively compared to 13.8% of those without training.

Discussion

Emergency contraception (EC) plays a critical role in women family planning and reproductive health by providing a safe and effective method to prevent unintended pregnancies (Salcedo et al., 2023). Community health workers, such as Raadat

Refiat (RRs), serve as vital sources of information and guidance on EC for women in need. Understanding their knowledge, attitudes, and practices regarding EC is essential for optimizing healthcare services and addressing potential gaps in information (Garrett Wagner et al., 2018).

The present study assessed the knowledge, attitudes, and practices of RRs in El Behera Governorate regarding EC. Findings demonstrated that most RRs had a high level of knowledge, while some had misconceptions about specific aspects of EC.

These findings align with Mir and Malik (2010), who reported high EC awareness among community health workers (CHWs) in Pakistan, primarily due to social marketing and healthcare professionals. Similarly, Najafi-Sharjabad et al. (2013) found that Iranian healthcare professionals, including family health workers, midwives, and general practitioners, exhibited good EC knowledge. Ahmed et al. (2016) also reported that two-thirds of participants had good knowledge, with healthcare personnel as the primary information source. In contrast, Aodh et al. (2019) and Mohammad-Alizadeh-Charandabi et al. (2012) highlighted unsatisfactory EC knowledge among healthcare providers, emphasizing variations in study contexts and methodologies.

Interestingly, Ibrahim et al. (2013) found lower EC knowledge among Egyptian healthcare providers in Ismailia, indicating regional disparities. As a member of healthcare providers, family physicians acquire and maintain a broad array of competencies that influence their approach to unintended pregnancies. CHWs play a crucial role in identifying women at risk and serving as the first point of contact for those needing EC guidance (McCue et al., 2022).

Regarding EC methods, most RRs correctly identified emergency contraceptive pills and the copper IUD, yet misconceptions persisted. A third of RRs were unaware of different EC forms, and over half mistakenly believed combination pills were effective for

EC. In contrast, Adekunle et al. (2000) reported significantly low knowledge of EC methods among Nigerian healthcare workers, potentially due to diverse job roles within the study population.

RRs largely recognized rape as an indication for EC use, mirroring Sevil et al. (2006), who reported that most Turkish healthcare providers associated EC with rape, unprotected intercourse, condom failure, and missed pills. More than half of RRs correctly understood the timing and effectiveness of EC, aligning with Najafi-Sharjabad et al. (2013), who found that Iranian healthcare workers were well-informed about EC indications, timing, and side effects. However, Sevil et al. (2006) noted that only a fifth of participants knew the correct IUD insertion timing, suggesting growing awareness over time.

Furthermore, the current study pointed out that two-thirds of RRs correctly identified EC side effects and accessibility. Midwives and family health workers were more knowledgeable and frequently counseled women compared to general practitioners, consistent with Najafi-Sharjabad et al. (2013) and Jamali and Azimi Orimi (2007), who reported that midwives provided more EC counseling than physicians.

These results are congruent with findings in Iran, where midwives and family health workers engaged more in EC education due to higher attendance at family planning training programs. The present study similarly found that midwives played a more active role in EC counseling and unprotected sex screening than general practitioners. Despite good general knowledge, misconceptions about the copper IUD's suitability persisted, with three-quarters of RRs incorrectly believing it was appropriate for all cases.

The World Health Organization [WHO] (2021) advises against using the copper IUD for EC in women with contraindications such as pelvic inflammatory disease, cervical malignancy, and unexplained vaginal

bleeding. However, findings drawn from the current study indicate that most RRs agreed with the WHO's stance that EC poses no risk to a fetus and does not require a pregnancy test before administration. Corresponding to this, Mohammad-Alizadeh-Charandabi et al. (2012) similarly found widespread agreement among healthcare workers regarding EC safety. While Abdulghani et al. (2009) found a lower percentage with about two-thirds of their study participants declining the importance of doing a pregnancy test before taking EC.

Regarding the attitudes of Raadat Refiat (RRs) towards emergency contraception (EC), the present study findings illustrated that about two-thirds of RRs had a positive attitude towards EC and supported its use in specific circumstances, despite persisting misconceptions and concerns. There has been a great weight of evidence indicating that the vast majority of participants in previous studies shared a similar positive attitude (Adekunle et al., 2000; Atibioke & Ladipo, 2018; Mohammad-Alizadeh-Charandabi et al., 2012). The same findings were mentioned by Ahmed et al. (2016), who reported that half of their participants had a positive attitude towards EC use. Conversely, Ibrahim et al. (2013) found that less than half of the studied participants had a positive view of EC, while Sevil et al. (2006) stated that only one-third of participants in Turkey supported its use. These variations may be attributed to differences in social, cultural, and religious backgrounds. In contrast, Mir and Malik (2010) illustrated that most of their study participants held negative attitudes towards EC, perceiving it as a contributor to "evil" practices in society.

It is critical to understand that EC is not a long-term substitute for other contraceptive methods. It is apparent from the current study that a significant majority of RRs acknowledged the necessity of EC in cases of unprotected intercourse. Additionally, about two-thirds agreed that EC helps prevent the inconsistent use of family planning methods,

and the vast majority supported EC use in cases of rape. In this context, Mohammad-Alizadeh-Charandabi et al. (2012) stated that less than half of healthcare providers believed that increased awareness of EC could lead to higher incidences of unprotected sex. The same was mentioned by Najafi-Sharjabad et al. (2013), who pointed out that half of the participants held a positive attitude towards EC, with midwives screening more frequently for unprotected sex than general practitioners.

Notably, only half of RRs agreed that EC could be used by all women, highlighting uncertainty about its universal applicability. Furthermore, about two-thirds mistakenly believed that EC accelerates miscarriage, underscoring the need for enhanced education on its mechanisms. Regarding safety concerns, more than half of RRs disagreed with the notion that EC is dangerous during pregnancy, but about one-third still held the opposite view. Additionally, most RRs correctly disagreed with the belief that EC prevents sexually transmitted diseases, although a smaller proportion still had misconceptions about its purpose. These findings agree with a study conducted in Ghana, which declared that most participants acknowledged the safety of EC and supported its wide availability (Mohammed et al., 2019). In contrast, a study done by Ahmed et al. (2016) illustrated that half of their participants disagreed with the idea that EC could impact future pregnancies. More than half of their study sample supported EC for preventing unwanted pregnancy and would recommend it to family and friends.

The attitudes of healthcare workers toward EC are crucial for several reasons. First, their knowledge and perspectives significantly influence how they engage and counsel women who require EC. Positive attitudes can promote supportive care, while negative attitudes may discourage women from seeking EC. In this context, findings drawn from a study by Aksu et al. (2010) revealed that about three-fifths of midwives,

nurses, and practitioners believed EC could lead to increased unprotected sexual intercourse. Additionally, three-fourths thought that EC could discourage the use of condoms and other effective family planning methods, while a small percentage incorrectly considered EC an abortifacient.

According to the self-reported roles of RRs in raising awareness about EC, the current study findings indicate an intermediate level of involvement in health education. It is quite alarming to note that more than two-thirds of RRs perceived their contribution to EC awareness as only partially functional, while about one-seventh considered it fully functional. This highlights areas for improvement, particularly in hands-on activities like home visits and personalized follow-ups. This comes in line with the findings of Ibrahim et al. (2013), who stated that the study participants' knowledge and attitudes towards EC were low. However, in the current study, self-reported role scores were lower than knowledge and attitude scores, emphasizing the need to reinforce the role of RRs in educating all women of reproductive age about EC. Corresponding to this, a study carried out by Atibioke and Ladipo (2018) indicated that two-thirds of their participants had previously prescribed EC, but only one-fifth dismissed barriers to recommending its use.

It was not surprising to find that a significant majority of RRs reported a functional role in addressing health problems and maintaining professional development. Most RRs actively cooperated with their teams in implementing health awareness programs and informing women about the risks of unwanted pregnancies. These results match the findings drawn from a study by Bako et al. (2021), who examined the knowledge, attitude, and practice of EC among healthcare workers in Nigeria. The results revealed that most participants recognized the importance of EC and had previous experience assisting clients seeking

it. More than two-thirds had administered EC before.

With respect to education and support, about two-thirds of RRs conducted seminars on EC, though only half actively engaged in seeking women's opinions on the topic, indicating a need for more interactive discussions. A majority of RRs also worked to correct misconceptions about family planning methods and assisted women in obtaining family planning services. However, some gaps remain in terms of increasing the frequency and quality of these interactions. On the other hand, Adekunle et al. (2000) portrayed that only a low proportion of participants had prescribed emergency contraceptive pills in the past 12 months. Moreover, Atibioke and Ladipo (2018) reported that their study participants demonstrated a moderate level of uncertainty regarding their role in raising awareness about EC. A significant proportion also expressed ethical and religious concerns, reflecting hesitancy regarding its outcomes.

This current study examines how sociodemographic factors influence knowledge, attitudes, and self-reported roles among community health workers (Raadat Refiat). Age did not significantly affect knowledge or attitudes, although younger participants showed slightly higher knowledge, contrasting with Shakya et al. (2020), who noted a positive correlation between age and knowledge. Attitudes were generally positive across all age groups, with minor variations in self-reported roles.

Religious affiliation also showed no significant differences in knowledge or attitudes, aligning with Ibrahim et al. (2013). However, in another study, Christians showed slightly more positive attitudes, consistent with studies suggesting religious beliefs can shape contraception views (Borg et al., 2022). Marital status did not significantly influence knowledge or self-reported roles, although singles displayed the most negative attitudes.

Education level correlated with attitudes but not knowledge. Participants with higher education showed more positive attitudes, while those with intermediate education had the most negative views. This supports findings by Saleh et al. (2023), emphasizing the role of education in shaping reproductive health perspectives.

Family size and income significantly influenced knowledge and self-reported roles. Larger families had slightly lower knowledge levels, and sufficient income correlated with more positive self-perceptions. Semi-urban residents displayed the highest knowledge levels, possibly due to better access to information. These findings are consistent with Wani et al. (2019) and Youness et al. (2023), who noted income and social class impacts on family planning awareness.

Years of experience influenced all domains. Less experienced workers showed higher knowledge, while those with over ten years exhibited more positive attitudes and diverse self-perceptions. Training significantly enhanced knowledge, attitudes, and self-reported roles, highlighting the importance of continuous education.

Correlation Between Knowledge, Attitudes, and Self-Perception

This current study found moderate positive correlations between knowledge, attitudes, and self-reported roles. Higher knowledge levels were linked to more positive attitudes ($r = 0.277$) and stronger role identification ($r = 0.358$). Similarly, positive attitudes correlated with a stronger self-reported role ($r = 0.284$). These findings align with Aodh et al. (2019), who reported a strong relationship between knowledge and attitude but found no significant link between knowledge and practice.

Indeed, RR in El Behera Governorate have high level of knowledge about emergency contraception and positive attitudes, but there are still some misconceptions and the role they play towards emergency contraception is not fully activated.

This study's findings are limited by its small, region-specific sample, reducing generalizability. The cross-sectional design prevents causal inferences, and self-reported data may introduce bias. Additionally, the study did not account for other factors like psychological stressors or job satisfaction, which could offer a more comprehensive perspective.

Conclusion

Community health workers (Raedat Refiat, RRs) play a vital role in promoting emergency contraception, but knowledge gaps persist. Strengthening training, addressing socio-economic barriers, and enhancing community engagement are crucial.

Recommendations

In line with the findings of the study, the following recommendations are suggested

- Conduct longitudinal studies to track the long-term impact of Raedat Refiat interventions on family planning and emergency contraception use in the community.
- Compare the effectiveness of Raedat Refiat programs in different governorates to identify best practices and areas for improvement.
- Investigate the specific barriers that prevent community members from accessing emergency contraception and

how Raedat Refiat can address these challenges.

- Assess the effectiveness of training programs for Raedat Refiat workers and identify areas where additional training or resources may be needed.

Author contributions

Professor Ferial Abd El-Aziz Ali, supervised the research and provided expert guidance throughout all thesis start from selecting of title to final of research .

Professor Hanan Hosni El Sherbini, Supervised the research and provided expert guidance throughout the study assist in writing, revision and Offered expertise in the interpretation of results. Provided insights into the clinical application of the findings and assisted in the overall scientific content of the dissertation.

Assistance Professor Asmaa Mohammed Saad Khaled, Contributed to the study design, data analysis, and interpretation. Assisted in writing and revising the dissertation and provided guidance on the literature review and discussion sections.

Saadia Mohammed Saad Abdelwahab, RN in kafr Eldawar Health Administration: write protocol, collect data, do data analysis, write results, discuss study results in light of previous studies, give recommendations and write all thesis under supervision of my supervisors.

Table (1): Distribution of the studied Raedat Refiat according to their socio demographic characteristics.

Raedat Refiats' characteristics	Total (N=1011)	
	No.	%
Age		
<25	8	.8
25-39	358	35.4
40-54	645	63.8
Min – Max	22 – 60	Mean ± SD
		42.9±8.3
Religion		
Muslim	994	98.3
Christianity	17	1.7
Marital Status		
single	61	6.0
Married	856	84.7
Divorced/ separate	49	4.8
Widow	45	4.5
Education		
Intermediate	698	69.0
Upper Intermediate	140	13.8
University education	173	17.2
Number family		
<4	408	40.4
4-6	557	55.1
>=7	46	4.5
Min – Max	1.0 – 8.0	Mean ± SD
		5.0±1.0
Monthly income		
Enough	373	36.9
Enough and provides	9	.9
Not enough/you borrow	629	62.2
Housing		
Rural	771	76.3
Urban	180	17.8
Semi-urban	60	5.9
Years of experience		
Less than 5 years	87	8.6
5-10 years	140	13.8
More than 10 years	784	77.5
Training courses		
no	711	70.3
yes	300	29.7

Table 2: Total score of knowledge:

Items		No.	%
knowledge	Low <50	16	1.5
	Moderate 50-<75	124	12.3
	High 75-100	871	86.2
Min – Max 3.0-59.0		Mean ± SD	33.3±4.3

Table 3: Total score of attitudes:

Items		No.	%
Attitude	Negative <60%	108	10.7
	Neutral 60-<75%	210	20.8
	Positive >=75%	693	68.5

Table 4: Total score of self-reported role

Items		No.	%
Role	Negative <60%	43	4.3
	Neutral 60-<75%	793	78.4
	Positive >=75	175	17.3
Min – Max 21.0 - 79.0		Mean ± SD	40.1±5.1

Table 5: Correlation between knowledge, attitude, and role

Items	Correlation coefficient	Total knowledge	Total attitude	Total role
Total knowledge	r	1		
Total attitude	P	.000**	1	
	r	.277		
Total role	P	.000**	.284	1
	r	.358	.000**	

r: Pearson Correlation coefficients

P**<0.05 significant

Interpretation of r: Weak (0.1-0.24)

Intermediate (0.25-0.74)

Strong (0.75-0.99)

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