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RESEARCH ARTICLE

Assessing emergency contraception awareness among married women in primary health centers within East Godavari villages

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Abstract: This study aims to evaluate the awareness and comprehension of emergency contraception among adult married women attending Primary Health Centers (PHCs) in the villages of the East Godavari Region, Andhra Pradesh. A cross-sectional survey approach was employed, involving 386 married women aged 18 to 45. Exclusions comprised single women, those above 45, and those unwilling to participate. Multistage random sampling was utilized. Among the 386 participants, 53.5% were aged 30-40, with ages ranging from 23 to 44. Most had education up to the secondary level (53.7%). Approximately 57% were aware that unprotected intercourse could lead to unintended pregnancy. The mean knowledge score was 27.5%, with only 15.3% scoring above 60%. Age, number of offspring, education, employment, and monthly family income were significantly correlated with knowledge levels. Findings reveal limited awareness of emergency contraception, with higher knowledge among women aged 21-29 (31.5%), post-graduates (21.2%), employed individuals (19.5%), and families earning over 15,000 INR monthly (41.3%). Emphasizing education and promoting emergency contraception use is crucial based on our results.

Keywords: Contraception; Pregnancy; Quality of life; Menstrual health; Emergency pills

1. Introduction

Emergency contraception (EC) should be promptly administered as it stands among the most effective measures for preventing unintended pregnancies [1]. The controlled and efficacious post-coital application of a pharmaceutical or contraceptive device to avert pregnancy is denoted as emergency contraception. Emergency contraception assumes a crucial role in preventing undesired pregnancies [2], a pervasive global clinical concern. Annually, approximately 79 million unintended pregnancies occur worldwide, stemming from inefficient contraceptive usage, widespread misconceptions, and inadequate awareness of EC, culminating in terminated pregnancies. Emergency contraceptive pills (ECPs) act by delaying ovulation, the release of an egg during the menstrual cycle. Notably, ECPs do not impede pregnancy if fertilization and implantation have already transpired [3, 4, 5]. Several options for emergency contraception exist, including progestin-only tablets, combination estrogen and progestin pills, and post-coital insertion of intrauterine devices. This entails either taking two doses of combined estrogen and progestin pills or two doses of 0.75 mg of Levonorgestrel (progestin alone) within 12 hours after unprotected intercourse, demonstrating an 85% success rate. Alternatively, the copper-T intrauterine device (IUD) can be inserted up to five days post-intercourse, boasting a nearly 100% success rate. It is imperative for women to comprehend and employ these varied methods, each requiring distinct dosages for efficacy [6]. Emergency contraception may be required by any woman or girl of reproductive age to avert unintended pregnancies. The utilization of emergency contraception is not medically contraindicated, and age imposes no restrictions. Contraindications for oral EC typically include ongoing pregnancy, intolerance to any component, and undiagnosed abnormal vaginal bleeding [7]. Women should be educated on the diverse methods and their application for EC. Global variations in EC knowledge and usage are apparent, with 80% of physically active females aged 14 to 49 in 45 countries having utilized EC at some point [8]. Recognizing a gap in knowledge regarding EC among married women, this study endeavors to address this by assessing awareness and understanding of emergency contraception among adult married females attending Primary Health Care Centers in East Godavari. The study further aims to evaluate prior EC utilization among this demographic and explore the relationship between sociodemographic factors of adult married females and their knowledge and awareness of emergency contraception, building upon previous literature that has investigated EC knowledge [9-14].

2. Methodology

A qualitative cross-sectional study was initiated to assess married adult women, aged 18 to 45, attending Primary Health Centers (PHCs) in the East Godavari District of Andhra Pradesh. The primary study population included married adult women within the

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specified age range, while those who were unmarried, below 18 or above 45 years, and those unwilling to participate were excluded. A total of 386 subjects participated in the study, which spanned a duration of 7 months. Employing a multistage random sample technique, six Primary Health Care centers were randomly selected in the East Godavari District. In the second stage, females meeting the inclusion criteria were selected using a systematic random sample technique (every second woman). The sample populations were distributed across the chosen centers in proportion to the number of attendees.

The data collection utilized a well-constructed interview questionnaire designed for this study. Sociodemographic characteristics such as age, occupation, number of children, education level, and family income were obtained. Participants were queried about measures to prevent pregnancy after unprotected intercourse and the proper timing of emergency contraception (EC) administration. Awareness and knowledge aspects were probed by asking participants if EC could reduce pregnancy risk by up to 75%, and if they would use it to avoid pregnancy. Participants were also asked about their sources of information on reproductive issues. Dependent variables, including awareness and knowledge of emergency contraceptives, were examined in relation to independent variables such as age, education level, and the number of offspring. A pilot survey involving 12 adult married females was conducted to assess survey complexity and identify any necessary adjustments. Prior to the commencement of the study, participants filled out individual written consent forms. The initial section of the survey gathered demographic information such as age, parity, professional status, and monthly income of the participants. The study's purpose was explained to all participants, and approval was obtained from the authorities at PHC centers and the Institutional Ethical Committee. Confidentiality was maintained throughout the research procedures. The survey encompassed various aspects of EC, covering knowledge, previous experiences with EC, proper timing, information sources, and readiness for widespread EC promotion. Most questions were closed-ended with provision for additional comments.

3. Results

3.1. Sociodemographic characteristics

Table 1 presents the sociodemographic characteristics of the study participants (n = 386), providing a comprehensive overview of key variables. The age distribution of the majority of the patients is falling within the 21-29 years category, constituting 42.48% of the sample. Participants aged 30-39 years and 40-44 years represent 36.52% and 20.98%, respectively. Regarding working status, 45.07% of participants identified as employees, while 54.92% were unemployed or homemakers. The majority of participants, 77.20%, reported having 1-2 offspring, with a smaller percentage having 3 or more (3.10%), and 19.68% reporting no offspring. Educational attainment is categorized into illiterate, primary education, secondary education, undergraduate education, and postgraduate education. The distribution shows a varied educational background among participants, with the highest proportion having undergone secondary education (24.35%), closely followed by undergraduate education (26.16%). Participants' family monthly income is categorized into different brackets. The largest proportion (29.53%) falls into the income range of 10,000 to 14,999 INR, followed by more than 15,000 INR (26.68%). The least represented income bracket is less than 7,999 INR, accounting for 16.58% of participants.

Table 1 Sociodemographic Characteristics of Study Participants (n = 386)

Parameter	Variable	Frequency (n=386)
Age (in years)	21- 29 years	164 (42.48%)
	30 - 39 years	141 (36.52%)
	40 - 44 years	81 (20.98%)
Working Status	Employee	174 (45.07%)
	Unemployed/Homemaker	212 (54.92%)
Number of offspring	1 – 2	298 (77.20%)
	3 or more	12 (3.10%)
	No offspring	76 (19.68%)
Educational level	Illiterate	49 (12.69%)
	Primary Education	54 (13.98%)
	Secondary education	94 (24.35%)
	Undergraduate education	101 (26.16%)
	Postgraduate education	88 (22.79%)

Family Monthly Income (INR)	Less than 7999/-	64 (16.58%)
	8,000 – 9,999/-	105 (3.88%)
	10,000 – 14, 999/-	114 (29.53%)
	More than 15,000/-	103 (26.68%)

3.2. Overview of the knowledge and familiarity of the study participants with Emergency Contraception (EC)

Table 2 presents an overview of the knowledge and familiarity of the study participants with Emergency Contraception (EC). In response to the question regarding the prevention of unwanted pregnancy after unprotected sex, 54.40% of participants affirmed the existence of a method, while 35.49% were uncertain, and 10.10% responded negatively. For those acknowledging a prevention method, the distribution of choices included taking extra doses of oral contraceptive pills (34.97%), the morning-after pill (47.66%), specific foods (12.69%), and religious or spiritual prayers (4.66%). Concerning the belief that a morning-after pill causes abortion, 24.09% agreed, 28.23% disagreed, and 47.66% were uncertain. Participants' understanding of the optimal time to take a morning-after pill varied, with responses indicating within 1 day (26.94%), within 2-3 days (20.72%), uncertainty (39.89%), and no knowledge (12.43%). Similarly, for the duration of taking a morning-after pill, responses varied, with 52.33% expressing uncertainty. Regarding the maximum time to insert an intrauterine device (IUD) after unprotected sex, 26.16% indicated 4 days, 19.17% selected 5-10 days, and 54.66% were uncertain. Family and friends were identified as the primary source of information about Emergency Contraception by 29.53% of participants, while healthcare providers, TV advertisements, and newspapers were mentioned by 32.90%, 16.58%, and 20.98%, respectively. The analysis of knowledge levels revealed that 53.61% of participants exhibited poor knowledge (≤60%), while 46.39% demonstrated good knowledge (>60%). This comprehensive breakdown provides valuable insights into the participants' awareness and understanding of Emergency Contraception, emphasizing the need for targeted educational interventions to enhance knowledge levels.

Table 2 Knowledge and Familiarity of the study participants with Emergency Contraception

Question	Response	Frequency (n=386)
In the wake of having unprotected sex, is there a method for forestalling undesirable pregnancy?	Yes	210 (54.40%)
	No	137 (35.49%)
	I don't know	39 (10.10%)
If indeed, what is that anticipation technique (numerous choices)?	Taking extra doses of OCPs	135 (34.97%)
	Taking the morning-after pill	184 (47.66%)
	Eating specific foods	49 (12.69%)
	Religious/Spiritual prayers	18 (4.66%)
A morning-after pill causes fetus removal	Yes	93 (24.09%)
	No	109 (28.23%)
	I don't know	184 (47.66%)
The best time to take a morning-after pill	Within 1 day	104 (26.94%)
	Within 2-3 days	80 (20.72%)
	I'm not sure	154 (39.89%)
	I don't know	48 (12.43%)
For how many days you need to take a morning-after pill	One day	67 (17.35%)
	Two days	40 (10.36%)
	Three days	47 (12.17%)
	Four days	30 (7.77%)
	I don't know	202 (52.33%)
Maximum time to insert the IUD after unprotected sex	4 days	101 (26.16%)
	5-10 days	74 (19.17%)
	I don't know	211(54.66%)
Wellspring of data about Emergency contraception	Family & Friends	114 (29.53%)
	Healthcare providers	127 (32.90%)
	TV Advertisements	64 (16.58%)
	Newspapers	81 (20.98%)
Level of Knowledge	Poor knowledge (≤60%)	53.61%
	Good knowledge (>60%)	46.39%

3.3. Mentality and habits of the participants concerning emergency contraception

Table 3 elucidates the mentality and habits of the study participants concerning Emergency Contraception (EC). Of the 386 participants, 51.29% reported past utilization of EC, with the majority (48.70%) having not used any method previously. Among those who utilized EC, 33.41% employed the morning-after pill, 7.51% used intrauterine devices (IUDs), and 30.36% employed other techniques. A notable finding indicates that 42.48% of participants would refrain from using EC, with 22.27% opting for a permanent contraception method and 35.23% for a temporary contraception method, even acknowledging its 75% effectiveness. Interestingly, 54.40% believed that EC should be promoted in the public eye, while 51.81% opposed making it available without a prescription. A substantial 76.16% admitted feeling modest or embarrassed when purchasing EC items. Regarding decision-making on EC use, 63.47% believed husbands should decide, contrasting with 36.52% who believed wives should decide. The current use of contraception methods revealed 26.16% using temporary methods, 20.46% using permanent methods, and 53.36% not using any method. Reasons for not using EC included religious reasons (24.35%), medical reasons (52.07%), and difficulty in understanding and using EC (23.57%). Most participants (75.12%) had never visited a doctor for family planning, indicating potential gaps in reproductive health consultations.

Table 3 Mentality and habitude of Study Participants towards Emergency Contraception

Question	Parameter	Frequency (n=386)
Past utilization of Emergency contraception	Yes	198 (51.29%)
	No	188 (48.70%)
If indeed, which technique did you utilize?	No previous use	188 (48.70%)
	Morning after pill	129 (33.41%)
	IUD	29 (7.51%)
	Others	40 (30.36%)
Could you utilize Emergency contraception realizing that it is successful only 75% of the time?	I won`t use any method	164 (42.48%)
	Permanent contraception method	86 (22.27%)
	Temporary contraception method	136 (35.23%)
Should emergency contraception be advanced in the public eye?	Yes	210 (54.40%)
	No	109 (28.23%)
	Maybe	67 (17.35%)
Should crisis contraception be accessible without a prescription?	Yes	145 (37.56%)
	No	200 (51.81%)
	Maybe	41 (10.62%)
Do you feel modest or embarrassed purchasing emergency contraception items?	Yes	294 (76.16%)
	No	92 (23.83%)
Who ought to choose the utilization of emergency contraception	Wife	141 (36.52%)
	Husband	245 (63.47%)
Current use of Contraception Technique	Temporary Contraception Method	101 (26.16%)
	Permanent Contraception Method	79 (20.46%)
	None	206 (53.36%)
Reasons I wouldn't utilize Emergency contraception	Religious reasons	94 (24.35%)
	Medical reasons	201 (52.07%)
	Difficult to understand and use	91 (23.57%)
Last visit to the doctor for family planning	Never	290 (75.12%)
	Within the last year	37 (9.58%)
	Within the last 3 years	29 (7.51%)
	Within the last 4 years	30 (7.77%)

3.4. Association between sociodemographic factors and awareness of Emergency Contraception (EC)

Table 4 provides the association between sociodemographic factors and awareness of Emergency Contraception (EC) among the study participants. The data reveals significant associations across various parameters. In terms of age, a statistically significant association was observed ($p=0.001$), with 40.85% of participants in the 21-29 age group exhibiting good knowledge, compared to 30.49% and 14.81% in the 30-39 and 40-44 age groups, respectively. Working status also demonstrated a notable association ($p=0.001$), as 55.74% of employed participants had good knowledge, contrasting with 30.18% of unemployed/homemaker participants. A similar pattern was observed concerning the number of offspring ($p=0.004$), with 66.10% of those with 1-2 offspring

having good knowledge compared to 33.33% in the 3 or more offspring category. Educational level displayed a significant association (p=0.003), with a higher percentage of postgraduate individuals (84.09%) having good knowledge compared to 18.36% of illiterate participants. Family monthly income also revealed a statistically significant association (p=0.001), as higher proportions of participants with good knowledge were observed in the income brackets of 8,000 – 9,999/-, 10,000 – 14,999/-, and more than 15,000/-.

Table 4 Association of Sociodemographic Factors with Awareness of Emergency Contraception

Parameter	Variable	Subjects with Good knowledge	Subjects with Poor knowledge	p-value
Age	21 - 29 years	67 (40.85%)	97 (59.14%)	0.001
	30 - 39 years	43 (30.49%)	98 (69.50%)	
	40 – 44 years	12 (14.81%)	69 (85.18%)	
Working status	Employee	97 (55.74%)	77 (44.25%)	0.001
	Unemployed/Homemaker	64 (30.18%)	148 (69.81%)	
Number of offspring	1 – 2	197 (66.10%)	101 (33.89%)	0.004
	3 or more	4 (33.33%)	8 (66.66%)	
	No offspring	42 (55.23%)	34 (44.73%)	
Educational level	Illiterate	9 (18.36%)	40 (81.63%)	0.003
	Primary Education	19 (35.18%)	35 (64.81%)	
	Secondary Education	44 (46.80%)	50 (53.19%)	
	Undergraduate	64 (63.36%)	37 (36.63%)	
	Postgraduate	74 (84.09%)	14 (15.90%)	
Family monthly income in INR	Less than 7999/-	28 (43.75%)	36 (56.25%)	0.001
	8, 000 – 9, 999/-	57 (54.28%)	48 (45.71%)	
	10, 000 – 14, 999/-	69 (60.52%)	45 (39.47%)	
	More than 15, 000/-	57 (55.33%)	46 (44.66%)	

3.5. Association between various sociodemographic factors and the knowledge levels of the study participants regarding Emergency Contraception (EC)

Table 5 provides a comprehensive analysis of the association between various sociodemographic factors and the knowledge levels of the study participants regarding Emergency Contraception (EC). Regarding age, a clear trend is observed, with younger participants (21-29 years) exhibiting a higher proportion of good knowledge (40.85%) compared to older age groups (30-39 and 40-44 years). Working status plays a significant role, as employees demonstrate a higher percentage of good knowledge (55.74%) in

contrast to unemployed/homemaker participants. The number of offspring is also influential, with participants having 1-2 offspring showing a higher proportion of good knowledge (66.10%) compared to those with 3 or more offspring. Educational attainment reveals a strong association, with postgraduate individuals displaying the highest percentage of good knowledge (84.09%), while illiterate participants have the lowest. Family monthly income further supports this trend, as higher income brackets correlate with increased proportions of good knowledge.

Table 5. Association between various sociodemographic factors and the knowledge levels of the study participants regarding Emergency Contraception (EC)

Parameter	Variable	Subjects with Good knowledge	Subjects with Poor knowledge	p-value
Age	21 - 29 years	67 (40.85%)	97 (59.14%)	0.001
	30 - 39 years	43 (30.49%)	98 (69.50%)	
	40 – 44 years	12 (14.81%)	69 (85.18%)	
Working status	Employee	97 (55.74%)	77 (44.25%)	0.001
	Unemployed/Homemaker	64 (30.18%)	148 (69.81%)	
Number of offspring	1 – 2	197 (66.10%)	101 (33.89%)	0.004
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	No offspring	42 (55.23%)	34 (44.73%)	
Educational level	Illiterate	9 (18.36%)	40 (81.63%)	0.003
	Primary Education	19 (35.18%)	35 (64.81%)	
	Secondary Education	44 (46.80%)	50 (53.19%)	
	Undergraduate	64 (63.36%)	37 (36.63%)	
	Postgraduate	74 (84.09%)	14 (15.90%)	
Family monthly income in INR	Less than 7999/-	28 (43.75%)	36 (56.25%)	0.001
	8, 000 – 9, 999/-	57 (54.28%)	48 (45.71%)	
	10, 000 – 14, 999/-	69 (60.52%)	45 (39.47%)	
	More than 15, 000/-	57 (55.33%)	46 (44.66%)	

4. Discussion

While emergency contraception is not recommended as a routine method for family planning, it serves as an effective approach to mitigate the risk of unintended pregnancies following instances of unprotected sexual intercourse. In this cross-sectional study involving 386 rural women aged between 21 and 44 years, we observed that despite 50% of respondents being aware of the preventability of unwanted pregnancies after unprotected sex, there existed a suboptimal level of knowledge, with only 22.3% demonstrating good knowledge. This deficiency may be attributed to the lack of promotion of sexual health education and limited accessibility to emergency contraception in India. Our study identified friends and family as the primary sources of knowledge on emergency contraception, revealing a potential knowledge gap among participants. This might indicate a communication breakdown between women and their healthcare providers. The observed lack of knowledge underscores the need for integrated sexual and educational programs or increased promotion of emergency contraceptive services. [7-9]

An incidental discovery in our study was the limited number of subjects with multiple children, reflecting an acknowledgment of the two-child norm initiated by the Indian Government and the inclination of educated females toward smaller families. In the Indian context, public awareness of emergency contraception is notably scarce. In summary, a substantial percentage of females in this study population have not utilized contraception, and while various contraceptive methods were employed, condoms emerged as the most popular. Electronic and print media played pivotal roles in raising public awareness. Despite this, familiarity with emergency contraception remained low, highlighting a pressing need for its promotion. It is evident that women experience heightened anxiety and fears of unwanted pregnancy immediately after unprotected sex, resorting to diverse methods to avoid pregnancy, indicative of a sense of urgency. [10-12]

India, having experienced a notable decline in fertility later than other South Asian nations, still grapples with high rates of unwanted pregnancies. Effectively preventing unwanted pregnancies requires prioritizing contraceptive practices over abortion. Reproductive health services offer opportunities for women to take charge of their circumstances and lives. Family planning, beyond being a political term, is a clinical concept addressing health concerns related to pregnancy and maternity. Nations failing to allocate sufficient resources to this domain risk having fragmented families, increased mortality, and unnecessary suffering. In actuality, our investigation revealed that a substantial proportion of females acquainted with Emergency Contraception had received information

about it from healthcare providers. Strikingly, all participants who correctly identified the optimal timing for Emergency Contraception lacked access to a family planning provider. Notably, those attending Primary Health Care Centers exhibited a limited understanding of the appropriate timing, suggesting potential deficiencies in guidance or information provided by healthcare professionals. In light of this discovery, educational interventions could prove instrumental in augmenting awareness of Emergency Contraception. It is imperative that Emergency Contraception considerations be integrated into routine reproductive health counseling and specific health service interventions. A targeted approach to enhancing awareness and implementation of Emergency Contraception is warranted. [13,14]

However, our study is not without limitations. Primarily, it was a relatively small-scale survey conducted across four Primary Health Centers in the East Godavari region. Further investigations in diverse settings are warranted. Additionally, our survey focused on individuals attending Primary Health Care centers, a demographic likely to possess higher health-related knowledge than females in a more representative sample. Given that our study primarily engaged individuals from higher educational backgrounds, awareness levels in this cohort may differ from those in other populations.

5. Conclusion

In conclusion, our findings underscore the underutilization of Emergency Contraception options due to a lack of patient awareness. Emergency Contraception holds critical significance for females engaging in unprotected intercourse who seek to prevent pregnancy. Given the pervasive barriers to knowledge about emergency contraception, health and sexual education programs, particularly tailored for married females, should encompass the dissemination of comprehensive information regarding post-coital contraception options, taking into account local and cultural contexts. We advocate for targeted awareness campaigns and promotion of emergency contraception among rural married females.

Compliance with ethical standards

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Conflict of interest statement

The authors declare no conflict of interest.

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Author's short biography

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