

## ORIGINAL ARTICLE

**Prevalence and Multi-Faceted Effects of Unintended Pregnancy on Women's Psychology, Physical Health, and Socioeconomic Status in Saudi Arabia**

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**ABSTRACT**

**Objective:** To determine the prevalence of unintended pregnancy among women in Saudi Arabia and assess its psychological, physical, and socioeconomic impact.

**Study Design:** Descriptive cross-sectional.

**Place and Duration of Study:** The study data were retrieved from all the provinces of Saudi Arabia from October 2024 to April 2025.

**Materials and Methods:** A cross-sectional study was conducted on women aged 18-49 who had experienced an unintended pregnancy in the last five years across all provinces of Saudi Arabia. Most of the participants of the study were recruited via social media platforms using online structured questionnaires.

**Results:** This study included 587 women from across Saudi Arabia who had experienced an unintended pregnancy. Most of the participants were Saudi nationals (93.9%) with a bachelor's degree (61.7%). Unintended pregnancies were predominantly reported once in the past five years (83.6%), with singleton pregnancies being most common (94.2%). Over half of the pregnancies were not protected by any contraception (54.7%). Financial strain was reported by 23.7% of participants and was significantly associated with nationality ( $p=0.027$ ) and age ( $p=0.016$ ), with greater impact among non-Saudis and less financial disruption in women aged  $\geq 36$  years. Mental health was notably affected post-pregnancy, especially in those with multiple unintended pregnancies ( $p=0.020$ ). Educational impacts were significant among those with only elementary to middle education ( $p<0.001$ ).

**Conclusion:** Unintended pregnancies significantly impact Saudi women's financial, mental, and educational domains. Notably, the lack of contraceptive use is widespread, contributing to high rates of unintended pregnancies. Targeted educational programs and improved access to family planning services are critical for alleviating significant societal consequences

**Key Words:** Contraception, Mental Health, Saudi Arabia, Socioeconomic Impact, Unintended Pregnancy, Women's Health.

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**Introduction**

Unintended pregnancy is a multifaceted issue with profound implications for individuals, families, and societies at large. Beyond its immediate ramifications on reproductive health, unintended pregnancy carries significant socioeconomic, physical health, and mental health consequences that ripple through communities and impact life trajectories, particularly in adolescent early marriage.<sup>1</sup> Unplanned pregnancies can lead to lower educational and employment opportunities, which result in a substantial economic burden.<sup>2</sup> In a situation like the COVID-19 pandemic, unplanned pregnancy incidence increased to 33.6% which further exacerbated the socioeconomic stress.<sup>3</sup> Beyond economic and social dimensions, the

consequences of unintended pregnancies extend, leading to an increased rate of induced abortion, delayed initiation, and fewer visits for antenatal care, and risky and careless behaviors during pregnancy. These factors may further contribute to adverse birth outcomes and neonatal health issues, and impaired psychophysical maternal health.<sup>4</sup> Notably, the rate of abortion induced following unplanned pregnancies did not vary between countries where abortion was legal and restricted. However, in recent data in countries with restrictive abortion laws, induced abortions following unintended pregnancies increased from 2015 to 2019 compared to the period between 1990 and 1994.<sup>5</sup>

Globally, the prevalence of unintended pregnancies varies widely, reflecting disparities in access to family planning services, education, and healthcare infrastructure.<sup>4,12</sup> Across the world from 2015 to 2019, the unplanned pregnancy rate constituted 121 million, while 61% ended up in abortion.<sup>6</sup> In North Africa and the Middle East, this rate varies significantly, ranging from 15% to 58%. Yemen reports the highest rate at 58%, followed by Palestine at 38%, Morocco at 32%, and both Syria and Algeria at 31%. In Egypt, the rate was estimated to be around 23%.<sup>7</sup> Research data in Saudi Arabia on the prevalence of unintended pregnancies and their effects is very scarce.<sup>8</sup> Improvement in health education, counseling, motivation, and access to modern contraceptives is essential to counteract unplanned pregnancy and its impact on physical and mental health, as well as socioeconomic stress.<sup>9,10</sup> Moreover, family planning and maternal healthcare services should be promoted to encourage women with unintended pregnancies to utilize maternal healthcare services. An approach that would not only reduce the incidence but also prevent undesirable maternal and fetal consequences.<sup>11-13</sup> The gap in the knowledge of prevalence and effects of unwanted pregnancy on psychology, physical health, and economic status limits the development of targeted interventions and policies to address the multifaceted effects of unintended pregnancies. Hence, this study aims to cover this gap in all provinces of Saudi Arabia.

## Material and Methods

This descriptive cross-sectional study was conducted across all provinces of Saudi Arabia from October 2024 to April 2025. The ethical approval was obtained from the Deanship of Research, King Faisal University. (Reference Approval No.: [KFU-REC-2024-APR-ETHICS2236]).

The minimum sample size of 390 participants was calculated from the sample size calculator with the Confidence interval of 95%, and a 5% margin of error. The responses received were 630 while 587 were found eligible for inclusion in the study. The study population comprised women of reproductive age (18-49 years) residing in Saudi Arabia (both Saudis & non-Saudis) who had experienced an unintended pregnancy in the last five years. The participants were recruited through a convenience sampling method, where women who met the inclusion criteria were invited to participate through all social media platforms (including WhatsApp, Twitter, and Instagram). The questionnaire was also administered in person, through email, and via telephone on the personal preference and feasibility of the participant.

The questionnaire contained demographic data, contraceptive use (including methods, frequency, and reasons for discontinuation), experiences with unintended pregnancies (number, reasons, and outcomes), psychological effects (such as anxiety, depression, regret, and postpartum distress), economic impact (financial strain and effects on work and education), and health behaviors before, during, and after an unintended pregnancy. The questionnaire, designed in both Arabic and English, was intended to enhance accessibility for a broad participant demographic. The questionnaire was tested in a pilot study of 20 married eligible females to assess its validity and feasibility (Cronbach's alpha 0.76 for both questionnaires). The respondents were required to actively confirm that they were 18 years of age or older and had read, understood, and voluntarily agreed to participate based on the provided information. They were fully informed about the purpose of research, confidentiality measures, and the voluntary nature of participation, with clear assurance that they could withdraw at any time without penalty. All collected variables were coded and analyzed using SPSS version 29.0. The

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categorical variables included demographic parameters (nationality, education, region), pregnancy-related features (frequency of unintended pregnancy, age group at pregnancy, number of fetuses, pregnancy outcome, contraception use), and outcome-related parameters (financial impact, career/study impact, post-natal mental health status). Descriptive statistics were expressed as frequencies and percentages for categorical variables. Chi-square tests ( $\chi^2$ ) were applied to assess associations between categorical variables, while Fisher's Exact Test was employed when any expected cell count was <5. A p-value <0.05 was considered statistically significant.

## Results

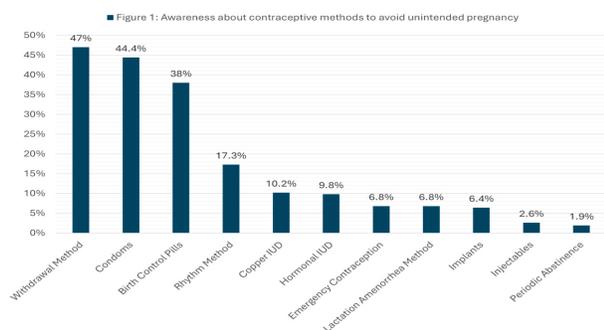
Our study assessed the unintended pregnancy and its parameters among females in Saudi Arabia (Table I). Data were collected from participants across all provinces of Saudi Arabia, ensuring nationwide representation. Therefore, Saudi nationals were predominant participants, with varying education level where most (61.7%) had a bachelor's degree. Most reported one unintended pregnancy in the last five years (83.6%), primarily between the ages of 26-35 years. More than half were not using any method of contraception at the time of conception, while some of the participants used a protective method, but it was inappropriate to be effective against pregnancy.

**Table I: Sociodemographic Parameters of Participants and Features of Unintended Pregnancy**

		Frequency N (%)
<b>Nationality</b>	Non-Saudi	36 (6.1%)
	Saudi	551 (93.9%)
<b>Educational Level</b>	Elementary to Middle Education	17 (2.9%)
	Secondary Education	115 (19.6%)
	Diploma	65 (11.1%)
	Bachelor's Education	362 (61.7%)
	Master's/PhD	28 (4.8%)
<b>Region</b>	Western Region	167 (28.4%)
	Eastern Region	160 (27.3%)
	Central Region	108 (18.4%)
	Southern Region	101 (17.2%)
	Northern Region	51 (8.7%)
<b>Parameters of Unintended Pregnancy</b>		
<b>No. of times "Unintended Pregnancy" occurred in the last five years (between 2018 and 2024)?</b>	Once	491 (83.6%)
	2-4 Times	87 (14.8%)
	>4 Times	9 (1.5%)
<b>Age at the Time of that Unintended Pregnancy?</b>	18-25 Years	219 (37.3%)
	26-35 Years	273 (46.5%)
	36-49 Years	95 (16.2%)
<b>No. of Fetuses in the Unintended Pregnancy?</b>	Singleton Pregnancy (One Fetus)	553 (94.2%)
	Multiple Pregnancy (Twins or More)	34 (5.8%)
<b>Outcome of That Pregnancy</b>	Born Prematurely Before 37th Week of Pregnancy	67 (11.4%)
	Born Term/After 37th Week of Pregnancy	312 (53.2%)
	Miscarriage	172 (29.3%)
	Stillborn/ Dead Baby	31 (5.3%)
	Healthy Outcome	5 (0.9%)
<b>In the month that I became pregnant: My partner and I</b>	Not Using Contraception	321 (54.7%)
	Occasionally Use Contraception	144 (24.5%)

	Always Used Contraception	66 (11.2%)
	Always Used Contraception (but Method had Failed (i.e. broke, moved, came off, came out, not worked etc.) at Least Once)	56 (9.5%)
<b>I feel like my pregnancy was</b>	At Right Time	153 (26.1%)
	Ok (But Not Quite Right Time)	270 (46.0%)
	Wrong Time	164 (27.9%)
<b>Just before I became pregnant</b>	Didn't Intend to get Pregnant	285 (48.6%)
	Intended to get Pregnant	108 (18.4%)
	My Intentions kept on Changing	194 (33.0%)
<b>Before I became pregnant</b>	Never Discussed about Children	178 (30.3%)
	My Partner and I agreed to get me Pregnant	130 (22.1%)
	My Partner and I Discussed Having Children Together (But hadn't agreed to me to get Pregnant)	279 (47.5%)

Figure 1 shows the awareness and practices of various contraceptive methods used by participants to avoid unintended pregnancy. The withdrawal method was the most used by 47%, followed by condom (44.4%) and birth control pills by 38%.

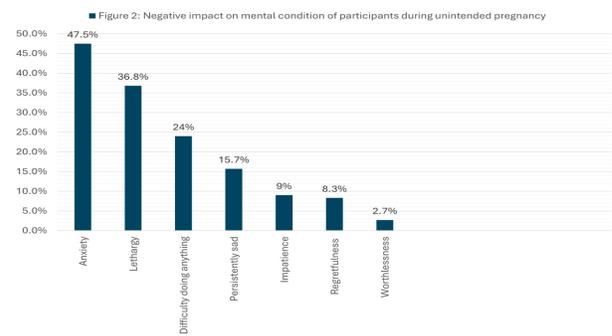


**Figure 1: Awareness about Contraceptive Methods to Avoid Unintended Pregnancy**

This study also examined physical, financial, and emotional outcomes following unintended pregnancy. While most participants (66.3%) made no preconception health efforts, the majority adopted healthier behaviors post-conception, including folic acid use (80.2%) and regular antenatal care (87%). Economically, although 85.3% reported sufficient income before pregnancy, 23% faced financial constraints and 21.8% struggled to meet family needs afterward. Career and education were negatively impacted by 21.1% of respondents. Socially, nearly half reported giving up luxuries (50.9%) or experiencing strained relationships (44.6%). Emotionally, 72.2% experienced negative feelings during pregnancy, persisting in 60.8% after childbirth, highlighting the profound multidimensional impact of unintended pregnancies.

A spectrum of negative emotions was retrieved for the psychological impact that constituted a significant stressor for both maternal health and fetal development,

illustrated in **Figure 2**. The most frequently reported emotion was anxiety, followed by feeling lethargic, and some were unable to do anything, indicating significant levels of distress affecting physical motivation.



**Figure 2: Negative Impact on Mental Condition of Participants during Unintended Pregnancy**

Mental health challenges persisted postpartum, with anxiety remaining the most prevalent emotion, likely due to unwanted responsibility. Many participants reported difficulty with daily activities and persistent lethargy. Notably, 21.1% experienced persistent sadness, while some participants also expressed regret, underscoring the persistent psychological burden of unintended pregnancy.

Table II presents the associations between sociodemographic factors, unintended pregnancy characteristics, and financial implications for participants. Non-Saudi participants experienced a higher financial impact compared to other nationals (38.9% vs 22.7%), with statistical significance (p=0.027). Age played a significant role (p=0.016), with older women (36-49 years) reporting the least financial disruption (12.6%) compared to younger age groups (24.2% and 27.1%). No other variables showed significant associations.

**Table II: Association between Sociodemographic and Unintended Pregnancy-related Features with their impact on Financial Condition**

		Impact on Financial Condition		Chi-Square/ Fisher Test	p-value
		No N (%)	Yes N (%)		
Nationality	Non-Saudi	22 (61.1%)	14 (38.9%)	<b>4.89</b>	<b>0.027<sup>a</sup></b>
	Saudi	426 (77.3%)	125 (22.7%)		
Educational Background	Elementary to Middle Education	13 (76.5%)	4 (23.5%)	0.41	0.929 <sup>b</sup>
	Secondary Education	91 (79.1%)	24 (20.9%)		
	Diploma	48 (73.8%)	17 (26.2%)		
	Bachelor's Education	274 (75.7%)	88 (24.3%)		
	Master's/PhD	22 (78.6%)	6 (21.4%)		
Residential Area	Western Region	118 (70.7%)	49 (29.3%)	0.57	0.237 <sup>a</sup>
	Eastern Region	122 (76.3%)	38 (23.8%)		
	Central Region	86 (79.6%)	22 (20.4%)		
	Southern Region	83 (82.2%)	18 (17.8%)		
	Northern Region	39 (76.5%)	12 (23.5%)		
Unintended Pregnancy Frequency During Past 5 Years (2018-2024)	Once	379 (77.2%)	112 (22.8%)	1.73	0.421 <sup>a</sup>
	2-4 Times	63 (72.4%)	24 (27.6%)		
	>4 Times	6 (66.7%)	3 (33.3%)		
Age at Unintended Pregnancy	18-25 Years	166 (75.8%)	53 (24.2%)	<b>8.25</b>	<b>0.016<sup>a</sup></b>
	26-35 Years	199 (72.9%)	74 (27.1%)		
	36-49 Years	83 (87.4%)	12 (12.6%)		
Fetuses in Unintended Pregnancy	Singleton	421 (76.1%)	132 (23.9%)	0.19	0.662 <sup>a</sup>
	Multiple	27 (79.4%)	7 (20.6%)		

(a) Chi-Square Test, (b) Fisher's Exact Test

Table III outlines the sociodemographic factors influencing work and academic disruption. Education level showed a highly significant association ( $p < 0.001$ ): while 100% of women with

elementary to middle education reported no impact, 26.2% of those with a bachelor's degree experienced disruption.

**Table III: Association between Sociodemographic and Unintended Pregnancy-related Features with their impact on Work and Study**

		Impact on Study/Work/Job		Chi-Square/ Fisher Test	P-value
		No/Not Planned N (%)	Yes N (%)		
Nationality	Non-Saudi	28 (77.8%)	8 (22.2%)	0.03	0.868 <sup>a</sup>
	Saudi	435 (78.9%)	116 (21.1%)		
Educational Background	Elementary to Middle Education	17 (100.0%)	0 (0.0%)	<b>14.21</b>	<b>&lt;0.001<sup>b</sup></b>
	Secondary Education	99 (86.1%)	16 (13.9%)		
	Diploma	58 (89.2%)	7 (10.8%)		
	Bachelor's Education	267 (73.8%)	95 (26.2%)		
	Master's/PhD	22 (78.6%)	6 (21.4%)		

Residential Area	Western Region	123 (73.7%)	44 (26.3%)	6.15	0.210 <sup>a</sup>
	Eastern Region	128 (80.0%)	32 (20.0%)		
	Central Region	85 (78.7%)	23 (21.3%)		
	Southern Region	82 (81.2%)	19 (18.8%)		
	Northern Region	45 (88.2%)	6 (11.8%)		
Unintended Pregnancy Frequency During Past 5 Years (2018-2024)	Once	390 (79.4%)	101 (20.6%)	1.41	0.495b <sup>a</sup>
	2-4 Times	67 (77.0%)	20 (23.0%)		
	>4 Times	6 (66.7%)	3 (33.3%)		
Age at Unintended Pregnancy	18-25 Years	172 (78.5%)	47 (21.5%)	0.72	0.695 <sup>a</sup>
	26-35 Years	213 (78.0%)	60 (22.0%)		
	36-49 Years	78 (82.1%)	17 (17.9%)		
Fetuses in Unintended Pregnancy	Singleton	437 (79.0%)	116 (21.0%)	0.12	0.723 <sup>a</sup>
	Multiple	26 (76.5%)	8 (23.5%)		

(a) Chi-Square Test, (b) Fisher's Exact Test

Table IV displays significant associations between several factors and postnatal mental health. Participants from the Eastern Region reported the highest negative impact (68.8%, p=0.010). Those with more than four unintended pregnancies

experienced a 100% negative impact on mental health (p=0.020). Pregnancy with multiple fetuses also showed a trend toward greater psychological burden (p=0.054). No other sociodemographic variables reached statistical significance.

**Table IV: Association between Sociodemographic and Unintended Pregnancy-related Features with their impact on Work and Study**

		Negative Impact on Post-Natal Mental Health		Chi-Square/ Fisher Test	P-value
		No N (%)	Yes N (%)		
Nationality	Non-Saudi	10 (27.8%)	26 (72.2%)	2.09	0.148 <sup>a</sup>
	Saudi	220 (39.9%)	331 (60.1%)		
Educational Background	Elementary to Middle Education	8 (47.1%)	9 (52.9%)	3.51	0.468 <sup>a</sup>
	Secondary Education	42 (36.5%)	73 (63.5%)		
	Diploma	21 (32.3%)	44 (67.7%)		
	Bachelor's Education	145 (40.1%)	217 (59.9%)		
	Master's/PhD	14 (50.0%)	14 (50.0%)		
Residential Area	Western Region	65 (38.9%)	102 (61.1%)	<b>13.27</b>	<b>0.010<sup>a</sup></b>
	Eastern Region	50 (31.3%)	110 (68.8%)		
	Central Region	54 (50.0%)	54 (50.0%)		
	Southern Region	35 (34.7%)	66 (65.3%)		
	Northern Region	26 (51.0%)	25 (49.0%)		
Unintended Pregnancy Frequency During Past 5 Years (2018-2024)	Once	200 (40.7%)	291 (59.3%)	<b>7.90</b>	<b>0.020<sup>b</sup></b>
	2-4 Times	30 (34.5%)	57 (65.5%)		
	>4 Times	0 (0.0%)	9 (100.0%)		
Age at Unintended Pregnancy	18-25 Years	76 (34.7%)	143 (65.3%)	2.98	0.226 <sup>a</sup>
	26-35 Years	115 (42.1%)	158 (57.9%)		
	36-49 Years	39 (41.1%)	56 (58.9%)		
Fetuses in Unintended Pregnancy	Singleton	222 (40.1%)	331 (59.9%)	3.72	0.054 <sup>a</sup>
	Multiple	8 (23.5%)	26 (76.5%)		

(a) Chi-Square Test, (b) Fisher's Exact Test

## Discussion

This study provides the first known assessment of unintended pregnancy across all provinces of Saudi Arabia, revealing significant intersections with women's mental, physical, and socioeconomic well-being. Notably, a significant finding from our study is the high proportions of unintended pregnancies among Saudi nationals, which is in line with regional demographic patterns where larger segments of the population are Saudi nationals. According to a study by Sarder et al. (2021), about 29% of pregnancies were found to be unintended, with a higher rate among older women.<sup>9</sup> Interestingly, most of our respondents had a bachelor's degree, indicating a good educational background among the participants. This observation supports earlier research that suggests having a higher education level does not always lead to fewer unintended pregnancies. Additionally, a study by Alsafar et al. (2022) stated that the rate of unintended pregnancies varies with education levels; specifically, 25% of individuals with education below high school experienced unplanned pregnancies, while the rate was 23.6% for those with higher education.<sup>8</sup>

Moreover, the contraceptive usage patterns revealed in our study indicated a reliance on traditional methods like withdrawal and condoms, with a lower uptake of more reliable long-term contraceptives such as IUDs or implants. This preference may reflect accessibility issues, cultural attitudes, or knowledge gaps regarding contraceptive options. However, findings from other Middle Eastern studies highlight some variations in these trends. Ashoor et al. (2023) showed that the most practiced method was contraceptive pills (55.6%) followed by intrauterine devices (17.6%).<sup>14</sup> Another study by Aladham et al. (2020) showed that the most used methods were oral contraceptive pills, male condoms, and intrauterine devices (69%, 34%, 22%, respectively).<sup>15</sup> Most of the participants' reliance was on less effective methods in our study the withdrawal method could be contributing to the high rates of unintended pregnancies observed.<sup>16,17.</sup>

Notably, our study findings reveal that most women did not proactively seek to improve their health before pregnancy but took substantial steps during pregnancy. This reactive approach to health during

pregnancy emphasizes a need for more robust preconception health promotion and education. Similar concepts were observed in previous studies, as indicated by Chivers et al. (2020), showing that women who are actively planning a pregnancy optimize their health behavior and lifestyle in preparation for pregnancy to improve alignment with current preconception care recommendations.<sup>18</sup> Financially, unintended pregnancies significantly strained family resources, particularly among non-Saudi families, which may reflect differential socio-economic conditions or support systems available to non-nationals. Similarly, Maghalian et al. (2024) show that unintended pregnancy, along with the consequent unsafe abortions, can impose significant financial and social burdens.<sup>19</sup>

Comparatively, literature from other regions, such as Southeast Asia, shows a similar pattern where unintended pregnancies often lead to financial strain due to the direct and indirect costs associated with prenatal care, childbirth, and postnatal care (Sharma et al. 2023).<sup>20</sup> The economic impact is profound, often exacerbating existing inequalities and impacting women's ability to return to work or continue education, which aligns with our findings, where over 20% of participants reported negative impacts on their career or study. Similarly, Asrat et al. (2024) showed that unplanned pregnancies can hinder women's financial independence by limiting educational and career opportunities, thus impacting their economic empowerment and long-term financial stability.<sup>21</sup>

Moreover, the psychological impact of unintentional pregnancies is one of the most significant findings of our study, with high levels of anxiety, lethargy, and difficulty in carrying out daily activities reported. Beumer et al. (2023) showed that those who carried a more unplanned pregnancy to term reported more symptoms of psychological distress at postpartum.<sup>22</sup> With persistently high levels of worry and other negative emotions like regret and feelings of worthlessness, postpartum statistics were especially worrisome. These results are in line with international research showing a clear correlation between unintended pregnancies and negative mental health consequences, such as increased risk of anxiety and postpartum depression.<sup>23</sup>

Interestingly, the emotional responses varied widely with demographic factors such as age and frequency of unintended pregnancies. Older participants and those who had experienced multiple unintended pregnancies reported less financial and psychological stress, which might indicate an increased resilience or access to better support systems over time.

Unintended pregnancy in Saudi Arabia underscores the need for comprehensive public health strategies, emphasizing enhanced contraceptive education and accessibility, especially promoting long-acting reversible contraceptives. It highlights the importance of integrating preconceptions and antenatal care into routine services and incorporating mental health supports within maternity care. Policymakers are urged to develop community engagement initiatives and tailored interventions for different demographics to address specific needs. A multidisciplinary approach is essential to reduce unintended pregnancies and improve overall outcomes for women in Saudi Arabia.

The limitations of our study include the reliance on self-reported data that may lead to underreporting or bias in reporting sensitive information, such as contraceptive use and psychological impacts. Additionally, the cross-sectional nature of the study limits our ability to draw causal inferences about the impacts of unintended pregnancies.

### Conclusion

Our study showed the pervasive and multifaceted impact of unintended pregnancies on women in Saudi Arabia, emphasizing the urgent need for enhanced contraceptive education and access. The findings reveal significant disparities in the use of effective contraceptive methods, the sufficiency of prenatal care, and the substantial financial and emotional toll on affected women. This study underlines the critical necessity for targeted public health interventions that address these gaps, specifically advocating for improved reproductive health services and broader educational initiatives. Ultimately, a more informed and supported female population will lead to better health outcomes and reduced rates of unintended pregnancies.

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#### CONFLICT OF INTEREST

Authors declared no conflicts of Interest.

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#### DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon request.

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