ORIGINAL ARTICLE https://doi.org/10.52206/jsmc.2025.15.2.1035 OPEN ACCESS

Determinants of Self-Induced Abortion In Unintended Pregnancies: Insights from Private Maternity Clinics Peshawar

Shaista Noureen,[1] Samdana Wahab,[2] Khalid Rehman,[3] Nighat Musa,[4] Rozina Rehman,[1] Sarfaraz Khan Afridi[5]

1. Khyber Medical College, Peshawar, Pakistan
2. Mercy Teaching Hospital Peshawar Medical College, Peshawar, Pakistan
3. Khyber Medical University, Peshawar, Pakistan
4. Bacha Khan Medical College, Peshawar, Pakistan
5. World Health Organization, Peshawar, Pakistan

ABSTRACT

Background: Self-induced abortion is the result of unintended pregnancy, a modifiable risk factor of maternal and neonatal mortality. As a stigmatized method of fertility control, females seek medical care from private clinics, highlighting a critical public health challenge with global implications. Addressing this issue is essential for improving maternal and neonatal health outcomes and reducing preventable deaths.

Objective: To assess the factors associated with self-induced abortions as a result of unintended pregnancies in married women seeking healthcare at private maternity clinics in Peshawar.

Materials and Methods: This cross-sectional study, conducted in private maternity clinics from July to December 2022, analyzed the association between self-induced abortions SIA and exploratory factors. A pre-tested questionnaire was used for data collection, univariate and multivariate analyses were conducted on 298 female patients' data, recruited through a multi-stage sampling technique.

Results: Out of 298 participants in 10 clinics, 92 experienced SIA, with 35.9% Afghan nationals primarily due to a younger child, an unwanted pregnancy, and financial insecurity.

In multivariate analysis, the main factors were Nationality (OR 3.5,95% CI=0.803-18.51), Labour-induced medications usage (OR 18.547,95%CI=4.33-79.38), grand multiparty (OR 2.8909,95%CI=1.536-5.439), husband addiction (OR 5.847,95%CI=1.28-26.60) and SIA decision by husband or herself (OR 3.969,95%CI=2.932- 5.374).

Conclusion: Regarding Family planning methods, labour-induced medications, and psychosocial factors, this study investigates the prevalence of self-induced methods in various nationalities and helps to provide knowledge regarding informal clinics so that they can be included in an integrated national family program.

Keywords: Private maternity clinics, Psychosocial factors, Self-induced abortion, Unintended pregnancies.

This article may be cited as: Noureen S, Wahab S, Rehman K, Musa N, Rehman R, Afridi SK. Determinants of Self-Induced Abortion In Unintended Pregnancies: Insights from Private Maternity Clinics Peshawar. *J Saidu Med Coll.* 2025;15(2):184-191. https://doi.org/10.52206/jsmc.2025.15.2.1035

INTRODUCTION

An induced abortion, a result of unintended pregnancy is intentionally ending a conception before 28 weeks or when the baby is not mature or weighs under 1000 grams as defined by the Oxford Handbook of Gynaecology and Obstetrics. The contraceptive textbook writers state that self-induced abortion was prevalent in Egypt's Middle Kingdom between 2133 1786 BC.[1]

Imhotep, an ancient Egyptian medicine deity, forbade doctors from using contraception as a mean for induction approximately 3000 B.C. SIA, is a global public health issue, due to inadequate care facilities, particularly in resource-limited countries,[2] with 73.3 million induced abortions performed between 2015 and 2019, 45% of them performed improperly.[3]

Furthermore, a systematic review reveals a link between self-induced abortion and unfavourable conditions such as mental illnesses, chronic pelvic inflammatory diseases, poor reproductive outcomes, and sometimes infertility.[4-6] Studies confirmed socioeconomic reasons, lack of education and support, desire to provide for children, marital troubles, and women's impression of being too young to have children, all contribute to SIA.[7,8]

South Asia accounts for 56% of the estimated 213 million pregnancies globally each year, of which 40% are unplanned. Half of them ended up in abortions. Nepal has the greatest rate of unwanted pregnancies (41%), followed by Pakistan (38%) and then Bangladesh (30.3%).[8] Broadly, UP in Pakistan and South Asia are more likely to end in SIA, with 2.2 million abortions in 2012, approximately 50 SIA per 1000 women.[10]

According to research, 88% of pregnancies in Karachi, that resulted in SIA were due to UP or contraceptive failure.[11] In Pakistan, post-abortion complications were mostly caused by inexperienced midwives.[12] Based on research, in 2012, 62% of SIA received treatment from private-sector health professionals.[13]

The outcomes of abortion procedures are connected to the challenges in abortion policy and the healthcare system. Improved targeted programs on family planning counselling, contraceptive methods, and

Correspondence: Dr. Samdan Wahab
Associate Professor,
Mercy Teaching Hospital Peshawar Medical College,
Peshawar, Pakistan
Email: samdana32@gmail.com

Received: August 11th, 2024 - 1st Revision: August 26th 2024
2nd Revision: February 28th 2025 - Accepted: March 06th, 2025

availability of contraceptives should be widely promoted especially in private healthcare clinics, particularly in developing countries. As limited data is available in Pakistan, especially in Khyber Pakhtunkhwa, this study will help in providing evidence for the determinants and associated factors in self-inflicted terminations of pregnancies in females seeking care at private clinics.

MATERIALS AND METHODS

This cross-sectional questionnaire study was conducted in Peshawar from 1st July 2022 till 31st December 2022. By putting the induced abortion ratio i.e. 50/1000 women%,[11] a confidence interval of 95%, and with (2.5) S.E in open epi calculator, the total computed sample size was 290 rounded to 300. Married pregnant female patients, aged 15-49 through multi-stage sampling techniques were recruited from 10 maternity clinics. This study was based on subjective or self-reported data from the respondents, therefore the patients with gestational amenorrhea and per vaginal bleeding were included and those having previous history of psychosis were excluded. Ethical approval was granted by Khyber Medical University Peshawar Advanced Studies & Research Board (Reference Number# KMU/IPHSS/Ethics/2022/DS/0025).

The data collection validated tool was employed from a study done in Sri Lanka.[14] The tool was contextualized and validated after an extensive review by a panel of two public health specialists, two consultant gynaecologists, and two family physicians and a pilot study. This questionnaire comprises three sections. The first section comprises demography, second section includes current and past reproductive history, and knowledge of FP, particularly about emergency contraceptive methods. The third section focused on psychosocial determinants of SIA and their impact on pregnancy self-inflection. After verbal consent, the attending physicians interviewed the patients face-to-face. Data was analyzed by using SPSS version 26 and stata 14. The Univariate and multivariate analyses were used to explore the association between SIA and exploratory variables. The P-value of < 0.05 was considered significant. Explanatory variables were included in the regression model to conclude the determinants of SIA in women visiting private clinics.

RESULTS

From our study, 298 out of 300, completed questionnaires involving 10 private healthcare clinics revealed that 92 pregnant women sought self-induced assistance from private maternity clinics Table 01.

The study found a significant association between self-induced abortion and females from 16 years to more than 38 years old, primarily from low socio-economic status. Age, monthly income, and education level were significantly associated with SIA.

As far as other factors are concerned, the results are mentioned in detail in Table 02 above.

Multivariate analyses of sociodemographic characteristics and reasons for abortion do have an association with our outcome (OR 10.687,95%CI=5.8-20.14), Nationality (OR 3.5,95%CI=0.803-18.51), and Categories of income (OR 0.552, 95%CI=0.28-1.07) with P<1. in Table 03.

LIMs usage R 18.547 (4.33-79.38) and quantities OR 1.10 (1.007-1.202) were significantly associated with the SIA Table 04.

Table 5 shows multivariate analysis of reproductive variables, where “Parity” with (OR 2.8909, 95%CI=1.536-5.439), “Birth spacing duration” (OR 1.03,95%CI=1.008-1.053) and “Birth spacing categories” (OR 0.416, 95%CI=0.227-0.765) “Reasons for recent FP method” (OR 2.40, 95%CI=1.674-3.618) “Reasons for not using FP” (OR 1.11,95%CI=1.035-1.2) “EC pills knowledge” (OR 3.14,95%CI=1.118-7.54) have significant association with SIA.

In a multivariate analysis of psychosocial determinants, the husband usage of Alcohol intake OR (OR 5.847,95%CI=1.28-26.60) SIA Decision maker (OR 3.969, 95%CI= 2.932-5.374) shows an association with SIA.

DISCUSSION

The purpose of this study was to learn about the factors that influence self-induced abortion and healthcare-seeking behaviour in women who visited private clinics. The observed frequency was 30.87%, of those who seek medical care after attempting self-induced abortion. The rate is much closer to[9,10] global estimates of 39 abortions per 100 women for our region, but it is higher as observed by Sathar et al, for our province, i.e. 28 abortions per 100 women,[11] much higher than other Islamic countries like Iran[9] (11.1%) and[10] Egypt (14-16%).

The disparity in estimation results from women choosing to end a pregnancy through procedures or abortifacients rather than presenting with difficulties following the operation.

Another reason for the different rates could be due to the involvement of Afghans in their abortion rate (35.5%), which is consistent with a study[14] done in Afghanistan.

The SIA frequency was 19.1% in 16-26 years and less in women above 38 years (51.6 %) due to different reasons. Our results were not consistent with the findings of study conducted in sub-Saharan Africa.[11] In our study, more than half (51.6%) older than 38 years attempted abortion, which is consistent with the

Table 01. Socio-demographic characteristics of women attending private maternity clinic

Variables	Categories	Self-Induced Abortion				P-Value
		No		Yes		
		Freq.	%	Freq.	%	
Categories of Presenting Age	16-26	110	80.9	26	19.1	<0.001*
	27-37	81	61.8	50	38.2	
	>38	15	48.4	16	51.6	
Nationality	Pakistani	165	70.5	69	29.5	0.322
	Afghani	41	64.1	23	35.9	
Residential Area	Urban	111	68.9	50	31.1	0.941
	Non-Urban	95	69.3	42	30.7	
Education Type	None	60	64.5	33	35.5	0.355
	Religious	59	74.7	20	25.3	
	Formal	87	69.0	39	31.0	
Formal Education	Illiterate	91	69.5	40	30.5	0.395
	Primary	41	70.7	17	29.3	
Categories	Middle	25	71.4	10	28.6	
	Matric	31	73.8	11	26.2	
	Intermediate	12	66.7	6	33.3	
	Graduation	6	42.9	8	57.1	
Husband Education	Illiterate	67	69.1	30	30.9	0.377
	Primary	4	80.0	1	20.0	
	Middle	14	77.8	4	22.2	
	High School	36	61.0	23	39.0	
	Intermediate/Diploma	44	80.0	11	20.0	
	Graduate	28	66.7	14	33.3	
	Professional	13	61.9	8	38.1	
Income Source	self-salaried	8	47.1	9	52.9	0.043*
	Husband Salary	198	70.5	83	29.5	
Family Structure	Single Family	82	66.7	41	33.3	0.441
	Joint Family	124	70.9	51	29.1	
Present Age		-6.018		-2.637		<0.001*
Education Years		-1.317		0.948		0.749

*The chi-square value is significant.

Table 02. Univariate analysis of Factors in the psychosocial history of women with SIA

Variable	Categories	Total	SIA				P-Value
			No		Yes		
			Freq.	%	Freq.	%	
Previous mental health illness	No	234(78.5%)	169	72.2	65	27.8	0.027 *
	Yes	64 (21.5%)	37	57.8	27	42.2	
Self-harm history	No	287 (96.3%)	198	69.0	89	31.0	0.792
	Yes	11(3.7%)	8	72.7	3	27.3	

Psychoactive substances usage	No	288(96.6%)	200	69.4	88	30.6	0.525
	Yes	10(3.4%)	6	60.0	4	40.0	
Husband alcohol addiction	No	291 (97.7%)	202	69.4	89	30.6	0.487
	Yes	7 (2.3%)	4	57.1	3	42.9	
Husband psychoactive substances	No	280 (94%)	199 B	71.1	81	28.9	0.004*
	Yes	17 (5.7%)	7	38.9	11	61.1	
Husband smoking tobacco	No	239 (80.2%)	172	72.0	67	28.0	0.067
	Yes	58 (19.5)	33	56.9	25	43.1	
if yes, any difficulties due to this	No	275(92.3%)	193	70.2	82	29.8	0.173
	Yes	23 (7.7%)	13	56.5	10	43.5	
Abused by partner	No	216(72.5%)	150	69.4	66	30.6	0.848
	Yes	82(27.5%)	56	68.3	26	31.7	
Types of violence by husband	Emotional	55(18.5%)	39	70.9	16	29.1	0.673
	Physical	26(8.7%)	16	61.5	10	38.5	
	Na	216(72.5%)	150	69.4	66	30.6	
Relationship with husband	Poor	5(1.7%)	2	28.6	5	71.4	0.131
	Fair	8(2.7%)	4	50.0	4	50.0	
	Average	54(18.1%)	38	70.4	16	29.6	
	Good	192(64.4)	136	70.8	56	29.2	
	Excellent	37(12.4%)	26	70.3	11	29.7	
Relationship type in-law	Poor	7(2.3%)	4	66.7	2	33.3	0.054
	Fair	25(8.4%)	11	44.0	14	56.0	
	Average	71(23.8%)	53	74.6	18	25.4	
	Good	150(50.3%)	107	71.3	43	28.7	
	Excellent	43(14.4%)	30	69.8	13	30.2	
Handicapped children	No	278(93.3%)	193	69.4	85	30.6	0.679
	Yes	20(6.7%)	13	65.0	7	35.0	
Depression	No	148(49.7%)	103	69.6	45	30.4	0.862
	Yes	150(50.3%)	103	68.7	47	31.3	
Lack of interest in pleasurable activities	No	103(34.6%)	78	75.7	25	24.3	0.073
	Yes	195(65.4%)	128	65.6	67	34.4	
Loss of daily functioning	No	114(38.3%)	82	71.9	32	28.1	0.410
	Yes	184(61.7%)	124	67.4	60	32.6	
PTSD	No	239(80.2%)	180	75.3	59	24.7	<0.001*
	Yes	59(19.8%)	26	44.1	33	55.9	
SIA Decision. maker	Na	200(67.1%)	191	95.5	9	4.5	<0.001
	Husband	17(5.7%)	5	29.4	12	70.6	
	In-laws	3(1%)	0	0.0	3	100.0	
	Herself	26(8.7%)	4	15.4	22	84.6	
	Husband and Herself	52(17.4%)	6	11.5	46	88.5	

*The chi-square value is significant.

Table 03. multivariate analysis of factors in socio-demographic characteristics of women with SIA

Socio-demographic	AOR.	p-value	95% CI	Sig
Abortion reasons (ref reason x no reason)	10.68	<0.001	5.875-20.14	***
Presenting age	1.185	0.14	0.95-1.436	
Education type	1.174	0.645	0.392-4.536	
Education categories	0.912	0.523	0.611 - 1.285	
Education in years	1.326	0.598	0.479 - 3.59	
Husband education	1.002	0.988	0.637 -1.558	
Nationality (ref Pakistani x Afghan)	3.506	0.092	0.803 - 18.51	*
Residential area(ref urban x rural)	0.579	0.464	0.127 - 2.56	
Income source (ref self-employed x husband employed)	0.619	0.687	0.059 - 6.427	
Income in rupees	1.00	0.690	0.999 - 1.00	
Income categories (ref<50k x 50k and above)	0.552	0.079	0.285 - 1.071	*
Family structure(ref single unit x joint family unit)	0.665	0.549	0.201 - 2.351	

*** p<.01, ** p<.05, * p<.1

Table 04. Multi-variate analysis of factors in the present history of SIA

SIA Present History	OR	p-value	95% CI	Sig
Companion to the private clinic	1.288	0.18	0.889 - 1.865	
Husband marital status	0.528	0.431	0.108 - 2.607	
Woman marital status	1.426	0.812	0.076 - 29.885	
Woman present age	0.295	0.332	0.025 - 3.469	
Previously SIA	0.428	0.453	0.047 - 3.904	
Previous induced abortions	5.0631	0.127	0.629 - 40.733	
LIMs Usage (ref misoprostol x no LIMs)	8.547	0	4.327 - 79.186	***
LIMs route of administration (ref oral x oral and vaginal)	0.794	0.421	0.454 - 1.389	
Quantity of LIMs used	1.100	0.033	1.008 - 1.202	**
Source of LIMs (ref self-bought x others)	1.040	0.849	0.689 - 1.576	
Previous medical illness	0.999	0.998	0.822 - 1.215	
Significant medical illness	2.174	0.179	0.701 - 6.767	

*** p<.01, ** p<.05, * p<.1

common belief[12] that older married women seek abortions. This may be due to less practice of contraceptive methods or they have long fertility periods. The findings contrast with the study carried out in Ethiopia, where women aged 26 to 29 were more likely to experience unwanted pregnancies.[11] The variations were due to differences in context, participants, and study settings.

In our study, the residents of urban areas attempted self-induced abortion but these findings are not consistent with a study done in Pakistan,[10] where self-induced abortion is commonly seen in the women of[12] rural areas though the differences in findings may be due to the study population.

In our study, the participants with higher education[16] were more involved in SIA than their counterparts. The findings contradict the findings of Ethiopia.[17] However favours a study in Turkey, that they primarily consult private clinics for their privacy and convenience.[1] This is also evident in early young-age marriages, low socio-economic status, and easy availability of LIMs with significant association with research conducted in Bangladesh[19]and Nepal.[20]

Parity is a significant determinant associated with SIA as affirmed by our finding, particularly in Grand multiparas, as supported by studies in Ethiopia and Sub-Saharan Africa.[21]

Accessibility issues, "not liking FP," religious concerns, "partner rejection," and "infrequent sex" were the most often stated impediments. This is also observed in research studies carried out in Pakistan.[21]

Table 05. Multi-variate analysis of Factors in the reproductive history of women with SIA

Factor Reproductive History of SIA	OR	p-value	95% CI	Sig
Parity	2.890	0.001	1.514 - 5.343	***
Number of dead children(ref none x any)	0.731	0.387	0.316 - 1.563	
Birth spacing duration in months	0.416	0.008	1.008 - 1.053	***
Birth spacing categories (ref <24 x >24)	1.038	0.005	0.227 - 0.765	***
Contraception Knowledge	0.461	0.575	0.184 - 2.558	
Contraception usage	1.606	0.93	0.419 - 2.213	
Most recent FP in use	1.156	0.338	0.854 - 1.582	
Reason for this method(ref no reason x reason provided)	2.400	0.00	1.674 - 3.618	***
Ever told by LHW about family planning methods	0.629	0.271	0.286 - 1.421	
Discontinuation FP	1.147	0.561	0.981 - 1.01	
Discontinuation reason for recent FP	1.031	0.812	0.893 - 1.156	
Reason for not using family planning methods	1.111	0.004	1.035 - 1.2	***
EC pills Knowledge	3.144	0.029	1.118 - 7.54	**
Usage of EC pills	0.284	0.198	0.059 - 1.797	

*** p<.01, ** p<.05, * p<.1

Table 06. Multivariate analysis of psycho-social characteristics in women with SIA

Psycho-Social Characteristic	OR	p-value	95% CI	Sig
previous mental illness	1.031	0.961	0.296 - 3.598	
History of suicidal attempts	0.499	0.656	0.023 - 10.666	
psychoactive drugs usage	4.168	0.22	0.426 - 40.832	
Husband psychoactive drugs usage	0.693	0.826	0.026 - 18.2	
Husband alcohol intake	5.847	0.022	1.285 - 26.607	**
Husband smoking tobacco	1.399	0.491	0.537 - 3.647	
Difficulties due to his addiction	0.880	0.88	0.17 - 4.56	
History of IPVT	7.62e	0.223	1.7e-144 3.476e+33	
Type of IPV	0.317	0.227	0.05 - 2.039	
Relationship with in-laws	0.714	0.387	0.334 - 1.53	
Relationship with husband	0.766	0.413	0.405 - 1.45	
physically or mentally disabled children	0.374	0.293	0.06 - 2.34	
History of depression	0.839	0.745	0.293 - 2.403	
History of lack of interest for more than 2 weeks	2.831	0.169	0.644 - 12.455	
Low energy	1.196	0.767	0.362 - 3.97	
PTSD from last six month	1.867	0.25	0.644 - 5.411	
Decision maker of SIA	3.969	.000	2.932 - 5.375	***

*** p<.01, ** p<.05, * p<.1

Regarding psychosocial factors, mental illness, post-traumatic stress, an addicted husband, and whether both partners agreed to self-induced abortion were the strong stimuli noted by numerous research across the globe.[22] Domestic violence is reported by 27.5% of study participants,18.5% were the victims of emotional violence, and many more were physically abused. The rate is lower than reported by UNFPA (40%) in married women.

In our study population, 50.3% suffered from depression and the SIA rate was 34.4% but was higher in those with post-traumatic stress.[23] These rates were somewhat similar to a study done on Australian women, where 30% were depressed. In the studies, done in Pakistan, depression in pre-natal is estimated at 37% and 30% in the post-natal period.[24] The difference is that they usually present with an attempt to terminate the current pregnancy.

Although literature identifies numerous reasons for self-induced abortion, the main reasons in our study include the last child being too young (30.53%), unwanted pregnancy (14.7%), financial instability, and ill health of the mother such as mental illnesses, chronic pelvic inflammatory diseases, poor reproductive outcomes, and sometimes infertility. Similar findings were revealed in research conducted by Bangladesh's Population Council**.** In our study, joint decisions for SIA were 17.4%. While 8.7% of women themselves decided to abort, these findings are consistent with studies done in Kenya, Ghana, and Ethiopia.[25]

Given the cross-sectional nature of our study design, it is inherently susceptible to subjective information bias, a recognized limitation of this approach. However, our findings identify key modifiable risk factors for SIA, offering valuable insights that can be leveraged in future interventional research. Targeting these factors through private clinics could significantly reduce neonatal and maternal mortality rates, improving public health outcomes.

Strengths & Limitations
Based on subjective self-reported data, sensitivity and social norms may influence the study's results. Therefore, the rate of SIA may be higher than expected, care should be taken when generalizing the result.

Future Prospects
There is a need to improve the education programs regarding the provision and teaching of the different methods for contraception, risks of self-miscarriages, and associated legal/ ethical issues. In addition, there must be improvement in polices design, and need for enhancement of reproductive health care services.

CONCLUSION

SIA is an action taken to get rid of the physical, social, and psychological burden of women. Therefore, the characteristics identified for SIA include women in their late thirties, grand multipara, Afghan nationality, practicing abstinence, self-employed with low socioeconomic status, post-traumatic stress, and a combined decision to end the pregnancy.

These participants usually prefer private clinics for privacy, convenience, and high-quality healthcare, and they can be targeted for FP services by informal services.

Recommendations
To prevent induced abortion as a means of family planning, this study recommends health education through private maternity clinics about FP, particularly long-acting contraceptives, health concerns, and misconceptions about FP methods.

There is a need to educate the community by involving various process influencers and managers in an acceptable, accessible form to the target population, actively involving females to elicit such programs.

Acknowledgment
We are grateful to the study participants and the contributions of KR, SN, SW, NM, RR, and SKA. We also appreciate the supervision and support provided by the Khyber Medical University Institute of Public Health and Social Sciences in conducting this study.

Ethical Consideration
This study was approved by Institutional Review Board of Khyber Medical University, Peshawar, Pakistan.

Funding
There is no role of any funding agency in this study.

Conflict of Interest
Authors declared no conflict of interest.

REFERENCES

1. Belay AS, Sarma H, Yilak G. Spatial distribution and determinants of unmet need for family planning among all reproductive−age women in Uganda: a multi−level logistic regression modeling approach and spatial analysis. *Contraception and Reproductive Medicine*. 2024 Feb 2;9(1):4. https://doi.org/10.1186/s40834-024-00264-0
2. Sun H, Mao J, Su X, Du Q. Impact of spontaneous abortion history and induced abortion history on perinatal outcomes of singleton pregnancies. *BMC Public Health*. 2023;23(1):2360.0 https://doi.org/10.1186/s12889-023-17264-5
3. Situ K, Gissler M, Heino A, Klemetti R. Factors influencing the risk of repeat termination of pregnancy: A register-based study in Finland. *Sexual & Reproductive Healthcare*. 2023;37: 100876. https://urn.fi/URN:NBN:fi:tuni-202307077159
4. Erfani A. Determinants of induced abortion in Tehran, Iran: the role of contraceptive failure. *The European Journal of Contraception & Reproductive Health Care*. 2021;26(3):233-9 https://doi.org/10.1080/13625187.2021.1876846
5. Koiwa Y, Shishido E, Horiuchi S. Factors influencing abortion decision-making of adolescents and young women: A narrative scoping review. *International Journal of Environmental Research and Public Health*. 2024 Mar 1;21(3):288. https://doi.org/10.3390/ijerph21030288
6. Suranga MS, Rajakaruna DK, Dewasurendra J, Sharma G, Das A. Unveiling reproductive choices: Knowledge and practices of emergency contraceptive pills among the female factory workers in Sri Lanka. *Sexual & Reproductive Healthcare*. 2024 Mar 1;39:100933. https://doi.org/10.1016.j.srhc.2023.100933
7. Slamat R, Bracke P, Ceuterick M. 'It'sa secret in my life': frontstage and backstage experiences of women undergoing induced abortions in a rural community of Pakistan. *BMC Women's Health.* 2024 Dec 31;24(1):676. https://doi.org/10.1186/s12905-024-03482-5
8. Mahmood J, Shehzad MA, Khan A, Masood I. Use of Randomized Response Technique to Measure the Induced Abortion Levels in Multan. *Pak-Euro Journal of Medical and Life Sciences*. 2024 Sep 30;7(3):449-58. https://doi.org/10.31580/cgn5gm65

9. Lalani S, Premji SS, Shaikh K, Sulaiman S, Yim IS, Forcheh N, et al. Individual and collective contribution of antenatal psychosocial distress conditions and preterm birth in Pakistani women. *PloS one*. 2023;18(3):e0282582. https://doi.org/10.1371/journal.pone.0282582
10. Strong J, Lattof SR, Maliqi B, Yaqub N. Experiences of private sector quality care amongst mothers, newborns, and children in low-and middle-income countries: a systematic review. *BMC health services research*. 2021;21:1-15. https://doi.org/10.1186/s12913-021-06905-3
11. Zeba S, Susheela S, Iqbal HS, Muhammad RN, Tahira P, Octavia M, et al. Abortion and unintended pregnancy in Pakistan: new evidence for 2023 and trends over the past decade: *BMJ Global Health*. 2025;10: e017239. https://doi.org/10.1136/bmjgh-2024
12. Kamran I, Mir AM. Women's access to safe abortion and postabortion care services in Pakistan: the role of gender and related factors. InHandbook on Sex, Gender and Health: Perspectives from South Asia 2024 Jul 15 (pp. 1-21). Singapore: *Springer Nature Singapore*. https://doi.org/10.1007/978-981-19-9265-0_15-1
13. Maruf F, Tappis H, Lu E, Yaqubi GS, Stekelenburg J, van den Akker T. Health facility capacity to provide postabortion care in Afghanistan: a cross-sectional study. *Reproductive Health*. 2021;18:1-10. https://doi.org/10.1186/s12978-021-01204-w
14. Women's decision-making related to induced abortion–a cross sectional study during a period of Covid-19 pandemic, in Sweden. *The European Journal of Contraception & Reproductive Health Care*. 2023;28(1):44-50. https://doi.org/10.1080/13625187.2022.2150047
15. Oppah IC, Kasso T, Oranu EO. Unintended Pregnancy Determinants among Antenatal Clinic Attendees: A University of Port Harcourt Teaching Hospital Experience. *Journal of Biosciences and Medicines*. 2024;12(4):229-45. https://doi.org/10.4236/jbm.2024.124019
16. Amoah EJ, Hinneh T, Aklie R. Determinants and prevalence of modern contraceptive use among sexually active female youth in the Berekum East Municipality, Ghana. *PloS one*. 2023 Jun 8;18(6):e0286585. https://doi.org/10.1371/journal.pone.0286585
17. Baig M, Ali SA, Mubeen K, Lakhani A. Induced abortions in Pakistan: an afflicting challenge needing addressal. *British Journal of Midwifery*. 2021 Feb 2;29(2):94-8. https://doi.org/10.12968/bjom.2021.29.2.94
18. Yemane GD, Korsa BB, Jemal SS. Multilevel analysis of factors associated with pregnancy termination in Ethiopia. *Annals of Medicine and Surgery*. 2022;80:104120. https://doi.org/10.1016/j.amsu.2022.104120
19. Alam MZ, Islam MS. Is there any association between undesired children and health status of under-five children? Analysis of a nationally representative sample from Bangladesh. *BMC pediatrics*. 2022;22(1):445. https://doi.org/10.1186/s12887-022-03489-7
20. Khatri RB, Alemu Y, Protani MM, Karkee R, Durham J. Intersectional (in) equities in contact coverage of maternal and newborn health services in Nepal: insights from a nationwide cross-sectional household survey. *BMC public health*. 2021;21(1):1098. https://doi.org/10.1186/s12889-021-11142-8
21. Azmat S, Temmerman M, Ali M. Accessibility and uptake of modern contraceptive methods in Pakistan-a critical view on what works? JPMA *The Journal of the Pakistan Medical Association*. 2021;71(11):S20-S32. http://hdl.handle.net/1854/LU-8747931
22. Alwis I, Baminiwatta A, Chandradasa M. Prevalence and associated factors of depression in Sri Lanka: a systematic review and meta-analysis. *Social Psychiatry and Psychiatric Epidemiology*. 2024;59(2):353-73. https://doi.org/10.1007/s00127-023-02495-z
23. Sahoo S, Gill G, Sikka P, Nehra R. Antenatal depression and anxiety in Indian women: A systematic review. *Industrial psychiatry journal*. 2023. https://doi.org/10.4103/ipj.ipj_156_22
24. Khan R, Waqas A, Mustehsan ZH, Khan AS, Sikander S, Ahmad I, et al. Predictors of prenatal depression: a cross-sectional study in rural Pakistan. *Frontiers in Psychiatry*. 2021;12:584287. https://doi.org/10.3389/fpsyt.2021.584287
25. Abebe M, Mersha A, Degefa N, Gebremeskel F, Kefelew E, Molla W. Determinants of induced abortion among women received maternal health care services in public hospitals of Arba Minch and Wolayita Sodo town, southern Ethiopia: unmatched case–control study. *BMC Women's Health*. 2022 Apr 9;22(1):107. https://doi.org/10.1186/s12905-022-01695-0

DATA SHARING STATEMENT: The data that support the findings of this study are available on request from the corresponding author. The data is not publicly available due to privacy or ethical restrictions.

AUTHORS' CONTRIBUTION

The following authors fulfill authorship criteria as per ICMJE guidelines;

Noureen S, Wahab S: Substantial contribution to conception and design, drafting the manuscript, final approval, agreed to be accountable for all the work.

Rehman K, Musa N: Substantial contribution to conception and design, data acquisition, drafting the manuscript, final approval, agreed to be accountable for all the work.

Rehman R: Analysis and interpretation of data, drafting the manuscript, final approval, agreed to be accountable for all the work.

Afridi SK: Analysis and interpretation of data, critical revision, final approval, agreed to be accountable for all the work.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License, which permits unrestricted use, distribution & reproduction in any medium provided that original work is cited properly.