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RESEARCH ARTICLE

Socio-demographic and reproductive determinants of spontaneous abortion- A cross-sectional comparative research at a tertiary care hospital in North Karnataka, India

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Abstract

The current study aims to explore the relationship between Spontaneous Abortion and socioeconomic and reproductive factors. Cross-sectional comparative research was conducted. The study collected data from 200 women aged 19 to 35, consisting of 2 groups. Group 1 mothers who had undergone spontaneous and group 2 mothers who continued pregnancy with the same gestational week and the socio-demographic and reproductive factors were compared. Participants were interviewed using a structured questionnaire on socio-demographics, and reproductive factors were collected. Risk of abortion with an unadjusted odds ratio 1.87 times more in the age group of 19 to 20 years, parity primi mother with an unadjusted odds ratio 1.16 times had more risk of abortion, Area of residence the mother who stayed in a rural area with unadjusted ratio 1.47 times more risk of abortion, occupation the mothers who were self-workers with unadjusted odds ratio 1.50 times more risk of abortion, when looking into the education of mother illiterate mother with unadjusted odds ratio 0.50 times had a risk of abortion, in view with Religion muslins with unadjusted odds ratio 0.38 times more risk of abortion considering the type of family the mother who belong to a nuclear family with unadjusted odds ratio 1.04 times had more risk of abortion, consanguineous marriage with unadjusted odds ratio 3.95 had times more risk of abortion

Conclusion: Our study shed light on clarifying whether certain socio-demographic and reproductive determinants do increase miscarriage risk or whether screening of pregnant women for treatable determinants would improve the rate of pregnancy loss.

Keywords: Cross-sectional, comparative analysis, Socio-demographic and Reproductive, Determinants, Spontaneous abortion.

Introduction

Miscarriage is defined as spontaneous abortion (SA) without medical or mechanical means to terminate a pregnancy before the fetus is sufficiently developed to survive. In other words, miscarriage is early pregnancy loss before the 20th week of gestation, or 139 days, counting from the first day of the last normal menses (Patki, A., & Chauhan, N., 2016).

Abortion is defined by the World Health Organization (WHO) as "the expulsion or extraction from its mother of a fetus or embryo weighing less than 500 grams. (Shakhatreh, 2022)

The American College of Obstetricians and Gynecologists (ACOG) estimates it is the most common form of pregnancy loss. It is estimated that globally as many as 26% of all pregnancies end in miscarriage and up to 10% of clinically recognized pregnancies. Moreover, 80% of early pregnancy loss occurs in the first trimester. (Dugas C. & Slane V. H., 2022). India has documented significant rates of SA. An Indian household survey conducted in Bihar, India, revealed that the rate of miscarriage was 46 per 1000 pregnancies (4.6%) and typically occurred later in pregnancy (Dhaded, S. M. Somannavar M. S, Jacob.,2017)

Conversely, an epidemiological investigation carried out in the major Indian cities revealed that as many as 32% of Indian women experienced recurrent spontaneous miscarriages. The majority (80%) of SAs occur throughout the first three months of pregnancy. The study revealed

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a higher prevalence of recurrent spontaneous abortion among Indian women as compared to Western data. (Patki A. & Chauhan N., 2016).

Overall, 10 to 20% of clinically recognized pregnancies will end in early pregnancy loss (American College of Obstetricians and Gynecologists' Committee on Practice Bulletins—Gynecology, 2018).

Numerous risk factors, including chromosomal abnormalities and fetal deformities, chronic illnesses in mothers, uterine disorders, immunological factors, and infections, are associated with spontaneous abortion in many cases (Alves C, Jenkins SM, Rapp A. Early Pregnancy Loss Spontaneous Abortion Updated, 2023). Yet, a number of modifiable risk factors for spontaneous abortion were also found to exist: increased smoking, alcohol and caffeine consumption, obesity, and older parenteral age (Rasch V, 2003). Nevertheless, the therapeutic care of these individuals faces significant challenges because the etiology of around 50% of recurrent pregnancy loss cases is still unclear. Because of its identified etiology, recurrent pregnancy loss is generally considered to be a complicated illness (Cao, C., et al.,2022).

Lack of a thorough grasp of risk factors, differential diagnosis, and inadequate management planning can all make accurate diagnosis difficult, especially in the early stages of pregnancy.

There hasn't been any agreement reached yet, despite the fact that few studies have particularly looked into the connection between socioeconomic and reproductive factors and the occurrence of spontaneous abortion.

Hence, our research aims to elucidate if certain socio-demographic and reproductive factors are associated with a higher risk of miscarriage or if screening pregnant women for modifiable factors might lead to a lower pregnancy loss rate. The objectives of the Present study are

- To compare the socio-demographic and reproductive determinants of mothers who undergone spontaneous abortion and those who continued pregnancy with the same gestational age

Methodology

A hospital-based, cross-sectional comparative study was conducted to examine the association between socio-demographic factors and reproductive history with mothers who underwent spontaneous abortion on one arm and another who continued pregnancy with the same gestational age enrolled in the study. A total of 200 respondents were included. Mothers who recently experienced a spontaneous abortion within 20 weeks of pregnancy and had been admitted to the hospital for a procedure or therapy were considered and mothers who prolonged their pregnancy with the same gestational age and went to the prenatal outpatient department (OPD) were recruited. The samples were chosen using a convenient sampling technique.

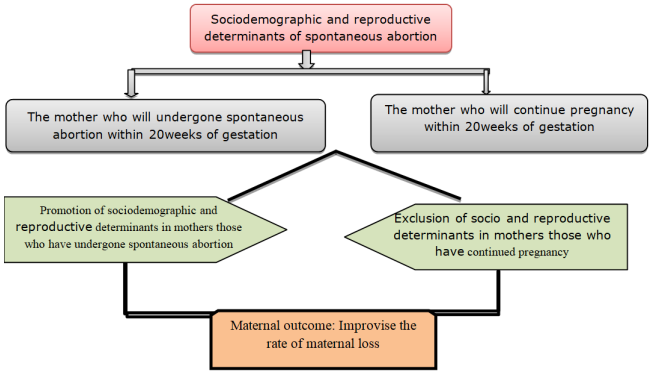

Figure 1: Framework

After receiving institutional ethics committee approval, data collection was carried out from both groups. Prior to data collection, each respondent provided their informed consent. The study's participation by respondents was completely optional, and they were free to stop at any time without providing a reason.

Data were gathered for 12 months in 2022 utilizing a face-to-face interviewing technique and the structured interview schedule's Kannada and Hindi versions. The questionnaires on socio-demographic factors, such as education, occupation, family, monthly family income, and reproductive history (such as prior history of abortion, prior history of stillbirth, prior history of premature delivery, and prior ANC checkup), were developed based on the review of the literature. Before gathering the data, the questionnaire's face and content validity were confirmed.

Statistical Analysis

The data were gathered and entered into SPSS version 16. Additionally, an odds ratio with 95% confidence intervals was computed to quantify the risk between two groups after the data were analyzed using descriptive statistics, chi-square, and logistic regression and the Fisher exact test.

Conceptual Frame Work

A conceptual framework directs this investigation (Figure 1). According to this framework, spontaneous abortion is directly impacted by certain socio-demographic determinants. According to this conceptual framework, we can anticipate that the socio-demographic determinants may, in turn, either encourage or exclude some determinants affecting the consequences for maternal outcome.

Results

A total of 200 respondents in each group were included (Group 1:100 and Group 2: 100). Group 1 was defined as women who had a recent spontaneous abortion before 22 weeks of pregnancy and had been hospitalized for a medical procedure or treatment. Group 2 were women who continued pregnancy with the same gestational age and who had visited the antenatal outpatient department (OPD) (Figure 2).

Table 1 indicates the chi-square value of respected determinants with *p-value* where *p-value* is less than 0.05 hence it showed that there is a significant association between the marital age, area of residence, occupation of mother, maternal education, religion, consanguineous marriage, monthly income with the mother those who underwent abortion and those continued pregnancy (Figure 3).

Table 2 put an insight on the risk of abortion with unadjusted odds ratio 1.87 times more and with adjusted odds ratio 13.18 times more in the age group of 19 to 20 years, parity primi mother (Figure 4) with unadjusted odds ratio 1.16 times and with adjusted odds ratio 0.17 times had more risk of abortion, area of residence the mother who stayed in rural area with unadjusted ratio 1.47 times more and with unadjusted ratio 2.42 times (Figure 5), occupation the mothers who were self-workers with unadjusted odds ratio 1.50 times and with adjusted odds ratio 0.90 times more (Figure 6), when looking into the education of mother illiterate mother with unadjusted odds ratio 0.50 times and with adjusted odds ratio 0.18 times had risk of abortion (Figure 7), in view with religion muslims with unadjusted odds ratio 0.38 and with adjusted odds ratio 0.16 times more (Figure 8), considering the type of family the mother who belong to nuclear family with unadjusted odds ratio 1.04 times and with adjusted odds ratio 1.84 had more risk of abortion (Figure 9), consanguineous marriage with unadjusted odds

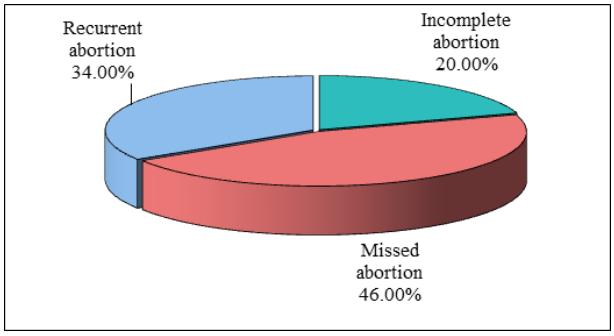

Figure 2: Types of abortion in abortion group

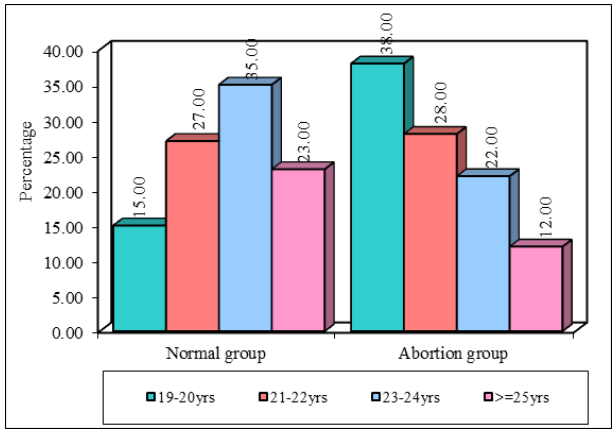

Figure 3: Comparison of normal group and abortion group with maternal age

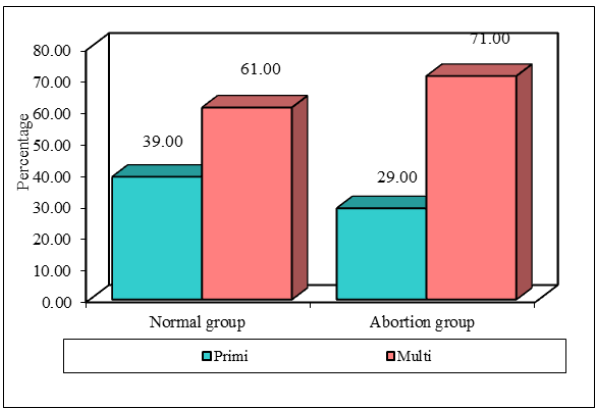

Figure 4: Comparison of normal group and abortion group with parity

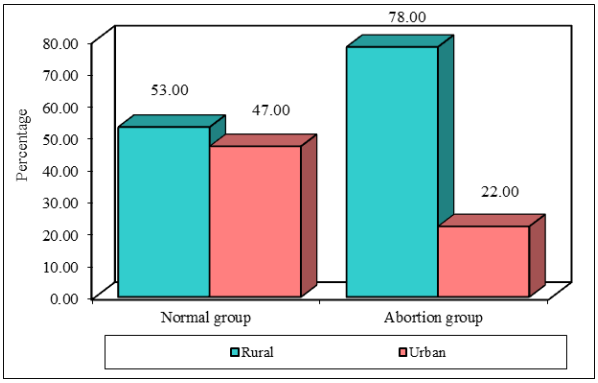

Figure 5: Comparison of normal group and abortion group with area of residence

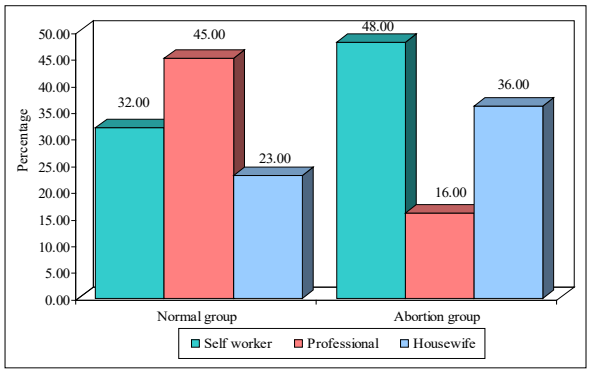

Figure 6: Comparison of normal group and abortion group with occupations

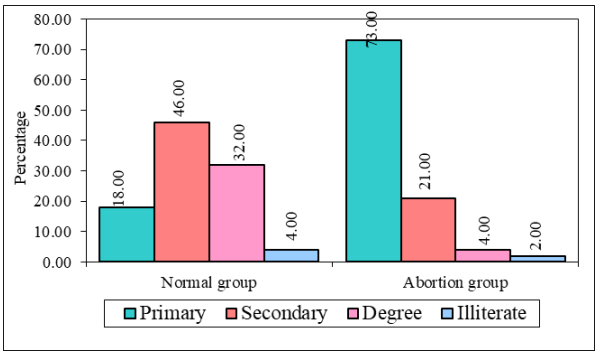

Figure 7: Comparison of normal group and abortion group with maternal education

Table 1: Association between abortions with socio-demographic factors.

*p<0.05

Marital age	*Normal group*	*%*	*Abortion group*	*%*	*Total*	*%*	*Chi-square*	*p-value*
19-20yrs	15	15.00	38	38	53	26.50	8.0210	0.0460*
21-22yrs	27	27.00	28	28	55	27.50		
23-24yrs	35	35.00	22	22	57	28.50		
>=25yrs	23	23.00	12	12	35	17.50		
Total	100	100	100	10	20	100		
Parity								
Primi	39	39.00	29	29	68	34.00	2.2280	0.1360
Multi	61	61.00	71	71	13.2	66		
Total	100	100	100	10	20	100		
Area of residence								
Rural	53	53.00	78	78	13.1	65.50	15.7120	0.0001*
Urban	47	47.00	22	22	69	34.50		
Total	100	100	100	10	200	100		
Occupations								
Self-worker	32	32.00	48	48	80	40.00	19.8510	0.0001*
Professional	45	45.00	16	16	61	30.50		
Housewife	23	23.00	36	36	59	29.50		
Total	100	100	100	10	20	100		
Maternal Education								
Primary	18	18.00	73	73	91	45.50	65.0150	0.0001*
Secondary	46	46.00	21	21	67	33.50		
Degree	32	32.00	4	4	36	18.00		
Illiterate	4	4.00	2	2	6	3.00		
Total	100	100	100	10	20	100		
Religions								
Hindu	64	44.00	38	38.	102	51.00	27.6680	0.0001*
Muslim	25	45.00	48	48	73	36.05		
Others	11	11.00	14	14	25	12.05		
Total	100	100	100	10	20	100		
Type of fa								
Nuclear	20	20.00	77	77	43	21.50	0.2670	0.6060
Joint	80	80.00	23	23	15.7	78.50		
Total	100	100	100	10	20	100		
Consanguineous marriage								
Yes	19	19.00	75	75.	94	47	63.1120	0.0001*
No	81	81.00	25	25.	106	53.00		
Total	100	100	100	10	200	100.		
Monthly income								
>10000	79	79.00	62	62	141	70.50	6.9480	0.0080*
<10000	21	21.00	38	38	59	29.50		
Total	100	100	100	10	200	100		

Table 2: Association between abortions with socio-demographic characteristics by logistic regression analysis

Factors	*Unadjusted OR*	*95% CI for OR*		*p-value*	*Adjusted OR*	*95% CI for OR*		*p-value*
		Lower	*Upper*			*Lower*	*Upper*	
Marital age (years)								
19–20	1.87	1.00	3.50	0.0500*	13.18	2.02	86.00	0.0070*
21–22	1.09	0.69	1.72	0.7260	1.53	0.40	5.96	0.5370
23–24	0.82	0.46	1.43	0.4760	1.05	0.29	3.86	0.9420
>=25	Ref.				Ref.			
Parity								
Primi	1.16	0.83	1.64	0.3850	0.17	0.04	0.76	0.0210*
Multi	Ref.				Ref.			
Area of residence								
Rural	1.47	1.04	2.09	0.0300*	2.42	0.95	6.12	0.0630
Urban	Ref.				Ref.			
Occupations								
Self-worker	1.50	0.96	2.35	0.0760	0.90	0.31	2.64	0.8490
Professional	0.36	0.20	0.63	0.0001*	0.21	0.06	0.71	0.0120*
Housewife	Ref.				Ref.			
Maternal education								
Primary	Ref.				Ref.			
Secondary	0.46	0.27	0.77	0.0030*	0.18	0.07	0.48	0.0010
Degree	0.13	0.04	0.35	0.0001*	0.02	0.00	0.11	0.0001
Illiterate	0.50	0.09	2.73	0.4230	0.08	0.01	1.00	0.0500*
Religions								
Hindu	Ref.				Ref.			
Muslim	0.38	0.22	0.66	0.0010*	0.16	0.05	0.50	0.0020*
Others	0.27	0.08	0.98	0.0460*	0.04	0.00	0.42	0.0070*
Type of family								
Nuclear	1.04	0.76	1.42	0.8110	1.84	0.65	5.19	0.2490
Joint	Ref.				Ref.			
Consanguineous marriage								
Yes	3.95	2.39	6.53	0.0001*	27.07	8.21	89.28	0.0001*
No	Ref.				Ref.			
Monthly income								
>10000	Ref.				Ref.			
<10000	1.81	1.06	3.08	0.0290*	0.56	0.18	1.74	0.3140

*p<0.05

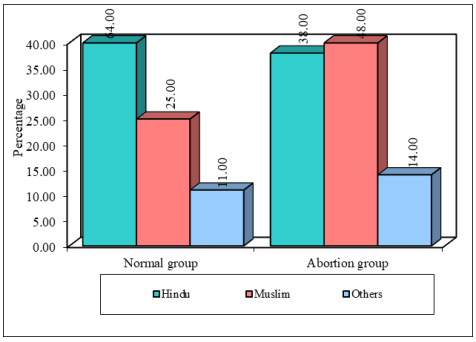

Figure 8: Comparison of normal group and abortion group with religions

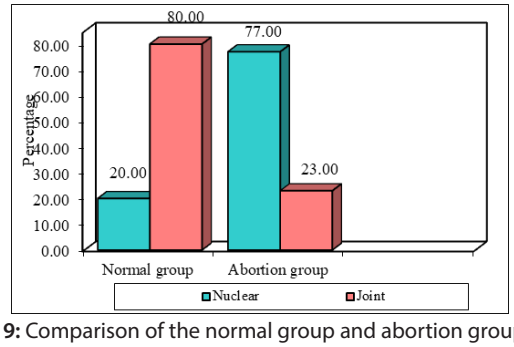

Figure 9: Comparison of the normal group and abortion group with type of family

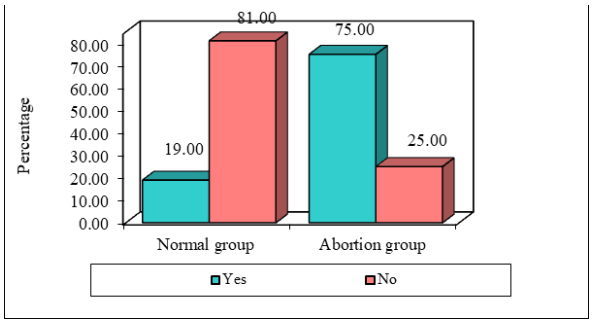

Figure 10: Comparison of normal group and abortion group with consanguineous marriage

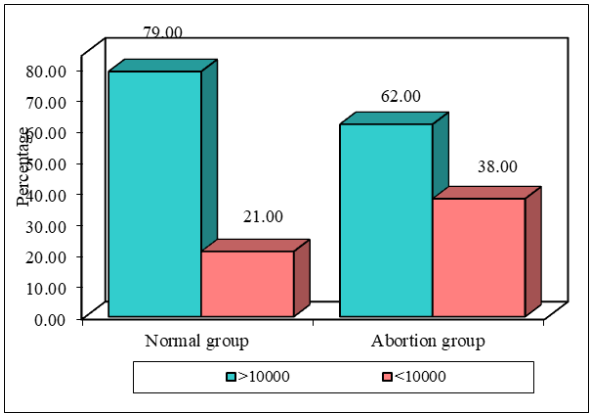

Figure 11: Comparison of normal group and abortion group with monthly income

ratio 3.95 and with adjusted odds ratio 27.7 had times more risk of abortion (Figure 10). Comparison of normal group and abortion group with monthly income (Figure 11).

Reproductive Factors

Table 3 demonstrates the chi-square value of reproductive factors with their respective *p-value* where *p-value* was less than 0.05 and shows that there is a significant association between age at menarche (Figure 12), complication during last pregnancy (Figures 13 and 14), history of previous abortion (Figure 15), any medication taken during pregnancy, Hb% of mother, lifestyle factors of mother, receiving of tetanus toxoid, antenatal screening of mother, maternal infection of mother with mother those who underwent abortion and those continued pregnancy (Figures 12-23).

Table 4 illustrates the risk of abortion with unadjusted odds ratio 1.42 and with adjusted odds ratio 0.53 times more in the mothers those who attained menarche before 15 years, the mother who had complication during last pregnancy with unadjusted odds ratio 1.86 and with adjusted odds ratio 0.36 times more risk of abortion, the mother those who had history of previous abortion with unadjusted ratio 1.74 and with adjusted ratio 1.70 times more risk , risk of abortion with unadjusted odds ratio 1.04 and with adjusted odds ratio 0.33 times more in the mothers those who didn't had antenatal care, the mothers those who took medication during pregnancy with unadjusted

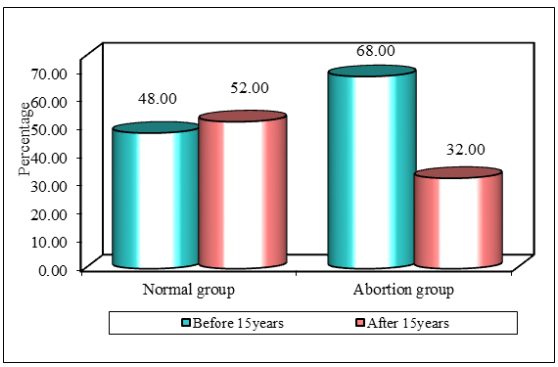

Figure 12: Comparison of normal group and abortion group with age at menarche

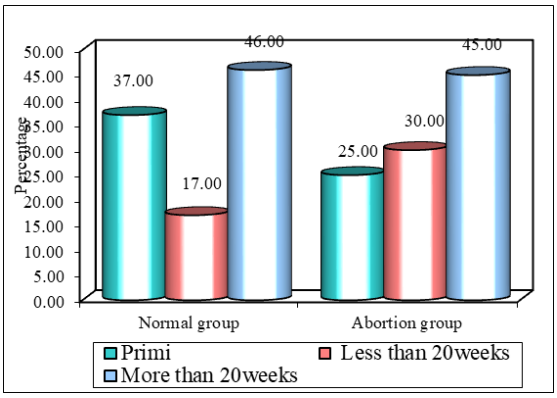

Figure 13: Comparison of normal group and abortion group with Period of gestation during last pregnancy

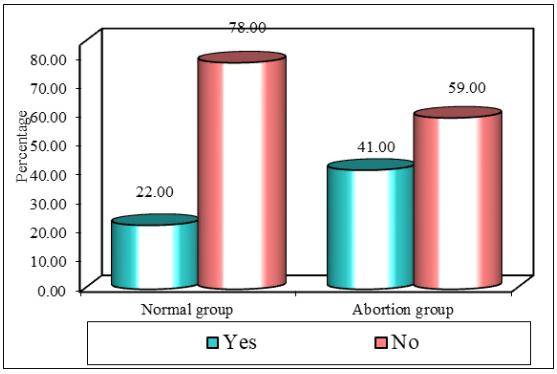

Figure 14: Comparison of the normal group and abortion group with any complication during the last pregnancy

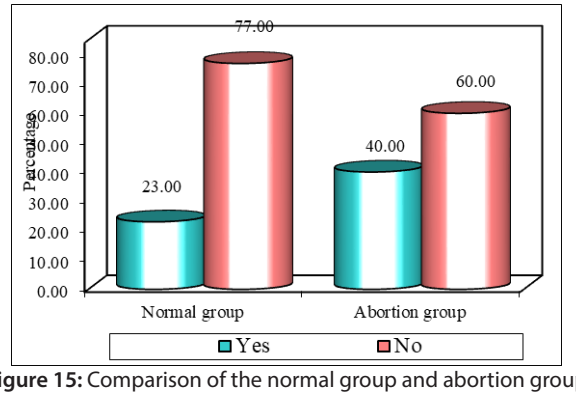

Figure 15: Comparison of the normal group and abortion group with a history of previous abortion

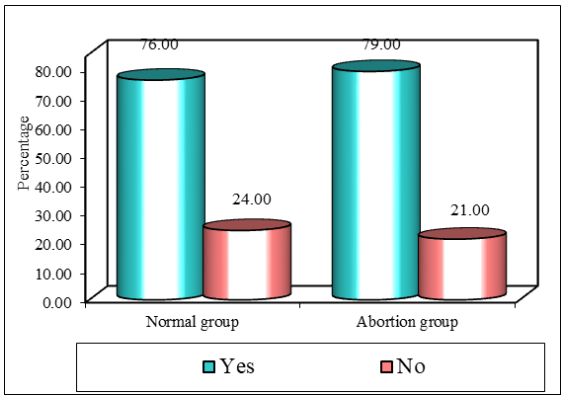

Figure 16: Comparison of the normal group and abortion group with the mother had any antenatal care

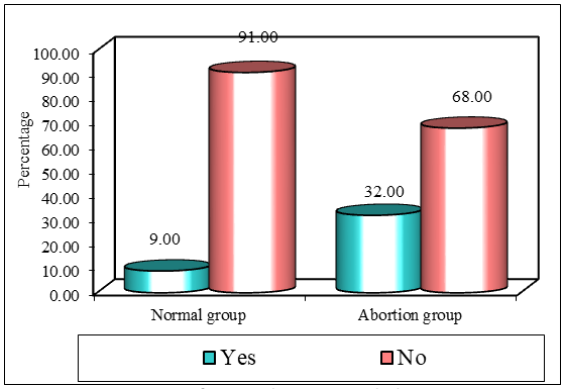

Figure 17: Comparison of normal group and abortion group with any medication taken during pregnancy

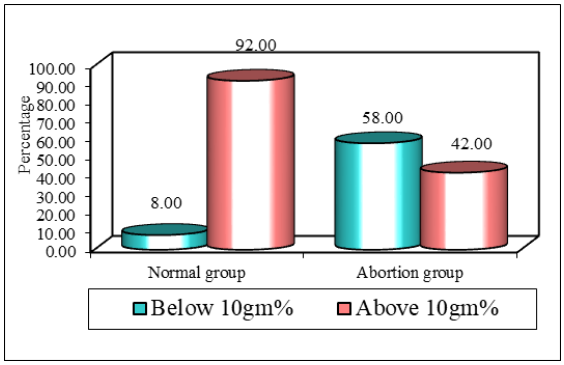

Figure 18: Comparison of normal group and abortion group with levels of Hb%

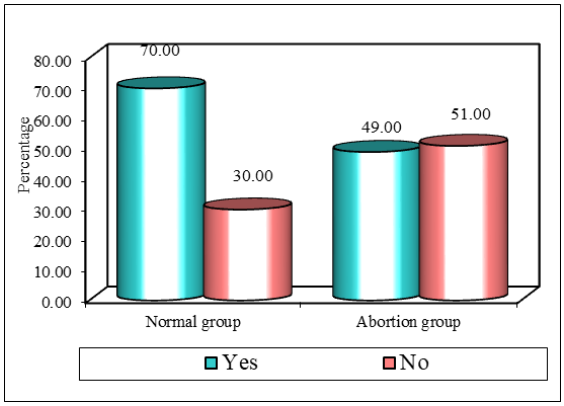

Figure 19: Comparison of normal group and abortion group with history of contraceptive used

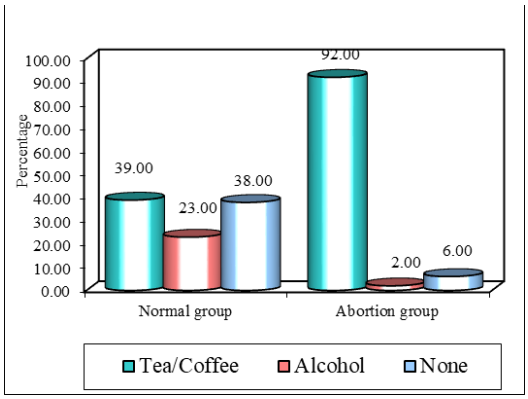

Figure 20: Comparison of normal group and abortion group with Any lifestyle factors

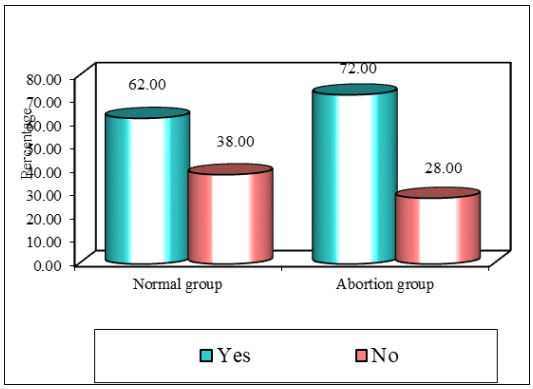

Figure 21: Comparison of normal group and abortion group with received tetanus toxoid

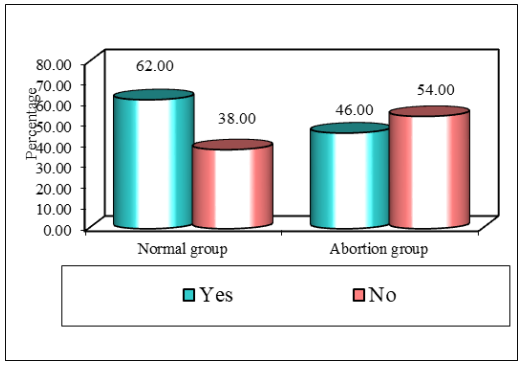

Figure 22: Comparison of normal group and abortion group with antenatal screening

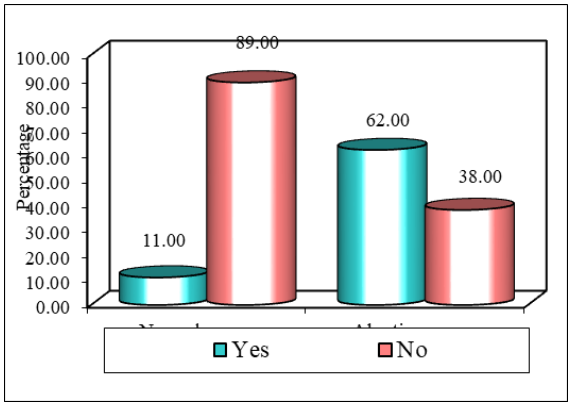

Figure 23: Comparison of normal group and abortion group with maternal infection

Table 3: Association between abortions with Reproductive factors

Age at menarche	*Normal group*	*%*	*Abortion group*	*%*	*Total*	*%*	*Chi-square*	*p-value*
Before 15 years	48	48	68	68	116	58	8.2100	0.0040*
After 15 years	52	52	32	32	84	42		
Total	100	100	100	100	200	100		
Period of gestation during last pregnancy								
Primi	37	37	25	25	62	31	5.9290	0.0520
Less than 20 weeks	17	17	30	30	47	23		
More than 20 weeks	46	46	45	45	91	45		
Total	100	100	100	100	200	100		
Any complication during last pregnancy								
Yes	22	22	41	41	63	31.50	8.3650	0.0040*
No	78	78	59	59	137	68.50		
Total	100	100	100	100	200	100		
History of previous abortion								
Yes	23	23	40	40	63	31.50	6.6970	0.0100*
No	77	77	60	60	137	68.50		
Total	100	100	100	100	200	100		
Any Medication taken during pregnancy								
Yes	9	9	32	32	41	20.50	16.2290	0.0001*
No	91	91	68	68	159	79.50		
Total	100	100	100	100.	200	100		
Hb%								
Below 10 gm%	8	8	58	58	66	33	5.7010	0.0170*
Above 10 gm%	92	92	42	42	134	67		
Total	100	100	100	100.	200	100.00		
History of contraceptive used								
Yes	70	70	49	49.	119	59.50	9.1500	0.0020*
No	30	30	51	81	81	40.50		
Total	100	100	100	100	200	100.00		
Any lifestyle factors								
Tea/Coffee	39	39	92	92	131	65.50	62.3550	0.0001*
Alcohol	23	23	2	2	25	12.50		
None	38	38	6	6	44	22.00		
Total	100	100	100	100	200	100		
Received tetanus toxoid								
Yes	62	62	72	72	134	67	12.0000	0.0010*
No	38	38	28	28	66	33		
Total	100	100	100	100.	200	100		
Antenatal Screening								
Yes	62	62	46	46.	108	51.	42.3370	0.0001*
No	38	38	54	64	92	49		
Total	100	100	100	100	200	100		
Maternal infection								
Yes	11	11	62	62	73	46.50	101.316	0.0001*
No	89	89	38	38	127	53.50		
Total	100	100	100	100	200	100.00		

Table 4: Association between abortions with pregnancy/reproductive-related variables by logistic regression analysis

Pregnancy variables	*Unadjusted OR*	*95% CI for OR*		*p-value*	*Adjusted OR*	*95% CI for OR*		*p-value*
		Lower	*Upper*			*Lower*	*Upper*	
Age at menarche								
Before 15 years	1.42	0.98	2.05	0.0650	0.53	0.16	1.73	0.2950
After 15 years	Ref.				Ref.			
Period of gestation during last pregnancy								
Primi	0.68	0.41	1.12	0.1300	6.18	1.03	37.08	0.0460*
Less than 20 weeks	1.77	0.97	3.20	0.0610	5.02	0.52	48.55	0.1640
More than 20 weeks	Ref.				Ref.			
Any complication during last pregnancy								
Yes	1.86	1.11	3.13	0.0180*	0.36	0.07	1.83	0.2170
No	Ref.				Ref.			
History of previous abortion								
Yes	1.74	1.04	2.91	0.0340*	1.70	0.23	12.74	0.6070
No	Ref.				Ref.			
Did the mother had any antenatal care								
Yes	1.04	0.76	1.42	0.8100	0.33	0.07	1.47	0.1440
No	Ref.				Ref.			
Any Medication taken during pregnancy								
Yes	3.56	1.70	7.45	0.0010*	8.69	1.31	57.47	0.0250*
No	Ref.				Ref.			
Hb%								
Normal	Ref.				Ref.			
Abnormal	1.08	0.81	1.43	0.6130	0.02	0.00	0.17	0.0001*
History of contraceptive used								
Yes	1.43	0.99	2.06	0.0500*	0.45	0.14	1.46	0.1830
No	Ref.				Ref.			
Any lifestyle factors								
Tea/Coffee	2.36	1.62	3.43	0.0001*	7.15	1.67	30.63	0.0080*
Alcohol	0.09	0.02	0.37	0.0010*	-	-	-	0.9960
None	Ref.				Ref.			
Received tetanus toxoid								
Yes	1.50	1.04	2.16	0.0300*	1.75	0.50	6.14	0.3820
No	Ref.				Ref.			
Antenatal Screening								
Yes	2.64	1.71	4.08	0.0001*	6.75	1.87	24.31	0.0040*
No	Ref.				Ref.			
Maternal infection								
Yes	7.46	3.97	13.99	0.0001*	154.68	26.55	901.19	0.0001*
No	Ref.				Ref.			
Modes of transportation								
Ambulance	-	-	-	0.9980	-	-	-	0.9960
Bus	1.37	0.96	1.97	0.0850	0.76	0.13	4.44	0.7630
Car	0.25	0.12	0.54	0.0001*	0.13	0.01	1.45	0.0980
Bike	Ref.				Ref.			

*p<0.05

odds ratio 3.56 and with adjusted odds ratio 8.69 times more risk of abortion,in view with Hb% the mothers those who had Hb below 10 gm% with unadjusted odds ratio 1.08 times and with adjusted odds ratio 1.02 more risk of abortion when compared with the mothers those who had Hb above 10 gm% considering the history of contraceptive used the mother those who didn't use contraceptives with unadjusted odds ratio 1.43 and with times had more risk of abortion, considering the lifestyle factors the mother those who had habit of tea and coffee with unadjusted odds ratio 2.36 and with adjusted odds ratio 1.75 times had more risk of abortion, the mother those who had not taken tetanus toxoid with unadjusted odds ratio 1.50 and with adjusted odds ratio 1.75 times had more risk of abortion, the mothers those who didn't had antenatal screening with unadjusted odds ratio 2.64 and with adjusted odds ratio 6.75 times had more risk of abortion ,the mothers those who had infection during pregnancy with unadjusted odds ratio 7.46and with adjusted odds ratio 154.68 times had more risk of abortion.

Discussion

In this study, we examined the association between socio-demographic factors and reproductive-related variables with Spontaneous abortion. The study revealed that there was a statistically significant association between the marital age, area of residence, occupation of the mother, maternal education, religion, consanguineous marriage, monthly income and other reproductive factors such as age at menarche, any complication during last pregnancy, history of previous abortion, did mother had any antenatal care, any medication taken during last pregnancy, level of Hb%, history of contraceptive used, any lifestyle factor, received tetanus toxoid, antenatal screening, maternal infection.

When compared with the study done by Zheng, D., Li, C., Wu, T., & Tang, K. (2017). The risk of SA in rural areas was 1.68 times greater than in urban areas (AOR = 1.68, 95%CI: 1.54–1.84). Women with high income had a decreased risk of SA when compared with that of women with low income (AOR = 0.90, 95%CI: 0.84–0.97). Compared with women in low educational attainment, women in higher educational attainment had a lower prevalence of SA (AOR = 0.90, 95%CI: 0.82–0.98). The risk of SA only reduced in factory worker (AOR = 0.59, 95%CI: 0.53–0.66) and professional worker (AOR = 0.75, 95%CI: 0.66–0.84) compared with agriculture and related workers. After stratifying by rural/urban, the association between income and SA in urban (AOR = 0.88, 95%CI: 0.78–0.99) was stronger than that in rural (AOR = 0.92, 95%CI: 0.84–1.00). Association between education and SA was found in urban (AOR = 0.66, 95%CI: 0.55–0.78) but not in rural (AOR = 1.05, 95%CI: 0.34–1.17), and there was no difference on how occupation impacted SA among women between the two subgroups. (Zheng, D., Li, C., Wu, T., & Tang, K. 2017).

When comparing with the current study risk of abortion with an unadjusted odds ratio 1.87 times more in the age group of 19 to 20 years, parity primi mother with an unadjusted odds ratio 1.16 times had more risk of abortion, Area of residence the mother who stayed in a rural area with unadjusted ratio 1.47 times more when compared with mother who stayed in the urban, occupation the mothers who were self-workers with unadjusted odds ratio 1.50 times more when compared with housewife when looking into the education of mother illiterate mother with unadjusted odds ratio 0.50 times had risk of abortion, in view with religion Muslims with unadjusted odds ratio 0.38 times more when compared with Hindu religion considering the type of family the mother who belong to a nuclear family with unadjusted odds ratio 1.04 times had more risk of abortion, consanguineous marriage with unadjusted odds ratio 3.95 had times more risk of abortion

Conclusion

This study indicates that the most common unfavorable pregnancy outcome is still spontaneous abortions. The researchers found significant relationships between the socioeconomic status of women, reproductive factors, and the risks of spontaneous abortion. These factors included maternal age, area of residence, religion, occupation, type of family consanguineous marriage, and monthly income. Reproductive elements at the age of menarche, any difficulties with the previous pregnancy. Previous abortion history, medications given while pregnant, history of contraception usage, and any lifestyle modifications pregnancy screening. Moreover, maternal infection was connected to spontaneous.

Policy and program development will be significantly impacted by the fact that women with such socioeconomic and reproductive determinants need more care, support, and oversight of health promotion initiatives. Pregnancy loss rates can be reduced by evaluating expectant mothers for modifiable risk factors and raising awareness among them.

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