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RISK FACTORS FOR NON-ATTENDANCE OF ANTENATAL CLASSES: A CASE-CONTROL STUDY

Dr Rifaat Rehan[*1], Dr Rabia Hammad[2], Dr Naila Khan[3], Dr Wajeeha Yahya[4]

[*1]*Consultant Gynecologist, Department of Obstetrics/Gynecology, Agha Khan University Hospital*
[2]*Assistant Professor, Department of Obstetrics/Gynecology, Agha Khan University Hospital*
[3,4]*Senior Medical Officer, Department of Obstetrics/Gynecology, Agha Khan University Hospital*

[*1]rifaat.muhammad@aku.edu

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Corresponding Author: *
Dr Rifaat Rehan

Abstract

Introduction: *Antenatal classes help expectant parents prepare for childbirth and life with a newborn. In developing nations, only 65% of women receive antenatal care, compared to 97% in developed countries. Women participate in antenatal education for various reasons. Most research has focused on its role in helping women manage labor. Nonetheless, several quantitative studies show first-time parents desire equal attention to postnatal topics in antenatal classes. Literature reveals that non-attendance at antenatal classes remains poorly explored. Our goal is to identify risk factors linked to not attending antenatal education classes.* ***Materials and methods:*** *This is a case-control study conducted from January 2021 to June 2021 in the Department of Obstetrics and Gynecology (O & G), Aga Khan University Hospital (AKUH), Karachi. The study included a total of 362 pregnant women having antenatal care at AKUH who have attended antenatal classes and have not attended antenatal classes offered at AKUH. A total of 181 women were included in each group.* ***Results:*** *Most of the primparous women (84%) attended antenatal classes and majority of multiparous (62%) did not attend antenatal classes. The factors associated with non-attendance of antenatal classes were younger age (OR= 1.16), multiparity (OR= 8.51) lower level of women's education (OR= 1.40) lower level of husband's education (OR= 2.59) and unemployment of women (OR= 0.34). The most common reasons for not attending antenatal classes were lack of interest (18.2%), followed by inconvenient timing (7.7%), and too expensive to attend (3.3%).* ***Conclusion:*** *The findings of our research indicated that having multiple pregnancies was the most significant factor contributing to the non-attendance of antenatal classes. It is important to give special attention to women during antenatal visits so that education on childbirth and parenting can be tailored to meet their specific needs.*

INTRODUCTION

Antenatal care is one of the fundamental aspects of maternal care that are essential to the survival of both mothers and infants, and it is a significant factor in the high rate of maternal mortality [1]. Almost all industrialized nations provide systematic prenatal care, which was originally implemented in North America and Europe in the 20th century [2]. There are various ways to define antenatal care. Antenatal care, according to the WHO, is a binary variable that involves seeing a trained professional at

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least once throughout pregnancy [3]. To screen for intensive life support during pregnancy and up to delivery, all pregnant women receive routine follow-up at the primary care level [4–6]. Pregnancy order, birth spacing, age at childbirth, and prenatal care use rates are the most significant markers of reproductive behavior and health. Health status is also influenced by distant circumstances. For instance, bad eating habits (health behavior) or a lack of funds to purchase enough high-quality food (socioeconomic status) might result in anemia. If services are made available and inexpensive for women and their families, these aspects can be changed [7].

Just 65% of women in underdeveloped nations obtain prenatal care, compared to 97% in developed nations. While only 15% of women in rural Sindh receive prenatal care, 63% of women in urban Sindh do so. Women's impression of no complaints (44%), lack of services (21.4%), and high cost (14%), according to the Maternal and Infant Mortality Survey (MIMS)-Sindh, which involved 3998 women, were the three primary reasons given for not receiving prenatal care [8]. One of the best aspects of regular prenatal treatment is antenatal classes. These courses include crucial knowledge on pregnancy and childbirth, such as how to manage discomfort and make decisions during labor, how to care for an infant after giving birth, and how to breastfeed. Just 65% of women in underdeveloped nations obtain prenatal care, compared to 97% in developed nations. The use of prenatal care is significantly influenced by the social standing and financial situation of a woman [9].

According to a community-based cross-sectional survey carried out in a Karachi urban squatter settlement, women with higher incomes were twice as likely as those with lower incomes to use antenatal care services [10]. Prenatal classes are typically attended by office workers, women with higher education levels, and primiparous women in the West [11]. Women who choose out of lessons are frequently younger, multipara, unemployed, less educated, and have had fewer prenatal exams [12]. According to a Swedish study [13], 40% of women said that prenatal education programs helped them get ready for early parenting, while 74% of women said that they helped them get ready for childbirth. Even though prenatal classes cover postpartum difficulties, some studies have revealed a higher level of dissatisfaction with the amount of time spent on this subject [14,15].

This study aimed to determine the risk factors associated with non-attendance of antenatal education classes and to evaluate the reasons given by women for attending and not attending antenatal classes. This study aimed to explore the attitudes of parents toward antenatal education from the perspective of attenders and non-attenders and to identify the need for the promotion of antenatal education.

MATERIALS AND METHODS:

This was a case-control study conducted at the Department of Obstetrics and Gynecology, Aga Khan University Hospital, Karachi, over a period of six months from the date of approval of the synopsis. The study used a sample size of 362, 181 cases, and 181 controls with 80% power and a two-sided alpha of 0.05 to find a moderate effect of one-third or more for a continuous risk factor or a difference in the incidence of risk factors for not attending prenatal classes with an odds ratio of 2.0. A non-probability purposive sampling technique was used. All pregnant women who received antenatal care at AKUH and attended antenatal classes offered at AKUH were included in the case group, while all pregnant women of the nearest possible gestational age who received antenatal care at AKUH and did not attend antenatal classes offered at AKUH were included in the control group. All pregnant women who refused to participate in the study or provide the required information were excluded.

After the institutional ethical review committee's approval (ERC), patients attending antenatal classes and clinics at AKUH were informed about the study and requested to participate. On agreement, they were included in the study after providing informed consent. Cases were identified from antenatal classes organized at AKUH, and controls were identified from antenatal clinics at AKUH. Data were collected using a self-administered questionnaire consisting of different sections, including demographics (age, parity, socioeconomic position of women, socioeconomic position of husbands, and household income), gestational age at which pregnant women had their first antenatal visit, number of antenatal

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visits to date, gestational age at which pregnant women first attended antenatal class, and number of antenatal classes. If a pregnant woman was unable to read the questionnaire, it was read to her in a language she understood.

Using SPSS version 22, data entry and analysis were carried out. For every study variable, descriptive statistics were calculated. Using the chi-square test for categorical variables and the t-test for continuous variables, univariate analysis was used to determine the risk factors. To find independent risk factors for skipping prenatal lessons, multiple logistic regression analysis was done per entry. Variable selection was based on existing knowledge after building a hypothesized model that included age, parity, gestational age, gestational age at which the first antenatal visit was performed, history of previous miscarriages, women's and husbands' education, working status of women, and household income. Stepwise backward elimination was used in the variable selection method to produce a hierarchically well-formulated (HWF) model. This involved evaluating confounders and individual variables after removing insignificant interaction terms. For inclusion in the multivariate model utilizing the entry approach, a threshold of less than 0.25 was maintained at the time of univariate analysis.

For continuous variables, the quartile approach was used to verify the conformity of the linear gradient. A valuable matrix and a reduced standard error were used to evaluate collinearity. The linear regression technique with tolerance at a value of less than 0.1 and a VIF value of more than 10 was used to further assess this. p-values and odds ratios (OR) were used in a statistical test of significance to report the significance of each independent variable in the model. For the reference category, binary variables were coded as "0," and for the outcome of interest, "1." Confounding variable interactions were assessed in the preliminary evaluation before the clinical evaluation.

RESULTS:

A total of 362 pregnant women were included in this study, of these 181 women were selected from antenatal classes organized by AKUH and 181 pregnant women were identified from antenatal clinic at AKUH. Most of the primiparous women (84%) attended antenatal classes and majority of multiparous (62%) did not attend the classes. The factors associated with non-attendance of antenatal classes were younger age (OR= 1.16 (95% CI 1.09, 1.24)), multiparity (OR= 8.51 (95% CI 5.71, 13.95)), lower level of women's education (OR= 1.40 (95% CI 0.82, 2.41)) lower level of husband's education (OR= 2.59 (95% CI 6.75, 8.46)) and unemployment of women (OR= 0.34 (95% CI 0.18, 0.63)). Comparison of basic characteristics of women between case and control are presented in Table I.

Variables	**Control Not-attend Antenatal Classes n=181**	**Case Attend Antenatal Classes n=181**	**p-Value**
Age (Years)	26.9 ± 3.3	29.0 ± 4.1	0.0005
Gestational Age (Weeks)	24.3 ± 5.9	23.2 ± 7.4	0.12
Gestational Age at which antenatal visit	12.3 ± 5.2	12.2 ± 3.8	0.78
History of previous miscarriage, n (%)	35(19.3%)	37(20.4%)	0.79
History of Previous pregnancy greater than 26 weeks, n(%) Primipara (No)	69 (38.1) 112 (61.9)	152 (84) 29 (16)	0.0005*

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Multipara (Yes)			
Women's Education n (%) Primary and Intermediate Graduate and Post Graduate	 37 (20.4) 144 (79.6)	 28 (15.5) 153 (84.5)	0.28
Husband's Education n (%) Primary and Intermediate Graduate and Post Graduate	 10 (6.5) 171 (94.5)	 4 (2.2) 177 (97.8)	0.10
Working status of women, n (%) Yes No	 16 (8.8) 165 (91.2%)	 40 (22.2) 140 (77.8)	0.001

Table 1: COMPARISON OF CHARACTERISTICS BETWEEN CASE AND CONTROL.

Out of 9 variables, 6 variables were found to have statistical different between controls and cases in univariate analysis. Of these 6 variables, age, history of previous pregnancies greater than 26 weeks, women's and husband education and working status of women were used in initial model (Table II).

Variables	**Odd Ratio (95% CI)**	**p-Value**	**-2log Likelihood Ratio**
Maternal Age (Years)	1.16 (1.09 to 1.24)	< 0.001	473.72
Gestational Age (Weeks)	0.97 (0.94 to 1.01)	0.12	499.39
Gestational Age at which antenatal visit	0.99 (0.95 to 1.04)	0.78	501.76
History of previous miscarriage, n (%) No Yes	 1.00 0.93 (0.56 to 1.56)	 0.79	 501.76
History of Previous pregnancy greater than 26 weeks, n (%) Primipara (No) Multipara (Yes)	 1.00 8.51 (5.17 to 13.99)	 < 0.001	 417.72
Women's Education n (%) Primary and	 1.40 (0.82 to 2.41) 1.00	 0.22	 500.32

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Intermediate Graduate and post Graduate			
Husband's Education n (%) Primary and Intermediate Graduate and Post Graduate	2.59 (0.79 to 8.40) 1.00	0.11	499.08
Working status of women, n(%) Yes No	0.34 (0.18 to 0.63) 1.00	0.001	487.77
House hold Income n (%) 10,000 to 50,000 > 50,000	0.95 (0.61 to 1.47) 1.00	0.82	501.79

Table 2: CHARACTERISTICS OF VARIABLES ASSOCIATED WITH NON-ATTENDANCE OF ANTENATAL CLASSES IN UNIVARIATE ANALYSIS.

Since there was no clinically meaningful difference in gestational age between cases and controls, it was not used in the model. After improvement, the final model accurately predicted 73% of the controls.

Three of these factors were shown to be significant in the multivariate logistic regression model that predicted the women who were at risk of skipping prenatal lessons (Table III).

Variables	Control	Case	Adjusted Odd Ratio (95% CI)	p-Value
Husband's Education, n (%) Primary/Intermediate Graduate and Postgraduate	10 171	4 177	3.21 (0.89 to 11.40) 1.00	0.01
History of Previous pregnancy greater than 26 weeks, n (%) Primipara (No) Multipara (Yes)	69 (38.1) 112 (61.9)	152 (84) 29 (16)	1.00 9.45 (5.57 to 16.01)	0.0005*
Working status of women, n (%) Yes No	16 (8.8) 165 (81.2)	40 (22.2) 140 (77.8)	0.41 (0.20 to 0.82) 1.00	0.02*

Table 3: STEPWISE LOGISTIC MULTIPLE REGRESSION FOR FACTORS WITH NON-ATTENDANCE OF ANTENATAL CLASSES.

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Comparisons of age of pregnant women are presented in Figure 1.

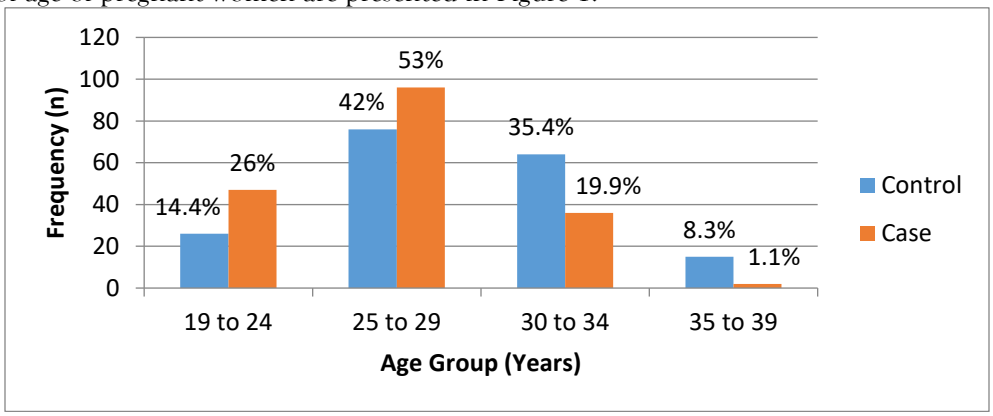

Figure 1: COMPARISON OF AGE OF PREGNANT WOMEN BETWEEN CASE AND CONTROL.

Similarly, comparison of gestational age and gestational age of first antenatal visit are presented in Figure 2 and 3.

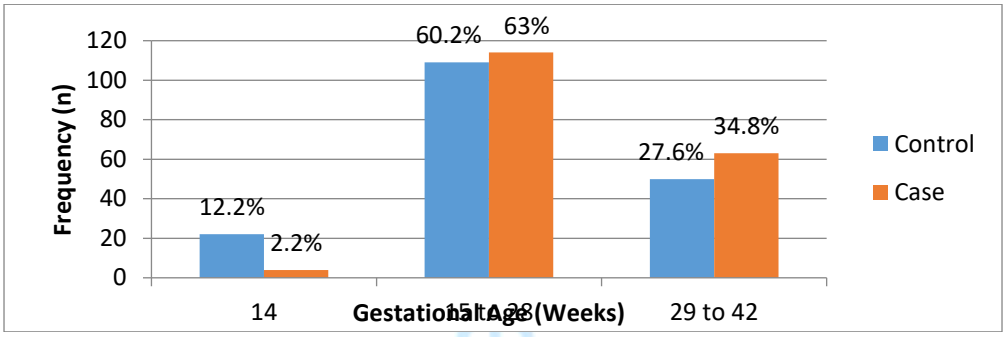

Figure 2: COMPARISON OF GESTATIONAL AGE BETWEEN CASE AND CONTROL.

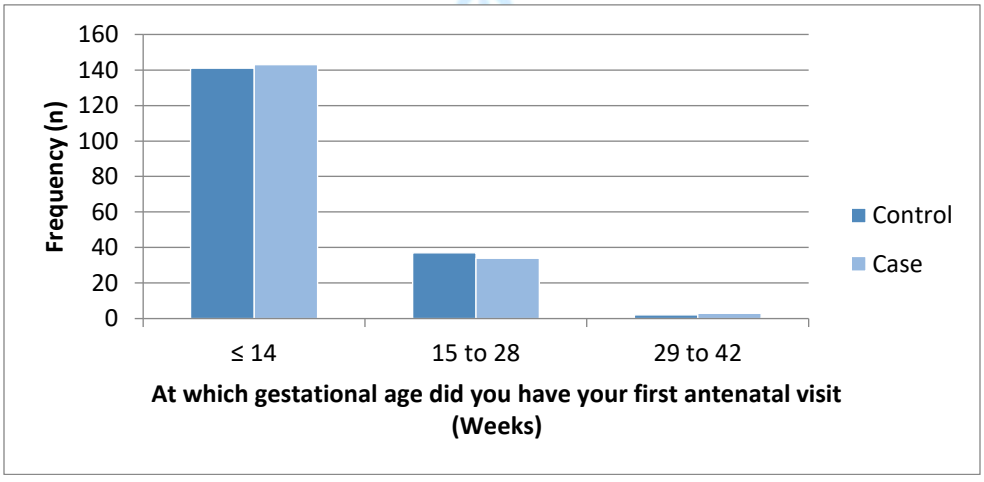

Figure 3: COMPARISON OF FIRST AND ANTENAL VISIT BETWEEN CASE AND CONTROL.

Regarding persons who advised to attend antenatal classes, 35.1% (127/181) women by their obstetrician, 31.8% women by clinical nurse, 7.2% women by family member, 7.7% women by friend, 5.8% by internet and AKU website, 4.4% by husband and 5.5% their personnel decision (Figure 4).

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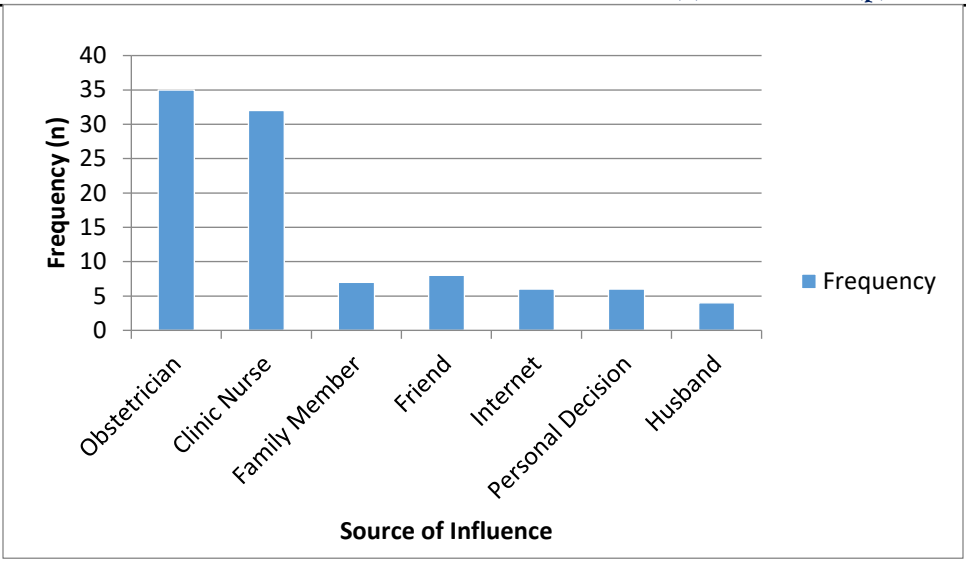

Figure 4: RECOMMENDATION TO ATTEND ANTENATAL CLASSES.

Regarding sources of information concerning pregnancy, childbirth and postnatal care 90% (controls) vs. 70.7% (cases) received information from mothers, 77.3% (controls) vs. 39.8% (cases) received information from mother in law, 71.8% (controls) vs. 37.6% (cases) received information from sister, 2.2% (controls) vs. 10.5% cases received information's from husband, 6.1% (controls) vs. 81.2% cases received information from obstetricians/residents and 16.6 (controls) vs. 33.7% (cases) received information from nurses (Figure 5).

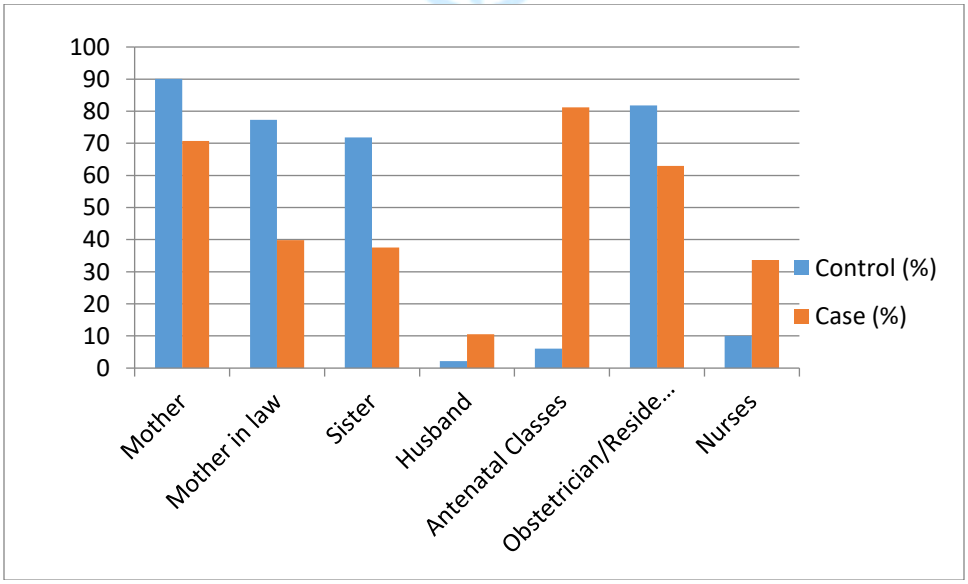

Figure 5: SOURCES PROVIDED WITH IMPORTANT INFORMATION CONCERNING PREGNANCY, CHILDBIRTH AND POSTNATAL CARE.

The most common reasons for attending antenatal classes was to get information or advice about childbirth (47.8%), exercises/diet during pregnancies (46.7%), post-delivery care (43.6%), breast feeding (43.4%), to meet other members to share experiences (11.6%), due to previous adverse pregnancy outcome (10.8%) and for socialization (3.6%) (Figure 6).

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Figure 6: REASONS FOR ATTENDING ANTENATAL CLASSES.

The most common reasons for not attending were lack of interest (18.2%) followed by inconvenience timing (7.7%), attended in previous pregnancy (6.4%), inconvenient place (5%) and too expensive (3.3%) (Figure 7).

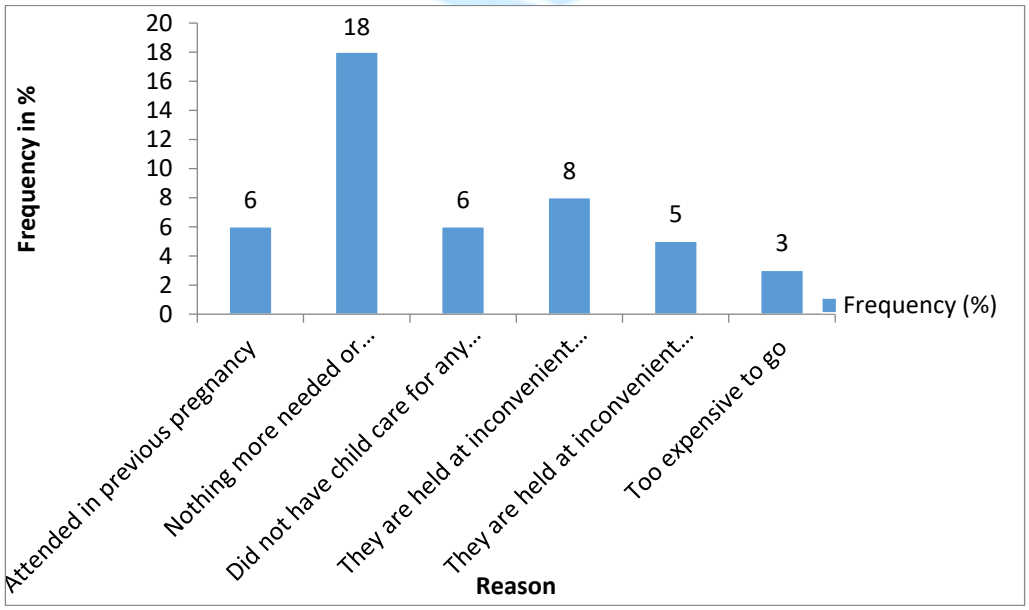

Figure 7: REASONS FOR NOT ATTENDING ANTENATAL CLASSES.

Out of 181 women who attend antenatal classes 94 (51.9%) were completely satisfied, 86 (47.5%) were mostly satisfied and only 1 (0.6%) was not satisfied for these training classes (Figure 8).

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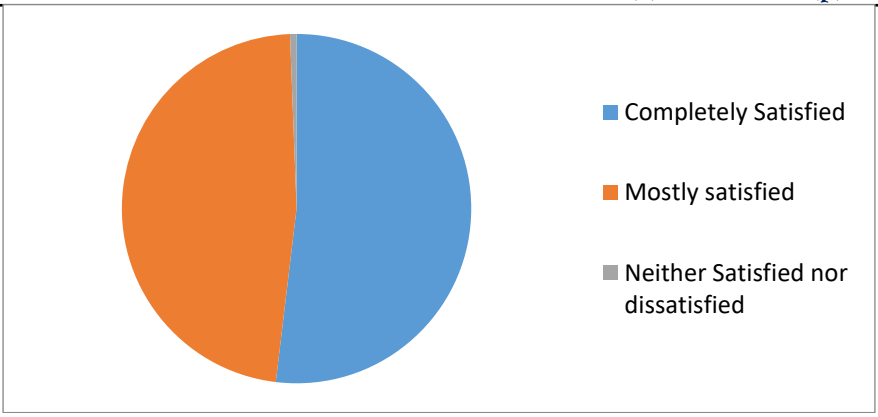

Figure 8: SATISFACTION WITH THE ANTENATAL CLASSES.

DISCUSSION:

In this study, we were able to determine the risk factors that were statistically significant for not attending antenatal classes. To our knowledge, this is the first study to identify the risk factors for not attending antenatal classes during pregnancy in Pakistan. The logistic regression model identified 73% of the risk factors for non-attendance at antenatal classes. A limitation of the study was that we did not analyze women postnatally and identified risk factors for non-attendance of antenatal classes at only one point in time, that is, during the antenatal period. It would be interesting to follow women over time, before, during, and after antenatal education.

We discovered that the majority of multiparous women (62%) did not attend such classes, whereas the majority of primigravida (84%) women who were expecting their first child did. Other Western societies have indicated a similar emphasis on first-time parenting as the current study did. This might be a result of parents' decision to only attend during their first pregnancy and their low financial means [16–18].

According to our research, women who did not take prenatal classes were younger and had lower educational attainment. Pregnant primiparas who knew little about childbirth participated less frequently and required more health counseling, according to a Finnish study [19,20]. Compared to primiparas with high levels of knowledge about delivery, they were younger, less educated, more likely to be unemployed, and lived close to or with their parents. According to a British study [21], unmarried people from working-class backgrounds who did not attend felt that seminars on childbirth and family education were not for them and expressed concerns about being stigmatized and denigrated.

In our study, partners of women who did not attend antenatal classes had a lower educational status, which was a statistically significant risk factor for not attending antenatal classes. Female unemployment was also a statistically significant risk factor for not attending antenatal classes.

According to research by Jacoby, women from socially disadvantaged backgrounds had a worse time figuring out what information they needed regarding pregnancy, labor, and delivery 68. Women's opinions about the staff's attitudes may also cause them to shun maternity treatment and birthing education. Health visitors from child health clinics were seen by unassisted and single moms as judgmental and uninterested in them as unique people [22].

The most common reasons for non-attendance were lack of interest, followed by inconvenient timing, having attended a previous pregnancy, and cost. The most common reasons for attending antenatal classes were to obtain information or advice about childbirth, exercise/diet during pregnancy, post-delivery care, breastfeeding, practical aspects of baby care, contraception, potential complications during pregnancy, childbirth, and the post-delivery period. In our study, sources of information concerning pregnancy, childbirth, and postnatal care, many received information from mothers, some received information from mother-in-law, sisters, husband, and others received information from antenatal

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classes, from obstetricians/residents and from nurses. A study in Ireland [23] found that participants used a wide range of information sources, such as books, periodicals, pamphlets, films, television shows, friends, moms and other family members, medical professionals, and the Internet. A significant dependence on the mother and a strong preference for informational support from family members were seen in this study. In this study, some women received information about lessons from healthcare experts, but the majority of moms had to look for classes on their own. Prenatal education should be promoted and advertised, and the mothers discussed candidly. Prenatal classes are sometimes thought of as being purely for the purpose of educating individuals about the childbirth process. According to the majority of mothers in an Irish study [23], postpartum programs offer a chance to learn about self-care and parenting. The mothers determined that "group" organized services were necessary. The participants agreed that in order to support parents during the crucial early phases of parenthood, postnatal classes have to be offered early in the postnatal period.

We found that there were notable discrepancies in our study's classification of certain characteristics as risk factors for missing prenatal classes, and we suggest that other researchers assess our model's validity further.

CONCLUSION:

In conclusion, our study showed that 38% of primiparous women did not attend antenatal classes. The most significant risk factor for non-attendance of antenatal classes was multiparity. Husband's lower educational status & working status of women were other significant risk factors. Socioeconomic status, age, and gestational age were not statistically significant risk factors. The most common reasons for not attending antenatal classes were last of interest, followed by inconvenient timing, attended in previous pregnancy, inconvenient places, and too expensive to go. Women should receive special attention during prenatal visits so that their requirements can be met in terms of childbirth and parenthood education.

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