Prevalence of Unplanned Pregnancies and their Associated Factors among Antenatal Clinic Attendees in Thimbirigasyaya Divisional Secretariat Division, Colombo, Sri Lanka

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Summary

Unplanned pregnancies are a major public health issue globally causing poor maternal and foetal outcomes. The objective of this study was to determine the prevalence of unplanned pregnancies & their associated factors among antenatal clinic attendees in Thimbirigasyaya Divisional Secretariat Division, Colombo, Sri Lanka. A cross-sectional study was conducted in three randomly selected antenatal clinics of the Thimbirigasyaya Divisional Secretariat Division of the Colombo Municipal Council. A total of 425 antenatal mothers were included in the study using a consecutive sampling method. Data collection was done using interviewer-administered questionnaires. Statistical analysis was done using the Chi-Square test, Odds Ratio and 95% confidence interval. The prevalence of unplanned pregnancies was 32.7% in the study population. The 95 % confidence interval was 28.26 – 37.39. Being married, the mother being employed in the preceding 12 months, the number of past conceptions being two or less & intake of folic acid before pregnancy had statistically significant associations with planned pregnancies at 95% confidence interval ($p < 0.05$). Marital age less than 20 years, highest education level of the mother being less than Grade 11, highest education level of the spouse being less than Grade 11, monthly household income of less than LKR 25,000, the interpregnancy interval of fewer than 24 months, using family planning practices in the past, never wanting or expecting the current pregnancy and not planning for another pregnancy had statistically significant associations with unplanned pregnancies at 95% confidence interval ($p < 0.05$). According to the study, one-third of the pregnancies were unplanned & a statistical significance at 95% confidence interval was seen between the planning status of the current pregnancy and twelve of the eighteen variables studied.

Keywords: Prevalence, unplanned pregnancies, associated factors, antenatal mothers, Sri Lanka

Lay Summary

Data on prevalence is important to help in resource allocation and prioritisation of activities by relevant stakeholders. The prevalence data would also help to identify the magnitude of the problem related to unplanned pregnancies in a given population under study by assessing its overall burden. It would also support the process of identification of priorities in healthcare, preventive activities and policymaking which is needed to develop a health economics model to address issues related to unplanned pregnancies.

There is a lack of recent data on the prevalence of unplanned pregnancies in this study population in an urban community setting in Thimbirigasyaya Divisional Secretariat Division which falls under the Colombo Municipal Council. It is important to identify associated factors for any public health problem, as it would provide data on the most important associated factors to be addressed

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and would help to prioritise them. Identifying and addressing associated factors for unplanned pregnancies among the targeted population would improve their sexual and reproductive health and help to implement necessary interventions and provide health-related services on unplanned pregnancies.

Text

Introduction

Unplanned pregnancies: Pregnancies can be broadly divided into planned/wanted pregnancies and unplanned pregnancies. Unplanned pregnancy is a major public health issue the world over. In unplanned pregnancies, conception has occurred not at the desired time and was expected later or was never expected or wanted.

Associated factors for unplanned pregnancies: The common cause of unplanned pregnancies has been identified as not using contraception or due to not using a contraceptive method consistently or correctly or both [1]. Marital age, marital status, age at first pregnancy, education level of the couple, employment status of the mother, monthly household income, interpregnancy interval, disrupted marital life and gender-based issues are some of the factors associated with unplanned pregnancies [2].

Adverse outcomes of unplanned pregnancies: Unplanned pregnancies have been a major cause of induced abortions the world over and have been linked to poor maternal and child health outcomes causing an increased risk of abortion-related death and morbidity, especially in countries where abortion is illegal [3]. Women with unplanned pregnancies are more vulnerable to committing suicide, have poor nutrition during gestation, and have adverse mental health issues, unstable family relationships, experience physical and psychological violence, risk of bad pregnancy outcomes and delay in seeking prenatal care [4].

The children born of mothers with unplanned pregnancies are at risk for low birth weight, poor academic performance, violence and neglect [5]. These children are exposed to greater risk factors, hence are more likely to experience negative psychological and physical health issues, increased school dropouts and tend to show delinquent behaviour during their adolescent period. A study conducted in Australia showed higher levels of depression, delinquency and anxiety among children born out of unplanned pregnancies as compared to planned pregnancies [6].

The global situation on unplanned pregnancies: Unplanned pregnancies can negatively affect women physically, emotionally and financially. Effective, equitable and easier access to effective contraception methods, especially to long-acting reversible contraception, would certainly help to address this issue of public health concern [7].

Between 2015 to 2019, there had been 121 million unplanned pregnancies annually the world over (80% confidence interval of 112.8-131.5) which corresponds to a global rate of 64 unplanned pregnancies per 1000 women aged 15 - 49 years. Out of this amount, 61% of the unplanned pregnancies ended in abortions, which accounts for an abortion rate of 39 abortions per 1000 women aged 15 - 49 years [8]. According to the latest estimates by the World Health Organisation, almost half the pregnancies between 2015 to 2019 in low and low middle-income countries had been unplanned. Women living in the poorest regions are almost three times likely to have unplanned pregnancies than women from wealthier regions [9].

Sri Lankan situation on unplanned pregnancies

In Sri Lanka, approximately 360,000 women become pregnant annually, of which one in three (33.3%) are estimated to have an unplanned pregnancy. Demographic and Health Survey (DHS) of 2016 reports that 35% of married women in Sri Lanka do not use any form of contraception and teenage pregnancies are around 4.6% [10]. Approximately 150,000 to 175,000 abortions are expected to take place annually in Sri Lanka [11], with no recent data indicating any decrease. According to the National Post Abortion Care Guideline of 2015, unsafe abortion is responsible for 10% to 13% of maternal deaths in Sri Lanka, making it the second leading cause of maternal mortality in the country (Family Health Bureau, 2015). In 2017, approximately 326,000 live births had taken place in Sri Lanka, along with 127 reported maternal deaths in that same year. Among the 127 maternal deaths, 28 were due to unplanned pregnancies (Family Health Bureau, 2015). Another study concluded that 23.3% of pregnancies in Sri Lanka were unplanned [12].

Methods

A descriptive cross-sectional study was conducted between April 2020 and January 2021 in three randomly Medical Officer of Health areas in the Thimbirigasyaya Divisional Secretariat Division of the Colombo Municipal Council. A total of 425 antenatal mothers who fulfilled the inclusion criteria were included in the study. Any antenatal mother who had difficulties in hearing the questions asked or difficulties in speaking in response to the questions asked by the interviewer, antenatal mothers residing in that area for less than six months duration and mothers who visited the clinics while being registered in antenatal clinics not belonging to the study setting were excluded from the study. The sample size was calculated using the formula by Lwanga & Lemeshow [13]. Since the exact prevalence of the main outcome variable (prevalence of unplanned pregnancies) is not available and since there were no recent (within 5 years) literature or studies done on this topic in this setting,

prevalence (p) was assumed as 50% to calculate the sample size.

The consecutive sampling method was used and the final sample size included 425 antenatal mothers from three antenatal clinics in the Thimbirigasyaya Divisional Secretariat. There were no nonresponders as all antenatal mothers who fulfilled the inclusion criteria were willing to participate in the study. Interviewer administered questionnaire was used for data collection. Construction of the interviewer-administered questionnaire was done by doing a thorough literature review and analysing the variables and associated factors for unplanned pregnancies. Pre-testing of the questionnaire was done at the antenatal clinic in Slave Island which belongs to the Colombo Divisional Secretariat Division of the Colombo Municipal Council. Following the pretesting, some questions were modified to make it more easily understood by antenatal mothers with basic educational levels by reducing scientific and technical terms. Prior permission had been obtained from relevant authorities to carry out this study. On each day of data collection, the principal investigator clearly explained the purpose of the study to the antenatal mothers in the waiting area of the clinic. Thereafter information sheets were distributed for further information. Subsequently, consent forms were given to obtain written consent from mothers willing to participate in the study who fulfilled the inclusion criteria. Duplication of data was prevented by taking note of the pregnancy record registration numbers of antenatal mothers who had attended the clinic during the previous week or weeks.

Interviewer bias was nil as only the principal investigator was involved in data collection, analysis, and interpretation. Recall bias was kept to a minimum by asking the antenatal mothers about their most recent pregnancies. Perusing pregnancy records for additional information on the current pregnancy was used to minimise information bias. Selection bias was kept to a minimum, as all antenatal mothers attending the respective antenatal clinics on the day of data collection, who fulfilled the inclusion criteria were included in the study. The reliability of the questionnaire was checked by translating it from English to Sinhala and Tamil and then translating it back to English. Statistical analysis of the data was done using Chi-Square testing and p values at a 95% confidence interval. Odds Ratio was used to assess the strength of association between the planning status of the pregnancy and its associated factors. Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 21.

Ethical clearance was obtained from the Ethics Review Committee of the Postgraduate Institute of Medicine, University of Colombo, Sri Lanka (Approval Number: ERC/PGIM/2020/091).

There was no lack in antenatal care for the study participants by withdrawing from data collection. Data collection was carried out thus maintaining the privacy of the participant while giving them all the necessary information about the study. They had full control over their decision-making ability, autonomy and enrolment in the study. The knowledge obtained from the data collection was only used for research purposes and all study participants were made aware of it. There are no conflicts of interest.

Results

The total sample size was 425 and there were no non responders as all participants were willing to join the study. The age distribution was between 15 to 44 years. The age group of 22 to 34 years included 83.2% of the total study population. There were 37.2% Sinhalese, 33.9% Moors and 28.9% Tamils in the study sample. The prevalence of unplanned pregnancies was 32.7% in the study population. The 95 % confidence interval was 28.26 − 37.39. Being married ($p = <0.05$, OR = 3.08, CI. = 1.15-8.3), mother being employed in the preceding 12 months ($p = <0.001$, OR = 4.18, CI. = 2.32-7.53), number of past conceptions being two or less ($p = <0.05$, OR = 2.1, CI. = 1.06-4.12), intake of folic acid before pregnancy ($p = <0.001$, OR = 2.27, CI. = 1.5-3.43) had statistically significant associations with planned pregnancies at 95% confidence interval ($p < 0.05$). Marital age less than 20 years ($p = <0.001$, OR = 0.3, CI. = 0.19-0.47), highest education level of mother being less than Grade 11 ($p = < 0.001$, OR = 0.42, CI. = 0.25-0.68), highest education level of spouse being less than Grade 11 ($p = <0.05$, OR = 0.48, CI. = 0.29-0.79), monthly household income of less than LKR 25,000 ($p = <0.001$, CI. = 0.31-0.72), interpregnancy interval of less than 24 months ($p = <0.001$, OR = 0.25, CI. = 0.12-0.53), using family planning practices in the past ($p = <0.05$, OR = 0.62, CI. = 0.4-0.94), never wanting or expecting the current pregnancy ($p = <0.001$, OR = 0.02, CI. = 0.0096-0.064) and not planning for another pregnancy ($p = <0.001$, CI. = 0.2-0.47) had statistically significant associations with unplanned pregnancies at 95% confidence interval ($p < 0.05$).

Being less than 20 years of age at first pregnancy (OR = 0.67, CI. = 0.36-1.24), contraception use in the month of pregnancy (OR = 0.57, CI. = 0.32-1.05), time of first antenatal clinic registration within 12 weeks of gestation (OR = 1.5, CI. = 0.88-2.56), number of children expected after marriage being two or less (OR = 1.04, CI. = 0.61-1.74), having home visits by health care workers during antenatal period (OR = 0.79, CI. = 0.53-1.19) and mother visiting the hospital for any other medical condition during the pre-pregnancy period (OR = 0.66, CI. = 0.39-1.13) did not show any statistically significant association with planning status of the current pregnancy at 95% confidence interval ($p > 0.05$).

Discussion

Unplanned pregnancy is either unwanted, such as one that occurs when there are no other children or when no further children are desired, or the pregnancy was mistimed, with the baby arriving earlier than expected (Centers for Disease Control & Prevention, 2021). The prevalence of unplanned pregnancies in the Thimbirigasyaya Divisional Secretariat Division of the Colombo Municipal Council was 32.7% (139 out 425 study participants) and the 95 % confidence interval was 28.26 − 37.39. There is a statistically significant association between the planning status of the current pregnancy and the marital status of the mother at a 95% confidence interval (p < 0.05). Being married is three times more likely to have a planned pregnancy (OR = 3.08, 95% CI: 1.15-8.3). Similar findings were seen in studies conducted in South Africa and Kenya. In South Africa, those married or living with their partners are more likely to have planned pregnancies and a significant association between marital status and unplanned pregnancies (p < 0.001) was seen [14].

There is a statistically significant association between the planning status of the current pregnancy and marital age at a 95% confidence interval (p < 0.001). Marital age of fewer than 20 years is 70% less likely to be associated with a planned pregnancy (OR = 0.3. 95% CI: 0.19-0.47). In a study done in Kenya, the prevalence of unplanned pregnancies was 51% between the ages of 15 and 19 years and 31% between the ages of 20 and 22 years [15].

The association between the planning status of the current pregnancy and the highest maternal education is statistically significant at a 95 % confidence interval (p < 0.001). The highest education level of the mother being less than Grade 11 shows a 58% less likelihood of having a planned pregnancy (OR = 0.42, 95% CI: 0.25-0.68). A sub–Saharan African multi-country analysis of the Demographic and Health Surveys of 29 countries showed that women with primary (OR = 0.74, CI = 0.69–0.80) and secondary (OR = 0.71, CI = 0.65–0.77) levels of education had fewer chances of unplanned pregnancies as compared to women with no education (Ameyaw et al., 2019). A statistically significant association between the planning status of the current pregnancy and maternal employment in the last 12 months is seen at a 95% confidence interval (p < 0.001). The antenatal mother being employed in the preceding 12 months has a four-time likelihood of having a planned pregnancy (OR = 4.18, 95% CI: 2.32-7.53). Similar findings were seen in a study done in Western Iran where unplanned pregnancies were 5.08 times more among housewives (p < 0.001) as compared to employed women [16].

There is a statistically significant association between the planning status of the current pregnancy and the husband's education at a 95% confidence interval (p < 0.05). The highest education level of the spouse being less than Grade 11 is 52% less likely to have a planned pregnancy with his spouse (OR = 0.48, 95% CI: 0.29-0.79). There were more spouses among the planned pregnancy group who had completed Tertiary education as compared to the unplanned pregnancy category. Unplanned pregnancies were less common and least likely to occur (p < 0.05) among women who had husbands with some College or University education according to a study done in Southern Ethiopia [17]. There is a statistically significant association at a 95% confidence interval between the planning status of the current pregnancy and monthly household income (p < 0.001). Antenatal mothers having a monthly household income of less than LKR 25,000 are 53% less likely to have planned pregnancies (OR = 0.47, 95% CI: 0.31-0.72). Poor household income has been shown to cause unplanned pregnancies (p < 0.001) with an odds ratio of 1.7 in a study conducted in Canada [18].

There is a statistically significant association between the planning status of the current pregnancy and the interpregnancy interval of the mother at a 95% confidence interval (p < 0.001) in this study. Having an interpregnancy interval of fewer than 24 months has a 75% less likelihood of having a planned pregnancy (OR = 0.25, 95% CI: 0.12-0.53). The National Survey of Family Growth conducted in the United States of America showed that of the 40% of unplanned pregnancies, 36% had an interpregnancy interval of fewer than 18 months. It also concluded that as the interpregnancy interval increased, the prevalence of unplanned pregnancies decreased [19]. The association between the planning status of the current pregnancy and the timing of folic acid intake is statistically significant at a 95% confidence interval (p < 0.001). Antenatal mothers who had consumed folic acid before the current pregnancy have more than twice the chance of having a planned pregnancy (OR = 2.27, 95% CI: 1.5-3.43). A study done in the United States of America showed that women who said that their pregnancies were planned are more likely to confirm taking folic acid in the preconception period, with an odds ratio of 3.7 (95% confidence interval: 2.38 − 5.56) after controlling for maternal age and income [20].

A statistically significant association is seen at a 95% confidence interval between the planning status of the current pregnancy and the number of past conceptions (p < 0.05). Having less than two past conceptions is twice as more likely to have a planned pregnancy (OR = 2.1, 95% CI: 1.6-4.12). A case-control study in Western Iran revealed a significant association between unplanned pregnancies and previous live births (p < 0.001), with risk increasing by 2.97 per one already living child. A statistically significant association is not seen between the planning status of the current pregnancy and maternal age at birth of the first child at a 95% confidence interval (p > 0.05). In a community-based

cross-sectional study done in Nepal, 60.5% of unplanned pregnancies were among women who had delivered their first child at or before they were 20 years of age [21]. As only mothers having at least one live birth were considered, and a significant amount of the study population (204 out of 425) were either having their first pregnancy or not having a live birth in the past, a statistically significant association with the planning status of the current pregnancy was not found.

There is no statistically significant association between the planning status of the current pregnancy and the time of first antenatal clinic registration by the antenatal mothers at a 95 % confidence interval (p > 0.05). Though there is no statistically significant association in this study, a systematic review and meta-analysis done in 2013 on the effects of pregnancy intention on the use of antenatal care services showed that a significantly higher number of women with unplanned pregnancies not attending their first antenatal care clinics on time as compared to women with planned pregnancies (Odds ratio: 1.42, 95% confidence interval: 1.27 – 1.59) [22]. In the above systematic review, the median duration of pregnancy at the time of the first antenatal clinic registration by the pregnant mother was five months, as compared to Sri Lanka, where antenatal mothers register by 12 weeks. The meta-analysis included only 32 articles though 422 were initially identified through searches and was conducted in a rural population in Ethiopia as compared to this study which was done in an urban setting. These could be reasons for the difference in the findings between this study and the systematic review [23,24] Table 1.

There is no statistically significant association at a 95% confidence interval between the planning status of the current pregnancy and home visits by health care workers in the antenatal period (p > 0.05). According to data from the Family Health Bureau, the percentage of pregnant women having at least one home visit by a Public Health Midwife (PHM) was 91.9% (Family Health Bureau, 2015). As most antenatal mothers in Sri Lanka receive at least one home visit during their antenatal period by a health care worker, there is no statistically significant association with the planning status of pregnancy.

Declaration of interest

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Author contribution

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Table 1: *Associated factors for planning status of pregnancy and statistical significance at 95% confidence interval.*

Associated Factors	Significant (p < 0.05) Odds Ratio (CI.)	Not significant (p > 0.05) Odds Ratio (CI.)
Marital status	OR = 3.08 (1.15-8.3)	
Marital age	OR = 0.3 (0.19-0.47)	
Education level of mother	OR = 0.42 (0.25-0.68)	
Education level of spouse	OR = 0.48 (0.29-0.79)	
Employment status of the mother	OR = 4.18 (2.32-7.53)	
Monthly household income	OR = 0.47 (0.31-0.72)	
Number of past conceptions/pregnancies	OR = 2.1 (1.6-4.12)	
Interpregnancy interval	OR = 0.25 (0.12-0.53)	
Family planning practices in the past	OR = 0.62 (0.4-0.94)	
Timing of Folic Acid intake	OR = 2.27 (1.5-3.43)	
Expected time of current pregnancy	OR = 0.02 (0.0096-0.064)	
Planning of next pregnancy	OR = 0.31 (0.2-0.47)	
Age at 1st pregnancy		OR = 0.67 (0.36-1.24)
Use of family planning at the time of pregnancy		OR = 0.57 (0.32-1.05)
Time of registration at 1st antenatal clinic		OR = 1.5 (0.88-2.56)
Number of children expected after marriage		OR = 1.04 (0.61-1.74)
Home visits by health care workers in the antenatal period		OR = 0.79 (0.53-1.19)
Hospital visits for other reasons during the pre-pregnancy period		OR = 0.66 (0.39-1.13)

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