Assessing the prevalence and determinants of reported unintended pregnancy amongst young couples in Nepal

Mahesh Puri * [1], Roger Ingham[2] and Zoë Matthews [3]

* Corresponding author (tel: (+) 44 2380 594 082, fax: (+) 44 2380 593 846

e-mail: mpuri@socsci.soton.ac.uk)

[1] Mahesh Puri is doctoral student at the Division of Social Statistics, University of Southampton, Southampton SO17 1BJ, UK

[2] Roger Ingham is the Director at the Centre for Sexual Health Research, School of Psychology, University of Southampton, SO17 1BJ, UK

[3] Zoë Matthews is the scientist at the Department of Reproductive Health and Research, World Health Organization, CH-1211 Geneva 27

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ABSTRACT

This paper reports the prevalence and socio-demographic determinants of unintended pregnancy amongst young married couples in Nepal. Information was drawn from a sample survey of 997 young women 499 young men, and data from the Nepal Demographic Health Survey 2001 (NDHS). A new definition of unintended pregnancy was developed. Using bivariate and multivariate analyses, the results show that the conventional NDHS definition of unintended pregnancy provides a substantial under–estimate of prevalence. Unintended pregnancy was more likely to be reported by both men and women who were younger, with a higher number of living children, a smaller desired family size, higher exposure to mass media, a higher level of education and low household well-being; there were also some differences between the sexes. The paper recommends that services should focus on helping those groups of couples who were identified in the analysis as being at increased risk of unintended pregnancy.

BACKGROUND

Unintended pregnancy is an important public health concern in both the developing and developed world because of its association with adverse social and health outcomes for mothers, children and the family as whole (Eggleston et al. 2001) . The level of unintended pregnancy is considered to be an indicator of the state of women's reproductive health and the success or failure of reproductive health programmes, including family planning services. However, in recent years, researchers have begun to criticise some fundamental assumptions made by the DHS and other fertility surveys in measuring the prevalence of unintended pregnancy (Moss et al. 1997; Fischer et al. 1999; Zabin et al. 2000). Therefore, there are growing concerns over for finding improved ways of measuring its prevalence.

The fertility rate in Nepal has reduced from 5.1 births per woman in 1984-86 to 4.1 births per woman for the period 1999-2001, but is still relatively high compared with neighbouring countries. One in six women aged between 15 and 19 years has already had at least one child. By the time women reach 24 years old, two in three have at least one child. Despite high knowledge of modern contraceptive methods amongst young married couples, the use of contraception is very low compared with that amongst older women. For example, only nine percent of women aged between 15 and 19 years are currently using a modern method of contraception, compared with 52 percent of women aged from 35 to 39 years. The unmet need for spacing is higher amongst younger women compared with older women (Ministry of Health (Nepal)/New Era/ORC Macro 2002).

The successive DHS studies in Nepal have indicated that the prevalence of unintended births increased from 25 percent in 1991 to 36 percent in 2001 amongst women of reproductive age (Ministry of Health (Nepal)/New Era/ORC Macro 2002). A study conducted in the

Kathmandu valley showed that about 20 percent of married women aged between 15 and 24 years reported at least one experience of unintended pregnancy (Tamang et al. 2002). Similarly, another study conducted amongst 500 patients attending for pregnancy tests in a government hospital in Nepal showed that 31 of the women reported that their current pregnancies were unintended. Out of these, 70 percent were young women aged between 15 and 24 years (Sharma 2002). Due to the methodological limitations and inadequate criteria used to measure unintended pregnancy, these findings cannot be generalised; however, they do indicate that there is a substantial proportion of young women who experience unintended pregnancy in Nepal. Moreover, these studies (including DHS) tended to focus on assessing the overall prevalence of unintended pregnancy. Whereas such information has much descriptive value in itself, from the viewpoint of policy there is need for more detailed analyses that could help to identify the key determinants of unintended pregnancy.

Studies conducted in developing countries indicate that women's age, level of education, number of children, and social and economic deprivation are the major determinants of unintended pregnancy (Bongaarts 1997; Adetnunji 1998; Singh 1998; Okonofua et al. 1999; International Institute for Population Science {IIPS} and ORC Macro 2000; National Institute of Population and Training {NIPORT} et al. 2001). However, these factors have not been examined in the case of Nepal. Due to socio-economic and cultural differences, the results obtained in other countries cannot be assumed to be applicable in Nepal.

This paper examines the reported extent of, and the determinants of, unintended pregnancy amongst young couples in Nepal. Two different definitions of unintended pregnancy were used in the study to estimate and compare the results. The first was the conventional definition as used in DHS surveys, whilst the second was the modified definition based on extensive exploratory research. The present authors believe that the modified definition addresses some

of the criticisms raised recently concerning the methods of measuring unintended pregnancy in the DHS studies and other fertility surveys.

METHOD

Data sources and definitions

The data are derived from a study entitled "Determinants and consequences of unintended pregnancy amongst young couples in Nepal" (UPN) conducted in 2003. The UPN study was conducted in 124 clusters of five districts (Ilam, Morang, Chitwan, Kaski and Lalitpur). The study survey covered 997 young married women aged between 15 and 24 years and 499 married men aged between 15 and 27 years in the form of face-to-face personal interviews using a structured questionnaire using two-staged cluster sample design. Additionally, 66 in-depth interviews with young men, women, community leaders and health services providers were also conducted. This paper is mainly based on the quantitative data; however, qualitative data are also used to supplement the findings where needed.

A structured questionnaire was used for the individual interviews. The questionnaire comprised nine sections: socio-demographic background, exposure to media, knowledge about contraception, contraceptive use dynamics, pregnancy history, current pregnancy status and fertility intentions, pregnancy planning and abortion, decision making on pregnancy and abortion and self esteem. Most of the questions were close ended, although a few open-ended questions were also used. The questionnaire was pre-tested outside the study area and necessary modifications made. A detailed topic guideline was prepared for the in-depth interviews.

Altogether, 28 research assistants (18 females and 10 males) were involved in conducting the fieldwork. Interviewers were university graduates, experienced in conducting research on sensitive topics, and similar in age and sex to the respondents. They were given a one-week intensive training on sampling procedures and administration of the structured questionnaire. For quality control, the interviewers did not conduct more than four individual interviews in one day. Spot checks and re-administration of selected questions were carried out for selected respondents. Only one man and three women refused to give an interview.

Before the start of the research, an ethical committee was formed from representatives of the Government, Tribhuvan University and a national level non-profit research organisation, and all aspects of the research obtained approval from this committee. Participants involved in the UPN study were fully informed about the nature of the study and the research objectives, and were assured of the confidentiality of their data. Participants' full verbal consent was obtained regarding their participation in the study.

The NDHS 2001 data are also used to estimate the level of unintended pregnancy for comparison with the UPN study. The NDHS is a nationally representative survey of ever married women between 15 and 49 and men 15 and 59 years of age; data were collected from 8726 women and 2261 men (Ministry of Health (Nepal)/New Era/ORC Macro 2002).

Two definitions of unintended pregnancy are used for the purpose of estimating the levels of reported unintended pregnancy in this paper. The first was the conventional definition, which has been widely used in the Demographic and Health Surveys; this reads as follows:

> *At the time that you become pregnant did you want to become pregnant then, did you want to wait until later or did you not want to have any (more) children at all?*

The modified definition of unintended pregnancy was also used; this reflected the findings from the previous exploratory qualitative research described elsewhere (Puri et al. 2003). In addition to the question used by the DHS survey, eight further questions were asked of the survey respondents, as follows:

- *At the time you became pregnant, were you or your partner using any contraceptives to avoid or delay getting pregnant?*
- *When you became pregnant last time, were you or your partner determined to have a (another) child?*
- *Before becoming pregnant the last time, did you have a mutual understanding with your partner to have a (another child) child?*
- *When you became pregnant last time, did you consider that was the appropriate age to become mother?*
- *When you became pregnant last time, was it because of failure of family planning methods?*
- *When you became pregnant last time, did you say that it was because of 'galti' (mistake) or suddenly or accidentally?*
- *When you were pregnant the last time, was it because your mother- in-law or father-in-law or other family members wanted a child?*
- *When you were pregnant the last time, was it because of pressure from your husband?*

In the modified definition, it was considered to be an unintended pregnancy if the respondent responded 'yes' on one or more of the following criteria:

- the couples were using contraception;
- the partners were not determined to have a child before pregnancy;
- the partners did not have a prior mutual agreement to have a child;
- the couple thought that they had not reached the right time for childbearing;
- the pregnancy was from method failure;
- the pregnancy was due to pressure of relatives or family members;
- the pregnancy was wanted later or not wanted at all (conventional criterion).

The prevalence of unintended pregnancy was estimated using both definitions and comparison was made with the results from NDHS 2001. However, for the purposes of identifying the correlates of unintended pregnancy, the modified definition was used. The main rationale for using the modified definition was that the qualitative research findings from this study suggested that the conventional definition (used by DHS studies) is not adequate to capture some important criteria of an unintended pregnancy as described by the respondents (Puri et al. 2003). Therefore, it is believed that the modified definition is a more sensitive means of measuring unintended pregnancy.

Analyses

Bivariate analyses were carried out to assess the relationships between unintended pregnancy and selected background characteristics of the respondents. Multivariate logistic regressions - separately for men and women - were used to estimate the net effect of each of the conceptually important variables on the likelihood of a pregnancy being intended after controlling for the effects of other variables. During the process of analysis, multicollinearity between the variables was assessed and the least important variables were removed from the logistic model. For example, a high correlation was found between the number of children and the sex of the living children; therefore, only the number of children was entered into the logistic model. Similarly, a high correlation between the main occupation of the respondent and cash income was observed, so cash income was not entered into the logistic regression model. The likelihood ratio test was used to assess the significant effects of each variable. Interactions between the variables were also tested for.

The dependent variable in the multivariate logistic regression analysis was ‘whether or not the respondent reported having ever experienced one or more unintended pregnancies’.

Altogether, 15 independent variables that were conceptually thought to be important factors for unintended pregnancy (age, number of children, number of ideal family size, level of education, main occupation, correct number of methods of contraception, district, ethnicity, family structure, place of residence, religion, household wellbeing, exposure to mass media, decision making power, self esteem) were included in the model. The coding categories of most of the variables included in the analysis are self explanatory. However, some of the variables were generated; therefore, brief descriptions of these variables are provided in the following section.

Knowledge of contraception is a categorical variable and has been categorised as correctly knowing five modern methods or less against knowing six or more methods. The average number of methods correctly known was taken as a guide for making these two categories (below and above the average). Correct knowledge of contraception was assessed by asking the following questions:

- *Do you know of any methods or ways that one can use to delay or avoid getting pregnant?*
- *If, yes, please tell me all the methods you know/heard of? (Probing was made without describing about methods, only name was mentioned)*

The following additional question was asked for each method if respondents gave affirmative responses to the above two questions.

- *(If the respondent mentioned any one method even after probing then ask): How is (name of method) used, please describe*

From the description of the method provided by the respondent, the interviewer made the decision as to whether or not the respondent had correct knowledge for that particular method. Additional prompting questions were asked until the interviewer was confident about judging the respondent's knowledge on each particular method.

Caste/ethnicity was categorised as Brahmin and Chhetri, Tharu, mongoloids, occupational caste. The 'occupational caste' includes Damai, Kami, Sarki, and other terai occupational caste group. The 'Mongoloid' includes Rai, Gurung, Magar, Tamang, Limbu, Newar, etc. These categories are made considering the similarities and dissimilarities in terms of religion, culture, mother tongue, living style and caste prevailing in the study areas.

The *level of education* was categorised as no education, primary, secondary and higher than secondary; 'primary' includes women who have attended informal education. The 'secondary level' includes six to ten years of education. The 'higher than secondary' includes more than ten years of schooling.

Household wellbeing variable was categorised as poor, medium and rich. This variable was generated by using Principal Component Analysis (PCA) based on 13 indicators of household possessions. A question was asked in the survey whether or not the household had such items and facilities as electricity, radio, television, telephone, bicycle, gas stove, kerosene stove, motorbike, refrigerator, piped water, toilet, non dirt floor and roof. PCA involves a mathematical procedure that transforms a number of (possibly) correlated variables into a (smaller) number of uncorrelated variables called principal components (Manley 1994). After calculating a raw assets factor score by PCA, standardized household asset scores were estimated. Standardized household scores were added up for each household and each individual was assigned a total household asset score for her/his household. Individuals were ranked according to their total scores and divided into three categories. This method of assessing household wellbeing has been used in previous studies in Nepal by the World Bank (Gwatkin et al. 2000).

Exposure to the mass media is dichotomous and a composite index of three variables. Those respondents who mentioned that they usually read newspapers (at least once in a week) or

listen to radio (almost everyday) or watch television (at least once in a week) were placed in the 'yes' category, and in the 'no' category otherwise.

Self esteem is a composite index of 10 questions assessing the self esteem of the respondents. The questions asked in the survey were based on the Rosenberg self-esteem scale (Rosenberg 1989). Items are scored from one to four in the direction of negative self-esteem. The scores were added and found to range from 10 to 31. A score within the range of 10 to 21 was considered as high self esteem, from 22 to 24 as medium and from 25 to 31 as low self esteem. The score was calculated separately for men and women but no marked difference was observed. The categories were made on the basis of the percentile of the score (Up to 25 percentile, 26 to 75 percentile and 76 and above).

Decision making is a composite score of five variables related to the individuals' reported decision making power in the household, fertility control and own health care. Three of the variables are related to decision making pertaining to fertility control; for example, whether or not the respondents have the final say on the use of contraception, bearing children and the number of children. Other variables included in decision making power are whether or not the respondent has the final say on making large household purchases and in their own health care. A joint decision with partner was considered the affirmative response. When the affirmative responses for the above variables are counted and added, the results can be represented on a zero to five scale. A count of zero was categorised as no decision making power, a count of one and two is categorised as moderate decision making power and a count of three to five categorised as strong decision making power.

Both bivariate and multivariate analyses to identify the determinants of unintended pregnancy are based on respondents who had ever experienced a pregnancy - that is 387 men and 841

women. Statistics Data Analysis (STATA) and Statistical Packages for Social Sciences (SPSS) were used for the multivariate logistic regression.

RESULTS

Characteristics of the survey respondents

Amongst the surveyed men, about half each were in the age groups 20-24 years and 25-27 years age; a very low proportion of men fell in the age group 15-19 years. However, three-quarters of the women fell into the age group of 20-24 years and one-fifth into the age group 15-19 years. The median age at first marriage was 20.9 years for men and 17.6 years for women. A large proportion of respondents (40 percent of men and 44 percent of women) already had one living child. The mean number of family planning methods correctly known was five for both men and women. About half of the respondents reported that they were currently using a method of contraception; which is higher than the national average estimated in the NDHS 2001. This is mainly because urban women were more likely than rural women to use contraception (54 per cent as against 38 per cent amongst rural). The majority of the respondents in the UPN study were from urban areas. In addition, there was considerable variation by age of the respondents and district. The dominant method reported by women was the injectable, followed by condoms and oral pills respectively. Amongst men, condoms were the most frequently reported method, followed by the injectable and the pill respectively. These discrepancies were mainly because of a tendency towards low reporting of condom use by women respondents. A similar result was found comparing men and women on reported condom use in the NDHS 2001 (Ministry of Health (Nepal)/New Era/ORC Macro 2002).

Sixty percent of the respondents were residing in rural areas and 40 percent in urban areas. The majority of the respondents reported belonging to the Brahmin or Chhetri ethnic community,

which is the dominant group of the population in the country. Mongoloid and Terai ethnicity were the second and third most prevalent caste/ethnicity group amongst the respondents. The literacy rate was slightly higher for men compared with women. More men reported that they were engaged in non-agricultural work than in agricultural work, and more than half of the women were house makers. An overwhelming majority of respondents belong to the Hindu religion. Three-quarters of the respondents mentioned that they lived in joint family structures.

TABLE 1 ABOUT HERE PLEASE

Overall, respondents had regular access to some form of mass media, especially television and radio. Amongst the surveyed men, three out of four usually watch television or listen to radio and about two-thirds read newspapers. When it comes to decision making power on large household purchases or fertility control issues, two-thirds of the women reported that they had no power whereas over half of the men responded they had moderate power in these areas. The majority of the respondents have a medium level of self esteem. High self esteem is slightly more prevalent amongst men than women.

Levels of reported unintended pregnancy

Table 2 presents the percentage distributions of currently pregnant women and the levels of unintended pregnancy amongst those who were currently pregnant at the time of interviews[4].

[4] Nepal DHS only collected information on pregnancy intendedness among currently pregnant women; therefore, no comparison can be made on the level of ever experience of unintended pregnancies.

One in six women covered in the study was pregnant at the time of interviews. There is little difference in the levels of current pregnancy between the NDHS 2001 and the UPN study. However, a clear difference was observed in the prevalence of unintended pregnancy between the two surveys. Using the conventional definition, a large difference in the levels of unintended pregnancy between the two surveys was observed amongst younger women (31 per cent in the NDHS as against 50 per cent in the UPN study amongst women aged 15-19 years) and in the western region of the country (28. 6 per cent in the NDHS and 68.9 per cent in the UPN study). One of the possible explanations is that younger women intend to have smaller family size than older women. The regional difference could be due to high differentials within the clusters, which were not the same in the two surveys. A large difference observed between two surveys when the modified definition was used. The results clearly suggest that there is an underestimation of the prevalence of unintended pregnancy when the conventional definition is employed.

TABLE 2 ABOUT HERE PLEASE

Demographic determinants of unintended pregnancy

Determinants of unintended pregnancy were assessed through selected demographic and socio-economic characteristics of the respondents. Table 3 presents the percentages reporting that their (or their wives') most recent pregnancy had been unintended by selected socio-demographic characteristics. The results show that there is a negative association between unintended pregnancy and age of respondents. Younger men and women were more likely to

report unintended pregnancy than the older age group. They might have wanted to postpone their pregnancy because of the health implications of pregnancies at young ages, desire to obtain education, or to follow other types of career development.

Unintended pregnancy was further examined through parity of respondents. As expected, it is clear that, as parity increases, the percentage of respondents reporting unintended pregnancy increased from about 39 percent of the men and 52 percent of the women with no child to 67 percent of men and 69 percent women with three or more children.

The percentage of unintended pregnancy is highest amongst women who desired one child as an ideal family size. Amongst women, the proportion decreased from 62 percent to 43 percent as the ideal number of children increased from one child to three or more. The result suggests that, as ideal number of children decreases, the level of unintended pregnancy increases. Surprisingly, the proportion of men reporting unintended pregnancy increases with ideal family size. This contradictory finding needs further exploration.

As expected, the number of family planning methods correctly known is negatively associated with level of unintended pregnancy. Men and women who correctly mentioned six or more family planning methods were less likely to report unintended pregnancy compared with those who mentioned five or less. Men and women who correctly mentioned six or more family planning methods were more likely to use them than those who mentioned five or less methods (among women 60 per cent as against 35 per cent and among men 66 per cent as against 46 per cent).

Socio-economic determinants of unintended pregnancy

The respondents from Kaski district were more likely to report unintended pregnancy than those in Ilam, Morang, Chitwan and Lalitpur. Women residing in urban areas were more likely

to report unintended pregnancy compared with their counterparts from rural areas. Fifty four percent of rural women reported unintended pregnancy compared with 61 percent of urban women. However, amongst men, no difference was observed in the level of unintended pregnancy according to the place of residence.

Ethnic group identification represents a sub-system within a society and reflects variation in institutional arrangements concerning the starting pattern of reproduction. There is little difference in the percentages of unintended pregnancy amongst the women in different ethnic groups. However, the Tharu men of the terai region reported higher unintended pregnancy, followed by the occupational caste group who are the most socio-economic disadvantaged group of the population in the country. In contrast, the Tharu women reported the lowest level of unintended pregnancy. There is no strong obvious reason to explain why the terai origin women report few numbers of unintended pregnancies compared with other ethnic groups.

Amongst men, the level of unintended pregnancy increased from 46 percent to 50 percent - but not linearly - with the increase in educational attainment. Amongst women, those who had acquired secondary education were more likely to report unintended pregnancy compared to those with no education or who have higher level education.

Amongst men, those whose main occupation was non-agricultural reported higher levels of unintended pregnancy compared to those engaged in agricultural activities, with 50 percent and 40 percent respectively. Amongst women, no clear difference was observed according to their main occupation.

Hindu men were more likely than Buddhist to report unintended pregnancy. In contrast, Buddhist women were more likely to experience unintended pregnancy than Hindu women.

Unintended pregnancy was also assessed by the household wellbeing of respondents. The results indicate that the medium class family were more likely to experience unintended pregnancy than either the poor or the rich class family. Amongst men, 51 percent of the medium class men reported ever experiencing unintended pregnancy compared to 32 percent rich and 48 percent poor class families. Amongst women, there were no major differences.

TABLE 3 ABOUT HERE PLEASE

The study shows that higher exposure to mass media (newspapers, radio and television) increases the experience of unintended pregnancy. Against expectation, the higher a person's self esteem, the higher risk of unintended pregnancy was observed. Amongst men, 53 percent who have high self esteem reported unintended pregnancy compared with about 37 percent who have low self esteem. Similarly, 59 percent of women who have high level of self esteem reported unintended pregnancy compared with 53 percent with low self esteem.

Respondents who have a medium level of decision making power were more likely to experience unintended pregnancy compared with those with low or high level decision making power. The difference is much wider amongst men than women (Table 3).

Multivariate analysis

Determinants of unintended pregnancy were modelled using a multivariate logistic regression. This statistical analysis assesses the relative impact of the variables in experiencing unintended

pregnancy after controlling for the effects of other variables in the model. Interactions between the variables were also tested for.

Table 4 presents the results of the logistic regression. Although all the conceptually important variables were included in the analysis, only the statistically significant variables are presented in the table. For women, age, number of living children, ideal number of children, contraceptive knowledge, district, educational attainment, exposure to the mass media and household wellbeing were the significant predictors; for men, current age, number of living children, districts, level of education, exposure to the mass media, self esteem, household wellbeing and decision making power were significant. No statistically significant results were observed in the interactions tested between the likely variables in multivariate results.

The results show that the effect of maternal age on unintended pregnancy was statistically significant. The likelihood of unintended pregnancy decreases as maternal age increases. For example, the odds of a woman aged between 20 and 24 years reporting an unintended pregnancy were 60 percent lower compared with women aged between 15 and 19 years. A similar trend can be observed in relation to the current age of men.

The number of living children at the time of interview was a strong predictor of unintended pregnancy. Women with one child only or no living children at the time of interview were the least likely to report unintended pregnancy. The odds of women with three or more living children reporting their last pregnancy as being unintended were 5.57 times higher than the odds of women with no living children. A similar finding was observed amongst men as well. The odds of men with three or more living children reporting their wife's last pregnancy being unintended were 3.17 times higher than those of men with no living children.

TABLE 4 ABOUT HERE PLEASE

The results revealed that the perception of the ideal family size is also a significant predictor of unintended pregnancy amongst women. The odds for women who perceived that three or more children are ideal decrease by 73 percent compared with those women who perceived that one child is ideal; for men, on the other hand, the odds ratios were not very different for those who perceived three or more children as ideal compared with those who said one is ideal.

The study revealed that the correct number of family planning methods known is also an independent significant predictor of unintended pregnancy amongst women. Women who have correct knowledge of six or more methods of family planning were 42 percent less likely to experience an unintended pregnancy than those who only know five or less number of methods of family planning. However, it does not make any significant difference to men.

The results also show that the area of residence (district), especially for women, is also a strong predictor of unintended pregnancy. The odds of women from Kaski district (western region) reported their most recent pregnancy was unintended were 4.67 times higher than the odds of women from Ilam (eastern region). The trend is true for men as well.

Similarly, men and women with higher levels of education were more likely to report unintended pregnancy compared with those with no education.

A further independent significant factor for unintended pregnancy for women was household wellbeing. As mentioned before, household wellbeing was taken as a proxy measure of the

economic status of the respondents. The results show that higher economic status amongst women is associated with lower odds of experiencing unintended childbearing than low status, and a similar trend is observed in the case of men.

Exposure to mass media is also strongly associated with unintended pregnancy. For example, men who have frequent exposure to mass media were 4.85 times more likely to report unintended pregnancy compared with those who have little or no exposure. Similarly, women who have higher exposure to mass media were more likely to report unintended pregnancy compared with those with no exposure.

Self esteem is a significant predictor of unintended pregnancy amongst men only. Generally, low levels of self esteem tend to be associated with higher odds of experiencing unintended pregnancy. The odds of low self esteem men reporting their wife's pregnancy was unintended was twice that of men with high self esteem. Men with moderate decision making power were less likely to report unintended pregnancy compared with no power.

DISCUSSION AND CONCLUSIONS

In this paper, we examine the prevalence and the factors associated with unintended pregnancy amongst young men and women in Nepal. This is the first study in the country which has used the modified definition of intendedness of pregnancy guided by extensive exploratory research. The study found a higher prevalence of reported unintended pregnancy than that obtained in the NDHS 2001, indicating that the level of unintended pregnancy reported in the latter is under estimated. The difference observed in the level of unintended pregnancy using the conventional definition between the two surveys (see Table 2, row 2) could be partly due to difference in sampling design. The clusters covered in NDHS 2001 and UPN study were not exactly the same. Therefore, there could be a difference in the prevalence of unintended

pregnancies at cluster level. Other reasons could concern the quality of the research and data-collection process themselves. The UPN study questionnaire was modified based on extensive exploratory research (for example, used words familiar to the respondents), the rigorous training of interviewers for the purpose of obtaining confidential responses, used local vocabularies as much as possible in the research instruments; all of these may have contributed to better responses. A number of methods - such as the re-administration of key questions by the field supervisors, cross checking the responses between husband and wife immediately after interview, and validating with case histories - were employed to triangulate information collected; therefore, the possibility of under reporting of such events was minimized. Further, since the UPN study was specifically focussed on pregnancy planning intentions and outcomes, respondents may have been more willing to report unintended pregnancies.

The difference in the levels of unintended pregnancy is much higher between the NDHS and when the modified definition was used. This is mainly because of inadequate definition of unintended pregnancy is used in the DHS study. The definition used in the DHS surveys gives an emphasis on the *timing* of the childbearing, but the exploratory research that formed part of UPN study revealed that socioeconomic factors, cultural circumstances and the health status of couples are also equally important for considering whether or not a pregnancy is intended.

The bivariate analysis showed that the demographic and socio-economic variables - current age, number of living children, ideal family size, number of family planning methods correctly known, place of residence, district, educational attainment, exposure to the mass media and self esteem - are significantly correlated with unintended pregnancy amongst women. Amongst men, number of living children, district, caste/ethnicity, main occupation, household wellbeing, exposure to mass media, self esteem and decision making power are correlated with unintended pregnancy.

Multivariate analysis identified that young couples aged between 15 and 19 years with high parity and smaller ideal family sizes were more likely to report experience of unintended pregnancy regardless of other factors. This corroborates findings from most of the previous research outside Nepal. The higher likelihood of experiencing unintended pregnancy amongst older women may indicate that they want larger families than do younger women. This is well reflected in the data; for example, 84 percent of women aged between 20 and 24 years considered three children to be ideal family size, compared with just 16 percent amongst women aged between 15 and 19 years.

A further explanation for the high number of unintended pregnancies could be a reluctance amongst younger women to ask partners to use contraception. This is well supported by the qualitative data. In-depth interviews revealed that shyness to talk about contraceptive use is one of the main barriers to using contraception amongst young women. The respondents in the qualitative component of the study stated that newly married couples, especially women, should feel shy (or should reflect a shy nature) in the family. If a newly married woman talks about contraceptives then she might be called 'characterless' and might be misunderstood. Furthermore, young couples also feel reluctant to obtain contraceptives due to various reasons such as the gender of the provider, perceived discouraging behaviour on the part of the service provider and fear of side effects, each of which may lead to unintended pregnancy. It is also quite clear from the qualitative research that young women wanted to postpone their pregnancy because of their desire to continue education, or to achieve other types of career development and independence.

The more living children men and women had, the more likely they were to report their last pregnancy as being unintended, regardless of age and other factors. This indicates that those young men and women who have had many children may differ in meaningful ways from those

who have not. For example, high parity women may have limited access to services or may experience particular difficulty in practicing contraception. Another reason could be that the decline in desired family size in Nepal has resulted in increased exposure to the risk of having unintended pregnancy. As fertility preference declines, the number of years between the completion of a couple's desired family size and the end of potential childbearing increases, thus leading to an increase in the time during which unintended pregnancy can potentially occur.

Amongst women, just knowing the name of contraceptive methods (having heard about the methods) was not associated with unintended pregnancy, but the number of methods correctly known about was independently associated with the likelihood of unintended pregnancy. Those who knew six or more methods correctly were less likely to experience unintended pregnancy than those who knew five or less methods. This clearly has implications for the concept of informed choice on family planning programmes.

Unintended pregnancy was more common in the western region (i.e. Kaski and Lalitpur district) than in the eastern region (Ilam or Morang district) of the country. Such disparity may be due to cultural factors. For example, Ilam is mainly dominated by the Rai and Limbu communities, whereas the Morang district is dominated by the Maithali community, where the mean age of marriage is low compared with other ethnicities and early childbearing is not considered as a problem for the family. In-depth interviews showed that people in these areas strongly believed that if they have children at an early age then their children will grow up soon and the parents won't have any problems later in their old age. By contrast, Kaski and Lalitpur are dominated by Gurung and Newar, respectively, where age at marriage is higher than other ethnicities and early age pregnancies are not welcomed. No statistically significant difference was observed between rural and urban areas in experiencing unintended pregnancy. One would

expect a lower level of unintended pregnancy in rural than urban areas due to the fact that rural women expect a child immediately after the marriage and have larger ideal family sizes. This unexpected finding needs further investigation.

As expected, men and women who completed secondary or higher level education were more likely to report their last pregnancy as being unintended than were those who never attended school. This could be because the better educated couples (who have a stronger motivation than uneducated couples to prevent unintended pregnancy) may not be using contraceptives for some reasons. This is supported by the data on contraceptive use. The data revealed that there is no significant difference in contraceptive use amongst women by level of education. The data further suggest that number of living children is more important than the level of education in determining use or not use of contraception. Couples with two or more children were more likely than those who have had one or no children to use contraception. However, this unexpected result on the association between level of education and contraceptive use requires further research.

Contrary to expectation, women from medium and high wellbeing households were more likely to report unintended pregnancy than those from poor wellbeing households. This is because women in medium and high level wellbeing households have lower desired family sizes compared with poor wellbeing households. Another unexpected result is the association between exposure to mass media and unintended pregnancy. It is difficult to establish casual links between exposure to mass media and unintended pregnancy in cross sectional studies, but the result indicated that those who have had regular access to mass media were more likely to report unintended pregnancy. This contradiction needs further research; this pattern of results may indicate different expectations between different groups, but also that these are not accompanied by appropriate contraceptive use in line with these expectations.

The multivariate results also showed that men with low self esteem were more likely to experience unintended pregnancy compared with those who have high self esteem. Similarly, men who have moderate decision making power were less likely to report unintended pregnancy than those who have no power. Interestingly, these two variables were not statistically significant for women. This suggests that programmes that aimed at increasing spousal communication on mutual fertility decision making and self esteem would help to reduce the level of unintended pregnancy amongst young couples. Although son preference is not statistically significant in this analysis, it should be mentioned here that most of the respondents covered in the qualitative study believed that it is one the factors associated with unintended pregnancy in their communities.

The results clearly point to some programme and policy implications. As the results show that the conventional way of measuring intendedness of pregnancy tends to under-estimate the level of unintended pregnancy in Nepal, the research instruments should by modified before conducting any further studies (including DHS) that are designed to assess the genuine level of unintended pregnancy, as opposed just to spacing issues.

It is clear from the analysis that particular groups of Nepalese young couples are at significantly elevated risk of unintended pregnancy, and thus would benefit from quality family planning support and services that are tailored to their needs. For example, improving the quality of family planning services in terms of providing informed choice and functional knowledge appear to be instrumental in reducing the level of unintended pregnancy. In addition, information about the effective use of existing services, the value of small families and young couple friendly health services should enable young men and women to avoid unintended pregnancy.

Further research is required on how the mass media are affecting the level of unintended pregnancy. In-depth research is needed to examine the relationship between contraceptive use and level of education, and rural- urban difference on unintended pregnancy. Birth interval is identified as one of the major determinants of unintended pregnancy in the literature. However, this study did not collect the data related to birth interval due to the problems associated with it. Including birth interval data could improve the results of future studies. A retrospective study such as this might be generating biased results, as feelings about pregnancy may change throughout the gestation period as well as after the birth, and couples might not report their unintended pregnancy as having been originally unintended. Although this study interviewed in-depth those couples who experienced unintended pregnancy and sought an abortion, it should be noted that, due to cultural taboos attached with abortion, some young men and women might not have reported unintended pregnancy especially when they have had abortion or still birth. A longitudinal study could avoid such problems.

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Table 1. Selected socioeconomic and demographic characteristics of the respondents

Selected demographic Characteristics	Men		Women	
	N	%	N	%
Current age (in years)				
15-19	24	4.8	254	25.5
20-24	236	47.3	743	74.5
25-27	239	47.9	na	na
Number of living children				
None	182	36.5	280	28.1
One	197	39.5	440	44.1
Two	93	18.6	225	22.6
Three or more	27	5.4	52	5.2
Ideal number of children				
None or one	34	6.8	90	9.0
Two	393	78.8	824	82.7
Three or more	72	14.4	83	8.3
District				
Ilam	57	11.4	113	11.3
Morang	165	33.1	329	33.0
Chitwan	92	18.4	184	18.5
Kaski	100	20.0	201	20.2
Lalitpur	85	17.1	170	17.1
Place of residence				
Urban	198	39.7	400	40.1
Rural	301	60.3	597	59.9
Caste/ethnicity				
Brahmin/Chhetri	192	38.5	410	41.1
Tharu	107	21.4	180	18.1
Mongoloid	147	29.5	299	30.0
Occupational castes	53	10.6	108	10.8
Level of education				
No education	88	17.6	283	28.4
Primary and informal	51	10.2	121	12.1
Secondary	266	53.3	493	49.5
IA and above	94	18.9	100	10.0
Main occupation				
Agriculture	166	33.3	286	28.7
House maker	na	na	564	56.6
Non-agriculture	286	57.3	112	11.2
Unemployed/student	47	9.4	35	3.5
Religion				
Hindu	431	86.4	846	84.9
Buddhist	47	9.4	108	10.8
Other	21	4.2	43	4.3
Family structure				
Nuclear	126	25.3	251	25.2
Joint	373	74.7	746	74.8

Household's wellbeing				
Poor	118	23.7	259	26.0
Medium	275	55.1	500	51.2
Rich	106	21.2	238	23.9
Exposure to one or other mass media (newspapers, television and radio)	476 23	95.4 4.6	900 97	90.3 9.7
Self esteem				
High	109	21.8	172	17.2
Medium	275	55.1	637	63.9
Low	115	23.1	188	18.9
Decision making power				
No power	120	24.1	663	66.5
Little/moderate power	292	58.5	278	27.9
Strong power	87	17.4	56	5.6
Total	**499**	**100.0**	**997**	**100.0**

Table 2. Level of unintended pregnancies amongst currently pregnant women age 15-24 years at the time of survey in Nepal - a comparison

	Nepal DHS, 2001	UPS, 2003
Percentage of women pregnant at the time of interviews	15.8 (2567)	17.3 (997)
Percentage of women reporting unintended pregnancy using the conventional definition	32.1 (405)	43.6 (172)
Adjusted (for rural - urban difference) percentage of women reporting unintended pregnancy using the conventional definition	32.2	44.8
Percentage reporting unintended pregnancy using modified definition (among currently pregnant)	na	55.8 (172)

Note: Denominators in parenthesis

Table 3. The percentage of respondents reporting unintended pregnancy (amongst those ever been pregnant) by selected socio-demographic characteristics

Selected characteristics	Men		Women	
	N	%	N	%
Current age (in years)				
15-19	10	70.0	175	68.6***
20-24	182	45.0	666	53.7
25-27	195	44.6	na	na
Number of living children				
None	70	38.6	124	51.6
One	197	43.1	440	56.8
Two	93	49.5	225	56.9
Three or more	27	66.7*	52	69.2
Ideal number of children				
One	27	37.0	77	62.3**
Two	306	44.1	690	57.7
Three or more	54	57.4	74	43.2
Correct knowledge of family planning methods				
Know five or less methods	200	49.5	484	60.1
Know six or more methods	187	41.2	357	52.4
Districts				
Ilam	49	20.4	93	45.2
Morang	129	55.0	279	49.1
Chitwan	72	44.4	154	56.5
Kaski	72	55.6***	169	74.6***
Lalitpur	65	35.4	146	58.9
Place of residence				
Urban	145	45.5	338	61.0**
Rural	242	45.5	503	54.1
Caste/ethnicity				
Brahmin/Chhetri	148	42.6	344	57.8
Tharu	87	60.0**	153	52.9
Mongoloid	112	37.5	247	57.9
Occupational caste	40	47.5	97	56.7
Level of education				
No education	78	46.1	257	52.9
Primary	41	48.8	108	50.9
Secondary	204	43.1	407	61.9**
IA and above	64	50.0	69	50.7
Main occupation				
Agriculture	162	39.5	252	58.3
House maker	na	na	491	55.6
Non-agriculture	225	49.8**	98	59.2
Religion				
Hindu	333	48.0**	720	56.1
Buddhist	36	33.3	87	62.1
Other	18	22.2	34	58.8

Household wellbeing				
Poor	208	48.1	421	55.6
Medium	218	50.5**	209	60.3
Rich	73	35.6	211	55.9
Exposure to the mass media				
Yes	371	46.6**	756	57.8*
No	16	18.8	85	48.2
Self esteem				
Low	90	36.7	148	53.4
Medium	208	46.2	533	57.0
High	89	52.8*	160	59.4
Decision making power				
Low	96	41.7	229	55.0
Medium	218	50.5*	421	58.2
High	73	35.6	191	56.0
Total	**387**		**841**	

* Difference between distribution is significant at 0.10 level, ** significant at 0.05 level, *** significant at 0.01 level

Table 4. Estimated odds ratios for unintended pregnancy by socio-demographic correlates

Characteristics	Odds Ratios	
	Men	**Women**
Current age in years		
15-19 (ref)	1.00	1.00
20-24	0.27*	0 .40***
25-27	0.24*	na
Number of living children		
0 (ref)	1.00	1.00
1	1.31	1.55**
2	2.15**	2.19***
3 and more	3.17**	5.57***
Ideal number of children		
1 (ref)	1.00	1.00
2	1.27	0.63
3 and more	1.36	0.27***
Knowledge of contraception		
Known five or less methods (ref)	1.00	1.00
Known six or more methods	0.31	0.58***
District		
Ilam (ref)	1.00	1.00
Morang	2.16	1.59
Chitwan	1.42	1.50
Kaski	3.63**	4.67***
Lalitpur	1.72	3.75***
Literacy level		
No education (ref)	1.00	1.00
Primary	1.64	0 .89
Secondary	1.26	1.89***
I A and above	2.56*	1.37
Household wellbeing		
Poor (ref)	1.00	1.00
Medium	0.87	0.64**
Rich	0.41**	0.50**
Exposure to mass media		
No (ref)	1.00	1.00
Yes	4.85**	1.67**
Self esteem		
High (ref)	1.00	1.00
Moderate	1.47	0.99
Low	2.00*	0.98
Decision making power		
No power (ref)	1.00	1.00
Moderate power	0.53**	1.04
Strong power	1.02	1.57
Number of observations	*387*	*841*
LR chi2 (31)	*69.19*	*104.41*
Prob > chi2	*0.0001*	*0.000*
Pseudo R2	*0.1297*	*0.0908*

* significant at 0.10 level, ** 0.05 level, *** significant at 0.01 level