



Correlates of Induced Abortion in the Philippines

Josefina V. Cabigon¹, Susheela Singh² and Fatima Juarez³

Abstract

This article attempts to quantitatively separate the effects of several variables on induced abortion. These are demographic (age, number of live births, and marital status), socioeconomic (wealth index, education, and work status), cultural (religion examined in three ways – religious affiliation, importance of God in the respondent's life, and frequency of church service attendance), proximate (ever use of contraceptive method, ever forced to have sex with partner, and unintended pregnancy), knowledge (knowledge of abortion law in the Philippines), and attitudinal (what the woman thinks as more harmful for a woman's health, unwanted pregnancy or using modern and artificial contraceptives and the most important reason women in their community may resort to abortion, opinion on enumerated circumstances such as saving a woman from dying, pregnancy from rape and incest, protecting own health, psychological reasons, and being mentally retarded and who the woman thinks should decide whether a woman stops an unwanted pregnancy). Bivariate and multivariate logistic regression analyses of 4,163 sample of the National Survey of Women (NSW) have demonstrated that only five of the many variables examined remained prominent, arranged from the most to the least significant, in affecting induced abortion. The likelihood of resorting to abortion by women having unintended pregnancy is 10 times more than among women having no unintended pregnancy. The estimated odds of having had an induced abortion for women who think is 1.43 times more than among those who do not think that the abortion law should allow abortion of pregnancy caused by rape. Induced abortion is 41 percent less common among the never married than their married counterparts. The poor

1 Professor, Population Institute, University of the Philippines, Quezon City, Philippines.

2 Vice President, The Alan Guttmacher Institute, New York, USA.

3 Professor-researcher, Centre for Demographic, Urban and Environmental Studies, El Colegio de Mexico, Mexico City.

are 27 percent less likely than the non-poor to resort to induced abortion. If the woman had ever been forced to have sex with her partner, she was 1.29 times more than her counterpart who had never been forced to have sex with her partner to consider induced abortion as a recourse. There is then a need to address these strong determinants of induced abortion in the Philippines.

Keywords: induced abortion, unintended pregnancy, family planning, contraception

Introduction

Our most recent publication on induced abortion in the Philippines has shown that unintended pregnancy is the root cause of abortion (Singh et al., 2006). All other related studies are consistent in demonstrating unintended pregnancy as the underlying and immediate cause of induced abortion (e.g., Bankole, Cabigon, 1996; Singh and Haas, 1998; Raymundo et al., 2002; Qiao and Suchindran, 2005; Bankole et al., 2006). Our latest published study based on the 2004 National Survey of Women (NSW) also reveals that among those who seek abortion, economic cost of raising a child, birth spacing or limiting family size, which is directly related to unmet need for family planning, and pregnancy resulting from forced sex, are their leading reasons. Family planning use especially of traditional methods and ever being forced to have sex with partner are other proximate causes of induced abortion available in the same survey. In addition to unintended pregnancy, these two variables are important program variables to be examined simultaneously with other independent variables to find out whether they persist to be strongly related to induced abortion experience.

Based on the 2004 National Survey of Women (NSW), our study also disclosed that among the Filipino women who admitted having had an abortion, majority are ever married, with at least three children, poor, Catholic and with at least some high school education. Note that these classifications were based on the total number of women who admitted having had an abortion through the sealed envelope and not on the total sample respondents. However, these findings need substantiation because they may reflect both a combination of the real importance of each of these variables on induced abortion and the obviously biased effect of the actually highly skewed distribution of Filipino women on each of these variables. For example, since the Roman Catholics in the country are of the same percentage, the 87 percent who are Roman Catholics among those who admitted having had an abortion may be interpreted as either a reflection of the large proportion of Roman Catholics in the country or a reality that the majority who are resorting to abortion are Roman Catholics. The same line of argument may hold true with the other variables given that the majority of women have at least three children with the most recent total fertility rate of 3.5 (National Statistics Office and ORC Macro, 2004) based on the 2003 National

Demographic Health Survey (NDHS), and that the majority of Filipinos are poor and are with high school education.

Moreover, other unexplored variables may emerge as major reasons to resort to abortion. One is the information on ever worked status. It would be helpful to discover whether those who ever worked have a greater tendency to resort to induced abortion relative to their counterparts who never worked. In an earlier study based on hospital cases (Raymundo et al., 2002), about 65 percent of the women with induced abortions were not working.

Another set of variables which may have some bearing on induced abortion behavior relates to knowledge and attitudes regarding reproductive health and abortion laws. For example, it may be worthwhile finding out whether those who are aware of the abortion law in the Philippines are less likely to have had an induced abortion because of the severity of penalty they are aware of. Qiao and Suchindran (2005) found out that in rural China and among minority nationalities, induced abortion was related to the requirements of family planning policy. The interesting question to unravel here is whether knowledge of the abortion law deters induced abortion. Furthermore, the 2004 NSW collected information on the most important reason women in their community may resort to induced abortion as well as whether or not the woman thinks the Philippine abortion law should allow abortion to several circumstances each read out to them by the interviewers (saving the mother's life, rape, incest, contraceptive failure, handicapped or abnormal baby, protection of mother's health, psychological reasons, inability to take care of the child, schooling interruption, unwanted pregnancy and mentally retarded mother). It could be insightful to find out which of these attitudes also matter in having had induced abortion.

Our latest published study also revealed that induced abortion is a shared decision with four in 10 women who attempt an abortion discuss the decision with their husband or partner. However, seven in 10 women report having had the final say in the decision to seek abortion. It is very important to discern whether shared decision of the couple remains important even if the other important variables are simultaneously considered.

In a nutshell, there is a need to estimate the net contribution of important programmatic variables on the likelihood of induced abortion to arrive at clearer insights as to identifying action-oriented strategies to reduce it. The main objective of this paper is to address this need. Specifically, it identifies which of the above emerging important demographic, socioeconomic, cultural and proximate characteristics remain important after taking into account the confounding effects of each of the other correlates under consideration. It also examines whether knowledge of abortion law and attitudinal factors (to be defined in greater detail in the succeeding section) are important correlates of induced abortion and which of them would persist even if unintended pregnancy as the underlying cause and other important confounding variables are held constant.

Methods

The data for the analyses in this paper are obtained from the 2004 NSW conducted by the University of the Philippines Population Institute (UPPI) and Guttmacher Institute (Singh et al., 2006:10). This is a nationally and regionally representative survey of women 15-49 years old, irrespective of marital status.

A stratified multistage-stage sampling technique was used. The regions in the Philippines were grouped into nine domains namely: (1) National Capital Region, (2) Northern Luzon, (3) Central Luzon, (4) Southern Tagalog, (5) Bicol, (6) Western Visayas, (7) Central and Eastern Visayas, (8) ARMM, Western and Northern Mindanao, and (9) CARAGA, Southern and Central Mindanao. Urban and rural locales from the nine regional groups were selected. Within these locales, sample *barangays* (political unit) were then randomly chosen. Sample households in the selected *barangay* were chosen through systematic sampling and a qualified respondent in the chosen household was interviewed.

The sample size was computed at 95 percent confidence level (five percent level of significance). The initial estimate of the population variance was based on information from the 1997 Department of Health Annual Report where the rate of pregnancies with abortive outcome was estimated at 0.1. The relative precision was set at 10 percent of the estimated rate. The empirically estimated sample size was about 3,500. The actual sample size generated in the survey was 4,163.

Variables

Table 1 presents the variables under consideration, their operationalization in the present study and the corresponding percentage distribution of the sample per category of a given variable.

The main variable of interest (dependent) is having or not having had an induced abortion based on those who responded to the questionnaire in sealed envelope. We reported earlier (Singh et al., 2006) that 15 percent of the 4,163 sample respondents had ever had an abortion. In the succeeding analysis, the considered category will be those who ever had an abortion and will be contrasted with those not having had an induced abortion (85 percent), as the reference.

TABLE 1. Percentage distribution of all women by variables under consideration, 2004 NSW

Variable	Percent	Number
A. DEPENDENT VARIABLE		
<i>1. Induced abortion</i>		
Ever had an abortion	15.0	624
Never had an abortion	85.0	3539
B. INDEPENDENT VARIABLES		
<i>1. Demographic</i>		
Age		
15-19	10.6	440
20-24	16.3	679
25-29	17.4	724
30-34	18.4	765
35-39	16.4	685
40-44	12.5	519
45-49	8.4	351
Marital status		
Single	16.7	695
Ever married/lived in	83.3	3468
Children ever born		
0-2	51.1	2128
3+	48.9	2035
<i>2. Socioeconomic</i>		
Education		
Elementary or below	26.9	1118
High school or vocational	51.4	2139
College or over	21.8	906
Wealth index quartile		
Poor	70.4	2933
Non-poor	29.6	1230
Work status		
Never worked	69.2	2882
Ever worked	30.8	1281

Variable	Percent	Number
3. Cultural		
Religion		
Roman Catholic	85.9	3578
Others	14.1	585
Importance of God to R's life		
Rate lower than 10	10.4	431
Rate = 10 (very important)	89.6	3732
Frequency of Church services attendance		
Daily to once a week	51.9	2159
At least once a month or never	48.1	2004
4. Proximate		
Ever use of contraceptive method		
Never used	37.3	1552
Traditional	33.9	1413
Modern	28.8	1198
Ever forced to have sex with partner		
Ever been forced	24.3	1010
Never been forced	75.7	3153
Unintended pregnancy		
Ever had unwanted pregnancy	61.8	2572
Never had unwanted pregnancy	38.2	1591
Total	100.0	4163
5. Knowledge of abortion law in the Philippines		
Knows	60.6	2522
Does not know	39.4	1641
6. Attitudinal		
Thinks as more harmful for a woman's health		
Unwanted pregnancy	76.2	3171
Using modern and artificial contraceptives	23.8	992
Thinks as the most important reason women in her community may resort to abortion		
Economic reasons		
Yes	36.5	1518
No	63.5	2645

Correlates of Induced Abortion in the Philippines

Variable	Percent	Number
Not married		
Yes	15.6	650
No	84.4	3513
Has achieved desired family size		
Yes	12.2	507
No	87.8	3656
Thinks that the abortion law should allow a woman to end an unwanted pregnancy		
To save her from dying		
Yes	59.8	2491
No	40.2	1672
When pregnancy is from rape		
Yes	17.9	745
No	82.1	3418
When pregnancy is from incest		
Yes	21.0	873
No	79.0	3290
To protect her own health		
Yes	32.1	1335
No	67.9	2828
For psychological reasons		
Yes	17.7	738
No	82.3	3425
If she is mentally retarded		
Yes	23.2	967
No	76.8	3196
Who respondent thinks should decide whether a woman stops an unwanted pregnancy		
Woman alone	50.3	2095
The couple together	33.0	1372
Husband/partners/others	16.7	696
Total	100.0	4163

Recall that in our earlier study (Singh et al., 2006:15), the 15 percent having had an abortion were classified by marital status (ever and never in a union), number of children (0-2 and equal to or greater than three), religion (Catholic and others), economic status (poor and non-poor obtained by classifying respondents into quartiles, based on their possession of certain amenities such as electricity, radio, television, gas or electric stove, refrigerator, electric fan, air conditioner, washing machine, indoor toilet, tap drinking water inside household, cellular telephone, telephone, bicycle, car, household helper or maid), and education (no high school and some high school). These variables will be re-considered in this paper with the total survey respondents as the base. Given their importance according to our latest work mentioned earlier, the thrust will be on finding out whether they remain influential to the occurrence of induced abortion when other important variables are simultaneously considered.

The independent variables are grouped as demographic, socioeconomic, cultural, proximate, knowledge, and attitudinal. The demographic characteristics of the 4,163 respondents are age of last birthday, marital status, and total number of live births. Our findings with the present paper amplify our findings in our study cited earlier. The distribution of the total sample under study by five-year age group is more or less the same except with the youngest and oldest age groups. One in six women are never married. There are slightly more women with less than two children (51 percent) than their counterparts with three or children. In the bivariate (Chi-square test) analysis, current age is examined in five-year age group but in the bivariate and multivariate logistic regressions, it is treated in its original level of measurement (quantitative).

The socioeconomic variables are wealth index (non-poor and poor as defined earlier), education in three categories (elementary or below, high school and college or over), and work status (ever and never worked). Five in 10 women are with high school education; close to seven in 10 women are poor and never worked.

Religion is the lone cultural variable re-examined. However, there are three indicators explored. First is religious affiliation (Roman Catholics versus others). A great majority (about 86 percent) reported themselves to be Catholics. Second is importance of God in the respondent's life. The question asked is "How important is God in your life? Please tell the degree of His importance by giving me a number between 1 and 10, where 1 means "Not at all" and 10 means "Very important." (Answer from 1 – 10). Nine in 10 gave a rate of 10. The third indicator is frequency of church service attendance in two categories (daily to once a week, and at least once a month or never). A little above half attend Church services daily to once a week. These second and third indicators reflect the attitude and behavior towards religion, respectively, which are no doubt better indicators than religious affiliation in the analysis of induced abortion.

The variables in the fourth set are proximate. They are ever use of contraceptive method (never used, used traditional methods and used modern methods), ever forced to have sex with partner (ever been forced and never been forced) and unintended pregnancy (ever had and never had based on both the individual questionnaire (v601 and v602) and the sealed envelope questionnaire (saq1 and saq5). Three in eight never used a contraceptive method, a third ever used traditional and two in seven women ever used a modern method. About a fourth claimed to have ever been forced to have sex with a partner. About 62 percent ever had unintended pregnancy as was already reported in our earlier study. It would be illuminating to find out how induced abortion varies by the categories of these proximate variables.

Knowledge of abortion law in the Philippines is the lone knowledge variable. Six in 10 women are aware that there is an abortion law in the Philippines.

The last set of variables examined relates to what the women think of several situations or conditions surrounding induced abortion. First is what the woman thinks as more harmful for a woman's health, unwanted pregnancy or using modern and artificial contraceptives. Most (76 percent) think unwanted pregnancy more harmful. Second pertains to what the women think as the most important reason women in their community may resort to abortion. Three reasons were cited by at least 10 percent of the sample: (1) economic (36 percent); (2) not married (around 16 percent); and (3) has achieved desired family size (12 percent). The third condition relates to the women's opinion on enumerated circumstances (as listed in the first section) the abortion law should allow a woman to end an unwanted pregnancy. Those conditions identified by at least 15 percent of the respondents are (1) to save a woman from dying (60 percent); (2) when pregnancy is from rape (18 percent); (3) when pregnancy is from incest (21 percent); (4) to protect her own health (32 percent); (5) for psychological reasons (18 percent); and (6) if a woman is mentally retarded (23 percent). The last condition is who the woman respondent thinks should decide whether a woman stops an unwanted pregnancy (woman alone, 50 percent; the couple together, 33 percent and husband/partner/others, 16.7 percent).

Analysis

Bivariate and multivariate analyses are performed. There are three aims of the bivariate analyses. First is to examine the patterns of relationship between each of the hypothesized variables and induced abortion experience. Second is to determine which of the three indicators of religion is mostly related with having had an induced abortion. Third is to reduce the number of variables to be examined in the multivariate perspective given the very skewed distribution of cases by induced abortion experience. Examining many hypothesized variables with a highly skewed dependent variable is statistically problematic. Hence, it is helpful to

have an empirical basis of eliminating those that do not have a bearing on induced abortion experience to avoid many zero cells in the multivariate regressions.

Two statistical techniques are used in the bivariate analysis. One is cross-tabulating the dependent variable by each of the hypothesized correlates but just presenting the percentage who ever had an abortion by all of the hypothesized variables to address the first aim of the bivariate analysis and reflecting Chi-square values with p values equal to or less than .10 to address the second and third aims. The resulting crosstabulations reflect very uneven cell distributions owing to the highly skewed distribution by ever and never having had induced abortion. The Chi-square statistics is not robust in such kinds of cross tabulations. However, the bivariate logistic regression is robust in very uneven cell distributions with a dichotomous binary (0-1) dependent variable, e.g., induced abortion experience (1 if ever experienced, 0 otherwise) and in cases of serious violations of the linearity and homoscedasticity assumptions in linear probability models. Hence, it complements the Chi-square statistics in the examination but the main basis in establishing bivariate relationships between our dependent and independent variables.

In the multivariate part of the paper, the logistic regression model is used. In log odds form, the model is:

$$\text{Logit } P \text{ or } \log (P/(1 - P)) = b_0 + b_1X_1 + b_2X_2 + \dots + b_kX_k$$

where P=dependent variable (having had vs. not having had an induced abortion)

X_1, X_2, \dots, X_k are the demographic, socioeconomic, cultural, proximate, knowledge and attitudinal characteristics defined earlier.

Exponentiating the log odds parameters or logistic regression coefficients yields odds ratios which are measures of effect of the explanatory variables on the odds of having had an induced abortion. For quantitative variables, the odds ratio represents the multiplicative effect of a one-unit change in the independent variable in question on the odds of having had an abortion. For qualitative variables, the odds ratios are odds of the considered categories relative to the omitted or reference categories and they are the multiplicative effects of the explanatory factors. Any value less or more than unity means, respectively, lower or higher likelihood of having had an abortion at the category under consideration than in the omitted or reference category.

The variables that emerge significant in the bivariate analyses are taken simultaneously in the multivariate logistic regression model which is termed the full model. For parsimony and

simplicity, a simpler model and the final or optimal model will be estimated. For the simpler model, some of those not significant in the full model will not be included to reduce the number of variables in question. The criterion for inclusion in the simpler model will be discussed in the Results section. The optimal model includes only those that emerge significant in the simpler model and it will be the basis of determining the net effects of the significant correlates on having had an induced abortion.

Results

Bivariate analyses

Table 2 presents the percentage of women who reported on the sealed envelope questionnaire that they had ever had an abortion, the Chi-square values of the significant correlates and the results of bivariate logistic regressions in terms of logit coefficients, their corresponding standard errors and odds ratios by each of the hypothesized variables. Interestingly, both the Chi-square statistical test and the bivariate logistic regression consistently yield the same variables that are significantly related to having had an induced abortion.

Induced abortion occurs to all women regardless of age although most of those who had ever had abortion belong to the 30-34 age group. The Chi-square and bivariate logistic regression consistently reveal that age is significantly related to having had an induced abortion. The logit regression yields that when age increases by one unit, the estimated odds of having had an abortion increase by about two percent.

As already shown in our earlier report (Singh et al., 2006), the single women are less likely to experience induced abortion by about 55 percent compared to the ever married women. The likelihood of having had an abortion among women with less than three children is lower by 32 percent compared to that of women with three or more children. All three variables are significant and therefore are examined further in the multivariate analyses.

Among the socioeconomic characteristics under consideration, only economic status based on the wealth index quartile reveals some relationship with induced abortion experience ($p < .10$ for both Chi-square and logistic regression coefficient). Strikingly however, those who are poor compared to the non-poor reveal lower percentage of having had an abortion (14 percent vs. 16 percent). Based on the logistic regression result, the likelihood of having had an abortion is lower by 14 percent if the woman is poor than if she is non-poor. Although the effects of education and work status are not significant, the pattern that is evident is that it is among those with high school education and those who ever worked that induced abortion tends to be a recourse. Together with economic status, education is still considered in the multivariate analyses because of its already established strong influence on fertility and family planning. Work status is not investigated further.

TABLE 2. Percentage distribution of women who ever had an abortion and bivariate logistic regression results by variables under consideration, 2004 NSW

Variable	Percent	Number	Logit coefficients	s.e.	Odds-Ratios
Age†			.017***	.005	1.017
15-19	8.4	440			
20-24	14.0	679			
25-29	14.5	724			
30-34	18.0	765			
35-39	15.8	685			
40-44	17.0	519			
45-49	15.1	351			
Chi-square (p-value)	25.279(.000)				
Marital status					
Single	8.1	695	-.803***	.147	.448
Ever married/lived in	16.4	3468			
Chi-square (p-value)	35.779(.000)				
Children ever born					
0-2	12.6	2128	-.385***	.088	.681
3+	17.5	2035			
Chi-square (p-value)	19.635(.000)				
Education					
Elementary or below	14.4	1118	-.039	.126	.961
High school or vocational	15.3	2139	.037	.111	1.038
College or over	14.9	906			
Wealth index quartile					
Poor	14.4	2933	-.156*	.093	.855
Non-poor	16.4	1230			
Chi-square (p-value)	2.775(.096)				
Work status					
Never worked	14.5	2882			
Ever worked	16.0	1281	.114	.093	1.121
Religion					
Roman Catholic	15.1	3578	.097	.128	1.102
Others	14.0	585			
Importance of God to R's life					
Rate lower than 10	15.3	431			
Rate = 10 (very important)	15.0	3732			

Variable	Percent	Number	Logit coefficients	s.e.	Odds-Ratios
Frequency of Church services attendance					
Daily to once a week	14.0	2159	-.159*	.087	.853
At least once a month	16.0	2004			
Chi-square (p-value)	3.254(.071)				
Ever use of contraceptive method					
Never used	15.7	1552			
Traditional	18.6	1413	.607***	.106	1.835
Modern	11.1	1198	.400***	.113	1.492
Chi-square (p-value)	34.292(.000)				
Ever forced to have sex with partner					
Ever been forced	20.3	1010	.508***	.094	1.661
Never been forced	13.3	3153			
Chi-square (p-value)	27.880(.000)				
Unintended pregnancy					
Ever had unwanted pregnancy	21.6	2572	2.384***	.164	10.850
Never had unwanted pregnancy	2.6	1591			
Chi-square (p-value)	379.006(.000)				
Total					
	15.0	4163			
Knows abortion law in the Philippines	15.7	2522	.156*	.090	1.169
Does not know abortion law in the Philippines	13.8	1641			
Chi-square (p-value)	2.909(.088)				
Thinks as more harmful for a woman's health					
Unwanted pregnancy	14.8	3171	-.057	.101	.945
Using modern and artificial contraceptives	15.5	992			
Thinks as the most important reason women in her community may resort to abortion					
Economic reasons					
Yes	17.4	1518	.293***	.088	1.341
No	13.6	2645			
Chi-square (p-value)	10.644(.001)				
Not married					
Yes	13.2	650	-.169	.125	.844
No	15.3	3513			

Variable	Percent	Number	Logit coefficients	s.e.	Odds-Ratios
Has achieved desired family size					
Yes	16.0	507	.090	.130	1.094
No	14.9	3656			
Thinks that the abortion law should allow a woman to end an unwanted pregnancy					
To save her from dying					
Yes	15.2	2491	.037	.0891	1.037
No	14.7	1672			
When pregnancy is from rape					
Yes	19.7	745	.416***	.104	1.516
No	14.0	3418			
Chi-square (p-value)	15.087(.000)				
When pregnancy is from incest					
Yes	18.7	873	.344***	.100	1.411
No	14.0	3290			
Chi-square (p-value)	11.242(.001)				
To protect her own health					
Yes	15.8	1335	.093	.092	1.097
No	14.6	2828			
For psychological reasons					
Yes	17.1	738	.185*	.1091	.204
No	14.5	3425			
Chi-square (p-value)	2.972(.003)				
If she is mentally retarded					
Yes	18.0	967	.294***	.098	1.342
No	14.1	3196			
Chi-square (p-value)	8.617(.003)				
Who respondent thinks should decide Whether a woman stops an unwanted pregnancy					
Woman alone	13.1	2095	-.229*	.122	.795
The couple together	17.3	1372	.102	.1261	.107
Husband/partner/others	15.9	696			
Chi-square (p-value)	12.196(.002)				
TOTAL	15.0	4163			

†Treated as quantitative

***p < .001 *p < .10

Both the Chi-square and bivariate logistic regression demonstrate that religion is unimportant. Even the importance of God to the woman's life is not significantly related to having had an induced abortion. What appears to have some association ($p=.067$, logit coefficient and $=.071$, Chi-square) with induced abortion experience is frequency of church services attendance. Those who attend church activities daily or weekly are less likely to have ever experienced induced abortion. Being behavioral, frequency of church services attendance is the best indicator of the three measures under cultural and most likely compared to the other two to be associated with having had an induced abortion. It is the one further examined in the multivariate analyses.

As expected, all the three proximate variables are highly significantly related to having had an induced abortion. That unintended pregnancy is the root cause of induced abortion being a main finding in our earlier study and other independent studies is substantiated. Of all the hypothesized variables, it has the strongest association with induced abortion as seen in the Chi-square value of 379.006 and the odds ratio of 10.850. Based on the logistic regression outcome, among women who have had an unintended pregnancy, the odds of having had an abortion are about 11 times that of their counterparts with no unintended pregnancy. The probability of having had an abortion is 1.661 times if the woman has ever been forced to have sex with partner than if she has never been forced. Those who have ever used a contraceptive (modern or traditional) show higher estimated odds of experiencing abortion than those who never used. However, the likelihood of a woman who have ever used a traditional contraceptive to experience an abortion is about twice that of a woman who never used a contraceptive; it is greater than that of a modern contraceptive user (1.835 vs. 1.492). The multivariate analyses will discern the net influence of these programmatic variables.

The estimated odds of having had an abortion is higher among those who know that there is an abortion law in the Philippines by a factor of 1.169 than that among those who do not know. Of the three most important reasons women in their community may resort to abortion examined, only economic reason is significantly related to induced abortion experience. This further confirms what our earlier study has revealed that economic reason is one of the leading reasons to seek abortion. Because it is more an economic than attitudinal indicator, this attitudinal variable is no longer examined in the multivariate analyses. The wealth index quartile which is a characteristic attributed to the women under study is taken as the economic indicator.

Those who think that the abortion law should allow abortion if the pregnancy is a result of rape or incest, and the pregnant woman is not psychologically and mentally fit to continue the pregnancy display higher estimated odds of experiencing an abortion. The other circumstances under question (saving mother's lives and protection of one's own health) are not significantly related to an induced abortion recourse.

In terms of decision-making, those who think that it is a joint couple decision to effect abortion show higher likelihood of having had an abortion than those who think it is the husband/partner or others to decide. The significance is not very high though, especially if what is thought is the woman deciding alone.

It is then more insightful to examine the role of these emerging significant correlates when taken together. This is dealt with in the succeeding section.

Multivariate analyses

Table 3 shows the odds-ratios derived from the regression coefficients from the three logistic regressions we performed in which the dependent variable is the log-odds of having had an induced abortion. Note that unintended pregnancy had to be considered in all models because of its obviously and highly significant effect on the likelihood of having had an induced abortion. Recall that these odds-ratios can be interpreted as the odds of having had an abortion for the quantitative variable (age) and for the category shown relative to the omitted category of each of the qualitative variables and controlling for unintended pregnancy and the other independent variables. Recall also that the first logistic regression is the full model considering all the emerging significant variables in the bivariate analyses plus education. Second is the simpler model containing fewer variables (i.e., those that are significant in the full model plus education and others as explained later). Third is the most parsimonious model, taking only those variables which are significant in the simpler model. This last model is our basis in interpreting the net effects of each variable emerging significant on the likelihood of having had an induced abortion.

According to the full model, not all of the variables observed in the bivariate relationships continue to exert a strong and significant influence on experiencing induced abortion. The demographic variables which lost their importance when other independent variables are held constant in the full model are age measured in its original form and children ever born in categorical form. Education, which was already found insignificant in the bivariate relationships, remains unimportant in the multivariate relationships. Frequency of church services attendance is also no longer significant.

Of the three proximate variables, ever use of contraception loses its significance. Knowledge of abortion law in the Philippines and all of the attitudinal variables except that relating to rape are no longer influential when other independent variables are taken simultaneously.

TABLE 3. Odds-Ratios from logistic regression coefficients for the effects of demographic, socioeconomic, cultural, knowledge and attitudinal characteristics on induced abortion, 2004 NSW

Characteristic	Full model	Simpler model	Optimal model
Age	1.002	1.002	
Single (vs. married)	.700 ⁺	.705 ⁺	.587**
0-2 Children born (vs. 3 or more children born)	.900	.903	
Poor (vs. non-poor)	.724**	.720**	.730**
Education (vs. college or over)			
Elementary	.975		
High school	.974		
Daily or weekly attendance to Church services (vs. at least once a month)	.871	.875	
Ever used contraceptive (vs. never used)			
Modern	1.064	1.069	
Traditional	1.031	1.040	
Ever forced to have sex with partner (vs. never forced)	1.287*	1.279*	1.292*
Ever had unintended pregnancy (vs. never had)	10.080***	10.105***	10.116***
Knows abortion law in the Philippines (vs. does not know)	1.085		
Thinks abortion law to allow abortion when pregnancy is from rape (vs. does not think)	1.346*	1.387*	1.435*
Thinks abortion law to allow abortion when pregnancy is from incest (vs. does not think)	1.116		
Thinks abortion law to allow abortion for psychological reasons (vs. does not think)	.847		
Thinks abortion law to allow abortion if pregnant woman is mentally retarded (vs. does not think)	1.202	1.142	

Characteristic	Full model	Simpler model	Optimal model
Who respondent thinks should decide whether a woman stops an unintended pregnancy (vs. husband/partner/others)			
Woman alone	.829	.830	
The couple together	1.156	1.151	
Model Chi-Square (degrees of freedom)	439.3(18)***	436.6(13)***	420.1(5)***
+p < .10 *p < .05 **p < .01 ***p < .001			

The simpler model includes all three demographic variables, all the significant variables in the full model, frequency of church attendance as the lone cultural variable, ever use of contraceptive method being a programmatic proximate variable, attitudinal variables related to mental retardation because of its large odds ratio (1.202) in the full model, and decision-making. We would like to be certain that each of the six sets of variables will be represented in addition to the ones emerging significant in the full model in the final choice of the optimal model. It may be possible that because of the close interaction of some variables for instance, with the set of attitudinal variables, omitting some of the unimportant ones may result into the significance of the variable they appear to be closely interacting with in statistical theory. Even with the reduced variables, the simpler model reveals a slight change in the odds ratios of all of the variables in the equation compared to the corresponding odds ratios in the more complex or full model. Specifically, children ever born, frequency of church attendance, ever use of contraceptive method, thinking that abortion law should allow a woman to end an unintended pregnancy if pregnant woman is mentally retarded and the perceived main decision-maker as to whether a woman stops an unintended pregnancy remain insignificant. Hence all of the insignificant variables in the full and simpler models are omitted in the running of the simplest or optimal model. In the end, only five variables are considered in this last model.

Three correlates – unintended pregnancy, economic status, and forced sex experience – consistently depict odds ratios virtually unchanged in magnitude or significance level in the full, simpler and optimal models (Table 4). This suggests that all three are weakly associated with each other as well as with the other variables so that their relationship to having had an induced abortion is not dependent on the other characteristics, and each maintains an independent effect on abortion experience.

TABLE 4. Patterns of effects in terms of odds ratio and significance level of the significant correlates in the three models, 2004 NSW

Correlate	Statistic/Model					
	Odds ratio			Significance level		
	Full model	Simpler model	Optimal model	Full model	Simpler model	Optimal model
Unintended pregnancy	10.080	10.105	10.116	.000	.000	.000
Economic status	.724	.720	.730	.003	.001	.002
Forced sex	1.287	1.279	1.292	.013	.015	.011
Rape	1.346	1.387	1.435	.029	.005	.001
Marital status	.700	.705	.587	.064	.069	.001

Rape, thought to be a reason for abortion in the law, being attitudinal and considered simultaneously with the other attitudinal variables in the full and simpler models, understandably depicts a drastic change in the magnitude or significance level of its effect once the other attitudinal variables are omitted in the equations (all but one in the simpler model and all in the optimal model). In fact, it outranks forced sex in the optimal model.

The significance level of marital status which is only at $p < .10$ in the full and simpler models, strikingly increases to $p < .01$ in the optimal model. The main reason is that it significantly interacts with children ever born (figures not shown). Marital status indicates some association with having had an abortion compared to children ever born which consistently remains unimportant in the full and simpler models. Given these results, marital status is the lone demographic variable in the optimal model. A striking result from omitting children ever born in the regression estimation is that marital status has the same level of significance as rape in the optimal model.

Ranking these five significant correlates in terms of strength in effects using the magnitude of odds ratio and significance level based on the fully reduced or optimal model yields, as expected, unintended pregnancy as the strongest with the odds ratio remaining as 10.1, significant at the 0 percent level. Clearly, removing the confounding effects of the other significant variables, the likelihood of resorting to abortion by women having unintended pregnancy is 10 times than among women having no unintended pregnancy. Indeed, this is another way of reiterating our previous conclusion that unintended pregnancy is the root cause of induced abortion.

Thinking that the abortion law should allow a woman to end an unintended pregnancy when pregnancy is from rape is second in importance with the odds ratio of 1.435, significant at the .1 percent level. Filipino women's personal opinion towards the gravity of rape as a

form of gender violence appears to have been reflected with the estimated odds of having had an induced abortion higher by 44 percent for women who think compared to those who do not think that the abortion law should allow abortion of pregnancy caused by rape, holding all other variables constant.

Marital status is the third with the odds ratio of .587, significant at the .1 percent level. Induced abortion is 41 percent less common among the never married than their married counterparts. This validates our earlier finding that the majority of women having abortions are married despite the fact that the present study takes the total sample while our earlier study on differentials by marital status, religion, number of children ever born, economic status, religious affiliation and education took only the women having had an abortion. Recall that considering only the women having had an abortion and classifying them according to each of these characteristics may indicate either a real difference in abortion experience between the categories of each of these characteristics or the actual distribution of cases in the same categories under consideration.

Economic status ranks fourth with the odds ratio persisting as .7 in all models and significant at the .2 percent level in the simplest model. As already evident with the preceding differential analysis portraying a lower percentage having an abortion among the poor (14 percent) than the non-poor (16 percent), the interpretation of the net effect of economic status is that compared to the non-poor, the poor are 27 percent less likely to have had an induced abortion. This is in contrast with our earlier finding that there are more poor (68 percent) than non-poor (32 percent) having had an abortion if only the total women having had an abortion is the base. In the present study, the total poor and non-poor, irrespective of abortion experience, are the bases in deriving the 14 and 16 percent, respectively. This difference in the base of calculating the percentages between our earlier and the present study needs to be taken into account. This illustrates the weakness of confining the differential analysis only to those having had an abortion because the differential observed may reflect either the real association of a given variable under consideration with another variable or the actual highly skewed distribution of Filipino women on that given variable. Recall that seven in 10 of the study women are poor. Our earlier study could then be taken more as a reflection of the real picture of more Filipino women as poor rather than a differential by induced abortion experience. The succeeding section elaborates this point.

Ranking last according to the effect on having had an abortion is ever been forced to have sex with partner with the resulting odds ratio of 1.292, significant at 1.1 percent level. The odds of having had an abortion are higher by a factor of 1.292 for women who have been forced to have sex with partner than the odds for women who have never been forced to have sex with partner. The succeeding section presents a more detailed explanation of this finding.

On the whole, out of the many variables hypothesized to have some association with having had an induced abortion, only five correlates are significant.

Conclusions

The bivariate and multivariate analyses, which are based on the total sample of the 2004 NSW, demonstrate each of five correlates, arranged from first to last in terms of strength of effects based on the most parsimonious model – (1) ever had unintended pregnancy, (2) stand on rape as legal reason for a woman to end an unintended pregnancy, (3) marital status, (4) economic status, and (5) ever been forced to have sex with partner – exerting a distinct effect on experiencing an induced abortion.

Reiterating the need to address the majority of Filipino women having had unintended pregnancy through various ways is implied. Induced abortion mostly stems from unintended pregnancies and to reduce abortion implies the need to reduce unintended pregnancies. Our earlier studies (Perez et al., 1997; Singh et al., 2006) and other independent studies (e.g., Cabigon, 1996; Raymundo et al., 2002) have emphasized the same need. For instance, our most recent study (Singh et al., 2006), identified provision of the best educational and employment opportunities to women and sustained promotion and provision of effective modern contraceptives as crucial. The message from our present results is for all stakeholders to take unintended pregnancy and postabortion care as the top programmatic concerns to be given full attention. Linking emergency postabortion care with family planning and other reproductive health services is important if women are to avoid future unintended pregnancies and unsafe abortions (Salter, Johnston and Hengen, 1997: 12). Reducing unintended pregnancy will undoubtedly reduce induced abortion. The Population Reference Bureau (2000) policy implications are worth citing and they are as follows: (1) promote universal education and secondary-level education; (2) expand mass media and population education programs; (3) strengthen family planning efforts; and (4) provide employment and earning opportunities for women with basic education.

Rape as a form of sexual abuse which plays a very important role in the occurrence of induced abortion in the Philippines implies the need to revise the abortion law to add rape to mother's life being in danger as allowable abortion conditions. The abortion law is highly restrictive. The 1987 Constitution provides that "[the state] shall equally protect the life of the mother and the life of the unborn from conception." (Article 2, paragraph 2). Allowing abortion if the life or health of the mother is endangered is not explicit in the constitution but according to the annotation (Bernas, 1987) based on the deliberations of the Constitutional Commission that drafted the Philippine Constitution "[w]hen necessary to save the life of the mother, the life of the unborn may be sacrificed; but not when the purpose is only to spare

the mother from emotional suffering, for which other remedies should be sought, or to spare the child a life of poverty, which can be answered by welfare institutions.” Extending the allowed conditions for abortion to rape complements the Anti-Rape Law of 1997 (Act No. 8353), the Rape Victim Assistance and Protection Act of 1998 (Act No. 8505) and the Anti-Violence Against Women and Their Children Act of 2004.

That induced abortion is more common among married than single women has been the pattern observed over time in the Philippines based on the present study and other related studies (e.g., Cabigon, 1996; Raymundo et al., 2002; Singh et al., 2006). Given that marital status is more important than the number of children ever born and that both depends on the level of each other in its relation to induced abortion, marital status is taken as the final indicator to represent the number of children ever born. Most of the Filipino women resorting to induced abortion are married especially those who have already too many children. This is a reality that could not be ignored in addressing the quality of life of all. They are the sector portraying a high proportion of unmet need for effective modern contraceptives (Singh et al., 2006).

All other things being equal, the poor compared to the non-poor revealing a lower tendency to resort to induced abortion contrasts our earlier finding of a reverse pattern. This finding disputes the common argument that most of those having had an induced abortion are poor which we now contend an artifact caused by the fact that most of the Filipino women are poor (70 percent). Confining the differential analysis only to those who have had experience may bias results; hence, the need to substantiate with the same differential analysis but using the total sample. A supporting fact to the smaller likelihood of poor women relative to non-poor women that our earlier study discloses is that both the poor and the non-poor are concerned with the high cost of raising children, although the poor display larger percentages but a substantial percentage among the non-poor is evident. Moreover, of the non-poor who have had an abortion, 40 percent compared to their poor counterparts (30 percent) cited other reasons such as husband does not want pregnancy and all other non-economic reasons.

If the woman had ever been forced to have sex with a partner, she was more likely than her partner to consider induced abortion as a recourse. Forced sex is a reality among Filipino women and it is a significant cause of induced abortion. It is another form of sexual abuse that all relevant stakeholders have to address equally with unintended pregnancy through several ways. Apart from stricter implementation of the three laws cited earlier is for everyone to work together in changing the Filipino society from male dominance to gender equality, a change that is very challenging and difficult to achieve through diverse ways given the complexity of this phenomenon.

All of the five significant correlates can best explain induced abortion experience. Marital status represents age and number of children ever born. Economic status based on the wealth index quartile captures the role of education and work status. Work status did not emerge important in the analysis of abortion prevalence in Metro Manila (Cabigon, 1996). Religion or its two related indicators – importance of God to respondent's life, frequency of church services attendance – are unimportant once the five significant correlates are accounted for. Ever use of contraceptive method, knowledge of abortion law in the Philippines and thinking that abortion law should allow a woman to end an unwanted pregnancy when pregnancy is from incest, for psychological reasons and if pregnant woman is mentally retarded as well as the perceived main decision-maker as to whether a woman stops an unwanted pregnancy are no longer important because of the prominence of the five correlates just discussed.

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