Social Class, Religion And Contraceptive Failure In A Sample Of Pregnant Women In Brisbane

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Introduction
The reproductive intent of women at the time of conception has been largely ignored in the social science and epidemiological literature. This is surprising in view of its likely relevance to a wide range of health and welfare issues. Despite the possible short and long term consequences of unplanned reproductive activity, it appears that we know a good deal more about the factors influencing decisions to acquire many consumer goods than we do about the factors influencing the decision to reproduce.

The easy availability of contraception and a high level of literacy may contribute to an assumption that women have considerable control over their fertility. The received wisdom relating to reproductive intent suggests that most women are pregnant because they planned their pregnancy.

In this study a large sample (4000) of pregnant women were asked about the beginning of their pregnancies. Women were specifically asked about the method of contraception they last used and whether their pregnancy was a consequence of a failure of contraception. Social, economic and religious variables were examined to assess the extent to which these were associated with differing rates of contraceptive failure.

Motherhood, Economics and Technology
Until relatively recently social values supporting reproduction have been so strong and consistent as to constitute a cultural imperative. For women in particular, motherhood was believed to be (and for many women still is) the focal point of their life.¹ For some women, motherhood may remain the one creative activity available to them and the source of their social position,² but there are a variety of factors which are likely to have transformed other women’s perceptions of the appropriateness of this role.

Both economic and technological changes have dramatically influenced reproductive activity. The potency of the economic factors influencing reproduction today are suggested by cross-national comparisons of birthrates which vary from 11 births per 1000 population (economically developed societies) to 50 births per 1000 population in developing societies per year.³ In developed societies changing consumption patterns contribute to the increase in two-income families and help limit the size of these families.

The major influence of technology on reproduction has been through the advent of the contraceptive pill. It has been estimated, from commercial sales data, that the contraceptive pill was used by over 30 percent of women (15-44 years of age) in the mid-1970s. Usage rates have since declined (to about 20 per cent of women) 15-44 years reaction to the emerging literature on the possible side effects of contraceptive pill usage.⁴ The availability of the pill and other technologies has presented women with a realistic option for both timing and limiting their reproductive activity.

We note then, on the one hand, a set of cultural values supporting reproductive activity and, on the other, economic and technological influences which limit the size of families.
Reproductive Intent
Despite the existence of technology which provides the means for limiting the number of unplanned and/or unwanted births, a range of American, British and New Zealand studies suggest that many pregnancies are unplanned. The Commission on Population Growth and the American Future goes further in referring to an epidemic of unwanted pregnancies. Unfortunately, it is only possible to compare the findings of these studies in general terms, given their inconsistent approaches to sampling (some refer to married women only, others to single and married women), varied definitions of wantedness (inferred from abortion rates, self-reports of mothers’ attitudes, comparisons of both partners’ reactions to the pregnancy), and retrospective or prospective research designs.

Despite an extensive computer search of the literature, we have failed to locate previous Australian studies describing rates of reproductive intent. One Australian paper which notes the lack of Australian data produces “guestimates” derived from ex-nuptial and abortion rates which suggest that half of all pregnancies (in Victoria) are unwanted and two in three are unplanned.

The sometimes conflicting estimates of rates of unplanned and/or unwanted births evident in the literature have two characteristics in common. They point to a substantial proportion of the population experiencing a lack of control over their reproductive activities and to the existence of some consistent predictors of unplanned reproduction.

Socio-demographic correlates of unplanned/unwanted births
Age, socio-economic background, religious group membership, marital status and race have all been found to be associated with rates of unplanned and/or unwanted births.

Younger women appear to have higher rates of unwanted pregnancies possibly because their sexual activity is less regular. Unmarried women appear much more likely to report a birth as unwanted than are their married counterparts.

An inverse relationship between socioeconomic status and the wantedness of a birth is indicated by some reports, but denied by others. Still other studies suggest that socioeconomic differences in the success of a woman’s pregnancy intent have diminished over time as effective contraceptive technology has become more generally available. A woman’s age, marital status, economic position and religious group membership are likely indicators of her knowledge, values, attitudes and both sexual activity and contraceptive practices. While this paper is confined to demographic variables it is relevant to emphasise that demographic characteristics are likely to reflect certain values and attitudes.

This paper then has two aims: first, to assess the extent to which women have children when they do not intend or prefer not to have them; second, to examine the association between some socio-demographic variables and this failure of reproductive intent.

Sampling Methods
As part of a longitudinal study of the outcomes of pregnancy, all women seeking antenatal care at a large public hospital in Brisbane were enrolled at their first visit. After extensive piloting in 1980, the study commenced on January 5th, 1981. All women presenting to the antenatal clinic were invited to participate in the study. The data reported here refer to the first 4,000 such antenatal visits. Staff from the research project attended all clinics and assisted
some respondents to complete their questionnaires. Only 29 women refused to participate in the study, although a further number (varying from question to question) failed to complete all the questions.

The sample is not representative of Brisbane as a whole. While the (Mater) hospital is responsible for about half the confinements in Brisbane, the sample is confined to public patients. Nevertheless, the size of the sample (about 10 months of data collection) provides some information on a good cross-section of pregnant women.

Early in the questionnaire women were asked a series of structured questions concerning whether they wanted or planned to get pregnant at this time. They were also asked whether their pregnancy was a consequence of the failure of their method of family planning and the form of contraception they had last used.

**Analysis**

The direct method of standardization was used to examine the contraceptive failure rate for the demographic variables of interest (for example occupational status). This allowed adjustment for any effect of associated variables (for example age) by calculating a weighted average of the specific rates (for example age-specific rates) within each category. The weights used were the relative frequencies for each level of the standardizing variable(s) in the total sample; thus each demographic category was standardized to a ‘population’ comprising the total sample. See Fleiss\(^{16}\) for details of the method.

Variation in the standardized rates of contraceptive failure was examined by a chi-squared test and, where appropriate, supplementary step-wise chi-squared tests were used to detect an upward or downward trend in rates for an ordinal demographic variable.\(^{17}\)

These chi-square tests\(^*\) were an application of the usual chi-square test of homogeneity of a set of normally distributed means, each with known standard error.\(^{17}\)

The relative risk used in Tables 2-4, is the ratio of the standardized failure rate, for a particular category of interest, to the standardized failure rate for a reference category. Reference categories are the modal groups in each case.

Confidence intervals were calculated using Fieller’s Theorem. See, for example, Cox and Hinkley.\(^{18}\) Again the assumption of large sample normality was made. All variables in Tables 2-6 were examined in this way, but only significant findings are reported.

Variation in total sample sizes among the following tabulations is due to variation in non-response for individual items. Standardized rates are based upon somewhat fewer cases than crude rates, because of exclusion of records with non-response on the standardizing variables. It is also relevant to note that our estimates of contraceptive failure are derived by asking this sample of already pregnant women whether their current pregnancy was a

\(^*\) In the present application, two approximations, commonly used in devising large-sample statistical tests, were used. The first of these was that the standardized rate is approximately normally distributed. This follows from the fact that the standardized rate is a linear function of the frequencies of women reporting contraceptive failure within various subclasses; such frequencies are binomially distributed and the binomial distribution, in large samples, is well approximated by the normal distribution. The second approximation involves the replacing of the known standard errors by their estimates under the null hypothesis.
consequence of contraceptive failure. Rates derived from the denominator used in this study are therefore not likely to reflect contraceptive failure rates in the community.

**Findings**

Answers to four questions describing the extent to which the pregnancy was planned and/or wanted are reported in Table 1.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Response of Sample to Questions Concerning Pregnancy Intent</td>
</tr>
<tr>
<td>(Row percents)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I planned to get pregnant at this time (n = 3816)</th>
<th>No</th>
<th>Unsure</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I meant to avoid pregnancy at this time (n = 3718)</td>
<td>63</td>
<td>10</td>
<td>28</td>
</tr>
<tr>
<td>I wanted to get pregnant at this time (n = 3749)</td>
<td>38</td>
<td>15</td>
<td>47</td>
</tr>
<tr>
<td>My method of family planning failed (n = 3704)</td>
<td>70</td>
<td>7</td>
<td>22</td>
</tr>
</tbody>
</table>

While the rate of unwanted unplanned pregnancies differs according to the criterion chosen, the variation is between 22 percent who believe their pregnancy is attributable to a contraceptive failure and 58 percent who state that they did not plan their pregnancy or are unsure about whether it was planned or not. Altogether 29 percent of women acknowledge the possibility or probability of contraceptive failure. These women are the focus of further analysis.

Single women are about twice as likely as married women to report contraceptive failure (Table 2). These differences are independent of age differences between the marital status groups. Differences in contraceptive failure rates between women in various age categories are modest with women below 19 years of age or between 30 and 34 years of age reporting the highest rates of contraceptive failure (Table not included). The rate of contraceptive failure is also closely related to the method of contraception the respondent reports using most recently (Table 3). Women using the “safe period” or “rhythm” method report contraceptive failure rates twice as often as women using the “pill” or a wide range of other methods. Marital status differences in contraceptive failure are also apparent. Single women and those “living together” report the highest failure rates regardless of the most recent method of contraception used (Table 4). The magnitude of difference in failure rates is particularly high (1.9 to 3.0 times, 95 percent confidence limits) when the pill was the previous method of contraception used.

Table 5 associates three indicators of the socioeconomic status of women with the method of contraception used (the three chi-squared tests for type of contraception by SES are all significant ++ p. <.001). The standardized rate at which a particular method is reported to fail did not relate significantly to the mother’s educational or occupational status.
### TABLE 2
Marital Status and the Rate of Contraceptive Failure

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Percent* reporting contraceptive failure</th>
<th>Standardized* risk of contraceptive failure</th>
<th>95% Confidence Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>(381)</td>
<td>49++</td>
<td>1.9</td>
</tr>
<tr>
<td>Living together</td>
<td>(379)</td>
<td>34</td>
<td>1.3</td>
</tr>
<tr>
<td>Married</td>
<td>(2537)</td>
<td>26</td>
<td>1.0</td>
</tr>
</tbody>
</table>

* Standardized for age
** Reference category
++ Chi-square test for variation in standardized rates, p < .01.

### TABLE 3
Method of Contraception Used by the Rate of Contraceptive Failure

<table>
<thead>
<tr>
<th>Method of Contraception</th>
<th>Percent* reporting contraceptive failure</th>
<th>Standardized* risk of contraceptive failure</th>
<th>95% Confidence Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhythm</td>
<td>(457)</td>
<td>50++</td>
<td>2.1</td>
</tr>
<tr>
<td>Pill</td>
<td>(1542)</td>
<td>24</td>
<td>1.0</td>
</tr>
<tr>
<td>Other</td>
<td>(1266)</td>
<td>27</td>
<td>1.1</td>
</tr>
</tbody>
</table>

* Standardized for age
** Reference category
++ Chi-square test for variation in standardized rates, p < .01.

### TABLE 4
Standardized Rate of Contraceptive Failure by Marital Status and Most Recent Method of Contraception

<table>
<thead>
<tr>
<th></th>
<th>RHYTHM</th>
<th>PILL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percent</strong></td>
<td><strong>RR</strong> (95% CL)</td>
<td><strong>Percent</strong></td>
</tr>
<tr>
<td><strong>Failure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>69&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>1.3 (1.8-1.9)</td>
</tr>
<tr>
<td>Living together</td>
<td>56</td>
<td>1.1 (1.8-1.4)</td>
</tr>
<tr>
<td>Married</td>
<td>49</td>
<td>**</td>
</tr>
</tbody>
</table>

* Standardized for age and marital status
** Reference category
++ Chi-square test for variation in standardized rates, p < .01.
The more educated the woman is, the more likely she is to use the “rhythm” method. This pattern holds for the other two indicators of socioeconomic status. Lower status and less educated women appear to report high “pill” usage rates. Failure rates appear relatively consistent within each method of contraception used, with the exception that women with lower incomes report higher “pill” failure rates. If we consider contraceptive failure rates irrespective of the method of contraception, we note that women in the highest education group report higher rates of contraceptive failure than women in other education strata but that women in the lowest income category report the highest rate of contraceptive failure. This is despite the positive association between higher education and higher income (Tau C = .14). These apparently contradictory findings become reconcilable when we recall the method of contraception used and its reported failure rate. More educated women have higher contraceptive failure rates because they are more frequent users of the “rhythm” method and this method fails about half the time. Lower income women report higher rates of contraceptive failure because they tend to be less successful users of the “pill”. Catholic women appear to use the “rhythm” method slightly more frequently, while women in non-christian religious groups more frequently use other than the “rhythm” method or “pill” as a form of contraception (Table 6 chi-squared tests of religion and church attendance by method of contraception give p<.001). More frequent church attendees use the “rhythm” method of contraception more often and less frequently report “pill” usage. Reported
contraceptive failure rates appear relatively consistent for the method of contraception reported.

It is interesting to note a somewhat unexpected finding. Women who are more frequent church attenders report somewhat higher rates of contraceptive failure. This difference is attributable to the higher rate at which more religious women use a less effective method of contraception. Controlling for contraception, differences between weekly, monthly and non-attenders are reduced and no longer significant.

**TABLE 6**

Method of Contraception used, and the failure rate reported for that method by women of different religious background

<table>
<thead>
<tr>
<th>Socioeconomic Variables</th>
<th>Rhythm</th>
<th>Pill</th>
<th>All Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent using method</td>
<td>Of those* using method, percent reporting failures</td>
<td>Percent using method</td>
</tr>
<tr>
<td><strong>Religion:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>(1077)</td>
<td>20</td>
<td>43</td>
</tr>
<tr>
<td>Church of England</td>
<td>(1184)</td>
<td>8</td>
<td>57</td>
</tr>
<tr>
<td>Agnostic</td>
<td>(538)</td>
<td>14</td>
<td>46</td>
</tr>
<tr>
<td>Other Christian</td>
<td>(917)</td>
<td>13</td>
<td>51</td>
</tr>
<tr>
<td>Other</td>
<td>(52)</td>
<td>17</td>
<td>23</td>
</tr>
</tbody>
</table>

**Frequency of Church Attendance:**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly</td>
<td>(577)</td>
<td>29</td>
<td>43</td>
</tr>
<tr>
<td>Monthly</td>
<td>(930)</td>
<td>15</td>
<td>53</td>
</tr>
<tr>
<td>Never</td>
<td>(2387)</td>
<td>10</td>
<td>53</td>
</tr>
</tbody>
</table>

* Standardized for age and marital status
- Low frequencies, rate not calculated
+ Supplementary chi-squared test: "Weekly" category has a significantly higher rate than remainder, p<.05; no other variation.

**Discussion**

Attempts to generalize the findings beyond the sample chosen are tentative and in the form of hypotheses for future testing. The absence of private patients and the consequent under representation of middle and upper-class women must be considered when the findings are interpreted. Further, it is relevant to emphasise that the sample comprised women already pregnant; that is, the study is not community or population based.

Despite these cautions, a number of interesting observations may be made. These focus upon the overall frequency of unplanned pregnancies, and of socioeconomic and religious variations in both contraceptive use and contraceptive failure.

Rates of unplanned and/or unwanted pregnancies seem high with between about one-third and one-half our sample indicating either that their form of contraception failed or that the pregnancy was unplanned or unwanted either at all or at this time. Two issues are raised by this finding. First, does contraceptive failure imply a failure of the method or a human failure
in the use of the method? Community surveys of the frequency of contraceptive failure would produce estimates which are likely to be well below those observed in this study. Certainly, it would appear that the majority of failures noted above reflect the manner in which the contraceptive method is used rather than its technical deficiencies. Second, there is some apparent ambiguity in the use of the term “contraceptive failure”, with about 8 per cent of the sample reporting that their contraceptive method failed and also that they were not using any method of contraception. One suspects that some women simply had intercourse and hoped that a pregnancy would not ensue.

Of the methods used, the “safe period” or “rhythm” method is clearly associated with the highest rate of contraceptive failure, but perhaps even more interesting is the finding that one- quarter of the women whose most recent method of contraception was the “pill”, report that their pregnancy is attributable to a contraceptive failure.

Other findings concern socioeconomic differences in both contraceptive use and failure. Women in higher income groups appear to be more frequently choosing a less effective method of contraception (“rhythm” method). Perhaps this is a reflection of recent publicity pointing to a range of adverse health consequences of pill usage. Curiously, lower income women report very high failure rates for “pill” usage. Perhaps there is something about the lifestyle of those in this below the minimum wage group (these women must largely comprise social service benefit recipients or pensioners) which militates against effective “pill” usage. In any event, more educated and lower income women report high rates of contraceptive failure, but using different methods and perhaps for different reasons. The relatively consistent rate of contraceptive failure for women with quite different levels of education must raise questions about the likely effectiveness of an educational response to contraceptive failure. Thus generally more knowledgeable and informed women do not appear to use the “rhythm” method or the “pill” more effectively than their less educated counterparts. Finally, there are some modest but notable differences between women in various religious categories. Weekly church attenders report more frequently using the rhythm method of contraception while the “pill” is used by the majority of women who report they never go to church. Preferences for a particular method of contraception do not appear to be related to religious group membership. More frequent church attenders report higher rates of contraceptive failure, largely because they appear to more frequently use a less reliable form of contraception.

Conclusion
A substantial proportion of the women in our sample report that their pregnancy is a result of contraceptive failure. Single women and women in a de facto relationship report higher rates of contraceptive failure regardless of the most recent method of contraception used. The women’s occupational status appears to be unrelated to the rate of contraceptive failure reported, but more educated women and those with the lowest incomes report the highest rates of contraceptive failure. Finally, there is little evidence that a woman’s religious affiliation is related either to the method of contraception she uses or the rate at which she reports experiencing a contraceptive failure. However, those who attend church weekly have higher failure rates because they more frequently use the rhythm method. Perhaps in the past there has been the impression that contraceptive failures are relatively rare as are rates of unplanned or unwanted pregnancies. Where such events have occurred they may have been attributed to ignorance or to promiscuous and relatively spontaneous sexual activity. While some of our data might be seen to confirm these impressions (the high failure rates
experienced by unmarried Women), there are other findings which deny these stereotypes and which point to more education and conservative moral values as positively related to contraceptive failure.

References