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The influence of historical cultural identity in shaping contemporary reproductive behaviour in Mauritius

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INTRODUCTION

Historical research on European fertility decline has unequivocally shown that culture has a powerful influence on reproductive behaviour. Research on contemporary fertility decline in the developing world has further reinforced the importance of culture in reproductive behaviour (Basu, 1992; Coale, 1986; Dyson & Moore, 1983; Greenhalgh, 1995; Knodel, 1979; Watkins, 1991). This paper examines whether historical, cultural roots have any bearing upon contemporary reproductive behaviour in Mauritius, that is in terms of contraceptive use and family formation behaviour.

Mauritius provides a unique setting for this analysis for at least two reasons. First, the country's population is of multi-cultural origin, reflecting the diaspora of African and Indian continents resulting from 18th and 19th century migrant labour movements and the importation of slave and indentured labour during French and early British rule (Arno & Orian, 1986; Hylland Eriksen, 1998). Second, the island has undergone a rapid demographic transition (Chesnais, 1979) with levels of fertility and contraceptive prevalence currently comparable to many developed country contexts. The total fertility rate in 2003 stood at 1.87 and the contraceptive prevalence level amongst married women in the reproductive ages at 76.0% (Ministry of Health and Quality of Life, 2004).

For these reasons, the focus of this paper will be to explore the relationship between cultural identity, measured through religious affiliation, and the dependent variables of: (a) family formation (age at marriage and timing of first birth); and (b) contraceptive use (current use of supplied and natural methods). We examine in particular, the relationship between cultural identity and the practice of natural methods of birth control (including withdrawal), methods often neglected by reproductive health analysts because of their association with ineffective fertility control. They are hence often overlooked as possible manifestations of cultural preference (Rogow & Horowitz, 1995).

The use of religious affiliation as a proxy for culture is discussed in the following paragraphs. The distinction made between supplied and natural methods follows that made in the 1991 Mauritius Contraceptive Prevalence Survey (CPS). Supplied methods include the pill, condom, tubal ligation, injectable, IUD, vaginal tablets and vasectomy. Natural methods include calendar, temperature, symptom-thermal and cervical mucus methods. Users of withdrawal make up a distinct category (Mauritius Ministry of Health, 1993b).

HISTORICAL CONTEXT

Population settlement

We first draw attention to the historical process underpinning population settlement in Mauritius in order to highlight the difficulties inherent in attributing a precise meaning to 'culture' in a contemporary context which has been marked by the progressing 'meshing together' of native language, ethnic identity, religious practice and geographic origin. With no indigenous inhabitants, the Dutch took possession of the island in 1598 arriving with about three hundred people, departing again in 1710 to leave behind only a few slaves (Toussaint, 1971). With the arrival of the French in 1715, the island remained a French colony until 1810. During this period, some slave and free persons were brought to the Island from India, particularly Pondicherry. The French also took advantage of the slave trade to draw in slave labourers from Madagascar, Mozambique, Senegal and Bengale. Of a total population of 18 777 registered in the census of 1767, 15 027 were slaves and by 1807 this number had risen to 55 367 (see Table 1). The island then became a British colony between 1810 and 1968.

Following the abolition of the slave trade in 1835, the British were to facilitate the arrival of another Indian wave of immigrants, but this time mainly as indentured labourers, and by the 1880s, a small component of the population, about 3%, was registered as Chinese (Fanchette, 1992). This wave of Indian immigrants mainly from Bihar, Madras (Tamils and Telegus) and districts of Maharashtra was to have an enduring impact upon the profile of the population, the number of Indian immigrants passing from 56 000 in 1846 to 259 000 by 1901.

INSERT TABLE 1 AND 2 ABOUT HERE

A striking dimension of the Mauritian population has been the persistence of multiple languages and dialects. Although English is the official language, Créole is the lingua franca shared by the majority of Mauritians, based on the French language but with components of East-African and Malgashi origins (Chandrasekhar, 1990). Over one third of the population today recognise the language of their forefathers as Créole, but the majority, over 50%, see it as of Indian origin (see Table 2).

In terms of ethnic identity, the population has in the past, been divided into three groups: Indo-Mauritians, descendants of the Indian indentured immigrants; the 'General population', descendants of the slave immigrants, Créoles, Franco-Mauritians and British; and the Chinese, descended from free and slave labourers mainly from Singapore and Malaya (Chandrasekhar, 1990). Since the turn of the twentieth century, the Indo-Mauritian population has outnumbered the other two groups, the Chinese being the smallest (Table 3).

Although numerous religions and sects have been enumerated, historically the population has been broadly divided into four main groups: the dominant group, those of Hindu faith (comprising Tamil, Telegu, and those from Bihar and Mahrashtra), Muslims of Islamic faith, Christians, the large majority of whom are Catholic, and Others, including the minority Buddhist group (Manrakhan, 1986: 41). Linking ethnicity with religious affiliation, Chandrasekhar (op. cit.) notes that the majority of Franco-Mauritians, Créoles and a small proportion of Indo-Mauritians were Catholic, with the remaining Indo-Mauritians divided about three to one between Hindus and Muslims (Muslims predominantly of India or Africa origin). The Chinese are either Buddhist or Catholic.

INSERT TABLES 3 AND 4 ABOUT HERE

With time the distinction between ethnic origin and religious affiliation has become progressively blurred, partly due to classificatory changes introduced during population censuses. Bowman (1991) identifies three phases to these changes in which both ethnic and religious origins have been conflated: between 1846 and 1952, name and religious affiliation were used as classificatory criteria; between 1962 and 1972 classification is based on the concept of 'community' and finally after 1983, following a constitutional amendment, this latter classification is abolished and replaced by religious affiliation. Individuals themselves also often opted to change their surname following a change of religious affiliation, and this process, accompanied by inter-ethnic marriages and the simultaneous practice of more than one religion by many Mauritians contributed to the 'meshing' of cultural differences (Benedict, 1961: 39).

The census today offers data on religious affiliation and language of forefather, but secondary sources do not provide any cross-tabulations of the two variables. In 2000, for the Island of Mauritius, just over half the population were of Hindu religion (51.2%) and about a fifth of Islamic faith (17.1%), the remainder of Christian affiliation, and less than two percent of Buddhist or Chinese faith (see Table 4).

In this paper, we have taken contemporary religious affiliation as a proxy for historical, cultural identity in considering those of Hindu and Muslim religion, and whose language of forefathers is Bhojpuri, Urdu, Hindi, Tamil, Telegu, Marathi, Gujurati and Arabic (65%) to be of Indian continent ancestry. For those of Christian religion, we also make the broad assumption that when language of forefathers is Créole or European (41%), cultural roots are probably of African or European origin, the remainder of Chinese origin.

As Fricke has argued: " […] as context, culture is a part of the shared background against which and in terms of which social life is carried out' (Fricke, 1997: 252). The processes described above which led to the existence of the Mauritian population as we know it today, have entailed a progressive 'meshing' together of peoples of diverse religions and cultural backgrounds, whether it be through the development of dialects, the emergence of a Mauritian créole as the lingua franca, the merging of ethnic identity into religious affiliations through name change or the progressive 'métissage' of races through religious and ethnic inter-marriages. As we have noted at the outset, the Mauritian population was consolidated as a result of the diaspora movement, and the geographic origins of the different populations who came to represent its population have necessarily reinforced this diversity.

We therefore recognise culture as reflecting an amalgam of identities, which are not accurately portrayed in religion alone, and which reflect many other influences of the diaspora movement which has characterised the population of Mauritius. In so doing, we are doubtless amongst those whom critics note, have the tendency to 'lump together' such factors as ethnicity, religion, language or geographic origin as manifestations of 'culture' (Kertzer, 1995).

Demographic Transition

The second reason why Mauritius provides a unique setting for analysis is that as an island population, it has undergone a rapid demographic transition and as a result, is now experiencing family size and contraceptive prevalence levels comparable to European countries. The transition to lower fertility has been attributed in large part, to the country's efforts to establish a network of family planning services, coupled with significant shifts towards later age at marriage (Brass, 1976; Jones, 1989). Beginning in 1957 the first Mauritius Family Planning Association clinic was opened, followed in the early 1960s with Action Familiale, promoting natural methods. By 1972, the Ministry of Health had begun to integrate family planning services with maternal and child health services. Throughout this time, there was a growing consensus that in a small island context, economic development would be severely compromised by excessive population growth.

Following the Second World War, crude death rates had declined from 28.5 per thousand to less than 10 per thousand in the 1960s. The crude birth rate dropped from high post-war levels of 45 to about 22 births per thousand women at the beginning of the 1970s. As a consequence, the average annual population growth rate declined from 3.12% in 1962 to 1.94% only ten years later. Following the post-war period, age at first union was also to increase significantly, particularly for women, passing from 19.9 years in 1962 to 23.8 years by 1983 (Ministry of Economic Planning and Development, 1984). By 2000, the total fertility rate had reached 2.01 births per woman, life expectancy for males was at 68.2 and 75.3 for women and population growth for the period 1990-2000 had averaged 1.1%, higher than the previous intercensal period of 0.72% due to reduced outward migration (Central Statistics Office, 2002).

INSERT TABLE 5 ABOUT HERE

However, despite relatively little fluctuation in overall levels of contraceptive prevalence over the past twenty years (Table 5), there has been a significant change in method mix (Sunkur & Akaloo, 2003). Results from three consecutive contraceptive prevalence surveys indicate that withdrawal continues to be a method used by a significant proportion of women currently in union, a surprising finding because of the widespread availability of supplied and natural methods of birth control across the country. According to the latest CPS published results, in 2002, less than 18% were using the pill, the most prevalent of methods over the past two surveys, but close to 30% were using withdrawal.

FAMILY FORMATION AND CONTRACEPTIVE USE

Differentials by Religious Affiliation

Published data sources for family planning service statistics and vital registration do not currently provide analysis by religion, so from these sources, it is difficult to explore the relationships between religious affiliation and contraceptive use or family formation patterns. However, some historical evidence has indicated fertility differentials by ethnicity, which have been attributed in part to differences in age at marriage (Chandrasekhar, 1990; Titmuss, 1961; Xenos, 1977). Historically, fertility variations by ethnic group had indicated much higher levels amongst the Indian communities of Muslims and Hindus. For instance, the total fertility rates in 1962 amongst Hindus, Muslims and Christians were 6.6, 6.0 and 4.8 respectively. By the 1970s, there is however evidence of increasing convergence across the groups (see Table 6), and by 1991, the total fertility rate was lowest for those of Hindu religion, a shift that continued into 2002.

The convergence across groups has been attributed in part to a shift towards later ages at first marriage amongst the Indian groups (Jones, 1989: 324). By the beginning of the 1990s, there is further indication of this: in 1991, amongst women aged between 20 and 24, twenty-nine percent from main Island Mauritius of Hindu or Muslim religious affiliation were estimated to have been in union by the age of twenty, compared to just over twenty-five percent of Catholics (see Table 7). Comparing these proportions to those of women aged 40-44 in 1991, the postponing of age of entry into union appears to have changed little for Catholics, but has declined significantly for the other two groups.

INSERT TABLES 6 AND 7 ABOUT HERE

Although published contraceptive prevalence survey results provide some descriptive evidence to suggest that overall levels of prevalence do not appear correlated with religious affiliation (those not using any method at time of interview varied little by religious affiliation), it appears that method choice is, particularly when a distinction is made between natural and supplied methods and withdrawal (Mauritius Ministry of Health, 1987; Mauritius Ministry of Health, University of Mauritius, & Centers for Disease Control, 1991; Sunkur & Akaloo, 2003). As Figure 1 shows, compared to the Catholic group, both Hindu and Muslim women were more likely at each survey to be using withdrawal.

INSERT FIGURE 1 ABOUT HERE

DATA ANALYSIS

Data Sources and Study Population

Empirical analysis draws on data from the 1991 Mauritius Contraceptive Prevalence Survey (CPS). The survey was designed primarily to measure the level of contraceptive prevalence and sources of contraception and to compare results with the 1985 CPS (Mauritius Ministry of Health, 1993a). This means that the survey did not have extensive data on explanatory factors of contraceptive and fertility behaviour, as has previously been noted for the World Fertility Survey. The final sample size was 5 262, including never- and ever-married women aged between 15 and 44, covering those from main island Mauritius and from Rodrigues Island. The overall response rate was 91%.

Analysis in this paper will be confined to women from main Island Mauritius who are currently in union, as none of the never-married women reported ever having been sexually active or using contraception. This gives an initial study population of 3 478 women[1]. Twenty-five per cent of these women were not currently using any contraceptive method at the time of interview. We excluded those not using any contraceptive method because of family formation motives (currently pregnant, wanting a pregnancy) or because of reasons linked to infecundity or lack of sexual activity (divorce, separation or breastfeeding). This gave us a final study population of 3 060 women.

Variable Specification

Our aim is to examine the relationship between cultural identity and family formation on the one hand, and cultural identity and contraceptive use on the other. As there was no question in the 1991 CPS on the historical, cultural roots of survey respondents in terms for example of language of forefathers, we have used information from a question on religious affiliation available for all respondents. Unfortunately, the survey provides no specific data on the first contraceptive method ever used, nor the timing of use of the first method, so we have confined our analysis to three dependent variables: for family formation we taken *age at first birth* and *age at first union,* and for contraceptive use, *current method used*.

The variable for religious affiliation was collapsed from its original four categories into three due to the small cell sizes for the 'other' category, leaving three main groups: Hindu, Muslim and Christian/Other. For the contraceptive method currently used, data were collected in the questionnaire on both supplied and natural methods, including detailed information on natural family planning methods and withdrawal. This gave a total of fourteen categories, including those not using any method. Based on similarities between methods (e.g. tubal ligation and vasectomy) and initial exploratory analysis of the relationship between religious affiliation and method used, these categories were collapsed into a total of seven: not using; pill; tubal/vasectomy; injection/IUD; condom/foam; natural/others and withdrawal.

Method and Model Specification

Multivariate logistic regression techniques have been employed for data analysis because they are appropriate when the dependant variable has two response categories. Models show how the probability of being in a particular outcome category versus the likelihood of being in another, is modified when the specified independent variables are introduced (Tabachnick & Fidell, 1996). The parameters of the models are expressed as odds ratios, the reference category taking on the value 1. Our initial descriptive analysis indicated that no clear

[1] The total number of women currently in union is actually 3508, but of these, 30 had missing data on either month or year of birth or age at first union so were excluded from analysis.

relationship could be established between religious affiliation on the one hand and the family formation variables of age at first union or age at first birth on the other, controlling for current age. For this reason, only three multivariate models are run using current contraceptive use as the dependant variable.

We restrict our models to the analysis of current users of the pill, withdrawal or natural methods because at the bivariate level, odds ratios indicate statistically significant variations by use depending upon religious affiliation (there was no consistent and significant association between religious affiliation and current use of condoms/foams). In addition, these three methods are the most prevalent methods used by the women interviewed. The first model assesses the factors influencing the probability of currently using the pill compared to all other methods and those using no method (reference category); the second model assesses the factors influencing the probability of currently using withdrawal compared to all others methods and those using no method; finally, the third model assess the factors influencing the probability of currently using natural methods compared to all others and those using no method. Each category of the dependent variable is therefore treated as dichotomous (1 = currently using pill, 0 all others or non-users; 1= currently using withdrawal, 0 all others or non-users; 1 = currently using natural methods, 0 = all others or non-users). The reason for the choice of these variables is first, compared to other methods and non-use, pill use varied the most by religious affiliation. Second, the high proportion of withdrawal users requires further exploration because the reasons for their choice cannot be readily associated with supply issues in the Mauritian context.

RESULTS

Study Population Characteristics

Of the study population of 3 060 women, about equal proportions (about 25% in each) were in the three five year ages groups of 25 to 39 (see Table 8). The majority were of Hindu affiliation, and about a quarter of Christian or other faith, Muslim women representing sixteen percent. Less than one out of ten had no living children (including those who have never been pregnant), about three quarters had between one and three living children. Six out of every ten women were not in employment at the time of interview, about one quarter in unskilled work and a minority in skilled occupations. A significant proportion, over forty percent, had an educational level beyond completed primary school and less than one fifth had not completed primary level. Equal proportions were living in rural and urban areas and a minority in semi-urban regions. Women were distributed fairly evenly across the three levels of household socio-economic ratings. About one out of every three women were aged below twenty at the time of their first live birth, the majority however aged between 20 and 24. Only a small proportion had a first live birth between ages 30 and 39. Close to half of all women had begun their first union by the age of twenty, and less than fifteen percent after the age of twenty five.

INSERT TABLE 8 ABOUT HERE

Focusing on the dependant variable, at the time of interview, one quarter of women were not using any contraceptive method, and by far the most prevalent method was the pill, followed by withdrawal, the condom, natural methods and fewer than one out of ten either tubal ligation (or vasectomy) or the injection (or IUD).

Exploratory Analysis

After completing exploratory bivariate analysis of the relationship between the two family formation variables and religious affiliation, no particular pattern was apparent, if only for a slightly more pronounced proportion of Hindu women who had entered union or had a first birth before age twenty (tables not shown). After controlling for current age, this difference persisted but only amongst older women aged thirty-five or more (Table not presented). As a result, we do not develop multivariate models for the family formation variables, but instead focus our analysis on the third dependant variable, current contraceptive method used.

First, without controlling for any other factors, we see that overall, both Hindu and Muslim groups are more likely not to be using a contraceptive method than the Catholic group (odds ratios in Tables 9 and 10). Odds ratios for the likelihood of using each type of method also vary by religious affiliation. There is a much higher likelihood that both Muslim and Hindu women will be using withdrawal, but a much lower chance that they will be using natural methods compared to Christians. The latter group are also more likely to be using the pill. Both Muslim and Christian women are less likely than Hindu women to be using the injection or IUD. It is worth noting that we did have information on a measure of individual religiosity, but at the bivariate level it showed no relationship with method choice, and thus we did not include it in the multivariate models.

INSERT TABLES 9 AND 10 ABOUT HERE

Multivariate Results

We ran three multivariate logistic regression models using four explanatory variables, including our main focus variable, religion, educational level of women, socio-economic status of the respondent's household, and place of residence. We also included two control variables, single year of age of women and total number of live births. We initially included husband's education in the models, but it did not have any significant effect, and thus it was dropped from analysis. The model estimates (odds ratios) are given in Table 11.

Across all three models, religion was the strongest explanatory factor of method use, but the nature of the effect varied. Compared to Christians, Hindu and Muslim women were much less likely to use the pill or natural methods but much more likely to use withdrawal. For example, Muslim women were almost four times more likely to use withdrawal, and Hindu women two and a half times more likely, compared to their Christian counterparts. On the other hand, Muslims and Hindus were only 36 percent and 51 percent respectively as likely to use the pill as Christian women. The nature and magnitude of the relationship between religion and the use of natural methods was similar to that obtained for pill use.

All the other three explanatory variables in the model also had a significant impact on the likelihood of using at least one method. The education level of the respondent had a negative effect on pill use, had a positive effect on use of natural methods but had no significant effect on withdrawal use. Women with lower educational attainment (eg. primary education) were more likely to use the pill but less likely to use natural methods compared to women with secondary education or more. The socio-economic status of women's households also had a significant influence on the likelihood of using all the three methods, but the nature of the influence varied by method used. It appears that there were only two groups of women in terms of household socio-economic status (low socio-economic status versus medium and high socio-economic status) who showed differences in contraceptive method choice behaviour. Lower socio-economic status was in general associated with increased likelihood of using the pill, but a decreased likelihood of using either withdrawal or natural methods. The last explanatory factor included in the model, place of residence, was important for use of

natural and withdrawal methods but not for pill use. Respondents living in rural areas were much less likely (by about 30 percent) to use natural methods. Interestingly, those in semi-urban areas were about 40 percent more likely to use withdrawal than those living in urban areas.

In sum, the results show that low socio-economic status is a significant factor in determining the choice of contraception. Low educational achievement, low socio-economic status, and rural residence decrease the likelihood of using natural methods, but low levels of education and socio-economic status increase the likelihood of using the pill. While education level is not a significant correlate of withdrawal use, low socio-economic status reduces the likelihood of its use.

What is even more significant is the role of the respondents' religious affiliation. In general, women of Muslim and Hindu cultural background are much less likely to use the pill or natural method but much more likely to be reliant upon withdrawal. Women of Christian cultural background on the other hand were much more likely to use pill and natural methods, but less likely to use withdrawal.

It must be noted that our models included only a limited number of covariates as we did not have data on any other relevant variables. For instance, we had no data providing a direct measure of women's autonomy which can be considered as a dimension of culture.

DISCUSSION OF FINDINGS

Our aim was to establish whether culture might influence fertility decision making and contraceptive use in Mauritius, as observed in the 1990s. Our premise for wanting to explore this relationship is two-fold. Given the strong historical influence of the diaspora on the make-up of contemporary Mauritian society, and despite processes of industrialisation over the past three decades, it is conceivable that traditional beliefs, practices and customs might continue to exert an influence on demographic behaviour.

Second, there is consistent evidence in Mauritius to show that despite access to free and subsidised family planning services which cater for a broad variety of preferences, there is a propensity to use withdrawal. Secondary analysis of the 1985 and 2002 CPS survey results suggests that amongst currently married women, its use does vary by religious affiliation, is highest amongst the Indian religious groups, but the most pronounced in 1991 amongst Muslim women. The very limited international research examining withdrawal also points to the importance of religion and ethnicity as influencing this particular method choice in some settings (Ergocmen, Koc, Senlet, Yigit, & Roman, 2004), although these are not the only factors influencing its use (Rogow & Horowitz, 1995).

Our exploratory results revealed that family formation behaviour as observed in the 1990s bears little relationship to cultural background, a result we should probably have more clearly predicted, given the trends towards convergence of behaviour (in terms of total fertility rates and age at first union) across the different religious groups which had already begun to appear in the 1970s. These findings therefore support the argument that family formation behaviour over recent decades has indeed been subject to a 'levelling out' effect in terms of the possible influences exerted upon it by cultural background.

Our other finding – that the most important factor influencing the use of the pill, withdrawal or natural methods is religious affiliation – does lend some credence to the premise driving

our paper – that culture still matters. Both Hindu and Muslim women are over two and three times more likely than Christians to use withdrawal, a result which is net of the effect of all other factors we have controlled for in our models. We are mindful here of the need to note the methodological problems associated with the accurate measurement of the prevalence of withdrawal (Rogow & Horowitz, 1995; Santow, 1993). This problem was initially a feature of the 1991 Mauritius CPS when it was realised that over-reporting of the method had occurred due to a problem in defining withdrawal using the Créole language (Mauritius Ministry of Health, 1991: 31). Similarly, in line with recent findings from Bangladesh (Gray, Chowdhury, Caldwell, & Al-Sabir, 1999) there is some evidence from the 1991 survey to suggest that withdrawal was used in conjunction with other natural methods (Mauritius Ministry of Health, 1991: 92).

In advancing these interpretations, we fully recognise the limitations to the way in which we have tried to measure cultural background through the use of religious affiliation as a proxy. Part of this failing must be attributed to shortcomings in the data at out our disposal, which offered a limited number of variables. Due to a complex set of filters in the questionnaire and some problems of coding, other variables which might have strengthened the power of our models were not included because values were missing for significant numbers of women. For example, current users were not asked to provide any reasons for the choice of method used at time of interview, other than questions pertaining to family formation intentions (spacing or limiting).

Despite these caveats, we were able to establish at the bivariate level that an association between women's employment status prior to marriage and religious affiliation exists: women of Christian affiliation were more likely than either Hindu or Muslim women to have worked prior to entering their first union (table not shown). Here then, employment status prior to marriage is reflective of varying degrees of female autonomy, and by the same token, variation in the likelihood of being exposed to a variety of contraceptive behaviours through the workplace experience.

The survey also sought women's reasons for not having undergone tubal ligation regardless of whether they had reached their desired family size or not, and whether they would contemplate using this method. Again bivariate analysis indicated some association between religious affiliation and reasons given for not wishing to use tubal ligation: women of Muslim faith were more likely to report husband's objection or religious reasons as their motives for not wishing to use this method (tables not shown). These findings correspond to international literature which has indicated that Muslim women are less likely than other groups to adopt sterilisation (Obermeyer, 1994; Omran, 1992).

Local studies in Mauritius provide further insights into these findings. Historically, Benedict's work points to the importance accorded by both Hindu and Muslim religious traditions to a state of impurity associated with menstruation (Benedict, 1961: 114). Qualitative research has provided some indication of a link between religious practice and contraceptive behaviour. Interviews with health workers in the family planning sector in Mauritius for example indicated that reticence or refusal to use the IUD can at times be explained in terms of the conflict this poses to Muslim women in their religious practices. The presence of a foreign body such as dental apparatus or contraceptive such as the IUD represent a state of impurity which proves inhibitive to participation in religious ceremonies, particularly when food consumption is involved (Hillcoat-Nallétamby, 2002). Similar findings have been forthcoming in Gray and colleagues' work in Bangladesh (Gray et al., 1999).

Across the period 1985 to 2002, we know that the use of withdrawal amongst women in the reproductive ages in Mauritius in union *has* increased. Descriptive data for the three periods suggest an association between religious affiliation and reliance upon withdrawal. Our argument is therefore that the use of withdrawal may be reflecting the manifestation of *some* preferences, the nature of which however, we are unable to capture fully with the data at our disposal.

Published results from the 1991 CPS included a question on the reasons why women had opted for withdrawal as opposed to other methods. Unfortunately, because of inadequate coding of the responses to this question in the primary data set used, we were unable to explore the association between these responses and other factors, but from what has been published, three points need to be made. First, their reasons for using this method were sought. Of all those re-interviewed as current users of withdrawal in 1991 (n = 244), 42% reported dissatisfaction with the side effects of other methods, 22% partner or husband preference, 18%, a dislike for other methods, but less than one percent gave religious objections to other methods.

These results bring us to two avenues which we had not set out to explore in this paper – the role of side effects in influencing method preference and the influence of men's roles in reproductive decision-making.

Side effects and Men's Opinions

Women ever in union at the 1991 survey who were not currently using contraception but had done so in the past were asked to indicate their reasons for discontinuing a method. About one fifth noted side effects or problems with others methods (Mauritius Ministry of Health, 1993: 70), a problem associated the most with the hormonal based methods of the pill and injectable. Whilst only a small proportion of these same women (2.6%) had given up a method because of their husband's objections to it, it was nonetheless the methods requiring direct male participation – the condom (7.3%), the symptom-thermal method (2.6%) the calendar (4.0%) and withdrawal (2.7%) which women had stopped using because of their husband's objection to the method. Although this contradicts the finding that a key reason for using withdrawal was husband's preference for the method, what both sets of findings do point to, is the probable influence that men's opinions continue to exert upon women's preference for given methods.

Qualitative evidence indicates that women's perceptions or experiences of side effects show a concern for retention within the body, a preoccupation associated with the IUD, but also with the pill and injectable if menstruation is delayed or missed, as this evokes concerns that the menstrual blood will be retained within the body (Hillcoat-Nalletamby & Ragobur, 2005, in press). These same concerns were found to be the reason for use of withdrawal in another study (Oodit, 1996), and also correspond to international findings on the role of side effects in influence method choice (Gray et al., 1999: 118; Population Council, 1998).

With regard to the influence of men's roles in reproductive decision-making, there is some scanty evidence to suggest that women's rapidly changing roles in Mauritius (Gunganah, Ragobur, & Varma, 1997), and the potential sexual autonomy that this provides them with (Schensul, Schensul, Oodit, Bhowon, & Ragobur, 1994) have affected male attitudes towards contraceptive use. Qualitative interviewers completed with key informants from the health, education and community sectors in Mauritius during the early 1990s indicated that withdrawal use could be seen as a means of trying to ensure control over sexual activity (Hillcoat-Nallétamby, 2002).

It may well be that method side effects is one of the main reasons why Muslim and Hindu women prefer to use withdrawal above others, but this begs the question as to why they are more susceptible to considering side effects than their Christian counterparts. Could it be that the perception of side effects is itself related to cultural practice? Alternatively, even if women from all three religious groups were to be equally aware of side effects associated with certain methods, the degree to which this perception translates into action in terms of method preference, may further be conditioned by cultural factors, such as the power balance characterising the husband/wife relationship.

The findings on withdrawal indicating that it remains an important method in Mauritius suggest that individuals' motivations to use contraception span beyond concerns for efficiency in limiting or spacing fertility, to encompass considerations of compatibility with personal needs and quality of use. Whilst it cannot be argued that collecting data on withdrawal has been overlooked in Mauritius, what is perhaps required is a more in-depth look at the factors which are associated with its use.

CONCLUSION

Several research and programme implications surface from these findings. First, evidence indicating that both women's and men's concerns over the side effects and safety of supplied methods are leading them to opt for withdrawal over other methods, suggests that efforts to improve information about supplied methods is still required. The fact that religious background does appear to influence method choice is also an indication that this information needs to continue to remain sensitive to the diversity of needs stemming from long-standing cultural practices. The facilitating role of religious leaders could be important here, as has been the case in the early history of the development of family planning initiatives in Mauritius.

Second, with an increasing programme concern over HIV/AIDS in Mauritius (Nishimura, 2003; Sunkur & Akaloo, 2003), there may be a need to develop a more complete understanding of individuals' motivations to use withdrawal, particularly if this method is being used in conjunction with others, as these practices may affect the degree of exposure to sexually transmitted disease.

Third, whilst the collection of data using standard formats developed through the contraceptive prevalence surveys is useful for measuring prevalence, there may be room to consider refining these instruments to obtain more detailed information on reasons for method choice.

Now that fertility objectives at the national level have been achieved in Mauritius, perhaps the central thrust of these implications is the importance of recognising quality of care as a key orientation for family planning programme provisions. Pursuing this objective denotes a concern to address user-defined preferences, and to encompass reproductive health needs which go beyond those facilitating the limitation or spacing of births.

Table 1: Population enumerated for Island of Mauritius by selected year and category

	European (French + British)	Mixed (French + African)	Slaves	Total
1767	3 163	587	15 027	18 777
1807	6 489	5 912	55 367	67 768
	European + Mixed			
1835	29 612	-	61 045	90 657
	General Population	Indian Immigrants		
1846	102 217	56 245	-	158 642
1901	108 428	259 086	-	371 023

Sources: Toussaint, 1977; Bowman, 1991; Chandrasekhar, 1990; Bissoondoyal, 1986; Census reports for various years.

Table 2: Census 2000. Main Island Mauritius. Population by Language of Forefathers and Language usually spoken at home (%)

	Language of forefather	Usually spoken at home	
Créole	36.77	69.24	
Chinese	1.98	0.76	
Chinese +	0.55	3.70	Chinese + Créole or other European
English	0.10	0.31	
French	1.92	3.55	
European +	2.31	0.42	Créole + European
Indian	45.10	14.01	Bhojpuri, Gujurati, Hindi, Marathi, Tamil, Telegu, Urdu
Indian +	11.00	7.74	Créole + 1 ‘Indian’ or ‘Indian’
Other	0.27	0.27	
Total	100.00	100.00	
N	1 143 069	1 143 069	

Source: Adapted from Central Statistics Office, 2000 Census, Vol II. (2001)

Table 3: Population enumerated for Island of Mauritius by selected years and ethnic group category (%)

	General Population [1]	Indo-Mauritians	Chinese	Total (N)
1911	29.1	70.0	1.0	368 791
1972	28.7	68.4	2.9	826 199

1. Franco-Mauritians, Créoles, British, other Europeans and Africans.

Table 4: Population enumerated for Island of Mauritius by selected years and religious affiliation category (%)

	Chinese/Buddhist + Other	Christian	Hindu	Islam	Total (N)
2000	1.50	30.18 [1]	51.18 [2]	17.14	1 143 069

1. Of which 21.6% Catholic; 2. Includes Hindu, Marathi, Tamil and Telegu Hindu, Other Hindi and Vedic.
Source: Adapted from Central Statistics Office, 2000 Census, Vol. II (2001).

Table 5: Contraceptive method use. Percentage distributions for current users amongst married women aged 15-44. Contraceptive Prevalence Surveys 1985, 1991 and 2002. Main Island Mauritius population[1].

	CPS 1985	CPS 1991	CPS 2002
Prevalence	79.5	74.7	78.5
• Pill	21.8	20.9	17.7
• Injectable	6.7	4.1	3.1
• Tubal ligation	5.6	7.2	7.2
• Vasectomy	0.0	0.2	0.1
• IUD	2.4	2.8	1.4
• Condom	11.4	13.3	9.9
• Vaginal tablets	0.6	0.4	0.2
Total supplied	48.5	48.9	39.6
• Temperature	1.8	1.7	0.7
• Sympto-thermal	3.8	1.5	1.2
• Cervical mucus	0.4	0.5	0.4
• Calendar	6.3	5.5	8.2
• Other	0	0.4	0
Total non-supplied	12.3	9.6	10.5
• Withdrawal	18.6	16.1	28.3
• No method	20.5	25.3	21.5
Total	100	100	100
N	3020	3508	3198

Source: Compiled from national reports. Note 1: Percentages for 1985 and 2002 surveys adjusted to fit the 1991 CPS, 15-44 age distributions (CPS, Final Report 1993: 49).

Fertility differentials by ethno-religious composition

Table 6: Total fertility rates by ethno-religious composition

Year	Hindu	Muslim	Christian [2]
1962 [1]	6.55	6.02	4.76
1972	3.51	2.97	3.19
1991	2.05	2.28	2.53
2002	1.82	2.14	2.09

Note 1: Figures for 1962-72 are from Xenos, 1977:61. Figures for 1991 are from the Mauritius CPS 1991, Table 4.2; for 2002, Mauritius CPS 2002 (Sunkur and Akaloo).
Note 2: Original nomenclature was 'General Population'.

Religious differentials in age at entry into union

Table 7: Percentage of Women in Union by Age 20, Mauritius Island, 1991 CPS[1]

	Current Age 20-24	Current Age 40-44
Total	28.1	37.2
Hindu	29.0	41.5
Muslim	29.1	33.8
Catholic	25.2	27.4

Source: CPS 1991, Table 4.7. Note 1. Ages obtained using life table techniques to take account of women who had not been in union by the time of interview.

Table 8: Univariate distributions of study population (N = 3060). 1991 Contraceptive Prevalence Survey primary data set

		%	N	
Age first birth	None	5.5	169	
	<20	31.7	969	
	20-24	43.2	1323	
	25-29	15.9	487	
	30-39	3.7	112	
Age first union	<20	48.7	1489	Includes de facto and legal marriages
	20-24	38.0	1348	
	25-29	10.6	385	
	30+	2.7	96	
Current method used	Pill	23.9	731	
	Withdrawal	16.9	518	
	Tubal/Vasectomy	8.3	253	
	Injection/IUD	7.8	240	
	Condom/Foam	14.2	435	
	Natural/Other	14.1	430	
	Not using	14.8	453	Excludes those not using contraception for reasons related to family formation.
Current Age	15-19	1.6	48	
	20-24	13.7	419	
	25-20	22.3	681	
	30-34	23.8	727	
	35-39	23.4	716	
	40-44	15.3	469	
Religious Affiliation	Hindu	57.2	1751	
	Muslim	16.0	490	
	Christian	26.8	819	Includes ‘Other’
Living Children	0	5.7	179	Includes those never pregnant
	1	19.3	592	
	2	36.1	1106	
	3	21.3	653	
	4	10.5	322	
	5	4.3	134	
	6+	2.4	74	
Employment status	Not employed	61.1	1871	
	Unskilled	23.0	703	
	Skilled/prof.	15.9	486	
Educ. level	< primary	18.1	555	
	primary	42.4	1298	
	> primary	39.4	1207	
Residence	Urban	41.1	1259	
	Semi-urban	16.4	503	
	Rural	42.4	1298	
Socio-econ. index	Low	34.9	1069	Weighted sum of numbers of household amenities present in home (running water, flush toilet, video, radio, tv, fridge, car). 2 missing values.
	Middle	29.9	914	
	High	35.0	1070	

Table 9: Current method used by religious affiliation (%).
1991 Contraceptive Prevalence Survey. Main Island Mauritius

Method	Hindu	Muslim	Christian	Total
Pill	21.6	15.3	33.8	23.9
Withdrawal	18.2	26.7	8.3	16.9
Tubli/Vasectomy	7.8	10.0	8.2	8.3
Injection/IUD	9.9	3.7	6.0	7.8
Condom/Foam	14.3	16.5	12.6	14.2
Natural/other	12.5	11.4	18.9	14.1
Not using	15.6	16.3	12.2	14.8
Total	100.0	100.0	100.0	100.0
p<0.01				
Total supplied	53.7	45.5	60.6	54.2
Total non-supplied	12.5	11.4	18.9	14.1
Withdrawal	18.2	26.7	8.3	16.9
Not using	15.6	16.3	12.2	14.8
Total	100.0	100.0	100.0	100.0
N	1751	490	819	3060

Table 10: Current method use by religious affiliation. Odds ratios. 1991 Contraceptive Prevalence Survey. Main Island Mauritius (N = 3060)

Method	Muslim vs Hindu	Hindu vs Christian	Muslim vs Christian
Pill	0.65**	0.54**	0.35**
Withdrawal	1.64**	2.46**	4.03**
Tubal/Vasectomy	1.31	0.95	1.25
Injection/IUD	0.35**	1.72**	0.60
Condom/Foam	1.18	1.16	1.38*
Natural/other	0.90	0.61**	0.55**
Not using	1.06	1.33*	1.40*

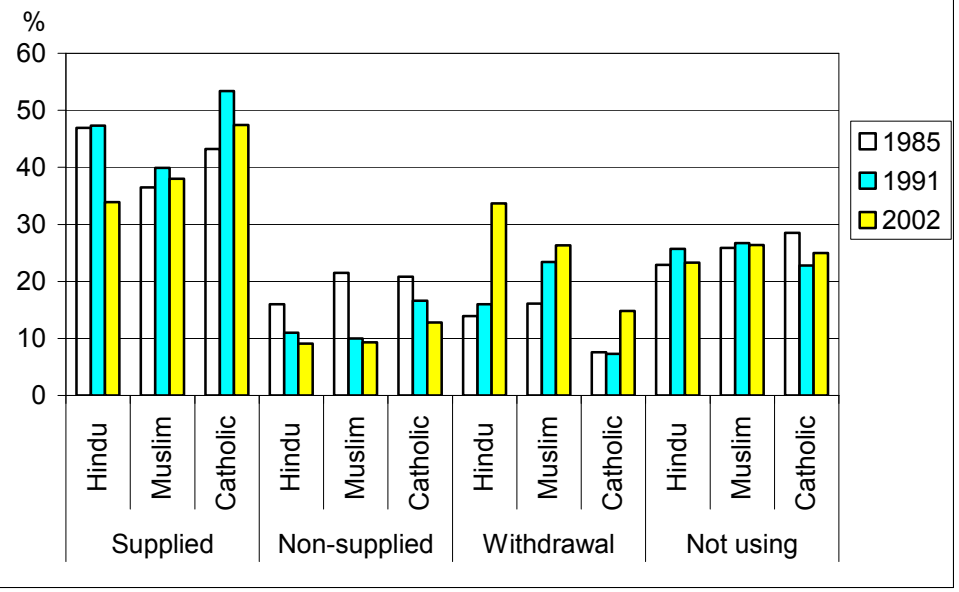
** p<0.01; * p <0.05

Table 11: Logistic regression models of the effects of socio-economic covariates on the likelihood of using a particular contraceptive method. Covariates as odds ratios (N = 3053[1]).

		Model 1 Pill vs Other		Model 2 Withdrawal vs Other		Model 3 Natural vs Other	
		Odds Ratio	z	Odds Ratio	z	Odds Ratio	z
Religion	Christian	1.00		1.00		1.00	
	Hindu	0.51**	-6.76	2.52**	6.38	0.68**	-3.22
	Muslim	0.36**	-6.85	3.88**	8.22	0.50**	-4.04
Education	> Primary	1.00		1.00		1.00	
	Primary	1.23*	2.01	1.13	1.03	0.51**	-5.43
	< Primary	1.29	1.86	1.22	1.25	0.35**	-5.22
Socio-economic index	High	1.00		1.00		1.00	
	Low	1.35**	2.59	0.76*	-2.16	0.75*	-1.98
	Medium	1.21	1.6	0.77*	-2.05	1.09	0.65
Residence	Urban	1.00		1.00		1.00	
	Rural	0.96	-0.43	0.89	-0.95	0.72*	-2.55
	Semi-urban	1.05	0.35	1.38*	2.29	0.80	-1.35
	Age	0.94**	-7.53	0.99	-1.14	1.03**	3.38
	# living children	1.06	1.67	0.92	-1.82	0.88**	-2.60

** p < 0.01; * p < 0.05. Note 1. 7 missing values

Figure 1: Contraceptive use by religious affiliation, CPS 1985, 1991 and 2002. Women currently in union. Source: published results from CPS surveys



Source: Compiled from national reports. Percentages for 1985 and 2002 surveys adjusted to fit the 1991 CPS, 15-44 age distribution distributions (CPS, Final Report 1993: 49).

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