

Does Community Level Mortality Affect the Reproductive Performance of Women? Evidences from Goa, India

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INTRODUCTION

It is widely held that demographic behaviour is fundamentally influenced by community characteristics. The consensus that has emerged in recent discussions is that advancement in the understanding of the demographic behaviour, particularly, the fertility behaviour now requires explicit consideration of these community variables, which, it is claimed, were neglected till recently. In recent years there has been an increase in the interest in examining the community and institutional influences (i.e. factors at macro community level which are above that of household) on fertility behaviour. Econ-omists have a long history of including comm-unity variables in their analysis and sociologists for their part, have long been considered with the effect fertility on social norms and values. The proponents of demographic transition theory were indeed concerned with the changing macro conditions such as improving communication, transportation system, changing family structure and values, increasing exposure to new ideas. Freedman, (1974), have recognized that the neighbourhood, community or social milieu in which a couple live can affect their reproductive behaviour, in interaction with the individual characteristics usually considered.

Since fertility behaviour can also seen as a function of the persons and the environment, the inclusion of personal and community level variables in the study of fertility-mortality linkages in expected to offer possibility for a vivid understanding and valid interpretation of the reproductive behaviour. In this consideration, the nuclear elements are the couples especially the women, and contextual variables play a facilitative or inhibitive role in fertility and mortality often complicated by interactional and synergetic effects amidst the variables. Such attempts are of relatively recent origin. The real impetus to consider the community level variables in a systematic manner in the fertility

analysis originated during the World Fertility survey programmes. Studies conducted by Freedman (1974); Hermalin and Mason, (1980) and Hobcraft, (1984) using the World Fertility Survey data revealed a strong impact of community level variables on fertility.

While examining the fertility determinants, Hermalin and Mason, (1980), and Entwisle et al., (1984) took into consideration both the individual and the community level data and preferred to call such analysis as "Multilevel analysis". It is emphasized that a multilevel approach to consider both macro and micro components in the analysis is of importance since changing macro conditions can effect not only the magnitude but also the direction of the relationship between micro socio economic variables and fertility (Entwisle and Mason, 1985). There has been a growing concern among the researchers that social milieu or community level variables could contribute significantly towards understanding fertility differentials among women and that effort should be made to involve such variables along with the usually considered individual characteristics. Interpretation of these micro level characteristics into the frame work for the study of fertility behaviour can possibly reduce the domain of unexplained variation and serve to focus the attention on the role of social milieu in the dynamics of fertility regulation.

Freedman (1974) defined community level factor as any set of characteristics common to all the persons living in the community. The community characteristics can be of two types. One set consists of characteristics for which a corresponding measurement cannot be made for the individuals. For instance, the presence or absence of a hospital, a school or a market or physical properties (like distance of a village from the nearest town) is attributes which apply to the whole community and do not have corresponding measurement for each individual. One problem in such indicator is that they tend to ignore the accessibility aspect. For example a

poor illiterate woman for whom a hospital service is inaccessible (for whatever reason it may be) will hardly be affected by the presence of such facility. Consideration of such indicators therefore may fail to show appropriate impact of the community level variables on the variables investigated. The second set of community measures is based on the aggregation of individual measures (the mean educational level or educational distribution of the population or fertility rate or average level of income.) These supra individual measures attempt to describe aspects of the social context in which the individual lives. Whether based on aggregation of data for individuals or not, the community measures may be treated as common to all members of the community.

Casterline (1981) identified four general classes of community effects. Firstly, individual fertility behaviour is influenced by social norms. Of special significance are norms about the intermediate variables and norms on family size. These social norms are first internalized as individual values and attributes during socialization and continue to operate as a pressure on adult fertility behaviour. Social norms are not static and in some circumstances norms about fertility behaviour change drastically over the reproductive careers of community members.

Secondly, behaviour of the intermediate variables and fertility themselves are influenced by the features of the local community which affect the cost and benefit of children and child bearing. The perceived value of children is affected by the economic characteristics of the local community, which thus provide obvious incentives for fertility to be maximised or controlled.

Thirdly, community factors influence fertility directly through determination of individual attributes which themselves are important determinants of fertility. Socio-economic characteristics by most criteria are themselves heavily determined by community factors largely outside the control of individual couples. A substantial portion of the effects of these individual socio-economic attributes should be viewed as the indirect effect of community factors.

The fourth mechanism of which community factors affect individual fertility behaviour is through determining the availability of specific resources which enable individuals to act on the intermediate variables.

METHODOLOGY

The data for the present study are drawn from the survey "The Levels of Fertility and Mortality in Goa" conducted by International Institute for Population Sciences (Roy et al., 1985). A total of 2588 households were selected adopting a two stage stratified sampling technique. In the first stage, villages/towns were selected with probability proportional to their size, after ranking all the units according to their level of female literacy. At the second stage, a uniform number of households were selected from each unit (selected at first stage) using a systematic sampling procedure. A total of 2,377 currently married women in the age group 15-49 with at least one child constitute the sample for the present study.

In the present study the community level effect has been investigated by obtaining an index of infant and child mortality experience of each village. The urban women are however excluded from the present analysis. It was felt that community influence on individual can be more manifested among rural population where group cohesiveness and inter personal linkages are sustained perceptibly. The urban areas on the other hand are more expected to the forces of modernization and effective mass media where by the community aspect of influence is likely to get diluted and in consequence the individual experience become more prominent in shaping the fertility decisions of women.

The community level mortality index utilised in this study is based on the cumulation of mortality experience of individual woman. To be more specific, the index for a village is calculated as the proportion of the sampled women who experienced a child loss. The index ranges between 0 and 1 and higher the value of the index for an area greater will be the community level experience of mortality.

The index was calculated for each village in the sample. First, the villages were ranked in ascending order of the community level mortality index. On the basis of the median value of the index, the villages were then classified into two groups:

High community level mortality area-where the index value was higher than the median value, and Low community levels mortality area-where the index value was less than or equal to

the median value.

The major focus of this paper is to examine the extent to which the reproductive performance of women in these two mortality areas differs. The reproductive performance is measured here in terms of Children Ever Born. If the fertility (Children Ever Born) of the women in high mortality area exceeds that of women in the low mortality area, after controlling for the relevant variables, it would certainly point out towards the existence of a societal effect. An examination of the extent to which such societal effects exists among the two religious groups were also examined.

RESULTS AND DISCUSSION

Community level Mortality and Fertility

The simple two way cross tabulation on number of children ever born by community level mortality shows that the average number of children ever born was higher for those who reside in the high mortality areas (Table 1). The women in the high mortality area had 4.12 children which was 0.44 children more than that for the women in the low mortality area. The results are in the expected direction, however further analysis was done to explore strength of the relationship and to ascertain the effect due to personal experience of child loss.

To understand the underlying phenomenon more clearly, the analysis is extended further by controlling for the individual experience of the mortality among women in the two areas (Table 1). At the outset, it is seen that the individual experience of mortality varies considerably between who reside in the low and high mortality areas. The incidence of child mortality in low mortality area was 13 percent and that of high mortality area was 26 percent.

Table 1: Mean number of children ever born by individual child loss and community experience

Community Level Mortality	Mean Number of Children Ever Born Individual Experience		
	No Child Loss	With Child Loss	Total
Low Mortality Area	3.43 (498)	5.44 (73)	3.68 (571)
High Mortality Area	3.69 (430)	5.32 (151)	4.12 (581)
Total	3.55 (928)	5.36 (224)	3.90 (1152)

From the Table 1 it can be seen that women without any personal experience of child loss and who stayed in high mortality area had a higher fertility than their counterparts living in the low mortality area. This observed higher fertility for those who live in high mortality area is likely to be due to the societal effect. But this effect was less clear among those with personal experience of child loss. However, when controlled for the individual experience of child loss, the fertility differentials between women in the two areas narrowed considerably.

The relationships were further tested by controlling for the educational and religious categories of the women. The mean number of children ever born according to the level of education and the individual experience of child loss for the women staying in the low and high mortality areas is presented in Table 2. The mean children ever born for various groups presented in Table 2 suggests the presence of societal effect among women with no personal experience irrespective of their education. The average fertility for both illiterates and literates residing in high mortality areas were slightly higher than those who were in low mortality areas. However, the trend was almost absent among those with personal experience of child loss.

Table 3 presents a similar analysis for the

Table 2: Mean number of children ever born by community level mortality experience, individual experience of child loss and education of mother

Community level	Individual Experience			
	No Child Loss		With Child Loss	
	Illiterates	Literates	Illiterates	Literates
Low Mortality Area	4.14 (242)	2.75 (256)	5.87 (46)	4.70 (27)
High Mortality Area	4.25 (226)	3.07 (204)	5.47 (107)	4.98 (44)

Table 3: Mean number of children ever born by community level mortality experience, individual experience of child loss and religion

Community Level	Individual experience			
	No Child Loss		With Child Loss	
	Hindus	Roman Catholics	Hindus	Roman Catholics
Low Mortality Area	3.60 (308)	3.15 (190)	5.41 (54)	5.53 (19)
High Mortality Area	3.76 (349)	3.41 (81)	5.40 (129)	4.86 (22)

two groups of Hindus and Roman Catholics. The differential level of the community effects of child mortality on fertility between the two groups was comparable with that observed in the case of women with the different level of literacy. Both Hindus and Roman Catholics with no personal experience of child loss exhibited a higher fertility when they resided in high mortality area.

In general what is observed is that a weak societal effect existed in the study population and it was noticeable only among those without any personal experience of child loss. Moreover, the societal effect was not evident with those who had experienced the child loss.

Results of Regression Analysis

Multivariate regression analysis has been employed to examine the relationship between fertility of a woman and the individual level characteristics separately in high and low mortality area separately. If the relationship (between fertility and the individual level characteristics) turns out to be different in the two areas, it would indicate the existence of effect of the community level mortality. The individual experience of child loss and fertility among women will be significantly different in the two areas in case the community effect is present.

The following variables have been included in the analysis

CEB	=	Number of children ever born to women
INDEXP	=	Individual experience of child loss for woman (0=no child loss 1=experience of one or more child death)
EDU	=	level of education of women
REL	=	Religion
AGM	=	Age at marriage
AGE	=	Current age

The relationship between CEB on INDEXP has been investigated separately in the low and high community level mortality areas, using the usual multiple regression analysis. The two regression equations are

Equation for Low Mortality Area

$$\text{CEB} = 3.31 + 0.95 \text{ INDEXP} - 0.55 \text{ EDU} - 0.18 \text{ REL} - 0.17 \text{ AGM} + 0.11 \text{ AGE}$$

Equation for High mortality area

$$\text{CEB} = 2.34 + 1.05 \text{ INDEXP} - 0.27 \text{ EDU} - 0.21 \text{ REL} - 0.14 \text{ AGM} + 0.12 \text{ AGE}$$

The above regression equation indicate that the change in fertility (CEB) due to a unit change in INDEXP is greater in the high mortality area.

In other words, the effect of child loss on fertility appeared to be higher in the high mortality area.

It is found that, for low mortality area, all the regression coefficients except for REL were significant. However, for the high mortality area, apart from REL, the regression coefficient of EDU was also statistically not significant. This indicates that in areas where the mortality level was high, neither religion nor level of education was significantly related to the level of fertility of a woman. Apart from the current age and age at marriage, it was the experience of child loss (indexp) that affected the level of fertility of a woman. The total variability explained by the two regression equations were found to be 49 and 43 percents respectively.

Further the significance of the difference between the two sets of regression coefficients have been tested. The results of this are given in Table 4. Since the F value is not statistically significant, the beta coefficient of the low and high mortality areas are not significantly different. This shows that the relationship between the fertility and the independent variables for the two populations was not significantly different. Hence the effect of individual experience of child loss on fertility did not depend on whether the women stayed in the low mortality or the high mortality area.

The above analysis indicates that the societal level effect of child mortality on fertility did not exist in the study population. It may be mentioned, in this context, that the community (village) level effect is likely to be less in Goa mainly because the rural urban differentials in terms of most of the socio economic and demographic variables are much less in this state. Again, most of the villages in Goa are well connected by road and the state has a better transportation facilities. However, this is not expected to be true in larger states in the country namely, Uttar Pradesh, Bihar, Madhya Pradesh where the

Table 4: ANOVA table for testing the difference between regression coefficients for low and high mortality area

	D.F	Sum of Squares	Mean SS	F
Combined Regression	5	2174.826	434.97	1.10
Difference of Regression	5	12.437	2.49	
Combined Residual	1141	2591.531	2.27	

infant mortality is still quite high and the level of female literacy is distressingly low. Further, in these states the rural urban differentials in terms of most of the demographic indicators and public amenities are quite wide. Hence the community level mortality impact on reproductive behaviour is likely to be more in these states compared to Goa.

KEYWORDS Reproductive Performance. Societal Effect. Children Ever Born. Infant Mortality

ABSTRACT In this paper an attempt has been made to demonstrate the societal effect of mortality on the reproductive performance of women in Goa. Since fertility is a function of persons and environment, the neighbourhood, community or social milieu in which a couple live can affect their reproductive behaviour. Community level mortality index, i.e the cumulation of mortality experience of individual woman has been used to categorise the villages into low and high mortality area. The bivariate analysis show that in general there existed a weak societal effect in the study population and it was noticeable more among those without any personal experience of child loss. Those women who stayed in the high mortality area exhibited a higher fertility as compared to the women who stayed in the low mortality area. However, the detailed multivariate analysis revealed that the community level effect on mortality on fertility was not significant. The individual experience of mortality seems to be more important in determining the fertility.

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