

Determinants of Unmet Need for Family Planning in Squatter Settlements in Karachi, Pakistan

IEC components of family planning programmes should include among target audiences older women, who may be obstacles to the adoption of contraception by their daughters-in-law.

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The concept of “unmet need” for family planning refers to a discrepancy between the fertility goals expressed by women and their actual contraceptive

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practices (Concepcion, 1980). The most fundamental discrepancy is non-use of contraception despite an expressed preference for limiting births. High levels of unmet need are a principal rationale for the existence of family planning programmes.

Women with an unmet need for family planning constitute a significant fraction of all married women of reproductive age in developing countries. Data from the Demographic and Health Surveys in 27 countries show that unmet need is particularly prevalent in sub-Saharan Africa. In Asia, high levels of unmet need persist in a smaller number of countries, including Pakistan (32 per cent), Nepal (28 per cent) and the Philippines (26 per cent) (Westoff and Bankole, 1995). The fact that a substantial proportion of women have an unmet need for family planning has important demographic implications. If the unmet need were eliminated, fertility would decline substantially (Casterline, 1995; Westoff and Bankole, 1995; Sinding and others, 1994). Despite its importance in meeting national goals for a decline in fertility, little is known about the determinants of unmet need (Dixon-Mueller and Germaine, 1990).

In recent years, fertility has begun to decline in Pakistan from a total fertility rate of 6.3 children per woman in 1975 to about 5.0 in the mid-1990s. This is a consequence of an increase in age at marriage and a rise in contraceptive use, from 5 per cent in 1975 to 24 per cent in 1996/97 (Hakim and others, 1998). However, at 2.4 per cent annually the rate of population growth remains one of the highest in Asia (ESCAP, 2001). Despite the documented existence of a demand for family planning services expressed by Pakistani women (Hakim and others, 1998; Population Council, 1998) lack of consistent government commitment and socio-cultural constraints have reduced the effectiveness of the family planning programme. The failure of these efforts also reflects an ignorance of those factors that cause a discrepancy between expressed fertility goals and contraceptive behaviour among Pakistani women. Identifying the factors that contribute to unmet need can be an important step in improving family planning services and towards widespread acceptance of contraception.

This study aims to identify the barriers that contribute to unmet need for family planning in the urban squatter settlements of Karachi, in order to frame recommendations for strategies that will help family planning programmes to address unmet need.

Methods

Study site

The study was conducted in selected urban squatter settlements in Karachi, Pakistan's largest city and its major port. Approximately 40 per cent of Karachi's estimated 10 million people live in 400 squatter settlements, which are characterized by poverty, lack of education, poor sanitary conditions, political instability, ethnic violence and drug abuse. From 1986 to 1995, the Aga Khan University's Department of Community Health Sciences implemented primary health care (PHC) projects in six such settlements with an estimated total population of 45,500 persons. The PHC projects provide all modern family planning methods except for tubal ligation, for which women are referred elsewhere. Female community health workers also dispense contraceptive supplies to women in their homes on their monthly home visits. The communities were selected as likely to represent Karachi's squatter settlements in terms of socio-economic, health status and ethnicity factors. A typical family income is US\$ 40-80 per month and a median family size is six persons. Sixty per cent of the houses in these communities could be considered fairly well constructed for a squatter settlement, i.e. the walls are made of brick with a roof of corrugated concrete-asbestos sheeting. Forty per cent of the males and 65 per cent of the females are illiterate. Ethnically, most are Mohajirs (descendants of migrants from India at the time of Partition in 1947), Sindhis or Punjabis.

Study population

As part of a larger project designed to determine the differences between users and non-users of modern methods of contraception, 717 married women aged 15-30 years who had at least two children and whose mother-in-law and husband were living in Karachi were identified. Only women who had never used a modern method of contraception (non-users) and women who had been using a modern method for at least 12 months (users) were included in the study. In each household, the woman, her husband and her mother-in-law were interviewed. If possible, all interviews were conducted separately and concurrently. This article focuses on data from women who expressed a desire to have no more children, i.e. they said that they did not want any additional sons or daughters ($n = 387$). This group of women was then divided into two groups on the basis of their reported consistent use of a modern contraceptive method, i.e. 129 non-users and 258 users. Among the 387 women in the study, 234 had their mother-in-law living with them in the same house and 153 had a mother-in-law who lived in Karachi but not in the same house.

Study instrument

The study team administered a detailed questionnaire to the 387 women, which included items regarding demographic factors, fertility preferences, inter-spousal communication, female autonomy and modernity issues. The questionnaire was developed following an initial qualitative assessment consisting of a series of in-depth interviews about the main themes identified earlier (Khan and others, 1995). Complementary questionnaires were administered to the husband and mother-in-law of these women.

The socio-demographic factors studied included the age of the woman, number of surviving sons and daughter, whether she had received a formal education and the economic conditions of her family, characterized by ownership of a bicycle, motorcycle or car. In order to assess the importance of the husband's and/or mother-in-law's contribution to unmet need, each woman was asked about the fertility preferences of her husband and mother-in-law, and whether she had ever discussed fertility goals with either her husband or mother-in-law. If she responded in the affirmative, she was asked whether her husband or mother-in-law concurred with her fertility goals of having no more sons and no more daughters. It was therefore possible to differentiate between women who knew that their spouse or mother-in-law agreed with their preferences to have no more children and those who either did not know or knew that they disagreed with her.

Inter-spousal communication was assessed by whether or not the woman reported discussion with her husband about their sexual life. Women's autonomy was characterized by such items as paid employment status, whether she would be allowed to work for money if the need arose, her ability to travel by herself outside the home and make decisions to seek health care for herself.

Modernity is another factor that potentially affects the existence of unmet need. This was assessed by asking the woman questions about who should choose a spouse for the boys or girls in her family, and whether she had had a choice in the selection of her husband. To elicit attitudes towards contraception, women were asked whether they found it acceptable to have family planning information provided on broadcast media and whether Islam allowed the use of family planning. They were also asked about their knowledge of both modern and traditional contraceptive methods, and whether they had heard of contraception from a health care provider or on television advertisements.

Data analysis

The study used the SAS system for data analysis using the principles of case-control studies (SAS Institute, 1994). All predictor variables (except current age) were dichotomized. The bivariate results (table 1) are summarized in terms of the percentage of non-users and users who possess specific attributes (e.g. any schooling, allowed to go to market by herself). A multiple logistic regression model was designed, including those variables that distinguished non-users from users at the 95 per cent confidence level in the bivariate analysis (table 2). Results are presented as odds ratios with 95 per cent confidence intervals. Finally, each woman's perceptions about the fertility preferences of her husband and mother-in-law were compared with the preferences reported by the husband and mother-in-law themselves. We looked at the association between these responses using chi-square (tables 3 and 4).

Results

There was no difference in age between users and non-users: both had a mean age of 27 years. Non-users had significantly fewer sons and daughters than users, though the difference between the two groups is more pronounced for sons than for daughters. Non-users were as likely to have received formal education as users, but were slightly less likely to have been related to their spouses prior to marriage ($p = 0.08$). A non-significant difference in socio-economic status was observed between the two groups, with non-users being less likely to own a bicycle, motorcycle or car than users ($p = 0.095$).

With regard to fertility preferences, 62 per cent of non-users perceived that their spouse also wanted no more children compared with 69 per cent of users, but this difference is not statistically significant. Only 24 per cent of non-users believed that their mother-in-law concurred with their fertility goals compared with 43 per cent of users, a highly significant difference ($p < 0.01$). With regard to inter-spousal communication, 79 per cent of non-users discussed their sexual life with their spouse, significantly fewer than among users (88 per cent; $p = 0.02$). Women's economic independence was also significantly associated with unmet need for family planning. Among non-users, only 15.5 per cent of the women worked for pay or perceived that they would be allowed to work if the need arose, compared with 26 per cent of users ($p = 0.02$). There was no difference between the two groups in their mobility outside the home:

Table 1. Comparison of non-users and users of contraception in terms of specified factors in squatter settlements of Karachi, Pakistan

Factors	Non-users (percentage)	Users (percentage)	p-values (percentage)
Socio-demographic			
Mean age	27.0 years	27.1 years	0.74
Has at least four live children	52	72	<0.01
Has at least two live sons	61	82	<0.01
Has at least two live daughters	50	64	0.01
Has some formal education	44	48	0.47
Related to spouse prior to marriage	59	68	0.08
Family owns bicycle, motorcycle or car	36	45	0.095
Perceived preferences			
Perceives that her husband concurs with her fertility preferences	62	69	0.17
Perceives that her mother-in-law concurs with her fertility preferences	24	43	<0.01
Inter-spousal communication			
Has discussed their sexual relationship with her spouse	79	88	0.02
Autonomy			
Works or perceives that she will be allowed to work if the need arose	16	25	0.05
Allowed to go to the market by herself	27	27	0.94
Allowed to travel on a bus by herself	28	21	0.16
Modernity			
Able to make a decision to seek health care for herself	33	33	0.22
Had a say in the choice of her spouse	5	5	0.16
Thinks that boys should choose their spouses	27	31	0.43
Thinks that girls should choose their spouses	24	24	1.00
Family planning exposure and attitudes			
Has heard about family planning from a health care provider	73	90	<0.01
Has seen family planning ads on television	94	98	0.05
Finds the provision of family planning information on broadcast media acceptable	65	80	<0.01
Thinks that Islam allows the use of family planning	23	34	0.03
Knows of more than six modern contraceptive methods	30	57	<0.01
Number	129	258	

Table 2. The multiple logistic regression model of factors related to unmet need for family planning in squatter settlements of Karachi, Pakistan

Variables	Odds ratio ^a	Confidence intervals	p-values
Perceives that her mother-in-law concurs with her fertility preferences	0.38	0.23-0.64	<0.01
Has at least two live sons	0.30	0.18-0.50	<0.01
Has at least two live daughters	0.51	0.32-0.82	<0.01
Discusses their sexual relationship with her spouse	0.42	0.22-0.79	<0.01
Works or perceives that she will be allowed to work if the need arose	0.47	0.26-0.87	0.02

^a The odds ratio represents how likely a woman with an unmet need for family planning is to give a positive response to a question when compared to a woman who is a consistent user of a modern contraceptive method. For example, a woman with an unmet need for family planning is only 0.3 times as likely as a consistent user of a family planning method to have at least two live sons.

73 per cent of both groups were not allowed to go to the market by themselves. Similarly, 73 per cent of non-users and 79 per cent of users were not allowed to travel on a bus by themselves. When comparing the women's ability to decide to seek health care for themselves, 22 per cent of non-users and 28 per cent of users perceived that they could make the decision themselves, a further non-significant result. None of the modernity indicators showed significant differences between non-users and users.

Seventy per cent of non-users think it acceptable for information about family planning to be shown on television, compared with 83 per cent of users ($p < 0.01$), and 22.5 per cent of non-users think that Islam allows family planning compared with 34 per cent of users ($p = 0.03$). Non-users were less likely to have heard of family planning from a health care provider (73 per cent) than users (90 per cent; $p < 0.01$). They were also likely to know fewer methods of family planning overall (mean = 7.1/12) than women who were consistent contraceptive users (mean = 8.4/12; $p < 0.001$) and they were less likely to know about modern contraceptive methods (mean = 5.6/9) than were users (mean = 6.6/9; $p < 0.001$).

On the basis of these bivariate results, a multivariate model was built to include factors with significant differences at the 95 per cent confidence level.

Table 3. Actual fertility preferences of mother-in-law, by women's perception of mother-in-law's preference, in squatter settlements of Karachi, Pakistan

Woman's perception of mother-in-law's fertility preferences	Mother-in law's actual fertility preferences			
	Wants woman to have no more children (percentage)	Wants woman to have more children (percentage)	Unsure or says it is God's will (percentage)	Total (percentage)
Non-users (unmet need)				
Mother-in-law wants her to have no more children	10 (32)	4 (13)	17 (55)	31 (100)
Never discussed with mother-in-law	13 (22)	3 (5)	42 (72)	58 (100)
Mother-in-law unsure how many or says it is God's will	3 (12)	1 (4)	21 (84)	25 (100)
Mother-in-law wants her to have more children	2 (15)	2 (15)	9 (69)	3 (100)
Total	28 (22)	10 (8)	89 (70)	127^a (100)
Chi-square = 7.58, p = 0.27				
Users of contraception				
Mother-in-law wants her to have no more children	74 (66)	7 (6)	31 (28)	112 (100)
Never discussed with mother-in-law	33 (36)	2 (2)	57 (62)	92 (100)
Mother-in-law unsure or says it is God's will	9 (24)	5 (14)	23 (62)	37 (100)
Mother-in-law wants her to have more children	2 (12)	9 (53)	6 (35)	17 (100)
Total	118 (46)	23 (9)	117 (45)	259 (100)
Chi-square = 79.5, p <0.001				

^a Out of a total of 129 mother-in-law responses, two had missing data.

Results are presented in terms of odds ratios (ORs) and 95 per cent confidence intervals. However, as it was clearly redundant to include the number of living children in addition to sons and daughters, this variable was dropped. Indicators of attitude to and knowledge of contraception were also omitted because of ambiguity about causal direction (the adoption of contraceptive use, for instance, may precede the development of positive attitudes, and the decision to adopt a method may stimulate information-gathering).

The final multiple logistic regression model shows that users were more than twice as likely as non-users to perceive that their mothers-in-law agree

Table 4. Actual fertility preferences of husbands, by women's perception of their preferences, in squatter settlements of Karachi, Pakistan

Woman's perception of husband's fertility preferences	Husband's actual fertility preferences			
	Wants no more children (percentage)	Wants more children (percentage)	Unsure or says it is God's will (percentage)	Total (percentage)
Non-users (unmet need)				
Husband wants no more children	22 (28)	6 (8)	52 (65)	80 (100)
Never discussed with husband	7 (37)	2 (11)	10 (53)	19 (100)
Husband unsure or says it is God's will	2 (15)	0 (0)	11 (85)	13 (100)
Husband wants more children	3 (21)	4 (29)	7 (40)	14 (100)
Total	34 (27)	12 (10)	80 (63)	126^a(100)
Chi-square = 10.13, p = 0.119				
Users of contraception				
Husband wants no more children	107 (60)	4 (2)	67 (38)	178 (100)
Never discussed with husband	19 (63)	2 (7)	9 (30)	30 (100)
Husband unsure or says it is God's will	6 (26)	1 (4)	16 (70)	23 (100)
Husband wants more children	11 (46)	3 (13)	10 (42)	24 (100)
Total	143 (56)	10 (4)	102 (40)	255^b(100)
Chi-square = 17.34, p = 0.008				

^a Out of a total of 129 husbands' responses, three had missing data.

^b Out of a total of 258 husbands' responses, three had missing data.

with their fertility preferences after all other factors have been controlled for (OR = 0.38; p < 0.01). The users were also three times as likely as the non-users to have at least two living sons (OR = 0.30; p < 0.01). Furthermore, women using contraception consistently were twice as likely as non-users to work, or to perceive that they would be able to work if the need arose (OR = 0.47; p = 0.01). They were also slightly less than twice as likely as non-users to have at least two living daughters (OR = 0.51; p < 0.01) and to discuss their sexual relationship with their husband (OR = 0.42; p < 0.01).

In order to assess whether the woman's perceptions about the fertility preferences of her mother-in-law and husband were correct, the responses of her mother-in-law and husband themselves concerning how many additional children they wanted the woman to have were analysed (tables 3 and 4). Twenty-two per cent of the mothers-in-law of non-users wanted their

daughters-in-law to have no more children compared with 46 per cent of the mothers-in-law of users. Similarly, the non-users' husband was less likely to want no more children (27 per cent) than the users' husband (56 per cent).

The consistency of responses to questions about fertility preferences by women, their husband and their mother-in-law was examined. This analysis was stratified on the unmet need status of the women. Among non-users who believed that their mothers-in-law wanted them to have no more children, 32 per cent of their mothers-in-law actually did not want them to have any more children (table 3). Among users, this number rose to 66 per cent. Interestingly, there is no statistically significant association between the responses of non-user women and those of their mothers-in-law ($p = 0.27$); however, the responses of users are strongly associated with the responses of their mothers-in-law ($p < 0.001$).

Similarly, there is no statistically significant correlation between the responses of non-users and those of their husband ($p = 0.12$); however, the responses of users are significantly correlated with the responses of their husband ($p = 0.008$). Furthermore, among non-users, only 28 per cent correctly perceived that their husband did not want any more children, though among users this rose to 60 per cent (table 4).

In summary, the results show that the factors influencing the existence of unmet need for family planning among women of the urban squatter settlements of Karachi include the woman's perception that her mother-in-law's goals for her fertility differ from her own, a lack of female autonomy indicated by her perception that she cannot be economically independent, and a lack of communication with her spouse on sexual matters. The number of surviving sons and, to a lesser extent, daughters also influenced contraceptive use among women who wanted no more children. Furthermore, the mother-in-law and husband of users were much less likely to want more children than those of non-users.

Discussion

Factors identified as determinants of unmet need have included access and quality of available health care services, health concerns about contraceptive use, social and familial opposition, especially from husbands, and a low perceived risk of pregnancy (Bhushan, 1996; Bongaarts and Bruce, 1995; Schuler and others, 1994). In the Philippines, the main factors found to be associated with unmet need were the strength of women's reproductive

preferences, the fertility preferences of the husband and the perceived detrimental health side-effects of contraceptive methods (Casterline and others, 1996).

The reasons for unmet need identified in this study differ in a number of aspects from those identified in other surveys on this subject. This difference stems in part from the specific nature of the Karachi study population. Difficulty in accessing distant family planning services, which has been identified as an important risk factor, can pose a significant problem for women in rural settings. However, in this study area, a strong programme for provision of family planning services exists, making this factor less relevant. Considering barriers to access other than distance, both users and non-users were equally likely to perceive that someone other than themselves makes the decision for them to seek health care.

Perhaps most interestingly, this study identifies the mother-in-law as the key figure whose perceived opposition is likely to deter women who profess to want no more children from adopting contraceptive methods. Previous studies have had mixed results. Some have shown the mother-in-law to influence contraceptive use; for example, the presence of the mother-in-law in the home tends to be correlated with low contraceptive usage in South Asia (Caldwell and others, 1982; Poffenberger and Poffenberger, 1965). On the other hand, in-depth interviews in Punjab Province of Pakistan have shown that family elders have less influence than before, leaving fertility decision-making to the couple themselves (Casterline and others, forthcoming). This study may be the first to show a direct relationship between unmet need for family planning and the women's perception that their mothers-in-law do not agree with their desire to cease childbearing. In our model, this perception on the woman's part is the strongest predictor of use (apart from number of sons) among the wide range of factors that were assessed. Furthermore, mothers-in-law of women with unmet need are more likely to corroborate the perceptions of their daughters-in-law that they want them to have additional children, highlighting the important role that mothers-in-law play in unmet need for family planning.

Further evidence regarding effective communication between users and their mothers-in-law is demonstrated by the highly significant association between these women's perception of their mothers-in-law's fertility preferences and the mothers-in-law's actual preferences (table 3). The strong evidence from the perspectives of both women and mothers-in-law underlines the decision-making role and power that mothers-in-law continue to have within Pakistani families. Appreciation of the role of the mother-in-law in the

complex process by which women who want no more children but fail to use a modern contraceptive method can imply important changes in the selection of the target audience for education and information campaigns in family planning programmes aimed at reducing unmet need. Spousal influence on women's contraceptive practices is well accepted; however, this study highlights the hitherto-unrecognized contributions of the mother-in-law.

The study found little difference between those women with an unmet need for family planning and those consistently using a modern family planning method in terms of their perception of their husband's fertility goals, with substantially more than half the women in both groups believing that their husband also wants no more children. However, the husband of a non-user is less likely to express a desire to stop childbearing (27 per cent) than the husband of a user (56 per cent) (table 4). Further analysis shows that there is a statistically significant association between the husband's expressed fertility preferences and the woman's perceptions of her husband's fertility preferences among users but not among non-users (table 4). The low consistency between the responses of women and their husband in the non-users group signifies poor communication on the subject of fertility preferences within this group. In other areas of Pakistan unmet need for family planning is strongly linked with women's perception of spousal opposition (Casterline and others, forthcoming). These results regarding women's perceptions of their husband's fertility goals do not reflect this; it may be explained by the stronger role that is played by the perceived opposition of the mother-in-law. Other possible explanations may be differences in the populations studied, this one being exclusively urban compared with the mixed but predominantly rural population studied by Casterline and others. The role of spousal opposition may be different in the two studies, but both demonstrate that the husband's opposition, either real or perceived, contributes to unmet need. Family planning programmes should therefore continue to target the husband, as an important decision-maker, in the process of addressing unmet need for family planning.

Women were also asked whether they and their husband ever discussed their sexual relationship. This was used as a measure of the most intimate kind of communication in a society where discussions about sex are taboo. The data show that women who had such discussions were less likely to have unmet need than those who did not. This association supports previous studies that show that inter-spousal communication is correlated with contraceptive use. Previously, it was unclear whether discussion with the spouse about family planning led to contraceptive use or vice versa (Robey and others, 1996). The

relationship found in this study between poor spousal communication about sex and unmet need for family planning suggests that communication about topics that are generally regarded as taboo is a determinant of consistent use of a modern contraceptive method among women who profess not to want any more children.

Another important factor identified in this study is the presence of two living sons and two living daughters. Women who have an unmet need for family planning are less likely to have at least this number of living children than women practising consistent contraception. The greater effect of having two living sons may be reflective of the male gender preference that exists among the population of Karachi's squatter settlements. The relationship between having fewer than four children and unmet need also points to another previously identified determinant of unmet need, i.e. how strongly the woman holds the fertility goals she espouses (Westoff and Bankole, 1995; Casterline and others, forthcoming). If the study population regard a family of four children with at least two sons as ideal, then, although women with fewer children may profess to want no more children, they may not hold those fertility goals as strongly as women who have achieved the "ideal" family size. Alternatively, they may be under external pressure to have more children. The family planning programme, therefore, may be most efficient in concentrating on couples who have completed their desired family size, and in making efforts to change perceptions about what constitutes an ideal family size. The latter of these two options is probably the more difficult, at least in the short term. The preference for sons is perhaps the most difficult factor to address effectively as the perception of a son as an asset and a daughter as a burden is deeply ingrained in this society. Ultimately, interventions that help to overcome gender bias may prove to be the most effective in reducing fertility in Pakistan.

The importance of female autonomy in contraceptive use has been identified in the past (Sathar, 1996). This study shows that women who believe that they will not be allowed to work are twice as likely to have an unmet need for family planning as women who are either working for income or those who believe that they would be allowed to work if necessary. However, none of the other items that were used to measure female autonomy, including mobility outside the home and the woman's ability to decide to seek health care for herself were found to be related to the existence of unmet need for family planning. This implies that a woman's perception that she can be economically self-sufficient, to a degree, independently protects her against unmet need for family planning, even in the absence of other forms of autonomy. Consequently, one of the most important interventions for addressing

contraceptive needs may actually be to empower women economically, as has also been mentioned by Sathar (1996). Further investigation into the autonomy paradigm and its influence on contraception is needed.

Similarly, the analysis shows that there is no difference in terms of the items measuring modernity between those who have unmet need and those who do not, with one exception. Non-users were consistently more likely to disapprove of the provision of family planning information on broadcast media than women who use contraceptive methods. This presents an analytical dilemma, as the direction of the causal relationship is ambiguous. Similarly, though lack of knowledge of family planning and discussions with health care providers are clearly related to unmet need, it is unclear what the causal direction of this relationship is. However, it may suggest that health care providers can play an important role in addressing unmet need and perhaps should be trained to counsel each woman of childbearing age, whenever the opportunity arises, about family planning methods, their advantages, disadvantages and availability.

A potential bias that may have affected the study could have arisen if mothers-in-law were aware of the study's relationship to the Primary Health Care Programme, which actively promotes contraception in their community, and consequently downplayed their opposition to family planning or smaller families. However, such bias would be unlikely to overstate the relationship between their perceived or real opposition and unmet need for family planning. On the contrary, if a bias in that direction had occurred it would have rather tended to underestimate the effect of the mother-in-law's influence in discouraging her daughter-in-law from using contraception.

Recommendations for reducing unmet need in the squatter settlements of Karachi, based on this study, include improvements in the family planning programme. In particular, the educational and informational components of family planning programmes should widen their focus to include among target audiences older women, many of whom are currently acting as obstacles to the adoption of contraception by their daughters-in-law. Social changes outside the domain of the family planning programme, such as policies to enhance female economic autonomy, may be equally important in the longer term. Specifically, in order to address the role of son preference, two major societal changes are needed: first, the educational and economic empowerment of women and, second the provision of a social security net which prevents parents from being solely dependent on their male offspring in advanced age.

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