Title: Reducing Maternal Mortality Amongst Poor Pakistani Women In Urban Squatter Settlements: An alternate strategy

Short Title: Reducing maternal mortality in Pakistan

Author: Dr. Amanullah Khan

Co-authors: Dr. Asma Fozia Qureshi

Affiliation: Department of Community Health Sciences, The Aga Khan University, Stadium Road, Karachi 74800, Pakistan. Telephone No. 4930051 Ext. CHS, Fax No.(92)21 4934249, e-mail: chsaku@biruni.erum.com.pk
Abstract:

Pakistan has a high Maternal Mortality Ratio, ranging between 400 to 1400 maternal deaths per 100,000 live births. Approximately 25,000 maternal deaths occur annually, and 375,000 women suffer each year from pregnancy-related complications. Although five million births taking place in Pakistan annually, only 205,000 women there receive any form of trained health care. The contraceptive prevalence rate is reported as only 12% with an unmet need of 25%.

This paper identifies groups of women who are more likely to use contraceptives, pre-natal care and immunizations and those who do not utilize those services. The analysis is based on a secondary data set and compares characteristics that differentiate a group of 17 women who use the services (“user group”) and 116 women who do not use the services (“non-user group”). Women in the “non-user group” were poorer than women in the “user group”. Only 37% had a radio and 23% a television in their homes. A significantly greater proportion of women in the “user group” (82.4%) reported working outside their homes for income compared with 44.8% of the women in the “non-user group”.

In addition to the usual clinical outlets, worksites provide appropriate locations where contraceptives and pre-natal care can be delivered to working women, who are also more likely to make use of these services. Women in the “non-user group” are less likely to have access to information through either media or social networks. Such women must be reached in their homes through a network of health workers who can provide contraceptives and home-based prenatal care.
Title: Reducing Maternal Mortality Amongst Poor Pakistani Women In Urban Squatter Settlements: An alternate strategy

Introduction:

Estimates of Maternal Mortality Ratio (MMR) for Pakistan range from 400 to 1400 maternal deaths per 100,000 live births. An estimated 25,000 maternal deaths annually (approximately five percent of the number of global maternal deaths) occur in Pakistan. Another 375,000 women suffer each year from complications due to lack of appropriate care during pregnancy and the puerperium (Fikree 1994).

Family planning services to avoid unwanted pregnancies, community-based maternity services and appropriate referrals when required have been recommended as interventions for reducing maternal mortality and morbidity (Fathalla 1988). Various government and non-government agencies are continuously making efforts to provide family planning services to women of child bearing age and prenatal care to expectant mothers. Such services are chiefly provided through hospitals and clinics. Still, only 205,000 women receive any form of trained health care in Pakistan where approximately five million births take place annually (Fikree 1994). Moreover, the use of contraceptives is reportedly only 12%, one of the lowest in the world, although it is estimated that there is an unmet need of 25%.

These statistics suggest the need to identify the women who do not make use of these services and provide alternative service-delivery options to them.
This paper uses secondary data to identify the characteristics of the women who do not avail of family planning and pre-natal care services and suggests an approach for reaching those women.
METHODS AND DATA

This paper analyzes a secondary data set that was used primarily to identify the impact of paid employment in the informal labor market on the household decision making and health-seeking behavior of poor Pakistani women. The study was conducted in Karachi between July and August 1995. The methods are described in detail in a separate paper (Khan 1996).

Karachi is the commercial and industrial hub of Pakistan. It is the largest city in Pakistan and has an estimated population of about ten million people. Forty percent of its population reside in some 400 squatter settlements called *katchi-abadis*. These settlements are characterized by unplanned growth and lack of amenities. The family incomes in these settlements are generally low, ranging from US$ 43 to US$ 86 (Government of Sindh and UNICEF 1993).

We gathered data for the study from one of these katchi-abadis. The selection of this squatter settlement was based on logistic considerations and a high probability of locating women working in the informal labor market there. This squatter settlement is situated along the coastline and is geographically well demarcated from the planned city. We were not able to establish the exact size of the population there, but many squatter settlements of this size population of 5000 to 20,000 residents.
We developed a questionnaire in the local language, *Urdu*, and pretested it in a neighboring squatter settlement prior to the study. After a few necessary modifications in the questions and responses categories, the final questionnaire was administered directly to female respondents in seclusion from any male members of their households.

Six female interviewers with experience in conducting surveys were trained for a period of two weeks to conduct the interviews. Three pairs of interviewers proceeded in three randomly selected directions within one kilometer diameter of a centrally identified landmark in the squatter settlement. They conducted collectively 252 interviews of currently married women of childbearing age group (15 to 49 years), residing with their spouses. Interviewers went door-to-door identifying and interviewing women working in the informal sector. Work was defined as any employment other than housework for which the woman was paid in cash; or self-employment in selling or running a business (Curtin 1983). Only one woman from each household was randomly selected for the study. For every working woman enrolled, the interviewers registered a housewife from the closest neighboring household in which no female had ever worked or sought employment for wages. The housewife had to be within five years age range of the working woman. To verify the accuracy of the responses, the author randomly repeated ten percent of the interviews.

Statistical module of Epi Info Version 6 (Dean 1994) was used for data entry and analysis. For this paper, we explored the differences between groups of women who reported using services such as contraceptives, prenatal care during their last pregnancy and at least two
tetanus toxoid immunization injections (the “user group”) with those who did not (the “non-user group”). Chi-square statistics and t-test were used to determine differences between the “user” and “non-user” groups for categorical and continuous variables, respectively.

A respondent was categorized in the “user group” if she reported using a modern method of contraception continuously for the past six months, had sought prenatal care from a health care provider at least on one occasion and had received at least two injections of tetanus toxoid.
RESULTS

Of the 252 women interviewed, only 17 (6.7%) reported using contraceptives, seeking prenatal services during their last pregnancy and receiving at least two injections of tetanus toxoid. Of the remaining women 116 (46%) reported using none of these services. The remaining 119 (52.7%) women reported using either contraceptives, or prenatal care services or tetanus toxoid injections or reported utilizing a combination of only two of the three interventions. These 133 women are excluded from the analysis for this paper.

The demographic characteristics of the women in the “user” and “non-user” groups are summarized in Table 1. There was no statistical difference between the two groups of women with respect to their mean age, duration of marriage or mean number of living children.

Table 2 shows that women in the “non-user group” lived in poor housing conditions, compared with women in the “user group”. Their mean family income (US$ 56.3) was significantly less compared with that reported by women in the “user group” (US$ 97.9). Only 43 (37.1%) of the women in the “user group” had a radio, and only 27 (23.3%) had a television.

A significantly greater proportion of women in the “user group” (82%) were working compared with women in the “non-user group” (45%). Similarly, a greater proportion of women in the “user group” (35%) reported receiving some formal education (maximum
four years of schooling) compared with women (14.7%) from the “non-user” group.

There was no statistical difference reported between the two groups of women with respect to their husbands attitude toward use of contraceptives, or to their ability to go out alone to seek medical attention without the permission of their husbands or mothers-in-law.
Discussion:

This study suggests that the “non-user” group of women those who do not make use of family planning services or seek prenatal care or immunization belong to poor families. Very few of these women have a radio or television, and even fewer go out to work. Therefore, information, education and communication (IEC) campaigns that utilize mass media are less likely to have an impact on these women with regard to the utilization of family planning or prenatal care services. These women need to be reached through interpersonal communication efforts. For the same reason, IEC campaigns need to be supplemented by locally delivered family planning services and home-based prenatal care.

Many births in the squatter settlements are conducted by Traditional Birth Attendants (TBAs) who are known to be more trusted within the community (Kamal 1992). They, therefore are an important human resource group who could be involved in provide information and services about family planning and prenatal care. However, TBAs and other people who perform such services need better training (McCormick 1994). In addition to the use of safe delivery techniques, they need training in provision of family planning counseling and services as well as in the screening and identification of high-risk pregnancies, so they can refer such women to a health facility.

The study also suggests that a greater proportion of women who use these services work outside the homes for cash. It is likely that this proportion can be increased by providing such women with alternatives to hospitals and clinics - worksites for example, can make family planning and prenatal care available.
We believe that our study offers useful information with regard to planning strategies for reducing maternal mortality and morbidity, at a time when Pakistan is undertaking important measures to expand health services to all its citizens (Ansari 1994).
References:


Table 1. Demographic characteristics of women using or not using (“user group” and “non-user group”) contraceptives, prenatal care and immunization services

<table>
<thead>
<tr>
<th>Parameter</th>
<th>“User Group”</th>
<th>“Non-user group”</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=17 (SD) n</td>
<td>N=116 (SD) n</td>
<td></td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>30.5 (6.4) 31.4 (7.2)</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Duration of marriage (years)</td>
<td>13.6 (6.8) 14.9 (7.5)</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Mean number of living children</td>
<td>2.6 (1.7) 2.9 (2.1)</td>
<td>0.5</td>
<td></td>
</tr>
</tbody>
</table>
Table 2. Household and economic conditions of women using or not using (“user group” and “non-user group”) contraceptives, prenatal care and immunization services

<table>
<thead>
<tr>
<th>Parameter</th>
<th>“User Group”</th>
<th>“Non-User Group”</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=17</td>
<td>N=116</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
</tr>
<tr>
<td>Thatched houses</td>
<td>4 (23.5)</td>
<td>82 (70.7)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Absence of piped water</td>
<td>10 (58.8)</td>
<td>20 (17.2)</td>
<td>&lt;0.01*</td>
</tr>
<tr>
<td>Presence of electricity</td>
<td>15 (88.2)</td>
<td>69 (59.5)</td>
<td>0.04</td>
</tr>
<tr>
<td>Possession of Radio</td>
<td>13 (76.4)</td>
<td>43 (37.1)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Possession of Television</td>
<td>12 (70.6)</td>
<td>27 (23.3)</td>
<td>&lt;0.01*</td>
</tr>
<tr>
<td>Mean monthly family income (US$)</td>
<td>97.9 (44.1)</td>
<td>56.3 (35.4)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

* Fisher exact results.
Table 3: Comparison of women with varying preventive health seeking behavior outcomes (contraceptive use, immunization & ante-natal care)

<table>
<thead>
<tr>
<th>Group</th>
<th>N=17</th>
<th>N=116</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working women</td>
<td>14 (82.4)</td>
<td>52 (44.8)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Respondent’s education</td>
<td>6 (35.3)</td>
<td>17 (14.7)</td>
<td>0.05</td>
</tr>
<tr>
<td>Husbands attitude towards family planning</td>
<td>14 (82.4)</td>
<td>73 (62.9)</td>
<td>0.2</td>
</tr>
<tr>
<td>Mobility possible without prior permission</td>
<td>9 (52.9)</td>
<td>73 (62.9)</td>
<td>0.6</td>
</tr>
<tr>
<td>Work &amp; Education</td>
<td>5 (29.4)</td>
<td>9 (7.8)</td>
<td>0.02</td>
</tr>
</tbody>
</table>
## COMPARISON OF WOMEN WITH VARYING PREVENTIVE HEALTH SEEKING BEHAVIOR OUTCOMES (CONTRACEPTIVE USE & TETANUS TOXOID IMMUNIZATION)

<table>
<thead>
<tr>
<th>Number of Characteristics</th>
<th>Two</th>
<th>None</th>
<th>Odds Ratio</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=19</td>
<td>N=129</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working women</td>
<td>16 (84.2)</td>
<td>60 (46.5)</td>
<td>6.3</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Education</td>
<td>7 (36.8)</td>
<td>18 (13.9)</td>
<td>3.6</td>
<td>0.02</td>
</tr>
<tr>
<td>Age &lt;35 years</td>
<td>16 (84.2)</td>
<td>98 (75.9)</td>
<td>1.7</td>
<td>0.4</td>
</tr>
<tr>
<td>Husbands attitude</td>
<td>15 (78.9)</td>
<td>84 (65.1)</td>
<td>2.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Mobility possible</td>
<td>9 (47.4)</td>
<td>61 (47.3)</td>
<td>1.0</td>
<td>0.09</td>
</tr>
<tr>
<td>No. of children &lt;7</td>
<td>17 (89.5)</td>
<td>92 (71.2)</td>
<td>3.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Work &amp; Education</td>
<td>6 (31.6)</td>
<td>9 (7.0)</td>
<td>4.2</td>
<td>0.02</td>
</tr>
</tbody>
</table>
## COMPARISON OF HEALTH SEEKING BEHAVIOR OUTCOMES BY VARYING INCOME LEVELS

<table>
<thead>
<tr>
<th>Income Levels</th>
<th>Odds Ratio</th>
<th>p value</th>
</tr>
</thead>
</table>
| Upper quart.  | Lower quart.
| N=36          | N=35       |         |

**Contraceptives & Immun & ANC**

- Contraceptives Immun & ANC & 7 (19.4) 2 (5.7) 3.9 0.08
- Contraceptives Immun. & 8 (22.2) 2 (5.7) 4.7 0.05
- Contraceptives ANC & 8 (22.2) 2 (5.7) 4.7 0.05

**Contraceptives**

- Contraceptives 12 (33.3) 3 (8.6) 5.3 0.02

**Immunizations**

- Immunizations 18 (50.0) 16 (45.7) 1.2 0.9

**Ante-natal care**

- Ante-natal care 19 (52.8) 16 (45.7) 1.3 0.7
## COMPARISON OF WOMEN WITH VARYING PREVENTIVE HEALTH SEEKING BEHAVIOR OUTCOMES (CONTRACEPTIVE USE & ANTE-NATAL CARE)

<table>
<thead>
<tr>
<th></th>
<th>Number of Characteristics</th>
<th>Odds Ratio</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Two</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Working women</td>
<td>16 (84.2)</td>
<td>62 (45.3)</td>
<td>6.5</td>
</tr>
<tr>
<td>Education</td>
<td>7 (36.8)</td>
<td>23 (16.8)</td>
<td>2.9</td>
</tr>
<tr>
<td>Age &lt;35 years</td>
<td>15 (78.9)</td>
<td>106 (77.4)</td>
<td>1.1</td>
</tr>
<tr>
<td>Husbands attitude</td>
<td>16 (84.2)</td>
<td>84 (61.3)</td>
<td>3.4</td>
</tr>
<tr>
<td>Mobility possible</td>
<td>11 (57.9)</td>
<td>62 (45.3)</td>
<td>1.7</td>
</tr>
<tr>
<td>No. of children &lt;7</td>
<td>16 (84.2)</td>
<td>97 (70.8)</td>
<td>2.2</td>
</tr>
<tr>
<td>Work &amp; Education</td>
<td>6 (31.6)</td>
<td>11 (8.0)</td>
<td>5.3</td>
</tr>
</tbody>
</table>

N=19 N=137
References:

Aghajanian 1989 Iran


Table 4: Involvement in Decision Making

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Working Women</th>
<th>House-wives</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=140</td>
<td>N=112</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Seeking care for sick child</td>
<td>101 (72.1)</td>
<td>67 (59.8)</td>
<td>0.04</td>
</tr>
<tr>
<td>Child’s school enrolment</td>
<td>103 (73.6)</td>
<td>67 (59.8)</td>
<td>0.02</td>
</tr>
<tr>
<td>Purchase of food</td>
<td>85 (60.7)</td>
<td>49 (43.8)</td>
<td>0.01</td>
</tr>
<tr>
<td>Purchase of furniture</td>
<td>58 (41.4)</td>
<td>17 (15.2)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Purchase of electrical goods</td>
<td>44 (31.4)</td>
<td>15 (13.4)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Selecting daughter-in-law for son</td>
<td>90 (64.3)</td>
<td>65 (58.0)</td>
<td>0.3</td>
</tr>
<tr>
<td>Selecting son-in-law for daughter</td>
<td>123 (87.9)</td>
<td>101 (90.2)</td>
<td>0.6</td>
</tr>
</tbody>
</table>
Table 5: *Autonomy in decision making

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Working Women</th>
<th>House-wives</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=140</td>
<td>N=112</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Seeking care for sick child</td>
<td>34</td>
<td>24.3</td>
<td>17</td>
</tr>
<tr>
<td>Child’s school enrolment</td>
<td>29</td>
<td>20.7</td>
<td>7</td>
</tr>
<tr>
<td>Purchase of food</td>
<td>48</td>
<td>34.3</td>
<td>28</td>
</tr>
<tr>
<td>Purchase of furniture</td>
<td>20</td>
<td>14.3</td>
<td>2</td>
</tr>
<tr>
<td>Purchase of electrical goods</td>
<td>15</td>
<td>10.7</td>
<td>2</td>
</tr>
<tr>
<td>Selection of daughter-in-law</td>
<td>24</td>
<td>17.1</td>
<td>3</td>
</tr>
<tr>
<td>Selection of son-in-law</td>
<td>23</td>
<td>16.4</td>
<td>3</td>
</tr>
<tr>
<td>Can you go alone to the:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>physician for treatment</td>
<td>80</td>
<td>(57.1)</td>
<td>50</td>
</tr>
<tr>
<td>market for purchasing</td>
<td>70</td>
<td>(50.0)</td>
<td>35</td>
</tr>
</tbody>
</table>

*Autonomy measured as independent decision making by respondent and independent mobility
### Table 6: Disease spectrum, health care seeking patterns and utilization of preventive services

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Working for pay</th>
<th>Not working for pay</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported ill during past one month</td>
<td>90/140 (64.3)</td>
<td>53/112 (47.3)</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Most common ailment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever (unspecified)</td>
<td>28/90 (31%)</td>
<td>14/53 (26%)</td>
<td>0.6</td>
</tr>
<tr>
<td>General body aches</td>
<td>20/90 (22%)</td>
<td>11/53 (21%)</td>
<td>0.8</td>
</tr>
<tr>
<td>Gastrointestinal disturbances</td>
<td>12/90 (20%)</td>
<td>9/53 (17%)</td>
<td>0.5</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>10/90 (11%)</td>
<td>5/53 (9%)</td>
<td>0.8</td>
</tr>
<tr>
<td>Others</td>
<td>20/90 (14%)</td>
<td>14/53 (26%)</td>
<td>0.6</td>
</tr>
<tr>
<td>Consulted health care provider for illness</td>
<td>78/90 (88%)</td>
<td>46/53 (85%)</td>
<td>0.6</td>
</tr>
<tr>
<td>Type of practitioner consulted:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor</td>
<td>74/78 (96%)</td>
<td>42/46 (91%)</td>
<td>0.3</td>
</tr>
<tr>
<td>Hakim</td>
<td>2/78 (2%)</td>
<td>4/46 (9%)</td>
<td>0.1</td>
</tr>
<tr>
<td>Homeopaths</td>
<td>2/78 (2%)</td>
<td>0/46 (0%)</td>
<td>0.4</td>
</tr>
<tr>
<td>Use of Preventive Services:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal immunization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(tetanus toxoid)</td>
<td>70/140 (50%)</td>
<td>35/112 (31%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>At least one antenatal visit for last child</td>
<td>68/140 (49%)</td>
<td>30/112 (27%)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Contraceptive prevalence</td>
<td>25/140 (18%)</td>
<td>10/112 (9%)</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Table 4: Distribution of work related hours in a working woman’s day

<table>
<thead>
<tr>
<th>Time (in hours/day) spent in:</th>
<th>Mean (SD)</th>
<th>95% Confidence</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>employment related work</td>
<td>6.6 (2.3)</td>
<td>(6.2 to 7.0)</td>
<td>6.0 hours</td>
<td>2-12 hours</td>
</tr>
<tr>
<td>domestic work</td>
<td>3.2 (1.8)</td>
<td>(2.9 to 3.5)</td>
<td>3.0 hours</td>
<td>0-7 hours</td>
</tr>
</tbody>
</table>

Mean proportion of time contributed towards:

| employment related work                      | 68% (16.7) | 67%            | 22-100% |
| domestic work                                | 32% (16.7) | 33%            | 0-78%   |

akdraft2
Table 5

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Working women</th>
<th>House-wives</th>
<th>95% Confidence Interval</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean income:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of all husbands</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of employed husbands only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean income:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all husbands and others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employed husbands and others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean income of respondent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>only when husband is employed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>only when husband is unemployed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composition of family income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>when husband is employed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respondents income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed husbands</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total family income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respondents income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Effect of employment on routine activities:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Improved</th>
<th>Worsened</th>
<th>Unaffected</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Relationship with spouse</td>
<td>84 (60.0)</td>
<td>17 (12.1)</td>
<td>37 (26.4)</td>
<td>2 (1.4)</td>
</tr>
<tr>
<td>95% Confidence Interval</td>
<td>(51.4 to 68.2)</td>
<td>(7.2 to 18.7)</td>
<td>(19.3 to 34.5)</td>
<td>(0.2 to 5.1)</td>
</tr>
<tr>
<td>Child care</td>
<td>63 (45.0)</td>
<td>20 (14.0)</td>
<td>45 (32.1)</td>
<td>12 (8.6)</td>
</tr>
<tr>
<td>95% Confidence Interval</td>
<td>(36.6 to 53.6)</td>
<td>(8.9 to 21.2)</td>
<td>(24.5 to 40.6)</td>
<td>(4.5 to 14.5)</td>
</tr>
<tr>
<td>Decision making</td>
<td>57 (40.7)</td>
<td>16 (11.4)</td>
<td>61 (43.6)</td>
<td>6 (4.3)</td>
</tr>
<tr>
<td>95% Confidence Interval</td>
<td>(32.5 to 49.3)</td>
<td>(6.7 to 17.9)</td>
<td>(35.2 to 52.2)</td>
<td>(1.6 to 9.1)</td>
</tr>
<tr>
<td>Purchasing ability</td>
<td>52 (37.1)</td>
<td>24 (17.1)</td>
<td>48 (34.3)</td>
<td>16 (11.4)</td>
</tr>
<tr>
<td>95% Confidence Interval</td>
<td>(29.1 to 45.7)</td>
<td>(11.3 to 24.4)</td>
<td>(26.5 to 42.8)</td>
<td>(6.7 to 17.9)</td>
</tr>
<tr>
<td>Domestic chores</td>
<td>45 (32.0)</td>
<td>29 (20.7)</td>
<td>49 (35.0)</td>
<td>17 (12.1)</td>
</tr>
<tr>
<td>95% Confidence Interval</td>
<td>(24.5 to 40.6)</td>
<td>(14.3 to 28.4)</td>
<td>(27.1 to 43.5)</td>
<td>(7.2 to 18.7)</td>
</tr>
<tr>
<td>Social relationships</td>
<td>40 (28.6)</td>
<td>30 (21.4)</td>
<td>51 (36.4)</td>
<td>19 (13.6)</td>
</tr>
<tr>
<td>95% Confidence Interval</td>
<td>(21.3 to 36.8)</td>
<td>(14.9 to 29.2)</td>
<td>(28.5 to 45.0)</td>
<td>(8.4 to 20.4)</td>
</tr>
</tbody>
</table>
### Autonomy in decision making

<table>
<thead>
<tr>
<th>Who decides on the following issues in your household?</th>
<th>Self (Respondent)</th>
<th>Husband</th>
<th>Joint</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Working Women</td>
<td>House-wives Women</td>
<td>Working Women</td>
</tr>
<tr>
<td>Purchase of food</td>
<td>48 34.3 28 25 0.1</td>
<td>45 32.1 53 47.3 0.02</td>
<td>45 32.1 53 47.3 0.02</td>
</tr>
<tr>
<td>Seeking treatment for sick child</td>
<td>34 24.3 17 15.2 0.07</td>
<td>34 24.3 40 35.7 0.12</td>
<td>34 24.3 40 35.7 0.12</td>
</tr>
<tr>
<td>Child’s school enrolment</td>
<td>29 20.7 7 6.3 &lt;0.01</td>
<td>30 21.4 40 35.7 0.04</td>
<td>30 21.4 40 35.7 0.04</td>
</tr>
<tr>
<td>Purchase of gold</td>
<td>26 18.6 14 12.5 0.2</td>
<td>27 19.3 27 24.1 0.4</td>
<td>27 19.3 27 24.1 0.4</td>
</tr>
<tr>
<td>Selection of son-in-law</td>
<td>23 16.4 3 2.7 &lt;0.01</td>
<td>17 12.1 11 9.8 0.6</td>
<td>17 12.1 11 9.8 0.6</td>
</tr>
<tr>
<td>Selection of daughter-in-law</td>
<td>24 17.1 3 2.7 &lt;0.01</td>
<td>17 12.1 12 10.7 0.7</td>
<td>17 12.1 12 10.7 0.7</td>
</tr>
<tr>
<td>Purchase of furniture</td>
<td>20 14.3 2 1.8 &lt;0.01</td>
<td>68 48.6 82 73.2 &lt;0.01</td>
<td>68 48.6 82 73.2 &lt;0.01</td>
</tr>
<tr>
<td>Purchase of electrical goods</td>
<td>15 10.7 2 1.8 &lt;0.01</td>
<td>75 56.3 85 75.9 &lt;0.01</td>
<td>75 56.3 85 75.9 &lt;0.01</td>
</tr>
</tbody>
</table>
Background Factors  
Community-level Conditions

Support System:
- Husbands income
- Husbands employment status
- Social security
- Insurance

Decision making

Aspects of Poverty

Seeking remuneration for work through self employment or employer

Individual & Household characteristics

Employment problems

Social attitudes towards working women:
- Husbands attitude

- Health care
- Contraceptive use
- Children’s education
- Selecting spouse for children
- Female mobility
- Purchase of: food, electrical items
Mothers-in-laws
attitude

Community Level
Conditions
Dr. Carla,

Enclosed please find a draft of the paper that I have been working on. I have tried to document all necessary definitions, methods, analysis to make the paper clear, precise and meaningful for Pakistan. I shall fill in the few gaps you may see in the results and reference sections.

I intend to submit the paper after finalization and editorial assistance to Social Sciences and Medicine before I leave for Pakistan in the first week of July. Your feedback shall be appreciated. You can let me know the time when you would be available to discuss any issues. My email is akhan@hsph.harvard.edu

I shall be making my final presentation on 30th May (Thursday) at 3.00pm in the Takemi Conference Room. I hope you are able to make it.

Amanullah Khan
May 21, 1996
<table>
<thead>
<tr>
<th>Characteristics (Contr. &amp; Imm.)</th>
<th>Two characteristics</th>
<th>One characteristic</th>
<th>None of the characteristics</th>
<th>Odds Ratio (1&amp;3)</th>
<th>p value</th>
<th>p value (Test for Trend)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=19</td>
<td>N=104</td>
<td>N=129</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working women</td>
<td>16 (84.2)</td>
<td>63 (60.5)</td>
<td>60 (46.5)</td>
<td>6.3</td>
<td>&lt;0.05</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Age &lt;36 years</td>
<td>16 (84.2)</td>
<td>84 (80.8)</td>
<td>98 (75.9)</td>
<td>1.7</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Husband positive about work</td>
<td>15 (78.9)</td>
<td>72 (69.2)</td>
<td>84 (65.1)</td>
<td>2.0</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Education</td>
<td>7 (36.8)</td>
<td>25 (24.0)</td>
<td>18 (13.9)</td>
<td>3.6</td>
<td>0.02</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Mobility possible</td>
<td>9 (47.4)</td>
<td>34 (32.7)</td>
<td>61 (47.3)</td>
<td>1.0</td>
<td>0.09</td>
<td>0.2</td>
</tr>
<tr>
<td>No. of children(&lt;7)</td>
<td>17 (89.5)</td>
<td>72 (69.2)</td>
<td>92 (71.2)</td>
<td>3.4</td>
<td>0.2</td>
<td>0.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristics (Contr. &amp; Mob.)</th>
<th>Two characteristics</th>
<th>One characteristic</th>
<th>None of the characteristics</th>
<th>Odds Ratio (1&amp;3)</th>
<th>p value</th>
<th>p value (Test for Trend)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=18</td>
<td>N=103</td>
<td>N=129</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working women</td>
<td>16 (88.8)</td>
<td>62 (60.2)</td>
<td>61 (47.3)</td>
<td>8.9</td>
<td>&lt;0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>Age &lt;36 years</td>
<td>17 (94.4)</td>
<td>74 (71.8)</td>
<td>107 (82.9)</td>
<td>3.5</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Husband positive about work</td>
<td>17 (94.4)</td>
<td>69 (67.0)</td>
<td>85 ((65.9)</td>
<td>1.6</td>
<td>0.9</td>
<td>0.3</td>
</tr>
<tr>
<td>Education</td>
<td>6 (33.3)</td>
<td>20 (19.4)</td>
<td>24 (18.6)</td>
<td>2.2</td>
<td>0.1</td>
<td>0.8</td>
</tr>
<tr>
<td>No. of child. (&lt;7)</td>
<td>15 (83.3)</td>
<td>73 (70.9)</td>
<td>93 (72.1)</td>
<td>1.9</td>
<td>0.2</td>
<td>0.3</td>
</tr>
</tbody>
</table>
### COMPARISON OF AUTONOMY IN DECISION MAKING
### UPPER AND LOWER INCOME EARNING QUARTILES
### WORKING WOMEN ONLY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Lower quartile (&lt;20 US$)</th>
<th>Upper quartile (&gt;40 US$)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Seeking care for sick child</td>
<td>8</td>
<td>(22.9)</td>
<td>12</td>
</tr>
<tr>
<td>Child’s school enrollment</td>
<td>7</td>
<td>(20.0)</td>
<td>14</td>
</tr>
<tr>
<td>Purchase of:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>food</td>
<td>13</td>
<td>(37.1)</td>
<td>17</td>
</tr>
<tr>
<td>furniture</td>
<td>3</td>
<td>(8.6)</td>
<td>9</td>
</tr>
<tr>
<td>electrical goods</td>
<td>2</td>
<td>(5.7)</td>
<td>6</td>
</tr>
<tr>
<td>Selection of:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>daughter-in-law</td>
<td>6</td>
<td>(17.1)</td>
<td>10</td>
</tr>
<tr>
<td>son-in-law</td>
<td>6</td>
<td>(17.1)</td>
<td>9</td>
</tr>
<tr>
<td>Mobility</td>
<td>13</td>
<td>(37.1)</td>
<td>24</td>
</tr>
<tr>
<td>Contraceptive use</td>
<td>3</td>
<td>(8.6)</td>
<td>12</td>
</tr>
<tr>
<td>Immunization</td>
<td>16</td>
<td>(45.7)</td>
<td>18</td>
</tr>
<tr>
<td>Ante-natal care</td>
<td>16</td>
<td>(45.7)</td>
<td>19</td>
</tr>
</tbody>
</table>

*Autonomy measured as independent decision making by respondent*
## Autonomous Decision Making

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Working Women</th>
<th>House-wives</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=140</td>
<td>N=112</td>
<td></td>
</tr>
<tr>
<td>n %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeking care for sick child</td>
<td>34 (24.3)</td>
<td>17 (15.2)</td>
<td>0.07</td>
</tr>
<tr>
<td>Child’s school enrolment</td>
<td>29 (20.7)</td>
<td>7 (6.3)</td>
<td>&lt;.0.01</td>
</tr>
<tr>
<td>Purchase of food</td>
<td>48 (34.3)</td>
<td>28 (25.0)</td>
<td>0.1</td>
</tr>
<tr>
<td>Purchase of furniture</td>
<td>20 (14.3)</td>
<td>2 (1.8)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Purchase of electrical goods</td>
<td>15 (10.7)</td>
<td>2 (1.8)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Selection of daughter-in-law</td>
<td>24 (17.1)</td>
<td>3 (2.7)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Selection of son-in-law</td>
<td>23 (16.4)</td>
<td>3 (2.7)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Can you go alone to the:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>physician for treatment</td>
<td>80 (57.1)</td>
<td>50 (44.6)</td>
<td>0.05</td>
</tr>
<tr>
<td>market for purchasing</td>
<td>70 (50.0)</td>
<td>35 (31.3)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

*Autonomy measured as independent decision making by respondent and independent mobility*
## COMPARISON OF HEALTH SEEKING BEHAVIOUR

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Working Women</th>
<th>House-wives</th>
<th>Odds Ratio</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=140</td>
<td>N=112</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contraceptive use</td>
<td>25 (18.0)</td>
<td>10 (9.0)</td>
<td>2.2</td>
<td>0.06</td>
</tr>
<tr>
<td>Immunization (Tetanus Tox.)</td>
<td>70 (50.0)</td>
<td>35 (31.3)</td>
<td>2.2</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Ante-natal care</td>
<td>68 (48.6)</td>
<td>30 (26.8)</td>
<td>2.6</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
Figure 1: Distribution Of Age at Beginning Work

- Age groups in years:
  - 5-9
  - 135-14
  - 15-19
  - 20-24
  - 25-29
  - 30-34
  - 35+

- Number of working women:
  - Mean 20.8
  - Median 20.0

n=140
Help:

Suitable title
Organization of paragraphs and ideas
Terminology and consistency
Table headings/titles
Discussion
Results: Avoid repeating much of the tables.