



CARING THE PRIMARY CARE-GIVERS—DETERMINANTS OF FARMWOMEN'S HEALTH: A VIEW FROM RURAL PUNJAB-PAKISTAN

TUSAWAR IFTIKHAR AHMAD, PhD

Assistant Professor, Department of Economics,
The Islamia University of Bahawalpur, Pakistan.
Bahawalnagar Campus
Email: tusawar.iftikhar@iub.edu.pk

ZEESHAN MUSTAFA

Agricultural Economist
International Livestock Research Institute (ILRI) - Pakistan Office
Animal Science Institute, NARC, Park Road, Islamabad-Pakistan
Email: z.mustafa@cgiar.org

SYED BABAR ALI ZAIDI

M. Sc Scholar of Economics & Finance,
The Islamia University of Bahawalpur, Pakistan.
Bahawalnagar Campus
Email: syedbabarzaidi@yahoo.com

MARYYUM NAZ

M. Sc. Scholar of Economics,
The Islamia University of Bahawalpur, Pakistan.
Bahawalnagar Campus

ABSTRACT

A person's physical and mental well-being or ill-being is an outcome of multi-level (individual, household, neighborhood, local, national, and global) social, economic, environmental and political milieus under which the person is living. The present study is primarily in search of finding the non-income determinants of farmwomen's health in rural areas of district Bahawalnagar (Punjab-Pakistan). SRH is used to gauge the state of respondents' health. The study reveals that farmwomen's health determinants are particular to them and their families. The study concludes that marriages at early age may result in serious health concerns for a farmwoman. More participation in activities relating to livestock management may increase a rural woman's work burden that may ultimately result in poor health status. The study also reveals that greater the number of pregnancies, higher the chances to have poor health status of that working woman. Living under joint family system, increases a woman's likelihood to have good health status. Husband's higher education status is found to be associating with wife's good health status. Availability of labor-saving home appliances may save efforts and energies of domestic women and are found to be increasing the

likelihood to have good health. The study suggests that at household level, a farmwoman's health concerns could be minimized by lowering her productive and reproductive work burdens. In reducing her burden relating to productive work, the use of labor or effort saving ways of working through the use of technology is imperative. While a woman's reproductive work burden could be reduced through discouraging early and excessive child bearing. A woman's level of education and that of her spouse may positively contribute not only for her own health but for the good health of a farm family.

Key words: Farmwomen, Self-reported Health, Demographics, Rural Punjab

JEL Classification Codes: I15, J10, Q12, R20, Y10

I. INTRODUCTION

Health is a prerequisite to attain productive human capital resources. Better health contributes to human welfare and ultimately to economic growth. Including federally funded vertical programs, public sector expenditures in health care are progressive and operative at various administrative tiers. The government pays whole or part of the cost of health care services provided to the people. In spite of its efforts and investment, government of Pakistan acknowledges its failure in achieving desired health outcomes and in bridging the large gap existing between availability and requirements. By the government, the acknowledged failure in healthcare is attributed to faster urbanization, industrialization, poverty, uneven distribution of health benefits, and unhygienic environmental condition (GOP, 2015). That is further an indirect confession of government's failure and inability to address these socio-economic concerns, hence, exhibiting what is actually underneath the peel of "good governance".

Millennium Development Goals (MDGs) provide countries with time bound (deadline 2015) objectives for achieving human development (especially relating to health and education). Pakistan's progress on health related MDGs vary across different goals. On account of a number of factors like illiteracy, food insecurity, inadequate nutrition and low financial allocation, Pakistan's progress on maternal and child mortality rates is not suffice to meet the MDGs targets (GOP, 2015). This is an overall or country level scenario regarding progress in achieving health related goals, while achievements across regions and in rural-urban context are the other and untold parts of the same story. In rural areas, health concerns are more serious regarding availability of basic infrastructure, service delivery and its utilization.

Along with banishment of hunger, malnutrition, and poverty, improved quality of rural life is tied to an efficient, productive and profitable agriculture sector. Contribution of agriculture sector in the GDP of Pakistan is 21 percent. This sector generates productive employment opportunities for 45 percent of the labor force, and renders 60 percent of the rural population depending upon this sector for earning its livelihood. Hence, agriculture has a vital role in ensuring food security, generating overall economic growth, reducing poverty and transforming towards industrialization (GOP, 2012).

Generally speaking, without effective involvement of farmwomen, the success of any livestock farming enterprise is not more than just a dream. The heavy reliance of this enterprise on the participation of women is due to the reason that women are closely involved in animal husbandry sort of activities. They have to carry out their livestock production work in addition to their household commitments like, taking care of children and elderly ones, preparing meals, collecting water, gathering firewood, milling grains, cleaning utensils, washing clothes, and so on. In short, the concept of women in agriculture development presupposes significance of women's contribution to the process of socio-economic development (Shafiq, 2008).

Women are the back bone of the rural economy. In spite of the fact that women's participation in livestock management related activities is more critical as compared to men, their contribution and involvement is neither well documented nor considered as paid work (Hassan, et al 2007).

Rural women have internalized the lower status assigned to them. Gender discrimination starts from the early days of a female child and remain continue throughout her lifecycle. They are economically active but are also economically dependent, have neither ownership nor control over resources. The pervasive patriarchal structure of the society reinforces the economic subordination of women further (Habib, 2004). Sustained discrimination regarding nurturing, nourishment, schooling, and in making general health care of a female child portray a woman's vulnerable and disadvantaged status.

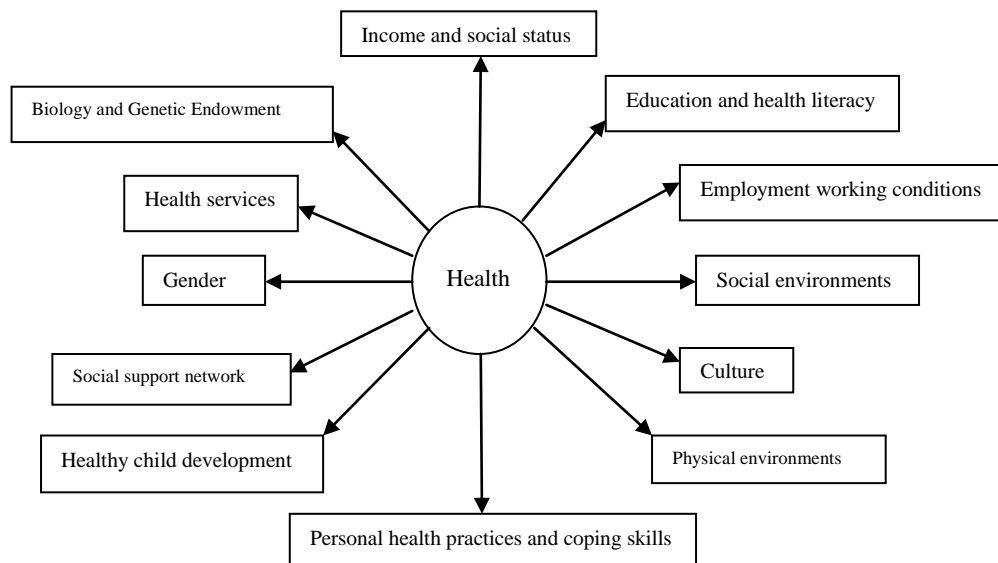
As highlighted by IFAD (1991), the main reasons to focus on farmwomen may be attributed to the facts that: i) women represent a major part of the rural poor, ii) they remain very much on the margin of access to and participation in public and private services to meet their own needs, iii) they have acquired a tremendous store of knowledge about and

efficient skills in agricultural production, and iv) women are prime movers in the development process and vital agents in the process of change.

The lack of appreciation for women's work—paid and unpaid, productive and reproductive—is an old problem. According to a survey, in India, about 93% of women workers is in informal employment sectors (including agriculture), or is in low income jobs (Government of India, 2005). Carrying and lifting heavy loads often have serious health consequences for women, like menstrual disorders, prolapse of the uterus, miscarriage, and back problems, especially spinal problems (Sarojini, 2006).

A rural women's health status could be an outcome of various social, economic, cultural, political, demographic, genetic, environmental, and epidemiological factors. These factors are operative at individual, household, village or other broader levels. Socio-economic determinants of health as identified by WHO and other health organizations (illustrated by Asghar, et al., 2009) are given in the figure.

Figure 1: Socio-economic determinants of health



Seeing the prime role of rural women in multiple dimensions, especially in-house and outside-house (farming) activities, the study intends to find out the non-income determinant of farmwomen's health in rural areas of district Bahawalnagar (Punjab-Pakistan).

The specific objectives of the study are:

1. To find out association between respondent's family-related characteristics and her health status
2. To explore the impact of availability of labor saving home appliances on respondent's health
3. To find out the relationship between education of the respondent and her health
4. To examine the impact of participation of women in work on her health status

After presenting the background of the study along with the study objectives in the introductory section the study comprises of the following sections: literature review section presents previous findings on the said themes in international and local contexts. Data and methodology section presents data source, data type, and data range, unit of measurement, and definition of variables. Forth section exhibits results and make discussion. Finally, the last section concludes the whole discussion and recommends suggestion on the basis of findings.

II. LITERATURE REVIEW

Putting an un-rewarded reproductive burden (early and excessive child-bearing) on them is ultimately affecting the health of the women in Pakistan. For a woman, education may have its role in raising her self-esteem, providing her with social liberty, and rendering her decision making authority in domestic chores. (Shaikh & Hatcher, 2005).

The economic polarization within the society and lack of social security system make the poor more vulnerable in terms of affordability and choice of health provider. Poverty results in greater health inequalities, by (i) excluding people from getting the benefits of health care system and (ii) by restricting them from participating in decisions relating to their health. Possession of household items (like, agricultural land, animals' herd, and type of dwelling) depicts not only the socio-economic status but also portray a livelihood scenario of a farm family. Household economics limit the choice and opportunity of health seeking (Cited in Shaikh & Hatcher, 2005).

A study conducted by Rani & Bonu (2003) in rural India investigated the level and correlates of care-seeking and choice of provider for gynecological symptoms among currently married women. According to the study, significant differentials in care-seeking by

age, caste, religion, education, household wealth, and women's autonomy suggest the existence of multiple cultural, economic, and demand-side barriers to care-seeking.

Based on focus groups and individual interviews, conducted in rural communities of southwestern Ontario, Leipert & George (2008) collected data from sixty-five rural residents (aged 26 years and older) to elicit participants' perceptions regarding determinants of rural women's health. The study revealed that rural women experience health determinants in unique ways and that rural residents may indeed have determinants of their health that are particular to them. Employment, gender, health services, social environments, rural change, rural culture, and rural pride were identified as important determinants of rural women's health.

An Arab proverb states: "he who has health, has hope and he who has hope has everything!" (de Vries, 2001). A healthy population holds the key to development. Self-reported health status is widely accepted in health literature as a measure of the state of one's health (Bourne & Rhule, 2009). Feinstein et al (2006) reviewed a number of evidences over the world and found that education was strongly linked to health and to determinants of health.

Asghar et al., (2009) are of the view that since years, the complex multidimensional structure of health has been of keen interest for researchers. Efforts have been made to identify the relation between health and education. Due to their enhanced level of awareness, people with higher level of education lead a more healthy life. In a primary study, the authors recorded respondents' subjective (SRH at likert scale) and objective (sufferance or non-sufferance from any ailment or disease) health status.

Arendt (2001) by making use of Self-reported Health (SRH) as an indicator showed that education is related to SRH. The possibility of a causal relationship between education and health is explored by Arendt (2005). The study shows that education is associated with better SRH for both men and women. Ardent (2008) finds the significant effect of increase in education on decrease in hospitalization especially for females. Cutler and Lleras (2007) investigated a direct relationship between education and health, in their study, educated individuals were found to have more positive health outcomes.

Carvalhais et al, (2008) observed the prevalence of depressive symptoms in both (lower and higher income) groups of an elderly population, stratified by family income, in

Bambuı city of Brazil. Among the higher income group, Depressive symptoms were associated with old age and female gender. Dissatisfaction with relationships, worse self-rated health and insomnia were independently associated with depressive symptoms in both income groups.

Bourne & Rhule (2009), in their study examined the health status of Jamaican rural women of reproductive ages (15 to 49 years). Self-reported current health status was taken as a dummy variable—having ‘good’ and ‘poor’ health statuses as proxies. Logistic regression was used to establish a good health model. Age of respondent was found to be negatively associated but as statistically significant predictors of current good health status of rural women.

Shams (2013) determined by the household’s self- assessed health status and obtained a significant and negative relationship between family size and health, indicating that households with larger families were most likely to be observed in a lower health category and vice versa. Similarly, a larger family size was found to be inversely related to the health of a household. A unit increase in the family size of a household increased its chance to lie in the lower health categories (0), (1) and (2) at the rate of 0.35%, 2.27% and 0.68%, respectively. At the same time, it lowered its chance to be observed in the higher health categories (3) and (4) by the amount 1.72% and 1.58%, respectively.

III. DATA AND METHODOLOGY

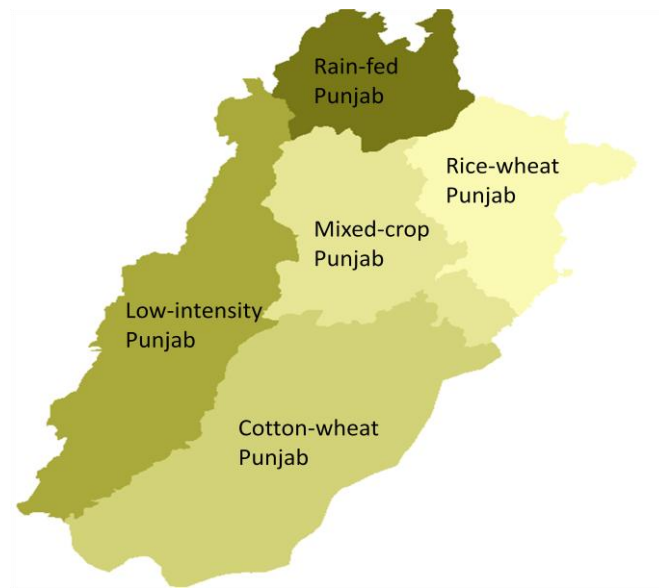
A. THE STUDY AREA

Based on the varying cropping pattern, irrigation facilities, soil type, underground water table, and rainfall pattern in its different parts the province of Punjab is divided into five agro-climatic or crop zones. These zones are named as rice-wheat Punjab, mixed-cropping Punjab, cotton-wheat Punjab, low-intensity Punjab, and rain-fed (barani) Punjab. Each zone comprises of a number of districts. The names of the nine districts included in Cotton-wheat Punjab are: Sahiwal, Bahawalnagar, Bahawalpur, Rahim Yar Khan, Multan, Vehari, Lodhran, Khanewal, Pakpattan. As compared to the other agro-climatic zones of Punjab, in cotton-wheat zone the highest percentage (58.9 %) of the total employed rural labor force is engaged in agriculture sector (Amjad, et al, 2008).

Amongst the above mentioned nine districts, Bahawalnagar district is ranked first regarding livestock assets owned by maximum number (73%) of households (Government

of Punjab, 2013). According to the geographic coordinate system, district Bahawalnagar is located between 20°51' to 30°22' N (latitude) and 72°17' to 73°58' E (longitude). The district is administratively further divided into five sub-districts. Four village areas from Haroonabad sub-district were selected to get information from farmwomen's regarding their health. See the figure given below.

Figure 2: Agro-climatic zones of Punjab



B. ABOUT DATA

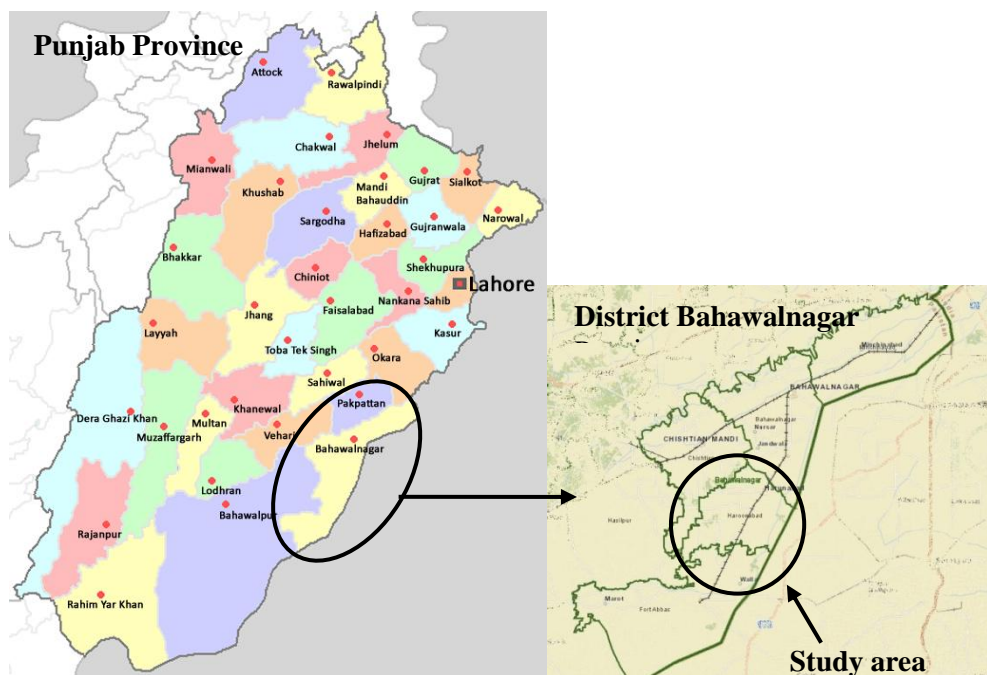
The data for the present study were collected from 120 respondents /rural women who were also engaged in managing livestock in district Bahawalnagar. Hence, a purposive sampling technique was applied for the selection of the respondents. A well structured questionnaire was used as an instrument whereas face-to-face interviewing was applied as a technique for data collection. The data was analyzed by using statistical package for social science (SPSS) version 20.

C. MODEL SPECIFICATION

As applied in their work by Bashir et al (2010), the present study has also developed and applied a logistic regression model to analyze the data. Logistic regression may be thought of as an approach that is similar to that of multiple linear regressions, but takes into account the fact that the dependent variable is categorical. Self-reported health status of each respondent was taken as a proxy to gauge her perception about her health

status. A criterion was set to classify the farmwomen's perception about health status into two categories, that is, 'good' and 'poor'. Self-reported health status as 'good' was classified as "positive" and assigned a code "1". Conversely, self-reported health status as 'poor' was classified as "negative" and assigned a code "0". This generated dummy variable served as dependent variable of the current study. Hence, the dichotomous nature of the dependent variable validates our aptness of making choice of the binary logistic regression to infer results of the study.

Figure 3: The study area



To see the impact of two sets of regressors (personal-characteristics related, family-characteristics related), two binary logistic regression models were developed. Model-1 is developed to see the likelihood of reporting health status as 'good' or 'poor' with the change in the values of regressors—related to the respondents' personal-characteristics. Model-2 is developed to observe the probability of reporting health status (as 'good' or 'poor') with the change in the values of family-characteristics related regressors.

BINARY LOGISTIC REGRESSION MODEL 1

$$\text{Log} [P_i/1 - P_i] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Where

Log [P_i/1 - P_i] = Logarithm or logit of the ratio of the probability that an event will occur (P_i) to the probability that an event will not occur (1 - P_i)

β_0 = Constant of the regressors

β_1 to β_5 = coefficients of the regressors

X_1 = Farmwoman's age (in years)

X_2 = Farmwoman's level of education (schooling years)

X_3 = Age at the time of first marriage

X_4 = Level of participation in livestock management activities

X_5 = Unaccompanied mobility

e = Error Term

BINARY LOGISTIC REGRESSION MODEL 2

$$\text{Log} [P_i/1 - P_i] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Where

Log [P_i/1 - P_i] = Logarithm or logit of the ratio of the probability that an event will occur (P_i) to the probability that an event will not occur (1 - P_i)

β_0 = Constant of the regressors

β_1 to β_5 = coefficients of the regressors

X_1 = Farmwoman's family size (individuals)

X_2 = Family System (nuclear = 0, joint = 1)

X_3 = Age of husband

X_4 = Husband's level of education

X_5 = Labor saving home appliance (yes = 1, no = 0)

e = Error Term

Similar to OLS regression, the logistic regression equation for predicting the dependent variable the probability of reporting health status "good" [Prob (Y_i = 1)] and the

probability of reporting health status “poor” [Prob ($Y_i = 0$)] from the independent variable prediction equation is as given below:

The ratio $P_i/1-P_i$ is called the odds ratio and $\text{Log}(P_i/1-P_i)$ is called log odds or log of odd ratio or Logit which acts as dependent variable. A positive sign of the estimated coefficients would mean that the probability of a respondent/farmwoman to report ‘good’ health status is higher than that in reference category and vice versa keeping all other characteristics constant.

In this way, we saw the probabilities of the respondent/ farmwoman to report health status as ‘good’ or ‘poor’ with some change in the determinants (or predictors) of their self-reported health status. An odd ratio [$\exp(\beta)$] value greater than 1 represents a high probability of reporting health status as ‘good’ with the increase in the value of regressors (Xs). An $\exp(\beta)$ value less than 1 shows a low likelihood of reporting health status as ‘good’ with the increase in the value of regressors. The parameters of the model are estimated by using the maximum likelihood (ML) technique.

DIAGNOSTIC STATISTICS

R-squared in ordinary least-squares (OLS) regression tells us about the proportion of variance explained in the dependent variable because of the independent variables in the model. The Cox & Snell R Square and the Nagelkerke R Square are just the approximations (not the exact interpretation) which tell us something similar to R-square. That is why known as a “pseudo-R” statistic. High values are better than low values. Higher values mean that your model is more fit. Like adjusted R-square in ordinary least-squares, the Nagelkerke R-square is an adjustment of the Cox & Snell’s R-square. The maximum value for the Cox & Snell’s R-square is 0.75 and the maximum value for Nagelkerke R-square is 1.00 (Denis, 2010).

IV. RESULTS AND DISCUSSION

This section presents descriptive and econometric results. In descriptive statistics we made comparison and checked the average or mean values and percentages of variables for particular purposes. In econometric techniques we developed binary logistic regression model and made choice of important independent and dependent variable to check their significance and insignificance.

On the basis of self-reported health status, the respondents were classified into two groups: 1) those who reported to have 'good' health status 2) respondents with their self-reported health status as 'poor'.

A. DESCRIPTIVE STATISTICS

PERSONAL CHARACTERISTICS

Out of total respondents, respectively 65% and 35% had poor and good self-reported health status. The aging or old age can be positively related to the poor health status. As compared to the respondents (with average age 30.52 years) who had good health status, the average age of the respondents having poor health status was 38 years.

The average number of schooling years completed was 2.85 for the respondents with poor health as compare to the respondents (with average number of schooling years 6.07) having good health status. Hence, this finding associates the poor health status with low or lack of education.

Poor health status can also be attributed to early marriages. The average age at the time of first marriage—of the respondents with poor health status—was recorded 18.26 years. While, the average age at the time of first marriage of respondents with good health status was 19.02 years.

On an average, the respondents who reported poor health status were taking part in 4.68 livestock management activities, whereas the average level of participation of the respondent who reported their health status as 'good' was in 4.52 activities. Though the difference is not so considerable yet women's heavy indulgence in livestock-management-like hard-natured activities could be positively related with poor health status.

A woman's mobility status captures information regarding her extent to move independently (unaccompanied) or with her relatives (accompanied). The findings exhibit that despite of moving independently more women respondent had poor self reported health status.

FAMILY RELATED CHARACTERISTICS

Family Characteristics includes family size, husband's age, husband's education and family type. The respondent with, on an average, large family size (5.68 members) reported to have 'poor' health status as compare to the respondents (with average family

size of 4.62 members) who reported to have 'good' health status. It means that, for a rural woman with large family size, lesser is the probability there to report her health status as 'good' and vice versa.

In its traditional setting, living under joint or non-nuclear familial system is in-vogue in rural communities, where a newly married woman has to live along with her in-laws. Majority (71%) of the respondents who reported their health status as 'good' were living under joint family system, whereas amongst the respondents who reported their health status as 'poor', half (50%) were living under joint family system. So, living under joint familial system seems to have positive impacts on health status of rural women.

The respondents whose husband's current age was (on average) 43.65 years had the poor health status as compare to those who had their husband's current age 35.48 years had good health status. It means that younger (lesser in age) the respondent's husband is, more the chances for her to report her health status as 'good' and vice versa. Probably it could be due to the reason that as compared to an older aged husband, a younger aged husband is more in a state of better health to share her spouse's work burden.

Table 1: Descriptive Statistics (mean and percent values)

Multi-levels	Variables	Poor Health (n=78)	Good Health (n=42)
Individual-level	Age	38.72	30.52
	Education	2.85	6.07
	Age at the time of marriage	18.26	19.02
	Participation	4.68	4.52
	Mobility (unaccompanied)	29%	19%
Family-level	Family Size	5.68	4.62
	Living under joint family system	50%	71%
	Husband's Age	43.65	35.48
	Husband's Education	3.80	6.43
	Having washing machine	40%	64%

The average numbers of schooling years attended by the husband of a respondent who reported to have 'good' health was 6.43 that was contrary to the average numbers of schooling years attended (3.80) by the husband of a respondent who reported to have 'poor' health status. It shows that husband's level of education is positively associated with wife's chances to report 'good' health status.

Availability of labor-saving home appliances may save efforts and energies of domestic women. A large majority (64%) of the respondents who reported their health status as 'good' had the facility of electric washing machine to wash clothes, whereas amongst the respondents who reported their health status as 'poor', only 40% were availing that facility.

PEARSON CHI SQUARE ASSOCIATION

Amongst the personal-characteristics related variables, respondent's level of education was the only variable that showed statistically significant association with the respondent's self-reported health status. At family-level, family-size, family-type, husband's age, having labor-saving home appliance (washing machine) were found showing statistically significant association with the respondent's self-reported health status.

Table 2: Chi Square Association

Multi-levels	Variables	Pearson Chi Square Value	Df
Individual-level	Age	39.028 ^{NS}	33
	Education	14.392 ^{**}	5
	Age at the time of marriage	8.845 ^{NS}	11
	Participation	5.115 ^{NS}	6
	Mobility status (accompanied=0, unaccompanied=1)	1.553 ^{NS}	1
Family-level	Family Size	16.821 ^{**}	8
	Living under joint family system	5.130 ^{**}	1
	Husband's Age	37.612 [*]	26
	Husband's Education	10.553 ^{NS}	6
	Having washing machine	6.585 ^{**}	1

FARMWOMEN'S PERSONAL CHARACTERISTICS: DETERMINANTS OF SELF-REPORTED HEALTH STATUS

AGE

A one unit increase in respondent's age was found to be lowering the chance of having 'good' health status up to 8.5% and this variable was statistically significant at 5%. It may be due to the reason that young women have greater capacity to fight against diseases so remain healthier.

EDUCATION

With a single unit increase in respondent's level of education the likelihood to have 'good' health increase 1.123 times and this variable was found significant at 5%. Our

study shows that an educated woman can take better steps for the maintenance of her health so she keeps her health status good.

AGE AT THE TIME OF MARRIAGE

With a one unit increase in this variable the likelihood to have good health increases by 1.151 times but this variable was statistically insignificant. It means that marriages at early age may results in serious health concerns.

LEVEL OF PARTICIPATION IN LIVESTOCK MANAGEMENT ACTIVITIES

Though statistically insignificant, but a one unit increase in this variable was found to increase the likelihood to have good health by 1.048 times. More participation in activities relating to livestock management may increase a rural woman's work burden that may ultimately result in poor health status.

MOBILITY STATUS

Unaccompanied mobility was found to be decreasing the probability of having good health status up to 66.8% and the variable was statistically insignificant.

MODEL SUMMARY

Cox and Snell R square value of the model was 0.232 means that 23% of the variation in this model has been explained by the regressors related to a farmwoman's personal characteristics. The value of Nagelkerke R square was 0.319 indicating that nearly 32% variation in the model was explained by respondent's personal characteristics-related variables.

Table 3: Binary Logistic Regression Results (Model-1)

Individual's related variables	β	S.E.	Exp(β)
Constant	-0.668	2.156	0.513
Age	-0.089	0.028	0.915 ^{***}
Education	0.116	0.055	1.123 ^{**}
Age at the time of marriage	0.141	0.093	1.151 ^{NS}
Level of participation in livestock management activities	0.047	0.139	1.048 ^{NS}
Mobility status (accompanied=0, unaccompanied=1)	-1.102	0.546	0.332 ^{**}
Model Summary			
	-2 Log likelihood	123.753	
	Cox & Snell R Square	0.232	
	Nagelkerke R Square	0.319	
Estimated Regression Equation	$Y = -0.668 - 0.089X_1 + 0.116X_2 + 0.141X_3 + 0.047X_4 - 1.102X_5$		

DETERMINANTS OF WOMEN'S HEALTH: A FAMILY-LEVEL ANALYSIS

This section presents the relationship between family related factors (serving as independent variables in our regression model) and rural women's self-reported health status (the dependent variable). The variables served as regressors in our model are: family size, family system, age of family's head, educational status of family's head, labor-saving home appliance.

FAMILY SIZE

A one unit change in the family size was found to be lowering the chances of having good health status up to 16.4% and the coefficient found to be insignificant. Our study reveals that greater the number of pregnancies, higher the chances to have poor health status of that working woman.

FAMILY SYSTEM

For a respondent living under joint family system, her likelihood to have good health status increase 2.223 times and the coefficient found to be statistically significant. The possible reason may be that in the presence of in-laws the work burden of that woman is shared so due to low burden of work her health status may be reported as 'good'.

AGE OF FAMILY'S HEAD

A one unit increase in the husband's age was found to be lowering the chances of having good health status up to 4.8%. And this variable is also significant. It could be attributed to the reason that a relatively younger husband can take better care of her wife than an old-aged husband.

EDUCATIONAL STATUS OF FAMILY'S HEAD

With a one unit increase in the husband's education the likelihood to have good health increase 1.045 times and this variable was found to be statistically insignificant. The probable reason for such result could be that an educated husband may take better care of his wife an educated manner.

LABOR-SAVING HOME APPLIANCE

Having the labor saving home appliance (washing machine) was increasing the likelihood to have good health by 2.188 times and the variable was also found to be statistically significant.

MODEL SUMMARY

The value of Cox and Snell R square in model-2 was 0.205 which means that 20% of the variation in the model was explained by family related variables. The value of Nagelkerke R square was 0.281 means 28% variations in the model was explained by the 5 family related variables.

Table 4: Binary Logistic Regression Results (Model-2)

Family related variables	β	S.E.	Exp(β)
Constant	1.217	1.048	3.376
Family Size	-0.180	0.166	0.836 ^{NS}
Family System (nuclear=0, joint=1)	0.799	0.450	2.223*
Age of Family's Head (husband)	-0.050	0.027	0.952*
Educational Status of Family's Head (husband)	0.044	0.050	1.045 ^{NS}
Labor-saving Home Appliance (yes=1, no=0)	0.783	0.465	2.188*
Model Summary			
			-2 Log likelihood
			125.207
			Cox & Snell R Square
			0.205
			Nagelkerke R Square
			0.281
Estimated Regression Equation	$Y = 1.217 - 0.180X_1 + 0.799X_2 - 0.050X_3 + 0.044X_4 + 0.783X_5$		

V. CONCLUSION

Better health contributes to human welfare and ultimately to economic growth. Pakistan is still an agro-industrial based economy and women are the back bone of the rural economy. The upkeep of the domesticated animals (livestock farming) is heavily relied on women and women's participation in livestock management related activities is more critical as compared to men. Cutting, carrying, chopping of fodder and then finally serving it to animals as feed; cleaning the animals (large ruminants) and their sheds; serving water to the animals and manual milking are the tasks heavy and hard in nature. Due to their heavy work (paid, unpaid, productive, and reproductive) load, women often have serious health (physical, mental) consequences.

A person's physical and mental well-being or ill-being is an outcome of multi-level (individual, household, neighborhood, local, national, and global) social, economic, environmental and political milieus under which the person is living. SRH is a widely accepted measure used to gauge the state of one's health, used in health literature. The

present study is primarily in search of finding the non-income determinant of farmwomen's health in rural areas of district Bahawalnagar (Punjab-Pakistan).

The study is introspective with respect to get information from farmwomen about their health, but at the same time extrospective (from authors' side) with respect to find significant predictors of current good health status of rural women. In descriptive statistics we made comparison and checked the average or mean values and percentages of variables for particular purposes. In econometric techniques we developed two binary logistic regression models and made choice of important independent and dependent variable to check their significance and insignificance. The study revealed that farmwomen's health determinants are particular to them and their families.

Young women have greater capacity to fight against diseases so remain healthier. Educated woman can take better steps for the maintenance of her health so she keeps her health status good. Marriages at early age may result in serious health concerns. More participation in activities relating to livestock management may increase a rural woman's work burden that may ultimately result in poor health status.

Our study also reveals that greater the number of pregnancies, higher the chances to have poor health status of that working woman. Living under joint family system, increases a woman's likelihood to have good health status. May be in the presence of in-laws the work burden of that woman is shared that may result in positive health outcomes. A relatively younger husband can take better care of her wife than an old-aged husband. An educated husband may take better care of his wife an educated manner. Availability of labor-saving home appliances may save efforts and energies of domestic women and was found to be was increasing the likelihood to have good health.

At the end, the study suggests that at household levels, a farmwoman's health concerns could be minimized through shouldering her productive and reproductive work burdens. In reducing her burden relating to productive work, the use of labor or effort saving ways of working through the use of technology (like, home appliances) is imperative. While her reproductive work burden could be reduced through discouraging early and excessive child bearing. A woman's level of education and that of her spouse positively contribute not only for her own health but for the good health of a farm family.

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