DETERMINANTS OF WOMEN & CHILD HEALTH (A CASE STUDY OF VEHARI)

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ABSTRACT

Context: Life expectancy is influenced directly as well as indirectly by the impacts of determinants of women and child health. Since the inauspicious and poor health conditions are the definite cause of death. Keeping in view, the significance of women and child health, enough research has not been conducted to suggest measures and policies for improvement in this regard. Quantitative approach has been found to be the best and necessary one to gain a better initial understanding of the population of Vehari.

Purpose of the study was to explore the determinants of women and child health and the role played by these determinants in mother and child health.

Data: Women of age 18 and above were selected randomly. Cross-section data of 5-hundred women has been collected through a questionnaire.

Methodology: Logistic regression analysis is used.

Findings: The health determinants such as disease, sanitary condition, tetanus taxied vaccination and family planning and female education emerged as input to women and child health.

Conclusions: Female education proves an imperative determinant of women and child health. Education's influence on health is constructive to a great extent

because increase in education causes increase in awareness that in due course influences health positively. More research is required to explore the nature and effects of determinants and the role of these determinants in improving women and child health.

Model: $\qquad$ W.H= f (Xd+ Xt+ Xs+ Xf+Xe)

Key Words: *Life Expectancy, Quantitative Approach, Female Education, Imperative Determinant etc.*

INTRODUCTION:

Health status is hypothesized to be an important determinant in developing countries, both as a direct indicator of welfare of a society and of a country. Woman and child health is a mixture of physical,social and cultural being. Therefore investing in woman and child health issue has become an international concern and an effective conduit. As in other South Asian countries, the situation of women and child health is grim in Pakistan. The health status of women and a child in Pakistan is directly linked to their low social & economic status.

Health of a woman and a child is remarkably significant to increase life expectancy. It increases the fertility rate and social stability. Healthful society depends on healthy woman and child. A woman's health plays an imperative role in this regard. A healthy woman gives birth to a healthy child and the healthy child becomes a successful person and may prove a better addition to the society.

This paper not only adds to the text on the causative factors to woman and child health but also sheds illumination on the budding literature that examines the women and their child health status and the availability of services regarding health in Vehari .

The objective of the paper is to find the determinants of woman and child health & to check the role of these determinants in woman and child health in District Vehari.

Research shows that people who grow up in wealthier and more educated families are healthier, more educated, and perform better in the job market

(Beherman and Rozenweig, 2002, Case at al , 2002). They endow more for their health and the health of their child.

Among the Eight Millennium Development Goals (MDGs) that were adopted by the 189 members of the United Nations (UN) in 2000, at least four are directly related to child health or nutritional status (Todaro and Smith, 2005) In addition to being a development indicator itself, child health is also closely associated with other development indicators, such as adult health, educational attainment, productivity, and income (Case et al , 2002, Currie and Hyson, 1999, Behrman and Rosenzweig, 2004).

Notwithstanding its weight, however, diminutive is known about the causes of good or poor woman and child health, good health of women and children is reliant on the provision and ease of access of all the amenities and necessities that are required to maintain good health e.g. good health, clean and shipshape environment, self and corporal cleanliness, medical aid and facilities.

The nutritional and health status of women and mothers in particular becomes an important determinant of the country's future its children whose health is intricately and crucially related to he health f heir mothers.(Ibraz, 1993).

Women's health status, deprivation of education and lack of control over their own lives and bodies have a negative impact on their health status and that of their families. Women's empowerment and health depends within the frame work of the 4-institutaions that is power in a society, family, and community and health care systems with special reference to the situation in Pakistan.(Shaikh,B.T 1993)

Women in low income and developing countries have shorter life expectancies due to inequality in access and quality of health services, (WHO, 2002).

Access by the poor to services that improve health, nutrition and fertility outcomes is one of the three pillars of the World Bank's Health, Nutrition, and Population Sector Strategy. Favorable health policies and effective and equitable

health services are critical to the broader development goal of breaking the cycle of poverty, high fertility, poor health, low productivity and slow economic growth. Since women account for over half of the world's poor, improving their health is input to achieving goal. Investing in women's health also has a significant impact on the health and well being of the next generation. (Tinker 2000, Ayesha 1998).

 In countries where women are less educated and have less control over decision-making and family resources, they are also less apt to recognize health problems or to seek care. (Tinker, 2000).

In this study the determinants regarding the health of the women and children of Vehari are determined as ; disease of women and child, Vaccination to save woman from the fatalistic disease tetanus, gap between child-birth to maintain the health of woman and child, cleanliness of woman and surrounding environment and education of woman. In addition, this study also takes a view of the stipulation of the above mentioned determinants because if these determinants are not provided to the women and children, their health gets affected.

HYPOTHESIS:

The following hypotheses are maintained to test out the correlations between dependent and independent variables.

H1: Diseases are negatively related with the woman and child health in Vehari. The glum are the diseases; of poorer quality is the woman and child health.

H2: Tetanus Taxied Vaccination positively affects the woman and child health. As efficient the liberation of Tetanus Taxied Vaccination to young girls of age 15 and above; enhanced woman and child health.

H3: Sanitary Condition also has positive relation with woman and child health. Healthier sanitary condition will pledge to perk up the woman and child health.

H4: The more females use techniques of Family Planning; the better would be their health.

H₅: Provision of education to female has a positive effect. As a female is exceedingly educated; she proves a good woman and rear and brought up her child better than an amateurish one.

POPULATIO AND SAMPLE SIZE:

Five hundred women of age 18 years and above were elected arbitrarily for interview. The expediency trial of five females represented educated, in a job and house wife, also jobless and their interviews helped to exterior the important variables. These case studies provided more approaching into the theme and enable to comprehend the different scope of the topic.

Cross-section data is composed with the specific intention of investigating determinants on the subject of woman and child health in Vehari. This cross-section data has been composed by door to door in the house of the woman interviewed; the interviews were one hour or one and half hour long in time-span. Same questions were asked in each interview. Unwrap questions were used to help spotlight the respondent's feelings and to allow sovereignty of expression.

MODEL SELECTION:

We used Binary Logistic Model because our dependent variable; women and child health is a dichotomous one. Binary logistic model is used when the dependent variable is not incessant but instead has only two possible outcomes, 0 or 1.

Regular regression models cannot be used for such variables because the predicted values necessitate being reticent between 0 and 1, which is not doable in customary regression. Disparate OLS logistic regression does not presuppose linearity of relationships between the independent variables and the dependent, also does not presume homoscedasticity, and in general has less stern requirements. It also violates the conjecture that the variables are normally (single peak) distributed, since 1/0 variable by definition has a binomial distribution (double peak).

Logistic regression model solves this predicament by determining the "Odds" of 1 or 0. If the odds of 1 are higher than the odds of 0, then we would anticipate a 1 and not a 0. This is consummate by estimating something called the Log odds

Ratio, which is just the log of the odds of 1 alienated by the odds of 0. Since odds are a probability, we have a ratio of two positive numbers, which have a maximum value of + infinity. The log of a positive number can have a value between + infinity and – infinity, which removes the upper and lower spring in dependent variable, which now can be projected by a regular regression.

There are problems with OLS estimation when our dependent variable is not unremitting. Use of dichotomous dependent in OLS violates the assumption of normality and Homoscedasticity.

As mentioned formerly, the independent or predictor variable in logistic regression can take any form. That is, logistic regression makes no assumption about the distribution of the independent variables. They do not have to be normally distributed, linearly allied or of equal variance within each group. The relationship between the predictor and riposte variable is not a linear function in logistic regression; instead, the logistic regression function is used, which is the logit transformation of 0 and its general forms is precise as:

$$\text{logit}\left[\theta(x)\right] = \log\left[\frac{\theta(x)}{1-\theta(x)}\right] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_i x_i$$

Where α = the constant of the equation and, β = the coefficient of the predictor variables. A Wald test is used to test the statistical significance of each coefficient (β) in the model.

A Wald test calculates a Z statistics, which

$$z = \frac{\hat{B}}{SE}$$

This Z values is then squared, yielding a Wald statistics with a chi-square distribution.

There are basically three methods to analyze and estimate the data, Enter Method, Forward stepwise Method and Backward Stepwise Method in Binary Logistic Method.

The Forward or Backward stepwise logistic regression methods reconcile on automatically which variable to add or drop from the model. Forward selection is the usual option, preparatory with the constant only variable and adding variables at a time in the order that they are best by some decisive factor until some cut off is reached.

Backward selection starts with all variables and deletes one at a time, in the order they are nastiest by some criterion. Stepwise methods run the risk of modeling noise in the data and considered useful only for probing purposes.

Selecting model variables on a theoretic basis and using the 'Enter' method is preferred. We used the Enter method first to analyze the all variables jerkily and then most significant variables are analyzed through forward stepwise method.

Variable	Definition	Valued	Description
WCH	Woman & Child Health	1=if normal 0=if bad	Means physical health stander of mother and child. To know woman and child health, a number of questions were asked. In this concern physical disability of the woman and child ,any respiratory infection , proper check up during pregnancy , use of drugs or any intoxicant less , duration of sleep any mental tension and income (income is very important in this regard because a woman may get first aid of herself and her child , complete check up of her disease and proper treatment of it if her income is handsome) have been included in this regard to measure this variable
Xd	Diseases	1=if yes 0=if no	Complete and cheaper treatment of fatalistic disease in women these diseases are Cancer, Tuberculosis, Hepatitis, Blood Pressure, Anemia, sugar, and aids have been included to measure this variable. Presence any one of these disease is consider 0 and otherwise it, s considered 1.
Xt	Tetanus Taxied Vaccination	1= if yes 0=if no	If take 5 injections of tetanus taxied then yes and if not then no.

Xs	Sanitary Condition	1=if good 0=if bad	Cleanliness of herself and her home, if it is bad, consider it zero and if good consider it one. To measure the cleanliness of woman and child ; five questions were asked .if the answer of all or four questions is in yes then its considered as good and if answers in yes are less then four its considered bad. More the measure the cleanliness following things were seen: Cleanliness of dress and food, availability of flush-system in home, availability of animals and pets in home, spaciousness or narrowness of home, Sewerage system.
Xf	Family Planning	1=if yes 0=if no	If use any contraceptive method then yes otherwise no.
Xe	Women Education	1=above Primary 0= primary	If above primary if primary or below

$$WCH = f \{Xd + Xt + Xs + Xf + Xe \}$$

Results and their interpretation:

As to examine the impacts of determinants of woman and child health, Binary logistic model has been used. Logistic model was performed with the woman and child health as dependent variable depending upon Diseases, Tetanus Taxied Vaccination, Sanitary Condition, Family Planning and Women Education.

MODEL RESULTS WITH ENTER METHOD

	B	S.E.	Wald	df	P value	Exp(B)	inference
DISEASE	-3.067	.604	25.819	1	.000	.047	Highly Significant
VACCINATION	1.210	.507	5.693	1	.017	3.354	Significant
FAIMLY PLANNING	.359	.593	.366	1	.545	1.432	Insignificant
SANITORY CONDITION	1.151	.561	4.209	1	.040	3.160	Significant
EDUCATION	1.321	.490	7.257	1	.007	3.746	Highly Significant

Constant	1.689	.609	7.701	1	.006	5.414	Highly Significant

Interpretation

Full model is estimated using 'Enter' method. SPSS table lists the Beta (B) coefficients & the standard errors of Beta (B), the Wald statistics and its significance and the Odd ratios labeled Exp (B). Parameter Estimates (Beta Coefficient) associated with the explanatory variable is estimator of the change in the logit caused by a unit change in the independent holding all other predictors constant. The Beta coefficient varies between + and – infinity, with '0' indicating the given explanatory variable does not affect the logit. +ve and –ve B coefficients indicate the explanatory variable increases or decreases the logit of the dependent. B= 0   Exp (B) = 1.There are standard errors associated with the coefficients indicating whether the parameter is significantly different from '0'. Exp (B) refers to Odd ratios.

The Odd ratio opponent of a given independent variable represents the factor by which the odd (event) arise for a one-unit change in the independent variable. If Exp (B) = 1, the independent variable has no effect. If Exp (B) is less than 1, then the independent variable decreases the logit and decreases odd. When the logit coefficient is small in magnitude, Exp (B) provides a quick approximation to the percent change in the Odds associated with the unit change in the predictor.

WALD TEST

The Wald test is used to test the significance of slope that gives a Z statistics. It is a statistical test typically used to test whether an effect exists or not. It tests whether an independent variable has a statistically significant relationship with a dependent variable. It allows to ask whether a model we have can be simplified without loss of model fit or if the fit worst if I drop variable k. Our full model estimated significantly and all variables have correct signs. Disease coefficient of -3.067 means, with other variables held constant, if woman & child disease decrease or provide treatment by one unit, on average estimated logit increase by 3.067 points or woman & child health improve by 3.067 units. This more than

three fold effect shows a negative relationship between nature of disease and woman child health. This result is significant with the .000 level.

Here the Exp (B) or Odd ratio of .047 shows that when independent variable decrease by one unit, the Odds that the dependent = 1 increase by a factor of .047. This also shows that the woman who came to know the nature of disease and treated it on time , rear 47 % healthy child than a woman who had no knowledge about the seriousness of that disease. Diseases have the strongest effect on woman & child health. The value of Wald test is 25.819, showing statistically very significant relationship between women child health and nature of diseases; also indicating that the model will be worst if we drop this variable. Coefficient of variable for tetanus taxied vaccination is 1.210, showing that with other variables held constant, if the delivery of tetanus taxied vaccination increases by one unit, on average woman and child health improves by 1.210 units. The Exp (B) for Interest is 3.354 indicating that the woman and child who have tetanus taxied vaccination are 3354 % more healthy as compared with the others who do not have.

Result shows that tetanus taxied vaccination has incredible effect on woman and child health in Vehari as the value of Z statistics is also high (5.693) representing the strong relationship between woman and child health and tetanus taxied vaccination while this variable is significant .017 levels.

.359 coefficients of family planning shows that if the quality of family planning services increases by one unit, the woman and child health improve by .359 units. Exp (B) for family planning services is 1.432, showing that the woman have family planning services in better way feel improvement in theirselves and their child health as compared with the others who face some problem in the use of family planning methods. This result is less significant at .545 levels. The relationship between family planning and woman child health is statistically significant (.366) showing that this independent variable has lesser effect on dependent variable in Vehari.

Study shows that if the delivery of services regarding to the sanitation increases by one unit, woman child health increases by 1.151 units. The Odd ratio for this

variable is 3.160, indicating that the woman and their child are 3160 % more healthy as compared to those women who do not reside in the clean and neat environment. This result is significant at .040 levels.

WALD TEST

The value of Wald test is 4.209 shows a positive relation between services of sanitation in Vehari and woman child health. Comparatively, women education has B (1.321) and Exp (B) (3.746) values. It shows that female education has surprisingly very strong effect on woman & child health. If the education level of woman improves one unit, woman child health becomes better by 1.321 units. The woman who has education more than primary level 374 % healthier than who are under primary.

The value of Wald test is 7.257 which show a positive and highly strong relationship between female education and woman child health in that area. Female education proves a notable variable regarding woman child health. On the whole it is found out that woman and child health improves more if facility of education for girls, delivery of medicine and proper treatment of diseases (as disease is a major factor for bad health of woman and child), obligation of tetanus taxied vaccine and provision of hygienic and trim suburban areas are easily available to the women of Vehari.To find out the most significant variables affecting the woman and child health the same model is also estimated using stepwise method.

MODEL RESULTS WITH STEP WISE METHOD

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	DISEASE	-4.309	.532	65.700	1	.000	.013
	Constant	4.502	.503	80.210	1	.000	90.238
Step 2	DISEASE	-3.724	.548	46.215	1	.000	.024
	VACCINATION	2.354	.378	38.685	1	.000	10.526
	Constant	2.674	.551	23.532	1	.000	14.496
Step 3	DISEASE	-3.674	.553	44.063	1	.000	.025
	VACCINATION	1.459	.470	9.621	1	.002	4.303
	EDUCATION	1.445	.470	9.438	1	.002	4.242
	Constant	2.357	.554	18.090	1	.000	10.561
Step 4	DISEASE	-3.100	.598	26.870	1	.000	.045

	VACCINATION	1.315	.479	7.531	1	.006	3.725
	SANITORY CONDITION	1.217	.547	4.949	1	.026	3.378
	EDUCATION	1.390	.477	8.499	1	.004	4.016
	Constant	1.696	.607	7.816	1	.005	5.453

a Variable(s) entered on step 1: DISEAS.
b Variable(s) entered on step 2: VACCINA.
c Variable(s) entered on step 3: EDUCATIO.
d Variable(s) entered on step 4: SANITORY.

This table includes the last 4 steps of stepwise methods and shows the cutoff level. Each variable is added at every next step with the constant. Family planning dropped out in this procedure. There is a very small change in the values of remaining variables. Diseases and woman education are still the most significant variables, having a strong effect on woman and child health in Vehari All variables are significant and have a powerful relationship with the dependent variable (apparent from the values of Wald test).Female education is a most significant variable affecting woman child health. After it the disease and tetanus taxied vaccination have stronger effect as compared to sanitary condition.

OMNIBUS TEST OF MODEL COEFFICIENTS

		Chi-square	df	Sig.
Step I	Step	156.426	1	.000
	Block	156.426	1	.000
	Model	156.426	1	.000
Step II	Step	43.538	1	.000
	Block	199.964	2	.000
	Model	199.964	2	.000
Step III	Step	9.143	1	.002
	Block	209.107	3	.000
	Model	209.107	3	.000
Step IV	Step	5.326	1	.021
	Block	214.433	4	.000
	Model	214.433	4	.000

This table reports significance levels by the traditional Chi-square method. It tests if the model with the predictors is significantly different from the model with the intercept.

This Omnibus test may be interpreted as the test of the capability of all predictors in the model jointly to predict the response (dependent variable). Larger values of Chi-square indicate a big difference in fit between this and a simple model. The significance column shows the statistical significance of this difference.

In this model each variable is significant enough to make a huge difference between a model with a constant only model and a model with the predictors. The Chi-square value with a constant only model is 156.426 and increases to 214.433 with the addition of every predictor at each step. And this difference is statistically significant (.000)

MODEL SUMMARY

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	229.961	.269	.499
2	186.423	.330	.612
3	177.280	.342	.635
4	171.953	.349	.648

-2LL is a Likelihood ratio and also called goodness of fit, in general, as model becomes better, -2LL will decrease in magnitude. It reflects the significance of the unexplained variance in the dependent. The value of –2LL is continuously decreasing making our model more likely. Cox & Snell and Nagelkerk are closely related statistics, and basically summarize how much of the variability in data is successfully explained away by the model.

Larger values of the R Square (Nagelkerk has a maximum value of 1) indicate that your model captures more of the data variability. Nagelkerk measure adjusts the Cox & Snell measure for the maximum value so that '1' can be achieved. It is same as the R Square in OLS. In our model the values of R Squares are continuously increasing at every step indicating that variability in data is explained successfully till .349 and .793.

CONCLUSION:

After scrutiny and interpretation of data, nature of disease has been found as the strongest factor. The absence of disease in women leads to improved health of her

and would be chiid, while the presence of disease impinges on badly the woman, her child and the health of the whole family and ultimately causes death.

i). Major causes of death are respiratory diseases such as tuberculosis, pneumonia, and bronchitis, fevers related to malaria, typhoid, gastroenteric, and other infectious diseases. When men and women in the same household are compared, female morbidity, pervasiveness of poor health is by and large higher than that among males. One elucidation for this is that woman illnesses are treated less recurrently of and later, since women's right to use to health care services is limited.

"Cause of death was" Coughs and Disorders of the Respiratory System" (20%), which includes tuberculosis, asthma, bronchitis, pneumonia and whooping cough. In terms of importance, this was followed by "Causes   Peculiar to Infancy," (among which "prematurity" is the most significant), and "Fevers" (e.g., malaria, influenza and typhoid), "Diseased of the Circulatory System" (including anemia), "Other Clear Symptoms" (e.g., measles, each of these groups accounted for about 8-11% of deaths." (Meera Chitrajee 1990).

ii). The second foremost cause is education of women. An educated woman has sensitivity about disease and can take measure to thwart them. An educated woman knows better the symptoms of the disease so she can have check up and proper treatment before the disease occur to make herself and her child healthy.

"Among the potential determinants of child health, the mother's education has been the focus of economists. More educated mothers may have healthier children because they have better knowledge about health care and nutrition, have healthier behavior, and provide more sanitary and safer environments for their children." (Behrman 1990. Strauss, 1990 & Glewwe, 1990).

So, an educated woman can also have attentiveness of disease through media and knows about their deterrence e.g. she may know that ORS is healthful in preclusion of loose motion and diarrhea, Vicks gives relief in breath predicament, less use of sugar saves from diabetes and 5-injection of tetanus taxied saves from

fatalistic disease tetanus (provision of it must be compulsory for married as well as unmarried girls of 15)

"Tetanus taxied (TT) immunization for pregnant women and women of childbearing age (15-49 years old) should be the supplementary strategy to eliminate NT, particularly in rural and impoverished areas where access to clean delivery is low important rotelly lethal". (Dr,Kris 1995). "The low level of education and social class of women influenced the uptake of TT immunization. Antenatal care in general and tetanus taxied injection in particular is reckoned to be important to the health of pregnant women and their children". (Xuedan, You 2007).

Education in certain cases has initiated unenthusiastic effect on those women who are playing triple role e.g. doing job, doing home tasks and rearing their children.
"The "Triple burden" placed on young women-reproduction, domestic work, and productive labor – result in female low survival in early life."(Chitrajee.M 1990).
Because of doing all these jobs concurrently woman neither can take better care of their children nor themselves. In Vehari most of educated women were found sick or ill. Family Planning services have not a noteworthy upshot in Vehari.
"Women's access to health and family planning services is limited in Pakistan, despite a growing contraceptive prevalence rate." (Khan 1999).

iii).Most of the women are of the opinion that, firstly these services are not appropriately delivered to them and secondly these have bad side effects e.g. disease of stomach, nausea, disorder of menstruation cycle. So these services have no momentous effect on female health in Vehari.

Better sanitary conditions save the woman and child from diarrhea, asthma, respiratory infection and drop off these diseases as well. But in most of areas there were not proper system of sewerage and to dispose off trash. "Better education may therefore affect child health by providing a household with better sanitation, such as running water or flushing toilets."(Strauss, 1990, Case, 2001).

iv). Almost 60% people have flush system in their homes and cleanliness of their houses was in better condition. Better sanitary conditions and cleanliness may have the strongest effect on woman & child health in those houses.

So, it came to know that if the quality and deliverance of services of these determinants are enhanced in Vehari then woman and child health may perked up to a large extent.

RECOMMENDATIONS:

- ➢ Delivery of tetanus taxied vaccination must be provided to girls of age 15 and above.

- ➢ Government should take actions for better hygienic system.

- ➢ Appropriate attentiveness pay to control diseases and stipulation of medicines at cheap rate.

- ➢ The assignment of lady health workers should be regularized and supervised on precedence.

- ➢ People should be made aware of the importance of female education. Women are well thought-out a back bone in our society. They must be educated. They may pay attention to her self and her family if they will be educated.

- ➢ Media must play a positive role through electronic or print form.

> Family planning services should be made customary and easy to approach. National program for family planning and basic health care play a vital role in this regard. Effective programs and check & balance prop up increased utilization of woman and child health services as well as the quality of services towards women and child health.

> Chances may be considered necessary both in the health system itself and in the understanding of good maternal health practices at the household, community, and national levels to make available an effective continuum of care. Behavioral change is an important ingredient of an effectual pregnancy and safe liberation program.

> Long-standing improvements in education and employment opportunities for women will have a positive brunt on the health of woman and her child. In the petite tenure, momentous advancement can be achieved by amplification and intensifying fundamental health services for women, improving policies, and promoting more positive attitudes and deeds to value can be improved through adequately trained staff, drugs, and supplies, increasing the number of female health providers, establishing expedient hours, reducing overloading, and ensuring solitude and secrecy.

FUTURE RESEARCH

The study is limited to district Vehari and only a few variables used although health is a vast field. More research is required in future.

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