Impact of Behaviour Change on Health of Patients in Islamabad

Submitted to,

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CERTIFICATE

This is to certify that this thesis entitled: "**Impact of Behaviour Change on Health of Patients in Islamabad"** submitted by Mr. Shahzad Jahangir is accepted in its present form by the Department of Health Economics, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree of M. Phil in Health Economics.

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It is certified that the thesis entitled **"Impact of Behaviour Change on Health of Patients in Islamabad".** has been completed by Shahzad Jahangir Registration No. PIDE2015FM.PhilHE09 under my supervision. It is also certified has the thesis is based on original research work and meets all criteria and standards laid down for M. Phil degree.

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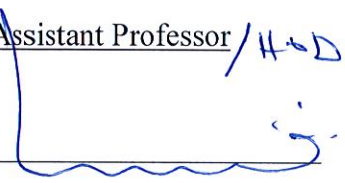
Signature: 

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CANIDATE DECLARATION FORM

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Candidate of M. Phil Health Economics at the Pakistan Institute of Development Economics do hereby declare that the thesis: **Impact of Behaviour Change on Health of Patients in Islamabad** Submitted by me in partial fulfillment of M. Phil Degree, is my original work, and has not been submitted or published earlier. I also solemnly declare that it shall not, in future, be submitted by me for obtaining any other degree from this or any other university or institution.

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Executive Summary

There are two parts of my findings; Firstly, the quantitative part, the logistic regression results of our model show that health is negatively and significant associated with area of residence while positive and significant associated with education of respondent (Bachelor category), occupation of respondent (Daily wages & agri. labour category), patient's behaviour status and patient's awareness status. Out of total eight variables, five shows significant results in our econometric model. The result of analysis shows significant and positive relation of health and patient's behaviour status. As patient's behaviour score and patient's awareness score increase more, health will also be improved relatively. Mostly people agreed in survey at the hospital PIMS Islamabad that behaviour has an impact in healthy or not healthy life style in individual and societal level, clearly.

On the other hand, the qualitative part, HBGM (Health Behaviour General Model), HBCM (Health Belief Change Model) and Conceptual Framework and Literature Reviews show that behaviour is one of the main cause of physical, mental and social well-being disorders. Here to focus, on social and behaviour part to save our health and wealth as well. Otherwise, we can face loss of health and income/wealth too. Different studies support my findings in different aspects. In public health, HBGM, HBCM and Conceptual Framework can play vital role for saving health cost, improving quality of health and accessing better facilities to individual and society at the same time.

Acknowledgement

The achievement of this research is the consequence of innumerable help from ALLAH Almighty, all tributes for Allah. I give my thankfulness to my respected parents, teachers and friends. I acknowledge the support and efforts of my supervisor: **Dr. Fazli Hakim Khattak** Head of Department of Health Economics at Pakistan Institute of Development Economics. Support and frequently push me up to work on my thesis is because of sir. Then all the care and efforts are made by my beloved parents for giving me all the requirements to complete this project.

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Contents

Key Terms

Behaviour

"Behaviour is generally based on terms like action, manner, conduct, deed, practice, habit, belief, attitude, cultural norms, values, perception and character etc. and these all are occurred and learnt by 1-Yourself (idea, observation, examination, experimentation and analysis)**, 2-Family/Teacher/Environment** (linked surroundings) **and lastly 3-Stories/Books/Religions".**

Health A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity by WHO.

Patient A person who needs medical care (by English Dictionary). People who faces physical, mental and social well-being disorders due to behaviour.

Staff Health Service Providers, Nurses, laboratory Attendant, receptionist, administration staff, finance staff, guards, waste collectors, laundry staff etc.

Doctors A major part of Health Service Providers like Surgeon, General Practitioners, Specialist, Physician etc.

WHO World Health Organization.

BCC Belief Change Communication.

HBCM Health Belief Change Model.

HBGM Health Behaviour General Model.

Note: Here we have to check the roles and behaviour orders and disorders of Patients which have impact on health, to support the models and theories given in the thesis.

Chapter 1

INTRODUCTION

1.1 Background

Behaviour is generally based on action, manner, conduct, deed, practice, habit, belief, attitude, cultural norms, values, perception and character etc. and these all are occurred and learnt by any human being (ideas, observation, examination, experimentation, and analysis). Family, Teacher, Environment, Stories, Books and Religion are the sources of behaviour to learn and adopt according to the different situations. Actions and reactions are composite indicators of behaviour.

The aspects shaping the health behaviours may be realised in many frameworks: socio-economic, physical, political and cultural. Hence, the use of a health care system, private or public, non-formal or formal, may depend on level of education, socio-demographic factors, cultural beliefs, social structures and gender discrimination, practices, political and economic systems environmental conditions, status of women and health care system and the disease pattern itself (Shaikh *et al.*, 2004).

For instance, in observing health starting a sociological perception, Talcott Parsons describes health as the optimal ability of an individual aimed at acting effectively his typical responsibilities and roles. Parsons also advises that there is a "health role" that carries with it the obligation to maintain one's health in order to perform effectively. Finally, Parsons asserts that the valuation of health, of course, also implies that it is an obligation to try to prevent threatened illness where this is possible" (1958: 176-177). Lawrence Green (1970) suggests that health behaviour is individual, controlled, protective health action. It is individual and controlled as it is

action usually taken separately from sanctions that force to an individual to obey. It is protective as its emphasis is not curative or curative achievement and it is action instead of attitudes, knowledge, perception, values, or beliefs.

Green ideas on view that the anticipated behaviour has not been practiced on the part of several individuals who supposedly have the proper attitudes, knowledge, perception, values, and beliefs; even though at the same time, it is found to describe others who lack some of attitudes, knowledge, perception, values and beliefs measured key to action. It is obvious that the idea is not preserved in the literature with uniformity or clearness. Some authors obey to the encompassing, extremely uncompromising World Health Organization (WHO) definition of health, as ". . . a state of complete physical, mental, and social comfort, not only the non-appearance of disease and illness" (quoted in Coe, 1970:13). King (1962) highlighted the idea of "positive health," the relearning of the full imagination of the individual. Supporting the WHO characterisation, King explained in the following terms the positive characteristics he desired to stress: the all-out physical, mental, and social effectiveness for the individual, his family, and public. Other authors pursue a more practical and researchable explanation. For instance, Mechanic (1968:49) proposes an adverse explanation of health as ". . . the non-appearance of obvious disease and infirmity recommend that it is extra operational to the WHO explanation for differentiating the healthy from the sick. Schulman and Smith (1963) stated the trouble of arriving at a broadly recognized definition of health, even in a comparatively similar traditional society. A medical consultant, Victor Freeman (1960) argues the trouble of defining health and recommends that the importance should be upon preventing the disease.

Baumann (1961) facts out that a key problem in tries to evaluate the health attitudes which stems from the fact that individuals differentially see behaviours as associated to their conception of

health. That there are difficulties both with the concept and with the grouping of action that might be titled "health behaviour" is voluntarily appreciated.

However, it's theoretical perspective makes it appreciable, for the perception would look central to the explanation of several health-related individual actions directed on the way to sustaining or improving health. Sustaining an appropriate diet, bathing, observing existing illness, inspecting one's look before a mirror, or stepping upon a set of measures might be considered to be preventive health behaviours. Obviously, the range and typology of health behaviour indicators is inadequate only by the thoughts of the researcher and the devotions of the research. Such frequent possibilities, though, are commonly thought to be strengthen instead of weaknesses in thoughts. It is possible to reveal that many independent indicators of health behaviour are interrelated empirically, the worth of the thought would be significantly enhanced. Not having this, the idea would still value severe attention if it could be revealed that particular example of health behaviour is associated empirically, along with theoretically, to some key characteristic of persons.

Behaviour is one of the serious indicators of health disorder caused by medical and ill behaviour activities carrying high potential of injury and infection/disease/disorder to all those associated with it, particularly, patients, staff, doctors and public. Lack of training may lead to inadequate and improper handling of waste which poses serious consequence to public health and a negative impact on the environment (Khan *et al.*, 2013). Approximately, 0.327 million, 2.1 million, and 0.926 million waste collectors are annually exposed to sharp injuries contaminated with HIV, Hepatitis B (HBV) and Hepatitis C (HCV) virus, respectively (Prüss- Üstün *et al.*, 2005).

1.2 Case Study Hospital

There are 14282 health institutions having total of 123394 beds during the year 2016-17 in Pakistan by Pakistan Bureau of Statistics. The Pakistan Institute of Medical Sciences (PIMS) a public-sector hospital, has presently 1200 beds with anticipated increase to 1800 beds in the next two years.

1.3 Problem Statement

Behaviour has an impact on health of patients. Various health disorders and diseases are linked by bad, ill and dangerous behaviour. Besides a threat to public health, social, economic and political disorders it is risky for patients (general people, doctors and staff) who handle these at individual level as well. Due to improper management of health service providers and values, attitudes, habits, beliefs cause serious health problems not only to the patients but to public besides negative impact on the health and social orders. In addition, lack of awareness among people, workers, basic training and use of preventive, protective and maintenance measures made public more vulnerable to health disease/infection/disorder.

1.4 Study Objectives

The objectives of the research are to:

- To develop a theory model the impact of behaviour change and behaviour link to the health.
- To support the theory and make reliable and valid, Patients facing behaviour change impact on health in hospital (PIMS) public sector Islamabad.

Research Questions

1- Is behaviour directly proportional to health?

2- Is it possible to measure behaviour?

3- Can a behaviour be a main variable for health?

4- Is care better than cure?

5- Are people health rationales?

1.5 Significance of the study and scope

"An ounce of prevention is worth a pound of cure". The study, Behaviour change, will help in identifying the health hazards faced by the people who are exposed to these conceivable threats which otherwise goes overviewed. It will also contribute to the literature by comparing the practices in the two sectors and identify the efficient and health friendly practices; moreover, this study will also highlight the importance of the Behaviour Change and can be played a special role in SDGs and Vision 2025 as well, which in turn will improve the health of the people and health services.

Chapter 2

LITERATURE REVIEW

2.1 Health Behaviour -Types, Magnitude and Management

In my views, there are 3 types of behaviour for health gaining perspective; **Preventive/Individual Behaviour**, **Protective/Others Behaviour, Maintenance/Controlled Behaviour.** By these mentioned types, we can gain a health package with wealth as well. As said by world commonly, "**Health is Wealth**".

Behaviour and health is clear predictable positive correlation. One elucidation is that behaviour supports people pick life-styles by civilizing their awareness of the associations between health behaviours and health consequences. That is, uses direct measures of health awareness to test this account. Part of the association between behaviour and the consumption of alcohol, exercise and cigarettes is enlightened by differences in health awareness. Hypertension was found to be more prevalent among women as compared to men, ratio being 1:2. Less number of people knew they were diabetics; this might be attributed to ignorance and non-availability of investigations and screening (JPMA 59:89; 2009). Mainly non-Muslims workers handle the waste majority of them are not proper trained with low level of knowledge regarding protective measures, waste types and steps of handling the waste (Mustafa *et al.*, 2008).

Qazilbash collects findings; "Health communication, like health education, is an approach which attempts to change a set of behaviours in a large-scale target audience regarding a specific problem in a predefined time." Consultation; Prevention; self-medication; all of these are behaviours. These days, nearly all the health issues, one way or the other, are connected to such

behaviours. “Main health complications and early losses of health are preventable through changes in behaviour and at a low cost. We have technology and the know-how but they have to be altered into operative action at the community level.” Countries that realized earlier that prevention of disease and promotion of health do not lie in big hospitals; and make suitable changes to their system; fruitfully upgraded the health of people.

USA had the most modern, technologically advanced and expensive health care system in the world. It spent highest per capita annually than any other country (UNDP 2005). Yet overall health status and the average life expectancy of its people is ranked 24th in the world. Japan is placed higher than the US. The longer and better lives of its citizens are credited to better health behaviours like eating fish and rice and avoiding dangerous fats (WHO, 2000).

Health behaviour nexus can be better understood by probing the ten main risk factors recognized by (WHO, 2002) for preventable disease and death worldwide. They include: unsafe sex; maternal and child underweight; tobacco; high blood pressure alcohol; high cholesterol; unsafe water, poor sanitation and hygiene; iron deficiency indoor smoke from solid fuels; and high body mass index (BMI), or overweight. 40% of deaths are due to these ten behaviours linked risk factors alone worldwide, according to WHO.

Even a brief check of data exposed that people were not likewise unhealthy: a signal pattern was that the educated were more possible to select healthy life-styles. But on the other hand, Prevalence of self-medication is high in the educated youth, despite majority being aware of its harmful effects. There is a need to educate the youth to ensure safe practices. Strict policies need to be implemented on the advertising and selling of medications to prevent this problem from escalating (JPMA 58:214; 2008). Also, the high socioeconomic group showed better preventive

practices. This provides some evidence supporting differential allocation of resources for combating dengue in the high and low socioeconomic areas (Syed *et al.,* 2010). These endeavours should lead to formulate evidence based national policies, reproductive health services which are affordable, accessible and culturally acceptable and finally a responsive health system. About 54% of waste collectors in the hospitals of Pakistan had suffered at least one sharp injury within 6 months alone (Kumar *et al.,* 2010). Most hospital administration and independently working doctors do not comply with the standard practices of hospital waste disposal (devised by Pak EPA) exposing doctors, nurses, health workers and even fellow patients and visitors to various infection. In Pakistan 100,000 people are living with HIV (Global AIDs update, 2016.)

The pesticide's use was largely ruled by voluntary behaviour on the farm. It was significant to know what initiatives farmer's behaviour of pesticide use. Social psychology and health belief models in public health claim that persons who have had contrary health knowledges are likely to assume greater preventive behaviour which was tested here. A survey has been drawn by us of 163 farmers in, Vihari and Lodhraan District of Southern Punjab (Khan *et al.,* 2009).

2.2 Effects on Health

A report shows that the U.S. surgeon general had established 50 % of mortality in 1976, due to unhealthy behaviour or life styles (U.S. Department of Health, Education, and Welfare 1979). One solution is to change beliefs, so that the actions appear reason able (Akerlof and Dickens 1982). Social integration, social support, social control, stress, social networks Abstract are interlinked with it. Humans are reinforced for social assembly. Without social links, distress appears and health nosedives. In this logic, social connection appears to be a biological imperative. Social ties influence health in part through health behaviour, and this impact plays

out across the life course. Social ties and their impact on health habits, at any life stage, force into the future by shaping courses of change and turning points in social ties and health habits over time. Indeed, social tie/health habit associations signify essentially sociological land in that these social processes unfold over time in ways that influence population health and mortal.

Resulting in a total of 1395 HIV positive and 178 full-blown AIDS cases, a report screening of a total of 23,40,000 blood samples throughout the country in 1986 to 1999 is given by Official Statistics of National AIDS Programme of Pakistan. Health schooling teaches healthy behaviour and attitudes and runs the resources of preventing AIDS pandemic. In Pakistan, HIV/AIDS schooling at the secondary school levels has been suggested in the National Education Policy, but not yet applied (Shaikh *et al.*, 2001).

Every year more than 68600 people die because of liver cancer which is caused by HBV and 240 million are infected. Health care worker are more vulnerable to HBV. Similarly, 700,000 people die each year from HCV (WHO Factsheet 2016). A study done by Jovic-Vranes *et al.* (2006) estimated that in Serbia the most accidental injury was the contact of skin of staff with the blood of patients which was 59.1% second accidental injury was needle injury 50.7% and at third injured was by sharp cuts 38.4%. Similarly, in another study done by Kane *et al.* (1999) showed that 8 to 16million Hepatitis B virus, 2.3 to 4.7 million Hepatitis C virus and 80,000 to 160000 Human immunodeficiency virus are caused by reuse of syringes and needles without sterilizing every year, the study also showed that major infections are caused by unsafe injections which include blood borne pathogens. To the total of 36.7 million people living with HIV, 2.1 million more were added in year 2015.

The health effects of infectious waste depend upon the duration of the pathogens staying active in the atmosphere for example HBV stays infectious for a week at a room temperature (WHO,1997) The success and failures in the health sector at the end of 20th century were reviewed but the principle of "First do no harm" was being violated on a large scale by using unsafe injection practices which not only haram the patients but also the health workers (Hutin *et al.,* 1999). Unsafe injection practices annually cause 1.3 million deaths and estimated cost of US$535 million. Investment in health sector with proper and safe disposal will reduce the infections which are associated with unsafe injecting practices (Miller *et al.,* 1999). Hospital waste (including body organs, tissues, blood and body fluids along with soiled linen, cotton, bandage and plaster casts) should be properly collected, segregated and disposed in order to prevent nosocomial infections (Mathur *et al.,* 2012).

Especially in endemic countries like Pakistan Dengue infection risk can be effectively reduced by prevention. Health beliefs and evaluation of public alertness concerning dengue fever is significant for formulating strategies of disease control. Assessment of study about dengue knowledge, preventive practices and health beliefs are against dengue fever in different socioeconomic groups of Karachi, Pakistan (Siddiqui *et al.,* 2016).

One of the most widespread and foremost cause of death among women all over the world is Breast Cancer, with 521 thousand deaths in 2012 and predictable to cause more than 600 thousand deaths in 2020. It is the 2nd top cause amongst all type of cancers and is a serious health issue of the female population in developing countries. Approximately 65% deaths occurred in developing countries and 8.2 million people worldwide died from cancer, while 35% of cancers could be prevented (Malik *et al.,* 2016).

2.1.1 Physical

Old-style definitions of physical health previous to the start of up-to-date medicine is careful someone physically healthy if he or she is not worried with a serious disease. With current medical inventions come longer life spans, which changes the way we define it. Today's definition can replicate everything reaching from the absence of disease to appropriateness level. It covers of many mechanisms, here is a brief list of the key areas that should be addressed in Human Growth and Development by John Koshuto; Sleep and Rest - explains periodic rest and relaxation with high quality sleep, Self-care Medically - takes speaking slight illnesses or injuries and looking for emergency care as needed, Drugs and Alcohol - includes the self-denial from or reduced consumption, Diet and Nutrition - comprises nutrient and fluid intake and digestion and Physical Activity - contains strength, flexibility and stamina.

In the study, the knowledge of postmenopausal women about CVD is acceptable, but their attitude toward CVD is weak. Additionally, since they have nearly all of risk factors for CVD, they are at a bigger risk for mortality and morbidity. Consequently, a special need is required to change their behaviours and beliefs toward CVD (Abedi *et al.*, 2009).

2.1.2 Mental

Mental health is well-defined as a state of well-being in which every individual comprehends his or her own potential, can handle with the normal stresses of life, can work productively and fruitfully, and is able to contribute to her or his community by WHO.

Mental health covers our psychological, emotional and societal good. It marks how we reason, feel, and performance. It also helps to regulate how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood through adulthood.

Over the course of your life, if you experience mental health problems, thinking, mood, and behaviour could be affected. Many factors contribute to mental health problems, including; Family history of mental health problems, Life experiences, such as abuse or trauma and other Biological factors, such as brain or genes chemistry.

Efforts to improve public awareness regarding cancer and heart disease are more than mental disorders. However, many approaches have been examined. One is an information campaign targeted at general population. In the late 1980s, the Americans instituted the Depression Awareness, Recognition and Treatment Program, which aimed to inform both the public health professionals that depressive disorders are serious, common and treatable (Regier *et al.*, 1988).

The key task of a nurse is generally focused on caring and nurturing those people, who suffer from various psychological and physical diseases and troubles (Duquette, 1994). Thomas (1993) trusts these patients are not so scared of death, as they are of being left alone, and defines the very act of sustaining a bond with the patient in distress as an extension of 'unconditional love'. So, spiritual wellness gives life satisfaction to nurses and they can grant a breathing life to the suffering patients. Spiritual, emotional, social and personal factors play a dynamic role in life

satisfaction. Ferguson and Mitchell (2001) state that support networks are disappeared, and nurses have started feeling themselves as hopeless and neglected, desiring to reorganize a sort of community among them. Therefore, nurses face weaker to psychological stress. Duquette, Sandhu and Beaudet (1994) have found that nurses are most badly affected by stress, as their entire job turn around nurturing and caring of people (Habib *et al.*, 2012).

2.1.3 Social

Social health contains your ability to form satisfying relational dealings with others. It also describes to your ability to adapt easily to different social circumstances and act appropriately in a variety of settings. Spouses, acquaintances and co-workers can all have healthy relationships with one another. Each of these relationships should take in communication skills, understanding for others and a sense of responsibility. In dissimilarity, traits like being reserved and selfish can have a negative influence on your social health. Overall, stress can be one of the most important threats to a healthy relationship. Stress should be achieved through established techniques such as positive self-talk. regular physical activity and deep breathing (Umberson, 2010).

Behavioural Prediction, Health Belief Model, Social Cognitive Theory, Theory of Reasoned Action and An Integrated Theoretical Model, these social approaches are main sources to change a behaviour in distinct aspects and situations. These theories depict the framework for actions and reactions under specified circumstances (Fishbein, & Yzer, 2003).

The Theory of Planned Behaviour (TPB; Ajzen, 1988, 1991) suggests a model about how human action is directed. It forecasts the occurrence of a specific behaviour provided that the behaviour is intentional. In application research, interventions are planned to change the behaviour of

clinicians. The target behaviour should be defined carefully in terms of its Target, Action, Context and Time (TACT). For example, reflect the behaviour, 'referring patients with back pain for a lumbo-sacral spine x-ray'. Here the target is the patient, the action is the referral, the context is the clinical condition (back pain) and the time is (implicitly) during the consultation.

This article observes disease prevention and health promotion from the perspective of social cognitive theory. This theory suggests a multidimensional causal structure in which well-being, self-efficacy beliefs operate together with goals, and perceived environmental impediments and facilitators in the regulation of human motivation, behaviour and outcome expectations (Bandura, 2004). Belief in one's efficacy to exercise control is a common pathway through which psychosocial influences affect health functioning. This core belief affects each of the basic processes of personal change whether people even consider changing their health habits, whether they mobilize the motivation and perseverance needed to succeed should they do so, their ability to recover from setbacks and relapses, and how well they maintain the habit changes they have achieved. Human health is a social matter, not just an individual one. A comprehensive approach to health promotional so requires changing the practices of social systems that have widespread effects on human health.

"The Health Belief Model, social learning theory (recently relabelled social cognitive theory), self-efficacy, and locus of control have all been applied with varying success to problems of explaining, predicting, and influencing behaviour (Rosenstock, 1988)." Yet, there is conceptual confusion among researchers and practitioners about the interrelationships of these theories and variables. This article attempts to show how these explanatory factors may be related, and in so doing, posits a revised explanatory model which incorporates self-efficacy into the Health Belief Model. Specifically, self-efficacy is proposed as a separate independent variable along with the

traditional health belief variables of perceived susceptibility, severity, benefits, and barriers. Incentive to behave (health motivation) is also a component of the model. Locus of control is not included explicitly because it is believed to be incorporated within other elements of the model. It is predicted that the new formulation will more fully account for health-related behaviour than did earlier formulations and will suggest more effective behaviour interventions than have hitherto been available to health educators.

2.3 Effects on Cost

"An ounce of prevention is worth a pound of cure in terms of cost". Some equations show that health behaviour reduces cost 10 to 100 times less than cure, approximately. As we know, HIV treatment is very expensive as well Cancer, TB and more other communicable and non-communicable diseases cost a lot of money, health and time in term of cost. Economic, Social and Political costs are predictable effect on the behalf of health behaviour change as well. Cost effectiveness, Cost Benefit and Utility based analysis can be measured in the shape of QALYs (quality adjusted life years) and DALYs (death adjusted life years).

It has been detected that degree of household out of pocket expenditure on health is at times as high as 80 percent of the total amount paid on health care per annum in developing countries of south Asia region. As expected, 76 percent spends out of pocket in Pakistan (Shaikh *et al.*, 2004).

Regardless of these evidences, this study achieves that patients belonging to the low income but educated groups have better understanding about the status of diet in Hepatitis. Though, misconception and beliefs about spicy foods overcame in our sample, due to which the benefits of good diet were not measured. Protein rich diet measured to be luxurious, while all dietary

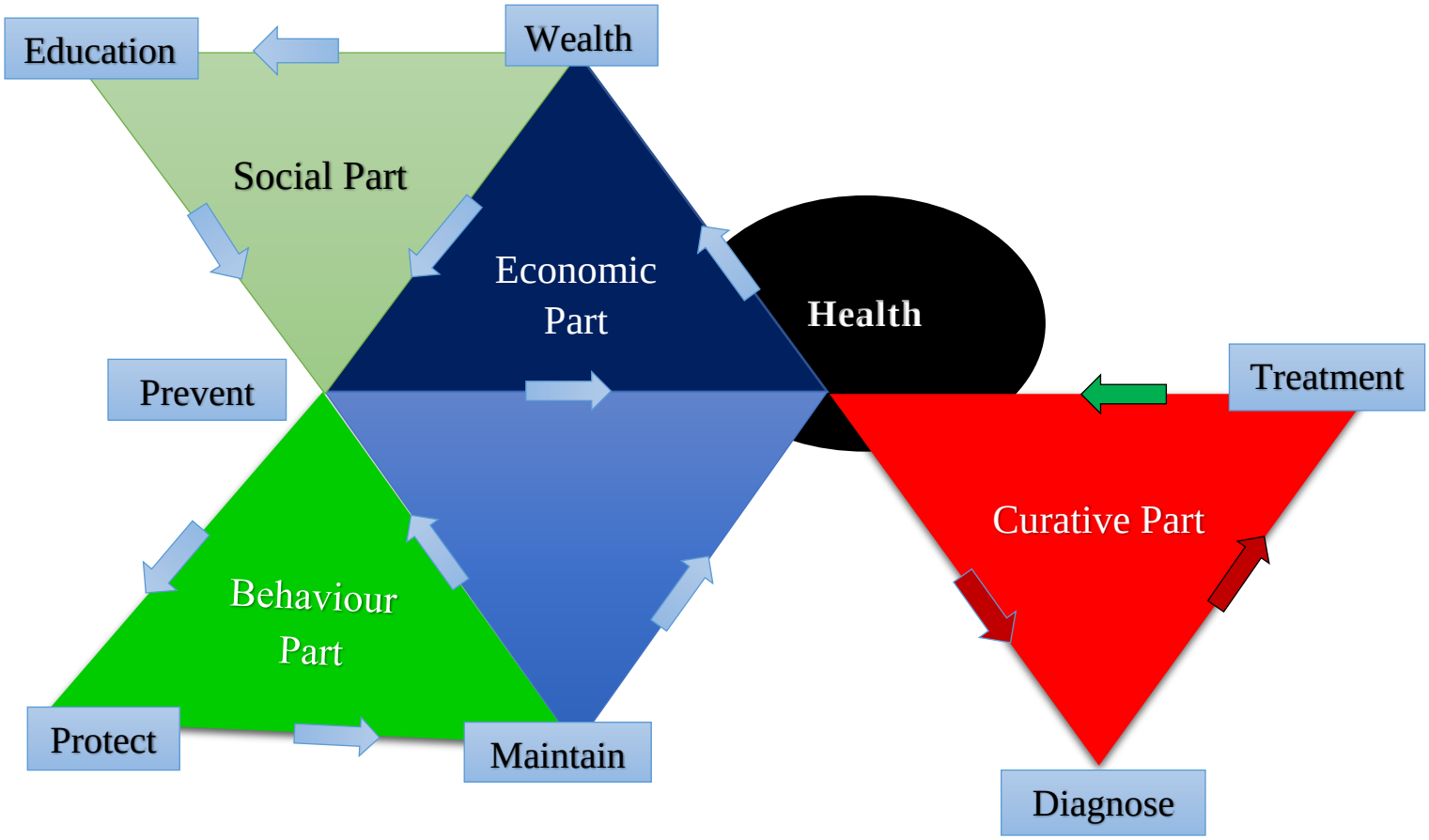
sources of protein are not expensive items and the proteins are easily available in other forms than meat. Even with this, most of the patients have acceptable knowledge that Hepatitis B and C are basically liver disease (Kumar *et al.*, 2011).

Finally, such measures can be taken while making plans and policies for future well-being. Behaviour Change can be played a special and effective role in SDGs and Vision 2025 in terms of cost minimization as well, which in turn will improve the health of the people and health services.

Chapter 3

CONCEPTUAL FRAMEWORK OF THE STUDY

3.1 Causes and Consequences of Health Behaviour



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In this conceptual framework*, we have parts to discuss

Social and Economic Part

In social part, we give our society an education, awareness and trainings at the same time, there is a need for an economic part to support a goal to run a social system. So, these basics cannot be neglected for a change of behaviour (action, manner, conduct, deed, practice, habit, belief, attitude, cultural norms, values, perception and character etc.). More wealth more education and more preventive behaviour can be significant role for an individual and public health. Here we can spend money directly for health or spend on education for better prevention. As we know, prevention is better than cure, cure demands more money, time and physical damages but prevention can change results. So, we should focus on social and economic part.

1-Behaviour Part

Economic and social parts can play a vital role for behaviour part. In behaviour part (action, manner, deed, habit, belief, attitude, cultural norms, values, practice, perception and character etc.), if we first **prevent** (By yourself) then we are, second, to **protect** (through others like resources, area, people and govt.) ourselves after this we have to **maintain** (preventive and protective behaviour simultaneously) it thirdly. Complete these steps again and again and finally get good **health** and health gives **wealth** because health comes first and then wealth, on the other hand, wealth can be linked directly to **education**, **prevention** and **health** as well. Which leads to better education and prevention options again obviously. The cycle will save our health (physical damages), wealth, time and Public Health as well.

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2-Curative Part

In curative part, first if we are not taking preventive measures we will be failed to attain good health secondly, aftereffects will be in shape of infections/diseases/disorders. Thirdly, Curative part will take part in the model and we have to go for **diagnosing** fourthly and **treatments** fifthly at health service providers, clinics, BHUs and hospitals. After paying a lot of money, physical damages and cost in terms of time, we can revive or face a severe condition due to doctors and health service providers like staff etc. that can take to death mistakenly or unmistaken, at last. Doctors and health service providers like staff etc. can play significant role in health as we know doctors and hospitals charge heavy fees and prescriptions along with revenue generating pharma companies in private sector and lack of attention, access of health and bad practices (explained in literature review) of doctors and health service providers like staff etc. in public sectors.

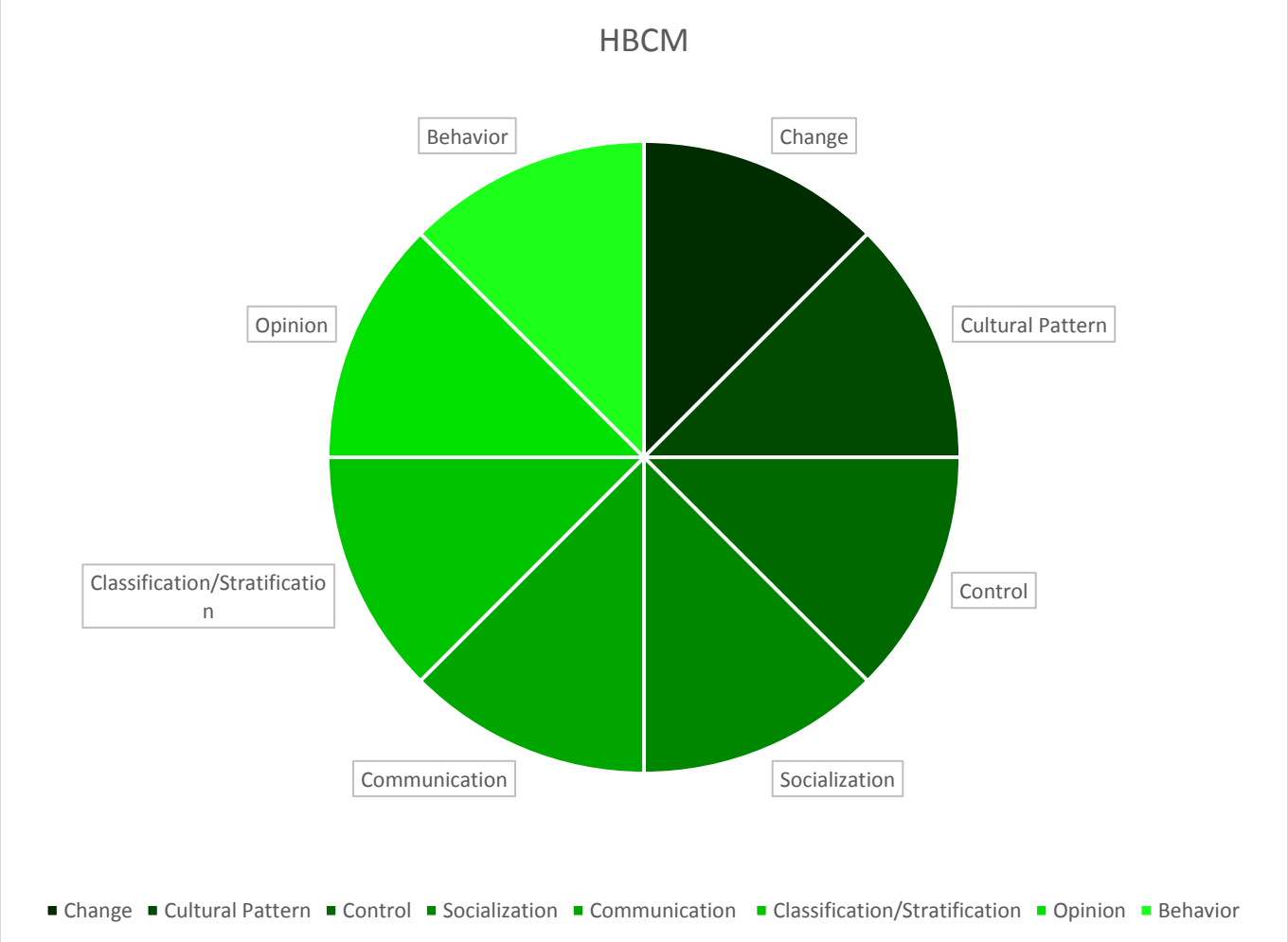
3.2 Health Belief Change Model

i) Individual

ii) System Through the Strategy of Behaviour Change Communication

Behaviour Change Communication (BCC) is a collaborative method of any intervention with individuals, communities and/or societies (as united with an overall program) to mature **message** strategies to indorse constructive behaviours which are suitable to their settings. Here is;

Health Belief Change Model**



****Jahangir, Shahzad**. ***Health Belief Change Model***, Pakistan Institute of Development Economics: Health Economics, 10 July 2018.

Theory of Health Belief Change Model

In this model, we are discussing that how one's behaviour is changed or not changed in health regarding situation. All types like action, manner, etiquettes, conduct, deed, practice, habit, belief, attitude, cultural norms, values, perception and character etc. are matured or immature by Yourself, Family/Teacher/Environment and lastly Stories/Books/Religion. These all cause a change or mindset which tends to maturity or immaturity.

Here we describe the steps; in the model **Behaviour** is the first step when someone do something, a reaction in the shape of **Opinion**, second step, where we fall on the trend mindset or not. If someone does not fall on the trend then we will be **Stratified**, third step, on the base of opinions. Mostly individuals or societies are stratified or differentiated by action, manner, etiquettes, conduct, deed, practice, habit, belief, attitude, cultural norms, values, perception and character etc. and all these are shown by in the shape of opinion and behaviour. By-nature human beings have diversity in thoughts and practices but for live to gather peacefully and practically we have to **Communicate**, fourth step, each other. In this step, we express ourselves with others through ourselves, groups, media, internet and books to remove the stains of stratifications/classifications made by self-made opinions. After this if we fail to communicate well with others we have to go for third party to resolve the problem.

Where we meet the term **Socialization**, fifth step. Organised, civilized and socialized people make us clear and convince about the right and wrong in the light of logics, universal truths and references. They set a constitution in the light of logics, universal truths and references.

For implementations, they set a law to **Control**, sixth step, individuals, groups, communities and society. Application of law is acceptable willingly or forcefully. This thing leads to a **Cultural**

Pattern, seventh step, where individuals and society agree with laws and its applications which cause a new **Change**, eighth step, which is an outcome of the circle, described above.

From above whole circle steps, a mature behaviour will become a part of our life as an individual, group, community and society. Further, more we follow the steps more we will become mature and well-aware to individual level, group level, community level and at last society level. Such type of education can change individuals, groups, communities and society all the times. This model covers health behaviour, social behaviour, economic behaviour and political behaviour. By using this model, we can change action, manner, etiquettes, conduct, deed, practice, habit, belief, attitude, cultural norms, values, perception and character etc.

For example, in context to health behaviour according to Health Behaviour Change Model, we have a belief that nothing will happen after smoking, a behaviour. Someone agrees or does not agree with this, an opinion. Stratification or classification will come to in people. Communications try to solve it and matter goes to health experts, socialization. They diagnose the problem that smoking is injurious to health all the way. And health experts set precautions and health risks and consequences for the person, control. If a person accepts it then he is ready to set a pattern for his life which cause a change in behaviour which leads to a healthy life, undoubtedly. More in, behaviour change correlates more in healthy life.

Jahangir, Shahzad**. ***Impact of Behaviour Change Model on Health of Patients in Islamabad, Pakistan Institute of Development Economics: Health Economics, April 2018.

3.3 Definitions of the Behaviour, Patient, Hospital and Health System

1-Behaviour

The key definition, "*The action or reaction of something under specified circumstances*". Health behaviours have been defined as "*Any activity undertaken by a person believing himself to be healthy for the purpose of preventing disease or detecting it at an asymptomatic stage*" (Kasl and Cobb 1966: 246). In other words, Behaviour is generally based on terms like action, manner, conduct, deed, practice, habit, belief, attitude, cultural norms, values, perception and character etc. and these all are occurred and learnt by

a-Yourself (idea, observation, examination, experimentation and analysis)**,**

b-Family/Teacher/Environment (linked surroundings)

c-Stories/Books/Religions.

According to dictionary, "***a settled way of thinking or feeling about something is Attitude*"**. Attitude is nothing but a person's perception on something or someone. Second, attitude is internal whereas behaviour is external in sense.

2-Hospital

"An institution providing medical and surgical treatment and nursing care for sick or injured people".

3-Patient

"*A person who needs medical care*" (by English Dictionary). People who faces physical, mental and social well-being disorders due to behaviour.

4-Health System

“A good health system delivers quality services to all people, when and where they need them. The exact configuration of services varies from country to country, but in cases requires a robust financing mechanism; a well-trained and adequately paid workforce; reliable information on which to base decisions and policies; well-maintained facilities and logistics to deliver quality medicines and technologies” (WHO).

3.4 Difference between Disease and Infection

Diseases, Hepatitis A, B, C, Back Pain, Headache and AIDS, are any condition in which the body is not working properly. Many diseases are quite trivial and clear up quickly without treatment, for example a cold. But many diseases are quite hard with treatment also like which may be communicable and noncommunicable diseases. Diseases have different symptoms and different channels as well. AIDS is a disease and its channel may be an ill behaviour and its symptoms will be like Fever, Chills, Rash, Night sweats, Muscle aches, Sore throat, Fatigue, Swollen lymph nodes, mouth ulcers. Another example can be a disease, Hepatitis A, B, C, and symptoms can be like Fatigue, Nausea, poor appetite, belly pain, a mild fever, yellow skin or eyes.

Infections like Gastro infection, Respiratory infection, Eye infection, Skin infection, are one type of disease. An infection is a disease caused by a living organism (a germ), which is living in the body of the affected person. The germ may be a bacterium, virus, fungus or parasite. Like all diseases, infections vary in how severe they and whether they need treatment. Symptoms for gastro, Diarrhoea, Nausea, Vomiting, Headache, Low-grade fever, may be channelled by ill

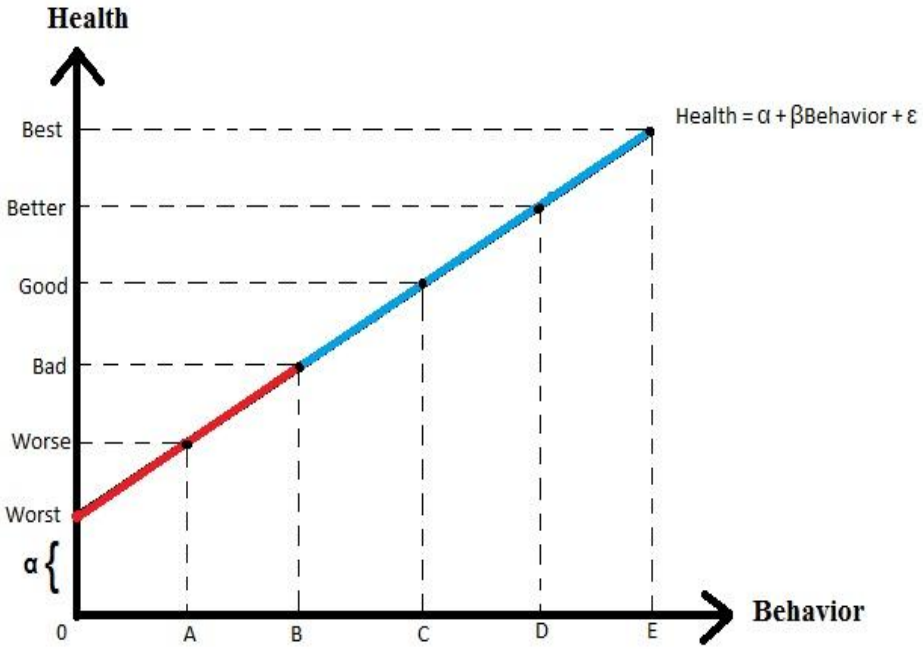
behaviour. Tuberculosis is a bacterial infection, which can be very difficult to treat and causes many deaths every year. Skin Infection may cause by an ill behaviour and its symptoms will be like A rash, which might be painful or itch, Dry, cracked skin, Skin allergy.

3.5 Relationship of Disease with the Behaviour Change

It's relationship with change in behaviour is closely correlated. Various diseases/infections are occurred or channelled by dangerous/ill/bad **behaviour** and on the other hand, all the diseases/infections can be prevented or reduced by good behaviour change. AIDS, Diarrhoea, Hepatitis ABC, Dengue, HIV, Cancer, TB, Stress and more other communicable and non-communicable diseases cost a lot of money, health and time. Economic, Social and Political costs are predictable impact on the behalf of health behaviour change as well. There is a theory for the relationship concept link below;

Health Behaviour General Model*

The relationship of behaviour and health can be linked as below in the graph;



Jahangir, Shahzad**. ***Health Behaviour General Model, Pakistan Institute of Development Economics: Health Economics, 03 June 2018.

Explanation of Theory

Here we take health on y-axis and behaviour on x-axis first. And here other part is the health behaviour general model,

Health = α + β Behaviour + ε.

Firstly, we explain first part i.e. Health on y-axis with seven stages as Best on top then Better, Good, Bad, Worse, Worst and lastly Death at 0. On the other hand, we have some number of behaviours 0, A, B, C, D and E on x-axis respectively. Here every point has a meaning in it with the meaningful description keeping other things remain constant.

As if we increase number of behaviours we get higher level of health accordingly. Less number of behaviours get lesser level of health accordingly. This means that there is a positive relationship between two variables, **Dependent=Health and Independent=Behaviour.**

There is a lot of things to say in seven stages or points. At "0" number of behaviour means someone cannot manage health by him/herself is worst stage, where he/she is dependable on family/govt. in childhood, on family/friend/govt. in old age and lastly on family/friend/govt. in sever conditions (Childhood, Adult and Old Age) or death. At point "A" number of behaviours, we get higher level of health i.e. worse. At point "B" we see improver level i.e. bad. This shows that someone is in curative (doctors, Diagnose, medicine and treatments) circumstances.

Jahangir, Shahzad**. ***Health Behaviour General Model, Pakistan Institute of Development Economics: Health Economics, 03 June 2018.

After this level we attain good health at "C" point. As point "C" shows mid of the stages which is attainable for family, society and govt. with the help of preventive behaviour.

Here we practice more and more healthy behaviours, we will reach at point "D", better than good. Lastly the ideal situation is point "D" i.e. best which shows complete physical, mental and social well-being. According to me, this fulfils the definition of health by WHO.

Secondly, the regression line, $\underline{\boldsymbol{Health = \alpha + \beta\ Behaviour + \varepsilon}}$, shows a complete picture of the whole story as well. Here Health is dependent variable and Behaviour is independent variable in this regression.

Here "$\boldsymbol{\alpha}$" shows intercept of line which starts from worst stage, a complete dependable health behaviour, further explaining, care by someone else like doctors, staff and hospital and family & friend/community/govt. etc. In Childhood, Adult and Old Age with worst conditions like accidents and last stage of cancer or death. We have to be dependable on others. At this stage, we cannot take preventive, protective and maintenance measures. So, "$\boldsymbol{\alpha}$" can change positions as doctors, staff and hospital and family & friend/community/govt. perform their behaviours. If they take care well then patient will get soon well otherwise patient can be lost his/her health or life.

Another, "$\boldsymbol{\beta}$", depicts the slop of the line and positive relationship between health and behaviour. As if we increase number of behaviours we get higher level of health accordingly. Less number of behaviours get lesser level of health accordingly.

Jahangir, Shahzad**. ***Health Behaviour General Model, Pakistan Institute of Development Economics: Health Economics, 03 June 2018.

And at last in the model, "ε", the error term means plans and actions of others like family and friends, community, society and government and natural disasters as well. In other words, people and nature around you distract your attention towards good behaviour with their plans and actions, which can disturb you while doing good habits and behaviour. So, this term is kept remain constant means no variable other than behaviour can play any role in the model.

Jahangir, Shahzad**. ***Health Behaviour General Model, Pakistan Institute of Development Economics: Health Economics, 03 June 2018.

Chapter 4

DATA AND METHODOLOGY

"Measure what is measurable and make measurable what is not so."

(Galileo)

4.1 Study Area

The study area selected for the research is Islamabad – the capital city of Pakistan with total area of 906.50 square kilometres having population of 2001579 in 2017. In year 2012 there were total 1217 hospitals having 83,028 beds in Pakistan. Now in the year 2016-17, in hospitals 1 bed is available for 1584 people according to Pakistan Bureau of Statistics. Study will be conducted on PIMS as representative of from public sector hospital.

4.2 Sample Size and Data Collection

A pilot survey of various health disorders due to behave in Islamabad was carried out during the last week of November 2017. On the basis of pilot survey, the Pakistan Institute of Medical Sciences (PIMS) was selected as representative of the public hospital. Various investigation methods such as interviews, questionnaire, visit would be employed to gather required information on various aspect of the respondents such as personal, social, employment related gender, diseases and exposure to other health hazards of respondents involved in dangerous activities. On the basis of the literature review, the existing state of health behaviour management system including processes, technologies and training/safety of patients involved in the selected hospital would be examined.

Simple Random Sampling Technique will be used from the population (Patients) – 5% from the population of PIMS hospital would be analysed with the help of econometric Logit model. These, patients will be selected randomly. A closed ended questionnaire is about behaviour change impact and requirements will support the objective and will show reliable and valid information as well.

4.3 Econometric Model

Behaviour is directly proportional to health

To estimate the impact of behaviour's change on health of patients; the following regression model is proposed:

$$\mathbf{H= \beta_0 + \beta_1 PBS + \beta_2 PAS + \beta_3 PHYP + \beta_4 A + \beta_5 O + \beta_6 I + \beta_7 E + \beta_8 R + \mu}$$

In this model, **H** (healthy or disease/infection/disorder**)** is the health as a dependent variable. The dependent variable will take value 1 if the respondent experienced at least one of the independent variable. For the binary response (i.e. if the disease/infection/disorder Occurred 1 or Not 0), we will use **Logit Model**. For independent variables, **Patients** can make health good or bad. For robustness, will estimate the model for each of the diseases. The independent variables are as follows;

4.4 Operational Definitions

Operational definitions of the variables used in our models are:

Table-4.1 Operational Definitions of the Variables Used in the Model

Variable's Names	**Variable's Definitions**
Dependent Variable:	
Health	1 if patient is facing disease/infection/disorder, 0 otherwise
Explanatory Variables:	
1. Respondent's Information:	
i. Age of Respondent in years	Measured as continuous variable
ii. Area of Residence	1 if Posh Area, 0 otherwise
iii. Education of Respondent:	0=Illiterate, 1=primary, 2=middle, 3=matric, 4=inter, 5=bachelors and 6=MA & Higher,
iv. Income of Respondent:	Measured as continuous variable
v. Occupation of Respondent	Govt. Job-1, Private job-2, Own business-3 daily wages (Worker)-4, Agriculture-5, None-6

Construction of Variable PBS *(Patients Behaviour Status)*

Current study, an index is constructed on patient's behaviour status (PBS) which involves of 5 questions regarding belief, knowledge, attitudes and behaviour of patients. This index (PBS) is in binary form, if patient answers to the question is 'yes' it assigns equal to 1 otherwise 0. This index is categorized into three groups; bad, average and good behaviour of patient. The range value for bad PBS group from 0-2 and for average is 3 only and further for higher PBS the group value takes 4-5. PBS good category depicts that patients have good knowledge of health behaviour.

Construction of Variable PAS *(Patient's Awareness Status)*

In study, an index is based on patient's awareness status (PAS) which contains of 11 questions regarding health awareness of patients. This index (PAS) is in binary form, if patient answers to the question is 'yes' it assigns equal to 1 otherwise 0. Further this index is categorized into three groups; low, medium and high awareness of patient. PAS high category shows that patients have good knowledge of health.

Construction of Variable PHYP *(Patients Hygiene Practices)*

In this study, an index is constructed on patient's hygiene practices (PHYP) which involves of 5 questions regarding hygiene practices of patients. This index (PHYP) is in binary form, if patient answers to the question is 'yes' it assigns equal to 1 otherwise 0. This index is categorized into three groups; bad, average and good behaviour of patient. The range value for bad PHYP group from 0-2 and for average is 3 only and further for higher PHYP the group value takes 4-5. PHYP good category depicts that patients have good practices of health behaviour.

Chapter 5

RESULTS AND DISSCUSSION

5.1 Descriptive, Graphs and Tables

In this chapter, the qualitative analysis of our selected variables is examined to estimate the health status of patients in selected hospital. We used Primary data collected from 60 (5% of 1200 beds) patients in selected hospital regarding their individual's socio-economic, awareness and behaviour characteristics etc. We have found the percentages for dependent variables on the basis of selected independent variables. Results of our descriptive analysis are as under:

Health and Occupation of the Respondent

Table 5.1: Comparison of Health by Occupation of Respondent

Occupation of Respondent	**Health by Occupation of Respondent**					
	Agri. Labour & Daily Wages	**Govt. Job**	**Own Business**	**Private Job**	**None**	**Grand Total**
Healthy	5 (8.33%)	3 (5.0%)	1 (1.67%)	4 (6.67%)	2 (3.33%)	15 (25.0%)
Not-Healthy	10 (15.0%)	5 (8.33%)	1 (1.67%)	23 (38.3%)	6 (10.0%)	45 (75.0%)
Total	**15 (23.33%)**	**8 (13.33%)**	**2 (3.33%)**	**27 (45.0%)**	**8 (13.33%)**	**60 (100%)**

Source: Primary Survey Data

Table 5.1. Shows that 45 (75%) people in PIMS hospital were not-healthy while only 15 (25%) people were healthy. People that were not-healthy, among them 38.3% were doing private

job and 15% were belonging to daily wages and agriculture labour. Most of proportion of not-healthy people belongs to these two occupations.

Figure 5.1 is the graphical explanation of table 1.

Figure 5.1: Health by Occupation of Respondent

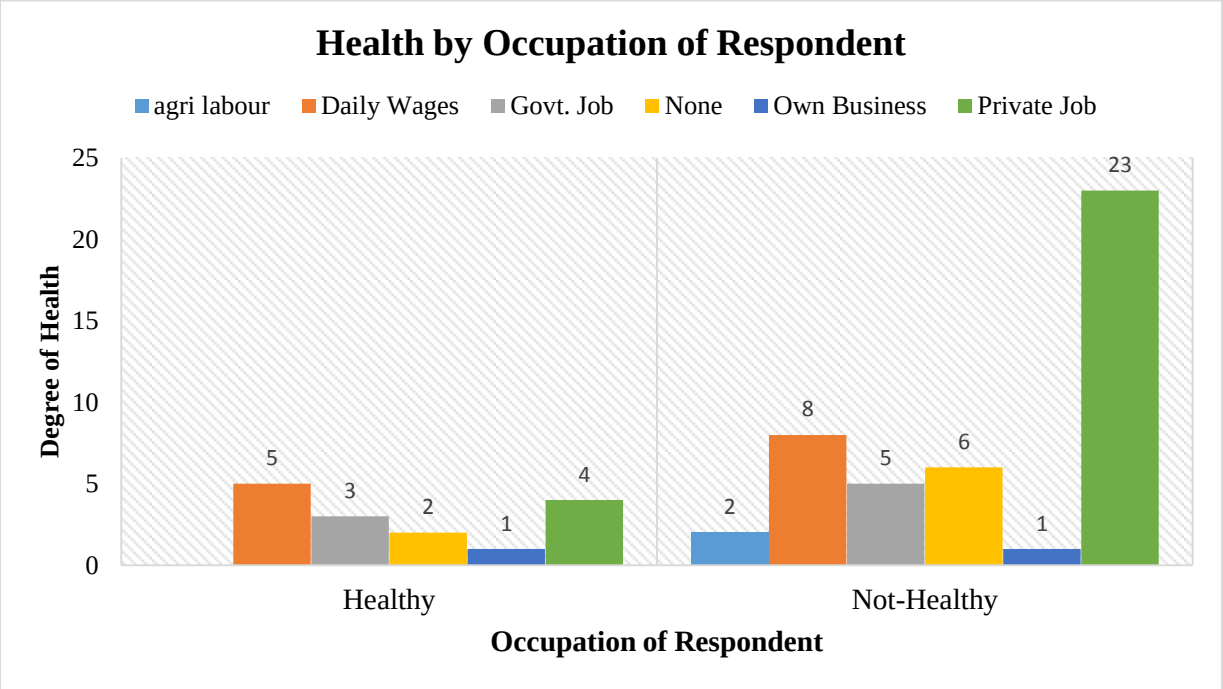


Figure 5.1

Health and Education of the Respondent

Table 5.2: Comparison of Health by Education of Respondent

Education of Respondent	Health by Education of Respondent							
	Illiterate	**Primary**	**Middle**	**Matric**	**Inter**	**Bachelor**	**MA & Higher**	**Grand Total**
Healthy	3(5.0%)	2(3.33%)	1(1.67%)	2(3.33%)	2(3.33%)	3(5.0%)	2(3.33%)	15 (25.0%)
Not-Healthy	9(15.0%)	9(15.0%)	5(8.33%)	6(10.0%)	4(6.67%)	7(11.67%)	5(8.33%)	45 (75.0%)
Total	**12(20.0%)**	**11(18.33%)**	**6(10.0%)**	**8(13.33%)**	**6(10.0%)**	**10(16.67%)**	**7(11.67%)**	**60(100%)**

Source: Primary Survey Data

Table 5.2. Shows that 45% people in PIMS hospital were not-healthy while only 25% people were healthy. Most of proportion of not-healthy people belongs to illiterate, primary, middle and metric educational categories.

Figure 5.2 is the graphical explanation of table 5.2.

Figure 5.2: Health by Education of the Respondent

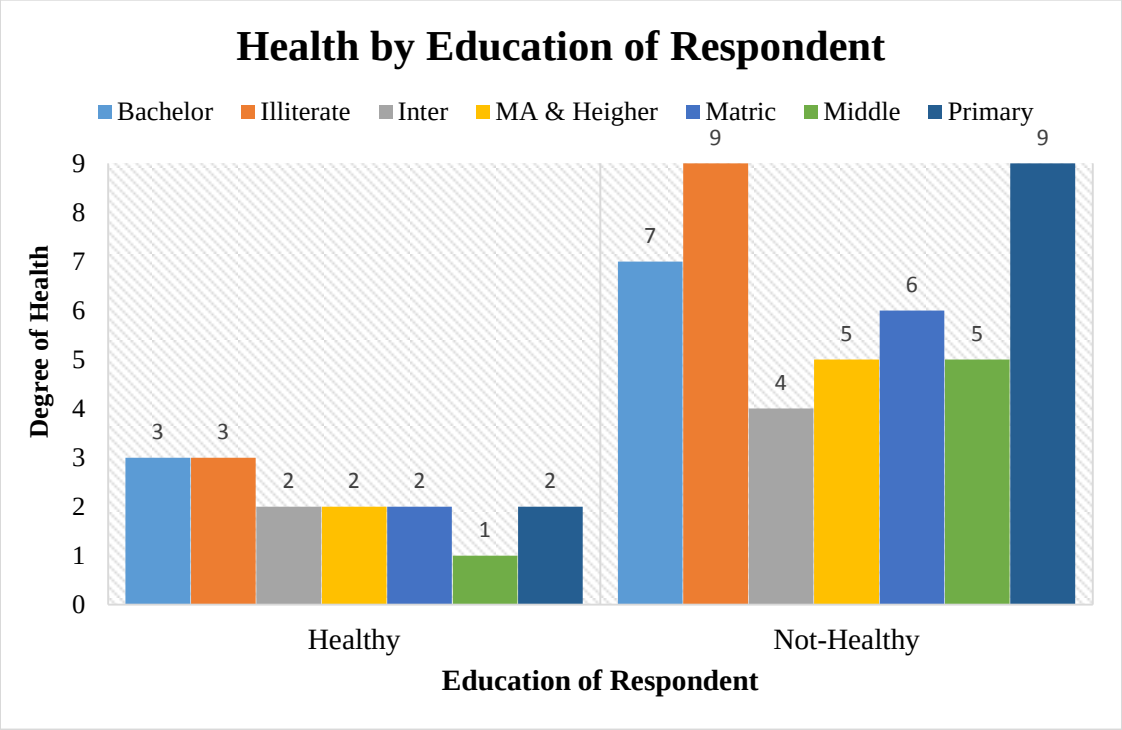


Figure 5.2

Health and Area of the Residence

Table 5.3: Comparison of Health by Area of Residence

Area of Residence	Health by Area of Residence		
	Abadi/Town	**Posh Area**	**Grand Total**
Healthy	13 (21.67%)	2 (3.33%)	15 (25.0%)
Not-Healthy	40 (66.67%)	5 (8.33%)	45 (75.0%)
Total	**53 (88.33%)**	**7 (11.67%)**	**60 (100%)**

Source: Primary Survey Data

Table 5.3. Shows that 75% people in PIMS hospital were not-healthy while only 25% people were healthy. Most of proportion of not-healthy people belongs to Abadi/Town area which is 66.67%.

Figure 5.3 is the graphical explanation of table 5.3.

Figure 5.3: Health by Area of the Residence

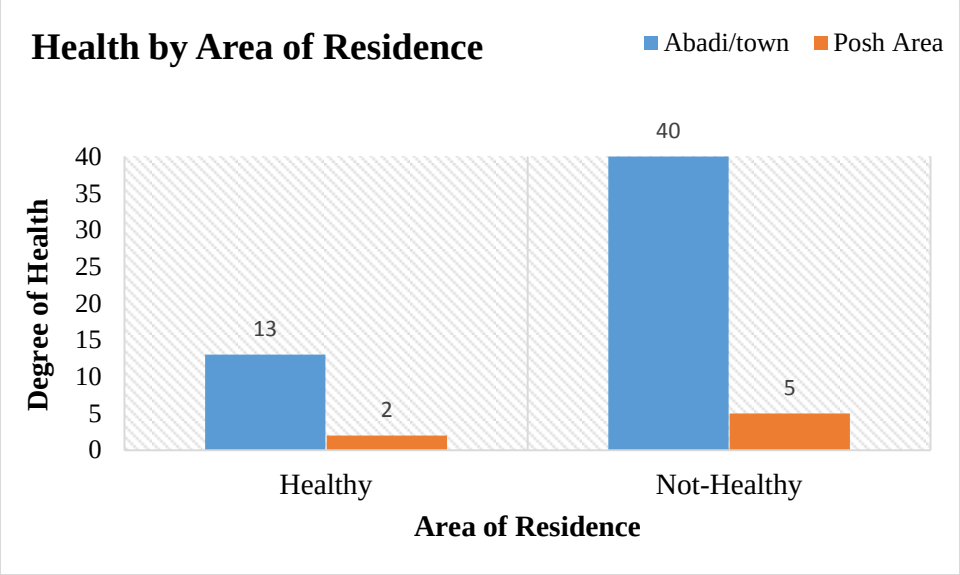


Figure 5.3

Health and Patient's Behaviour Status

Table 5.4: Comparison of Health by Patient's Behaviour Status

Patient's Behaviour Status	Health by Patient's Behaviour Status			
	Bad	**Average**	**Good**	**Grand Total**
Healthy	3 (5.0%)	8 (13.33%)	4 (6.67%)	15 (25.0%)
Not-Healthy	34 (56.67%)	5 (8.33%)	6 (10.0%)	45 (75.0%)
Total	**37(61.67%)**	**13(21.66%)**	**10 (16.67%)**	**60 (100%)**

Source: Primary Survey Data

Table 5.4. Shows that 75% people in PIMS hospital were not-healthy while only 25% people were healthy. Most of the proportion of not-healthy people belongs to bad category which is 61.67%.

Figure 5.4 is the graphical explanation of table 5.4.

Figure 5.4: Health by Patient's Behaviour Status

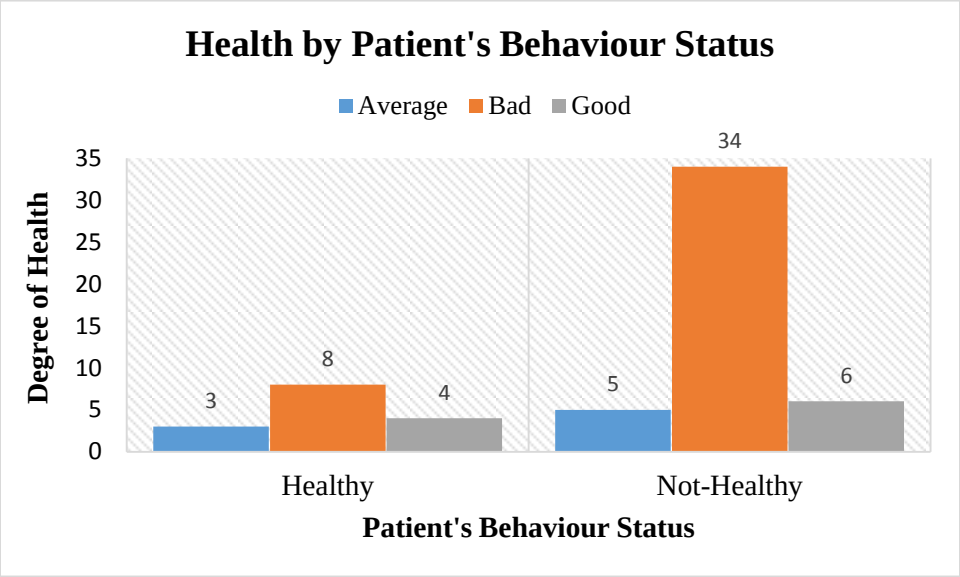


Figure 5.4

Health and Patient's Awareness Status

Table 5.5: Comparison of Health by Patient's Awareness Status

Patient's Awareness Status	Health by Patient's Awareness Status			
	Low	**Medium**	**High**	**Grand Total**
Healthy	8 (13.33%)	3 (5.0%)	4 (6.67%)	15 (25.0%)
Not-Healthy	36 (60.0%)	4 (6.67%)	5 (8.33%)	45 (75.0%)
Total	**44 (73.33%)**	**7 (11.67%)**	**9 (15.0%)**	**60 (100%)**

Source: Primary Survey Data

Table 5.4. Shows that 75% people in PIMS hospital were not-healthy while only 25% people were healthy. Most of the proportion of not-healthy people belongs to low category which is 77.33%.

Figure 5.5 is the graphical explanation of table 5.5.

Figure 5.5: Health by Patient's Awareness Status

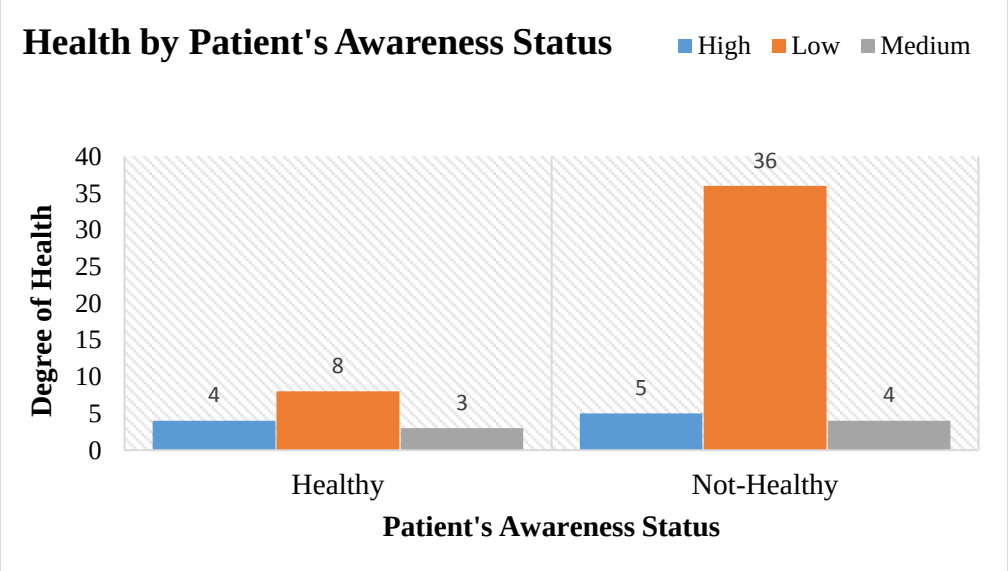


Figure 5.5

5.2 Analysis of Logistic Regression for Health

"Logistic regression is a statistical method for analysing a dataset in which there are one or more independent variables that determine an outcome. The outcome is measured with a dichotomous variable (in which there are only two possible outcomes)". To identify the determinants and cause of bad health, multivariate analysis is employed. For multivariate analysis, logistic regression was used which predicts the success probability of dependent variable.

Our sample size is 60 people of PIMS hospital consists on patients. The summary results of our econometric model presented in table 5.6.

$$\mathbf{H= \beta_0 + \beta_1 PBS + \beta_2 PAS + \beta_3 PHYP + \beta_4 A + \beta_5 O + \beta_6 I + \beta_7 E + \beta_8 R + \mu}$$

Table 5.6: Result Summary of Logit Model for Health

List of Variable	Coefficients	Standard Error	Z- value	P-value
Age of Respondent (AGEOR)				
	.0341903	.0531452	0.64	0.520
Area of Residence (AREAOR)				
Posh Area	-14.71815	8.236286	-1.79	0.074*
Education of Respondent (EDUOR)				
Primary	-4.888581	3.095831	-1.58	0.114
Middle	-.7277281	2.74863	-0.26	0.791
Matric	1.45978	2.660213	0.55	0.583
Inter	5.674379	4.32636	1.31	0.190
Bachelor	6.07613	3.43626	1.77	0.077*
MA & Higher	2.990584	3.672458	0.81	0.415
Income of Respondent (INCOMEOR)				
	.0002483	.0001807	1.37	0.170

Occupation of Respondent (OCCUOR)				
Private job	1.786977	2.534882	0.70	0.481
Own Business	5.214516	4.78507	1.09	0.276
Daily. Wages & Agri. Labour	13.50718	7.607844	1.78	0.076*
None	11.26519	8.126483	1.39	0.166
Patient's Behaviour Status (PBS)				
Average	6.375243	3.40581	1.87	0.061**
Good	14.39446	7.503914	1.92	0.055**
Patient's Awareness Status (PAS)				
Medium	7.050404	3.419906	2.06	0.039**
High	7.154745	4.261329	1.68	0.093*
Patient Hygiene Practices (PHYP)				
Average	1.791001	1.765711	1.01	0.310
Good	-5.394733	4.417814	-1.22	0.222
No. of observations= 60		**Prob>Chi^2= 0.0267**		
Likelihood ratio test χ2 (19) = 32.61		**Pseudo R^2= 0.4918**		
Significance level: ***p < 0.01, **p < 0.05, *p < 0.1				
Reference category: Abadi/Town, Illiterate, Govt. job, PBS: Bad, PAS: Low, PHYP: Bad.				

Source: Primary Data from Survey.

The results of our model show that health is negatively and significant associated with area of residence while positive and significant associated with education of respondent (Bachelor category), occupation of respondent (Daily wages & agri. labour category), patient's behaviour status and patient's awareness status. In the above table, out of total 8 variables, 5 shows significant results in our econometric model.

5.2.1 Area of the Residence

The result of 5 people shows that the person belonging to posh area (p value 0.074*) is less likely to be not-healthy as compare 40 people to their abadi/town counterpart. The burden of unhealthy population in abadi/town is more as compared to posh area. Most of proportion of not-healthy people belongs to Abadi/Town area which is 66.67%.

5.2.2 Education of the Respondent

Our analysis shows the result p value is 0.077* that bachelor level of education of respondent positively influence the risk of being unhealthy. While other categories have no significant effect on health of individuals. Most of proportion of not-healthy people belongs to illiterate 15%, primary 15%, middle 8.33% and metric 10% educational categories.

5.2.3 Occupation of the Respondent

Our analysis shows the result (p value 0.076*) that daily wages and agricultural labour of occupation of respondent positively influence the risk of being unhealthy. While other categories have no significant effect on health of individuals. People that were not-healthy, among them 38.3% were doing private job and 15% were belonging to daily wages and agriculture labour.

5.2.4 Patient's Behaviour Status

The result of analysis shows average PBS 0.061** and good PBS 0.055** significant and positive relation of patient's behaviour status and health. Most of the proportion of not-healthy people belongs to bad category which is 61.67%. As patient's behaviour score increase more and more, health will also improve relatively.

5.2.5 Patient's Awareness Status

The result of analysis shows significant p value, medium 0.039** and high 0.093*, and positive relation of patient's awareness status and health. Most of the proportion of not-healthy people belongs to low category which is 77.33%. As patient's awareness score increase more and more, health will also improve relatively.

5.3 Conclusion

There are two parts of my findings; Firstly, the quantitative part, the logistic regression results of our model show that health is negatively and significant associated with area of residence while positive and significant associated with education of respondent (Bachelor category), occupation of respondent (Daily wages & agri. labour category), patient's behaviour status and patient's awareness status. Out of total eight variables, five shows significant results in our econometric model. The result of analysis shows significant and positive relation of health and patient's behaviour status. As patient's behaviour score increases more, health will also be improved relatively. The result of analysis shows positive and significant relation of health and patient's awareness status. As patient's awareness score increases more, health will also be improved relatively. Mostly people agreed in survey at the hospital that behaviour has an impact in healthy or not healthy life style in individual and societal level, clearly.

On the other hand, the qualitative part, HBGM (Health Behaviour General Model), HBCM (Health Belief Change Model) and Conceptual Framework and Literature Reviews show that behaviour is one of the main cause of physical, mental and social well-being disorders. Here to focus, on social and behaviour part to save our health and wealth as well. Otherwise, we can face loss of health and income/wealth too. Different studies support my findings in different aspects. In public health, HBGM, HBCM and Conceptual Framework can play vital role for saving health cost, improving quality of health and accessing better facilities to individual and society at the same time.

5.4 Recommendations

Some policies are to be recommended for the behaviour change of patients. Some of these are follows.

- Behaviour Change Focus on primary and secondary health education is strongly required in all over the country. For this, Government should strictly monitor schools in slum and rural areas. Parents and Teachers must be trained to tackle ill or bad behavior. Communities and society should control and promote health behavior change benefits in broader prospects.
- Non-governmental organization and Government should launch formal and informal income generating sector for low income in slum urban and rural areas with better wage rates to meet socio-economic disorders.
- Health awareness programs should be planned. The key cause of diseases and infectious diseases are lack of healthy behaviour building.
- Coordination among the parents, community and government must be on one page regarding healthy behavior measures. This tringle can play mutual role in the society upgrade.
- Health Belief Change Model (HBCM) can be a good step for building healthy behaviours and removing health myths in mindsets.

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Appendix

Logistic regression — Number of obs = 60

LR chi2(19) = 32.61

Prob > chi2 = 0.0267

Log likelihood = -16.849013 — Pseudo R2 = 0.4918

Health	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
AGEOR	.0341903	.0531452	0.64	0.520	-.0699724	.1383531
AREAOR						
Posh Area	-14.71815	8.236286	-1.79	0.074	-30.86098	1.424669
EDUOR						
Primary	-4.888581	3.095831	-1.58	0.114	-10.9563	1.179136
Middle	-.7277281	2.74863	-0.26	0.791	-6.114944	4.659488
Matric	1.45978	2.660213	0.55	0.583	-3.754142	6.673702
Inter	5.674379	4.32636	1.31	0.190	-2.805131	14.15389
Bachelor	6.07613	3.43626	1.77	0.077	-.6588151	12.81108
MA & Higher	2.990584	3.672458	0.81	0.415	-4.207302	10.18847
INCOMEOR	.0002483	.0001807	1.37	0.170	-.0001059	.0006025
OCCUOR						
Private Job	1.786977	2.534882	0.70	0.481	-3.181301	6.755254
Own Business	5.214516	4.78507	1.09	0.276	-4.164048	14.59308
Daily Wages & agri labour	13.50718	7.607844	1.78	0.076	-1.403919	28.41828
None	11.26519	8.126483	1.39	0.166	-4.662419	27.19281
PBS						
Average	6.375243	3.40581	1.87	0.061	-.300022	13.05051
Good	14.39446	7.503914	1.92	0.055	-.3129421	29.10186
PAS						
Medium	7.050404	3.419906	2.06	0.039	.347511	13.7533
High	7.154745	4.261329	1.68	0.093	-1.197307	15.5068
PHYP						
Average	1.791001	1.765711	1.01	0.310	-1.66973	5.251731
Good	-5.394733	4.417814	-1.22	0.222	-14.05349	3.264023
_cons	-20.76494	10.28882	-2.02	0.044	-40.93065	-.5992278