

A Study on Psychological Factors on the Health of Elderly People (A Case Study--)

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Abstract

Ageing is defined in terms of chronological age with a cut off age of 60 or 65 years. The health of people deteriorates with the increase of age. Psychological factors play an important role in health inequalities. In this paper a study is made to have an idea about the various psychological factors and their effects on the health of the elderly people. The study is based on primary data. The data is collected through multistage random sampling and analyzed by logistic regression method and correspondence analysis is used for simple two variable scatter plots.

Key Words: Health, Elderly People, Psychological factors

I. INTRODUCTION

Ageing is defined in terms of chronological age with a cut off age of 60 or 65 years. It is also defined as the sum of all changes that occur in an organism during its life (Alters & Schiff, 2010). Generally ageing is defined as the process of growing old and is an intricate part of the life cycle.

Psychological factors may include psychosocial factors, social environment, many mental states and psychological traits. Psychosocial factors are those characteristics which influence an individual psychologically or socially and these factors help to describe individuals in relation to their social environment and how these factors affect the mental and physical health [2]. Psychosocial factors are an important cause of health inequalities because these factors may influence a physical health outcome through a psychological mechanism Psychological factors like stress, depression etc. are associated with the physical health specially heart disease [1]. Sometimes it is observed that many psychological factors can impact overall physical well-being and various medical

conditions [3]. When an elder person can't adjust with their family members, relatives, neighbours and even sometimes feel lonely in their surroundings then it will lead to mental and physical illness. There exists a relationship between mental state and physical performance [4]. If a person is happy/ unhappy with his/her physical environment then it will affect his/ her physical illness.

According to World Health Organization (WHO) mental health is defined as-

“A state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.” The factors for determining mental health and illness are social, psychological and biological factors [5].

Stress and chaos can be reduced by productive engagement. Productive engagement in physical activity may influence older adults to maintain health related quality of life when they live in a long term care facility and they feel

their life is meaningful when they passed quality of life [6].

Frailty is described as loss of independence and it has an impact on how older people think and act (Warmoth et al., 2016). Many older people prefer living at home as long as possible because they may require support from their spouse, relatives, children, grand children etc [7].

Objectives:

The objective of the present study is to know-

1. The psychosocial factors influencing the health of the elderly people.
2. The association between physical fitness and psychological factors.

II. MATERIALS & METHOD

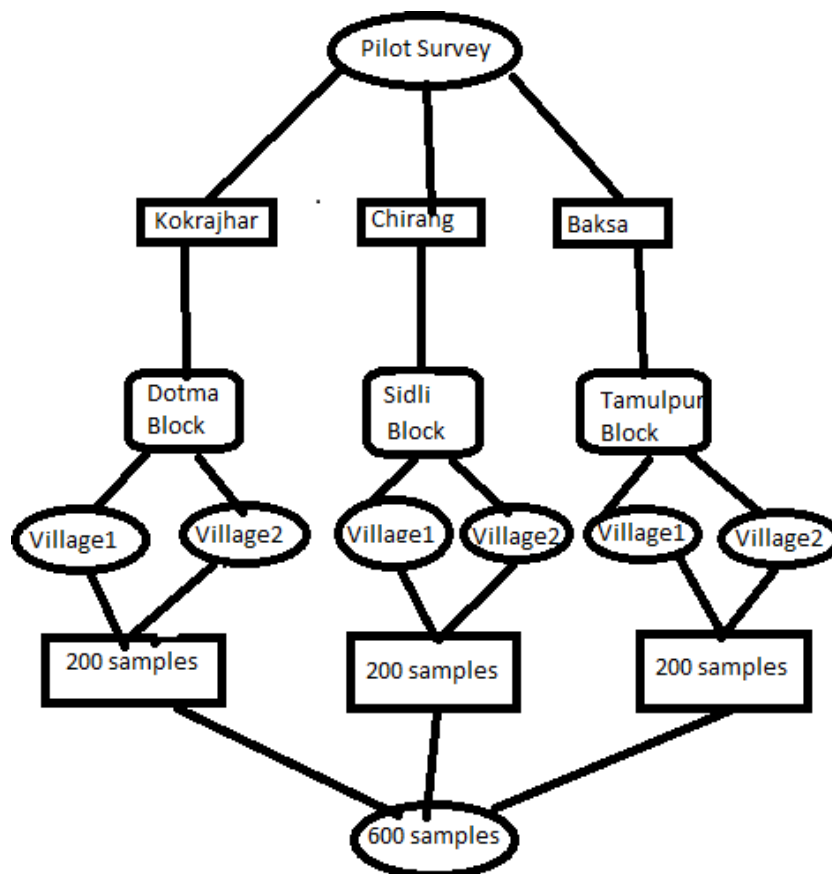
Data:

The data for the present study comprises of primary data. For the collection of primary data a household survey was carried out just before the starting of Covid-19 pandemic with the help of some of the local people and students of that locality. For this purpose a questionnaire was

prepared consisting of questions relating to psychological factors. The data comprises of 600 samples from three districts namely Kokrajhar, Chirang and Baksa district of Bodoland Territorial Area District (B.T.A.D). Before conducting a household survey the information regarding the number of elderly people were collected from Voter list of B.T.A.D. Data were collected about the aged persons and different psychological factors associated with their common health problems. Since most of the elderly were found in rural areas therefore few villages of Kokrajhar, Chirang and Baksa district was considered as a survey area and each and every elderly people in those areas were collected. A total of 600 samples were collected taking 200 samples from each of the three districts mentioned above.

Method:

For collection of 600 samples a multistage random sampling technique is applied which is shown in the folloas follows:



For the analysis of the collected data tabular and correspondence analysis (C.A) is used to display in a biplot which is a generalization of the simple two variables scatter plots. To test the objectives of the present study logistic regression analysis model is used.

Logistic Regression Model:

Logistic regression analysis studies the association between a categorical dependent variable and a set of independent variables. Logistic regression is used when the dependent variable has only two values as 0 and 1 or Yes and No. In regression analysis logistic or logit regression is used to estimate the parameters of a logistic model.

III. RESULT AND ANALYSIS

Variables for Logistic Regression Analysis:

Response Variable

A question was asked to respondents if they are physically fit or not. Self health rate was categorized as (i) Yes (physically fit) and (ii) No (physically not fit). Therefore answer became a dichotomous variable of yes and no.

Explanatory Variables

Here explanatory variables and corresponding hypothesis are proposed to find their association with the response variables.

The independent variables considered for present study are categorized as–

- Satisfaction towards their health
- Enjoyment of life
- Satisfaction with the capacity of work
- Extent to feel life meaningful
- Feel safe in their daily life
- Feeling disturb (from whom) if they are living in a joint family
- Healthy physical environment

The **Hypotheses** used for this analysis are-

1. Positive Psychology include satisfaction and good attitude towards life. Therefore to investigate the relation between the satisfaction level and the physical fitness of

the elderly, it is assumed that there is a difference in the physical fitness of the elderly who are very satisfied to their health as compared to the very dissatisfied elderly. For testing this assumption satisfaction level is categorized as:

- (i) Very Dissatisfied
- (ii) Dissatisfied
- (iii) Neither Satisfied nor Dissatisfied
- (iv) Satisfied
- (v) Very Satisfied

2. To investigate whether enjoyment of life is related to the physical fitness or not, it is assumed that there is a difference in the physical fitness of the elderly who are not at all enjoyed with their life than those who are mostly (in extreme amount) enjoyed in life. For testing this assumption enjoyment of life is categorized as:

- (i) Not at all
- (ii) A little
- (iii) A moderate amount
- (iv) Very much
- (v) An extreme amount

3. Ageing is a continuous process of life cycle that presents significant differences between individuals regarding the physical and cognitive state of senior citizens (Perez et al., 2017). In some cases it leads to loss of physical, cognitive and physical capacity. Therefore to investigate whether there is a capacity to do work for the older people and its effect on the physical fitness; it is assumed that there exist differences in the physical fitness of the elderly who are very dissatisfied for their capacity to do work than those who are very satisfied. For testing this assumption satisfaction to the capacity of work is categorized as:

- (i) Very Dissatisfied
- (ii) Dissatisfied
- (iii) Neither Satisfied nor Dissatisfied
- (iv) Satisfied
- (v) Very Satisfied

4. To investigate the existence of any relation between the feeling of meaningful life and the physical fitness of elderly, it is assumed

that there is a positive relation between the physical fitness and extent to feel life meaningful. Thereby it helps to reduce mental illness as well as physical illness for those who are not at all enjoyed with their life than those who are mostly (in extreme amount) enjoyed in life. For testing this assumption enjoyment of life is categorized as:

- (i) Not at all
- (ii) A little
- (iii) A moderate amount
- (iv) Very much
- (v) An extreme amount

5. In recent decades, there has been increased recognition of the importance of providing safe home-based care for frail older people (WHO, 2017). Living in harmony with the surrounding environment is also one of the important psychological factors in old age to make a person healthy. Sometimes the older people feel disturbed from the environment though they are living in a joint family to get mental, physical and psychological support from the family. To investigate the relation between feeling safe and the physical fitness of elderly, it is assumed that there is a relation between the physical fitness and feeling safe in life. For testing this

assumption feeling safe in life is categorized as:

- (i) Not at all
- (ii) A little
- (iii) A moderate amount
- (iv) Very much
- (v) An extreme amount

Moreover, if they are living in a joint family but getting disturbed from surrounding then to know if the physical fitness is affected by the disturbance from surroundings, from whom they are feeling disturbed are categorizes as-

- (i) Friends
- (ii) Relatives
- (iii) Children
- (iv) Neighbours
- (v) Others

6. To investigate the relation between healthy physical environment and the physical fitness of elderly, it is assumed that there is not any relation between the physical environment and physical fitness of the elderly. For testing this assumption healthy physical environment is further categorized as:

- (i) Not at all
- (ii) A little
- (iii) A moderate amount
- (iv) Very much
- (v) Extremely

Table 1: Percentage of Physically fit Elderly having Satisfaction to their Health

Characteristics	% of Physically Fit Elderly
Satisfaction to their Health Very	
Dissatisfied Dissatisfied	3.00
Neither Satisfied nor Dissatisfied	27.75
Satisfied	53.25
Very Satisfied	15.88
	0.125

Table 2: Percentage of Physically fit Elderly having Enjoyment of Life

Characteristics	% of PhysicallyFit Elderly
<u>Enjoyment of Life</u>	
Not at all	5.25
A little	54.25
A moderate amount	27.00
Very much	13.25
An extreme amount	0.25

Table 3: Percentage of Physically fit Elderly having Satisfaction with the capacity of work

Characteristics	% of PhysicallyFit Elderly
<u>Satisfaction with the capacity of work</u>	
Very Dissatisfied	6.63
Dissatisfied	25.00
Neither Satisfied nor Dissatisfied	43.00
Satisfied	21.25
Very Satisfied	4.13

Table 4: Percentage of Physically fit Elderly who feel life meaningful

Characteristics	% of Physically FitElderly
<u>Feel Life meaninhful</u>	
Not at all	4.00
A little	53.25
A moderate amount	29.13
Very much	12.38
An extreme amount	1.25

Table 5: Percentage of Physically fit Elderly feeling safe in daily life

Characteristics	% of Physically FitElderly
<u>Feel Safe in daily life</u>	
Not at all	2.38
A little	53.00
A moderate amount	32.88
Very much	10.5
An extreme amount	1.25

Table 6: Percentage of Physically fit Elderly getting disturbed from surroundings

Characteristics	% of Physically Fit Elderly
<u>Getting disturbed from surroundings</u>	0.25
Friends	3.63
Relatives	22.75
Children	10.13
Neighbours	23.00
Others	

Table 7: Percentage of Physically fit Elderly living in Healthy Physical Environment

Characteristics	% of Physically Fit Elderly
<u>Living in Healthy Physical Environment</u>	
Not at all	1.63
A little	40.63
A moderate amount	41.63
Very much	14.75
Extremely	1.38

From the Table 1 it is observed that maximum percentage of elderly who were found to be physically fit lies in the category of neither satisfied nor dissatisfied to their health and a very few percentage of people are in the category of very satisfied.

From the Table 2 it is observed that the percentage of physically fit elderly having the enjoyment of life was lying in the category “very little” (i.e. 54.25%) and a very poor percentage is found in the category of “an extreme amount” which signifies that most of them have no enjoyment in their life though they are found to be physically fit.

From the Table 3 it has been observed that most of the elderly having satisfaction with the capacity of work was lies in the category of “neither satisfied nor dissatisfied” (i.e. 43 %) and very poor percentage lies in the category “very satisfied” though these elderly were found as physically fit.

From the Table 4 it has been observed that most of the elderly feeling life meaningful lies in the category “a little” and a very poor percentage of them lies in the category “an extreme amount” though these elderly were found to be

physically fit.

From the Table 5 it has been observed that those elderly who were physically fit felt safe in their daily life lies in the category “a little” and a very poor percentage of them lies in the category “an extreme amount”.

From the Table 6 it has been observed that most of the physically fit elderly feeling disturbed from surroundings (in case of joint family) lies in the category of “children” and “others” and a very poor percentage of them lies in the category “friends.

From the Table 7 it has been observed that percentage of physically fit elderly living in healthy physical environment lies in the category of “a moderate amount” and a very poor percentage of them lies in the category “extremely”.

Table 8: % of physically fit Elderly

Characteristics	% of elderly
Physically fit	65.25%
Physically not fit	34.75%

The percentage of physically fit elderly is almost double than the percentage of elderly who aren't physically fit.

Table 9: Percentage of Elderly having common diseases

Sl. No	Common Diseases	Elderly (in %)
1	Eye	40.75
2	Deaf	11.5
3	Acidity	23.5

4	Sugar	16.38
5	Blood Pressure	55.88
6	Cough	22.00
7	Joint Pain	53.38
8	No Disease	7.38

Most of the elderly are suffering from the disease of blood pressure and joint pain.

Row and Column Points

Symmetrical Normalization

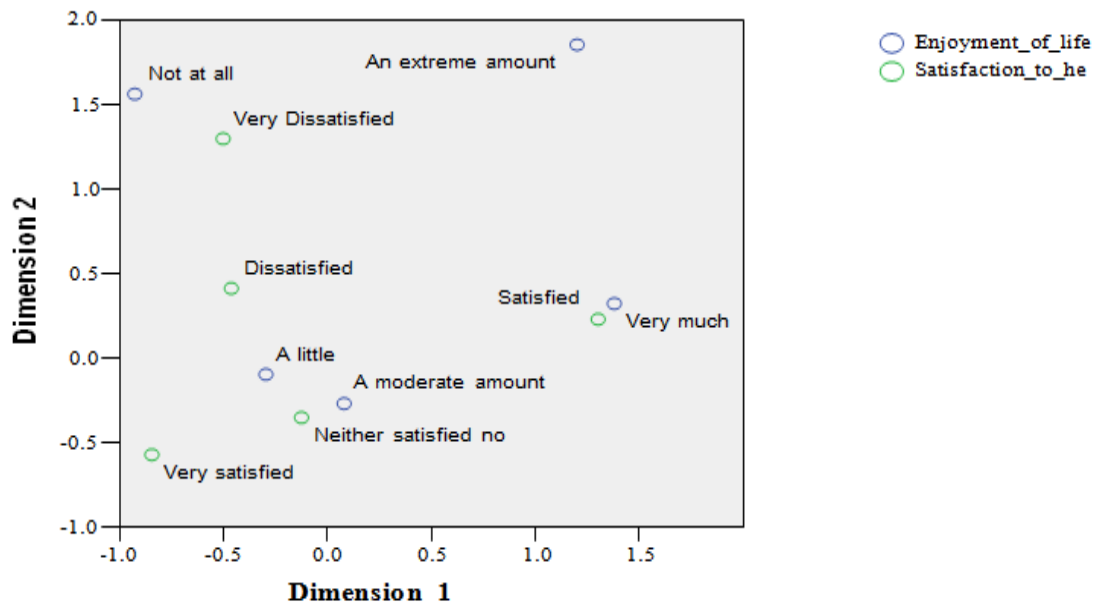


Fig1: C.A. Diagram to show the relation between Enjoyment of life and Satisfaction level.

From the above biplot it seems that there is a close relation between the elderly having the enjoyment of life lying in the category “very much” and “a moderate amount” with the elderly satisfied to their health lying in the category “satisfied” and “neither satisfied nor dissatisfied” respectively.

In order to understand how much variation in the dependent variable can be explained by the model let us consider the "Model Summary" table-

Model Summary of Logistic Regression:

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	788.364(a)	.264	.364

The above table contains the **Cox & Snell R Square** and **Nagelkerke R Square** values and the explained variation is calculated by both the methods. These values are also referred to as *pseudo R²* values. Therefore, the explained

variation in the dependent variable based on the given model ranges from 26.4% to 36.4%, depending on whether referencing the Cox & Snell R^2 or Nagelkerke R^2 methods, respectively. Nagelkerke R^2 is a modification of Cox & Snell R^2 for which it is more preferable.

The "**Variables in the Equation**" shows the contribution of independent variable to the model and its statistical significance. This table is shown below:

Variables in the Logistic Regression Equation:

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	.630	.074	72.006	1	.000	1.878

The Wald test ("**Wald**" column) is used to determine statistical significance for independent variables. The statistical significance of the test is found as $p = .000$ which implies high significance. Therefore the test is highly significant and null hypothesis is rejected which means that the two variables are significant to the model fit.

The odds ratios are used to compare the relative odds of the occurrence of the outcome of interest. The odds ratio is also used to determine whether a particular exposure is a risk factor for a particular outcome and also to compare the magnitude of various risk factors for that outcome.

Here the odds ratio of 1.878 implies exposure associated with almost 88% higher odds of outcome.

	Wald	Sig.
Step 1(a) Satisfaction_to_health	51.733	.000
Enjoyment_of_life	13.885	.008
Satisfaction_with_the_capacity_for_work	6.503	.165
Feel_life_meaningful	19.498	.007
Feeling_safe_in_life	0.069	.794
If_feeling_disturb_from_whom	76.161	.000
Healthy_physical_environment	1.183	.000
Constant	.000	.999

From the above table it is observed that satisfaction to health ($p = .000$), Enjoyment of life ($p = .008$), Feel life meaningful ($p = .007$), Feeling

disturb from whom ($p = .000$), Healthy physical environment ($p = .000$) are statistically significant which means that the assumptions made for these factors are wrong that is there is not any difference in the physical fitness of the elderly who are very satisfied to their health as compared to the very dissatisfied elderly, there is not any difference in the physical fitness of the elderly who are not at all enjoyed with their life than those who are mostly (in extreme amount) enjoyed in life, there does not exist positive relation between the physical fitness and extent to feel life meaningful, the physical fitness is not affected by the disturbance from surroundings and also there is a relation between the healthy environment and physical fitness of the elderly respectively. Moreover, Satisfaction with the capacity for work ($p = .165$) and Feeling safe in daily life ($p = .794$) are not statistically significant which means that the assumptions made for these factors are correct. Therefore there does not exist difference in the physical fitness of the elderly who are very dissatisfied for their capacity to do work than those who are very satisfied and also there is not a relation between the physical fitness and feeling safe in life.

IV. CONCLUSION:

A logistic regression was performed to ascertain the effects of psychological factors on the likelihood that the elderly are physically fit. The logistic regression model was statistically significant. The model explained 36.4% (Nagelkerke R^2) of the variance in physical fitness. It can be concluded that though most of the elderly are found to be physically fit they are not mentally fit means the factors which are considered as psychological factors are not all are found to be significant.

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