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The Relationship of Physical Activity with Happiness among the Elderly of Upper Assam

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Abstract

Increased demographic transition is the new phase globally. This is leading to a remarkable increase in the number of people living longer, especially beyond the ages of sixty. At the same time, it is leading to many health challenges and loneliness. Old age brings in a lot of physical alterations along with emotional and social degenerations. The depletion in old age is prominent due to lack of physical activity which in turn affects the emotional and mental well-being of the individual. The present study tries to investigate the relationship of physical activity with happiness among the elderly of Upper Assam in India. It was hypothesized that physical activity and happiness would differ in terms of the Elderly populations' marital status, family type and employment status. Further, physical activity would have a significant relationship with happiness in the elderly. A total sample of 100 participants were included in the study from the upper Assam districts of Jorhat and Dibrugarh. Data analysis indicated that there is no difference in terms of marital status, family type and employment status on physical activity and happiness. However, physical activity and happiness show a significant relationship among the elderly sample.

Keywords: Physical activity, happiness, elderly, Assam

Globally, people are living longer, mostly beyond the ages of sixty, due to immense demographic transition. There has been a dramatic rise in the number of aging population due to socio-demographic transitions eventually leading to loneliness and health related challenges. The proportion of the World's population is expected to double from about 12% and 22% between 2015 and 2050. In a similar trend, India too is witnessing transitions in the social and family environment. By 2050, there will be almost 434 million people worldwide in the age group of 80 years and older (World Health Organization, 2018).In India the percentage of elderly population to the total population is 8.6 percent. (Census of India, 2011). Aging is defined as the changes which occur during the lifetime of an individual which begins with conception and terminates with death (Stieglitz, 1950).According to WHO (2023), "Healthy aging is defined as developing and maintaining the functional ability that enables well-being in old age."

*Physical activity*is defined as any bodily movement which requires energy expenditure and is produced by skeletal muscles (WHO, 2018). The physical changes in people becomes evident in old age as there are lots of physical alterations along with emotional and social degradations. Due to lack of physical activity, the depletion in old age becomes even more prominent, which is the reason for many chronic illnesses. WHO has globally recommended to include 150 min per week of moderately intense physical activity for health benefits in older adults.

According to Diner (2002), *Subjective Well-being* is "people's cognitive and affective evaluations of their lives." It consists of three components (Diener, 1984):

a. Frequent positive affect
b. Infrequent negative affect
c. Cognitive evaluation of life satisfaction

As old age increases, people's physical activity decreases, which in turn affects their physical as well as emotional health. Due to lack of physical activity, elderly people experience mental fatigue which impacts their happiness. In China walking and jogging is observed as the first means of physical exercise among elderly (Yang et al., 2019). These physical activities are proven to reduce mental fatigue and tension, hence making people more productive and happy. (Haskell et al., 2007).

Population aging is an inevitable and irreversible demographic reality and along with increasing age, comes significant physical and emotional changes. Among them the impact on the happiness of the elderly is a significant one. Even though, research has been done in the area of physical activity and happiness, no such significant research has been conducted specially focusing on the elderly population in the region of Assam. Hence, this research studies the relationship of how physical activity impacts happiness in relation to the elderly residing in Upper Assam.

The results of the study conducted on the relationship of physical activity with happiness in older adults with a sample of 312 older adults, divided into 179 with active lifestyle and 133 with sedentary lifestyle individuals have indicated that among the sedentary, in spite of there not being an association between total resilience and happiness, there was an inverse relationship for the 'meaning in life' component. For active lifestyle, there was an inverse relationship of total resilience, and its components, with depression and stressbut not with meaning in life.

Objectives

1. To examine the physical activity level in the elderly
2. To assess the happiness level in the elderly
3. To examine the relationship of physical activity with happiness in the elderly

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Hypotheses

1. **H0:** There will be no significant difference in level of Physical activity among elderly.
   a. **H0:** There will be no significant difference in level of Physical activity in terms of gender among the elderly.
   b. **H0:** There will be no significant difference in level of Physical activity in terms of family type among the elderly.
   c. **H0:** There will be no significant difference in level of Physical activity in terms of Employment status among the elderly.
2. **H0:** There will be no significant difference in level of happinessamong elderly.
   a. **H0:** There will be no significant difference in level of happinessin terms of gender among the elderly.
   b. **H0:** There will be no significant difference in level of happinessin terms of family type among the elderly.
   c. **H0:** There will be no significant difference in level of happinessin terms of Employment status among the elderly.
3. **H0:** There will be no significant relationship of physical activity with happinessamong the elderly.
   a. **H0:** There will be no significant relationship of physical activity with happinessin terms of gender among the elderly.
   b. **H0:** There will be no significant relationship of physical activity with happinessin terms of family type among the elderly.
   c. **H0:** There will be no significant relationship of physical activity with happiness in terms of employment status among the elderly.

Method

Sample

The sample was selected purposively and matched in age, gender, and educational level from the two Urban Agglomerations of Upper Assam, i.e., Jorhat and Dibrugarh with 90 respondents from each urban area. The sampling technique used was snowball technique.Total sample size is 2 urban areas x 90 = 180 (Male= 90 and Female = 90). The sample included elderly population following the criteria's given below:

a. Persons in the age range of 60-75 years.
b. Persons born and brought up in the state of Assam.
c. Both the genders.
d. Education up to the Higher Secondary level at least.
e. Those who are able to understand, comprehend and consent.

Design

2 x 2 x 2 factorial design where Independent Variables include gender, family type and employment status. The family type variable is categorized into Nuclear and Joint families. And the employment status variable is categorized as Employed or retired. The Dependent Variables are Physical activity and Happiness.

Tools used

a. Semi- Structured Questionnaire- A semi-structured questionnaire was developed for collection of socio demographic details such as age, gender, education, marital status, religion, community, occupation, family type, etc. Questions regarding the engagements and activities of old age were also included. Some open-ended questions were asked to get information regarding the experiences of aging.
b. Physical Activity Scale for Elderly– The Physical Activity Scale for the Elderly (PASE)was given by Washburn et al (1993). It isused to study the physical activity level of older people specifically aged 65 years and older with age specific physical activity. The scale assign a score from 0 to 793 based on physical activity based on the frequency, duration and intensity level. Since the sample is from Assam, hence the scale was translated intoAssamese language for the participants.
c. Subjective happiness scale– This scale is the first assessment tool for measuring Subject well being and was developed by Sonja Lyubomirsky and Heidi Leppern (1999). It is a short questionnaire consisting of 4 questions. It has high internal consistency, which is found to be stable across samples. The scale was translated intoAssamese for the participants.

Procedure

For the study data was collected from participants selected according to the pre determined criteria from different zones of Assam. The participants were made aware about the nature of the study and assured of the confidentiality of the data and the results. Each of the participants was administered the tests individually. Firstly, semi structured questionnaire was filled which contains the demographic details of the participants and then the tools were administered one by one to gain in-depth information of the participants in terms of the constructs measured using Physical activity scale and the Subjective Well Being scale. Adequate break were given in between the administrations of the scales. Each of the tools used were scored and the data gathered was entered in the data sheet for further analyses.

Statistical Analysis

In the present study, the tools used were scored for the individual participants and the scores obtained for the total sample was analyzed using the Statistical package for Social Sciences software (SPSS) version 23.

Results and Discussion

The study aims to study the relationship of Physical activity and happiness in the elderly population of urban Assam. Descriptive statistics like Mean and Standard deviation was calculated separately for the

variables in terms of gender, family type and employment status and then Pearson r was calculated to study the relationship among Physical activity and happiness in terms of Gender, family type and employment status.

Table 1 Mean and standard deviation of the variables of the sample based on gender, family type and employment status.

Variables	Gender		Family Type		Employment status	
	Mean	SD	Mean	SD	Mean	SD
Physical activity	171.4	62.09	60.75	88.95	53.06	85.79
Happiness	20.39	5.64	7.58	11.88	6.42	11.46

For happiness, mean and standard deviation in terms of gender is 20.39 and 5.64. In terms of family type, the mean is 7.58 and the SD is 11.88. Similarly, for employment status, the mean is 6.42 and the SD is 11.46.

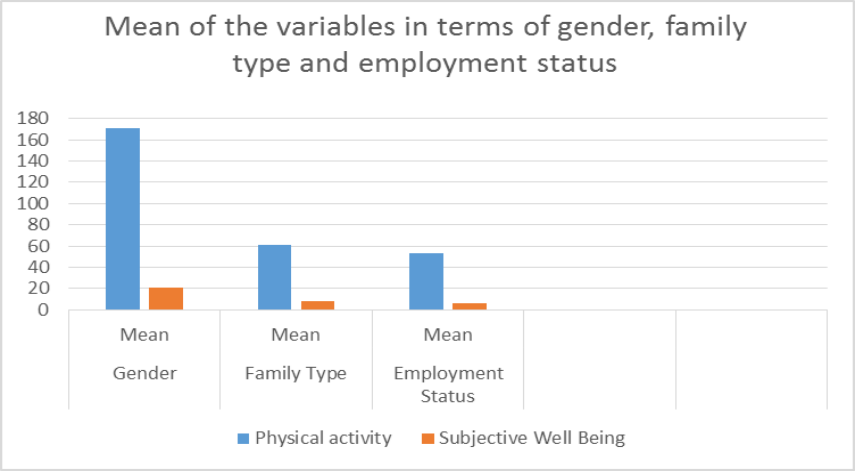

Fig 1: Mean of the variables of sample.

The above table 1,statesthe mean score and standard deviation score of the variables in terms of gender, family type and employment status.

Table 2Wilcoxin Rank Sum test to assess the difference among the variables in terms of gender, family type and employment Status

Variable		Wilcoxin Rank sum test	P value	Statistical remark
Physical activity	Gender	8010	< 2.2e-16	Null hypothesis not accepted
	Family type	32400	< 2.2e-16	Null hypothesis not accepted
	Employment type	32400	< 2.2e-16	Null hypothesis not accepted
Happiness	Gender	W = 0	< 2.2e-16	Null hypothesisnot accepted
	Family type	32400	< 2.2e-16	Null hypothesis not accepted
	Employment type	32400	< 2.2e-16	Null hypothesisnot accepted

The mean and standard deviation for Physical activity in terms of gender is 171.4 and 62.09. For family type, the mean is 60.75 and SD is 88.95. Similarly, for employment status, the mean is 53.06 and the SD is 85.79.

To investigate the difference between two independent groups when the dependent variable is either ordinal or continuous without any normal distribution, Wilcoxin Rank Sum test is conducted. Here it was used to explore the differences in the Physical activity level and Happiness level in the elderly of Upper Assam. The data is presented in table 2.

After the data was analyzed, the results were interpretedagainst the hypotheses framed. Basic aim of the study was to investigate the relationship of physical activity with happiness among the Elderly of Upper Assam. Thus from table 2, it can be seen thatfor Physical activity in terms of gender, the Wilcoxin rank sum has been obtained as 8010. Also, the p-value obtained here is <2.2e-16, which is less than 0.05 (5% significance level). That means, for physical activity, the both groups of gender, that is, male and female shows significant differences. So, it may beconcluded thatthe null Hypothesis 1(a)that "There is no significant difference in levels of physical activity among the elderly in terms of gender" is notaccepted.For Physical activity in terms of family type, the Wilcoxin rank sum has been obtained as 32400. Also, the p-value obtained here is <2.2e-16, which is less than 0.05 (5% significance level). That means, for physical activity in terms of the family types, that is, nuclear and joint shows significant differences with each other. So the researcher may conclude that the null Hypothesis 1(b) that "There is no significant difference in the level of Physical activity in terms of family type among the elderly" is not accepted. Similarly, for physical activity in terms of employment status, the Wilcoxin rank sum has been obtained as 32400. Also, the p-value obtained here is <2.2e-16, which is less than 0.05 (5% significance level). That means, for physical activityin terms of employment status, that is, employed and retired shows significant differences with each otherSo, it may be concluded that the nullHypothesis 1(c) that "There is no significant difference in the level of Physical activity in terms of employment status among the elderly" isnotaccepted.

The obtained results are corroborated by results found by other researchers. A study conducted by *Gopinath, B., Kifley, A., & Mitchell, P. (2018)*investigated how physical activity is a factor for successful aging among elderly. The study was conducted on a sample of 1584 adults aged 49 years without any history of cancer, coronary artery disease and stroke for a period of 10 years. The results indicated that elderly with higher physical activity had greater chances of aging successfully than normal aging. The result of another study on the relationship of quality of life and physical activity in older working aging population conducted on 1013 people aged 55-64 years indicated that individuals with high physical activity has higher quality of life in the physical, psychological, social and environmental domains. Another research concluded that the quality of life and physical activity in older working age population (*Puciato, D., Borysiuk, Z., &Rozpara, M. 2017).*

Again from table 2, it was observed that the Wilcoxin rank sum obtained is 0 for happiness in terms of gender and the p-value obtained is <2.2e-16, which is less than 0.05 (5% significance level). Hence, there exist a significant difference among males and females in terms of happiness. So, it may be concluded that the null Hypothesis 2(a) that "There is no significant difference in the level of happiness in terms of gender among the elderly" isnotaccepted. For happiness in terms of family type, the Wilcoxin rank sum has been obtained as 32400. Also, the p-value obtained here is <2.2e-16, which is less than 0.05 (5% significance level). This indicates that there exist a significant difference among nuclear and joint family types in terms of happiness. So, the researcher may conclude that the null Hypothesis 2(b) that "There is no significant difference in the level of happiness in terms of family type among the elderly" is notaccepted. Similarly, the Wilcoxin rank sum obtained is 32400 for happiness in terms of employment status and the p-value obtained here is <2.2e-16, which is less than 0.05 (5% significance level). Hence, the researcher can conclude that there exist a significant difference among retired and employed in terms of happiness. So, it may be concluded that the null Hypothesis 2(c) that "There is no significant difference in the level of happiness in terms of employment status among the elderly" is not accepted.

In support of the present study, *Jivraj, Nazroo and Chandola (2014)* examined the age related changes in subjective well-being from respondents aged 50 years and older. The results of this study indicated that older sample showed better subjective well-being than younger sample. *Shukla and Kiran (2013)*investigated the pattern of adjustments among the 200 elderly people and found the subjective happiness is higher among the urban elderly and those living in nuclear families.

Table 3 Pearson Correlation Coefficient test to assess the relationship of Physical activity and Happiness

	Happiness		
Physical activity score	**Gender**	**Family type**	**Employment Status**
Pearson r	0.1602959	0.8822161	0.8952162
P value	0.1312	<2.2e-16	<2.26e-16
Statistical decision	Null hypothesis accepted	Null hypothesis not accepted	Null hypothesis not accepted

The table 3 indicate the relationship of physical activity with happiness among the elderly. It may be concluded that, the sample correlation estimate obtained is 0.1602959 using the Pearson's product-moment correlation, and the p-value calculated is 0.1312, which is more than 0.05 (5% significance level). Hence, there exist no significant relationship of physical activity with happiness in terms of gender and the researcher could concludethat the Hypothesis

3(a) that "There is no significant relationship of physical activity with happiness among the elderly in terms of gender" is accepted.Similarly, for the relationship in terms of family type, the sample correlation estimate has been calculated as 0.8822161 and the p-value obtained is <2.2e-16, which is less than 0.05 (5% significance level). Hence, it can be seen that there exist a significant relationship of physical activity with happiness in terms of family type. So, the researcher concluded that the Hypothesis 3(b) that "There is no significant relationship of physical activity with happiness among the elderly in terms of family type" is notaccepted.Similarly for employment status, the sample correlation estimate has been calculated as 0.8952162 and the p-value obtained here is <2.2e-16, which is less than 0.05 (5% significance level). Hence, it can be seen that there exist a significant relationship of physical activity with happiness in terms of employment status and the researcher may conclude that theHypothesis 3(c) that "There is no significant relationship of physical activity with happiness among the elderly in terms of employment status" is notaccepted.

The study is supported by various researches which indicate that mental health, general well-being and life satisfaction of an elderly significantly improves due to regular exercise Won et al., (2020),Sato et al., (2014). Another research by *An. Y. H.,Chen. W., Wang. W.C., Yang. F.H., Huang. T.W., and Fan. Y.S. (2020)*examined the correlation of life satisfaction, happiness and physical activity among the young, middle-aged and older adults and impact of age on the relationship. The total sample selected was 2345 healthy adults. The results indicated that those adults who had perform high or moderate activity are significantly happier and satisfied with life than those with low levels of activity. It was also observed that life satisfaction increases with age.

This study has added to previous literature & gaps in knowledge. Though the sample size was relatively small, but this was one of the few studies focusing on population of Urban Assam. Also the study tried to understand the differences in terms of marital status, family type and employment status. The study also has a few limitations. The sample was collected from two urban agglomerations of Assam hence it was not fully representative of the state of Assam. Moreover the sample size was small. The questionnaires were self-reported hence there could be social desirability and bias in the responses. Another limitation is that the data was collected after the pandemic which further impacted the mental and emotional health of the respondents.

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