A CROSS SECTIONAL STUDY TO ASSESS THE MENTAL HEALTH AMONG ADOLESCENTS IN MOODUBIDIRE

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ABSTRACT

Background: Psychological factors are posing a serious challenge to the human civilization in the recent years especially during this COVID 19 impacted pandemic period. The relevance of dealing with the mental wellbeing along with the physical entities is increasing in the contemporary science, which was already been addressed in the ayurvedic literatures. Adolescence is a crucial period for developing social and emotional habits that are important for mental wellbeing, which includes developing coping, problem solving, interpersonal skills and learning to manage emotions. Mental health promotion and prevention interventions aim to strengthen an individual's capacity to regulate emotions, finding ways to deal with risk taking behaviors, build resilience for managing adversities and promoting supportive social environments. **Methods:** 400 subjects from adolescent age group fulfilling the inclusion criteria were selected from schools and colleges of Moodubidire by simple random sampling. A set of structured, validated and standardized questionnaires generated to assess their mental health and wellbeing was given and their responses regarding the study were taken. **Result:** Study revealed that, out of 400 subjects 1.2% belonged to *Pravara Satva*, 9.7% belonged to *Madhyama Satva* and 89% belonged to *Avara Satva*. It was observed that there was a relation between *satva* of an individual to that of wellbeing, where quality of life that they were leading was in accordance to their *Satva.* The study also determined various factors that influenced the mental health in an adolescent.

KEYWORDS: *Satvabala*; Mental health; *Manas*; *Shareera*; Adolescents; Well being.

INTRODUCTION

Mental health is defined as a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people and the ability to adapt, to change and cope with adversity.[1] The role of *Manas* in the attainment of the health is mentioned by *Acharya Sushruta* and *Acharya Kashyapa* in their concepts of *Swastha lakshana* and *Arogya linga* respectively.[2,3] The concepts of *Manas* explained in the Ayurvedic classical literature is being mainly adopted from the *Sankhya Darshana* and *Vaisheshika Darshana.*

India has one of the world's highest numbers of young population with 1.2 billion and about 21% of Indian population.[4] Over the last few years, there has been focus on mental health problems among adolescents, and mental health problems are usually identified from schools. Today's adolescents are mostly expected to exceed in various arenas like school, leisure activities and other social settings. This may lead to stress, which could reflect in increased number of mental health problems among adolescents.

Various stress inducing situations like school transition, family conflict, parental divorce and stress related to academic and co curricular performance are all related to mental health problems among adolescents. Mental Ill health, Substance use and Violence in the young population are some important challenges faced by the Mental health professionals as well as society. Thus it has been emerged as a need to assess the mental health and wellbeing among adolescents. In this study, the subjects were interviewed and assessment of their mental health and wellbeing were observed.

AIMS AND OBJECTIVES

- To assess the mental health and wellbeing among adolescents in Moodubidire.
- To determine the factors that influences the mental health in an adolescent.
- To analyze the correlation between mental health and other dimensions of health.

MATERIALS AND METHODS

Subjects from adolescent age group irrespective of religion and socio economic status were selected from schools and colleges of Moodubidire by simple random sampling. A set of pre-tested and pre-designed questionnaire were framed incorporating *Sattva Pareeksha*

mentioned in our classics and other information related to mental health and well being and the subjects were interviewed to assess the mental health and well being.

Inclusion Criteria

Adolescents in the age group of 10-19 years[5] irrespective of gender, religion and socio-economic status were included for the study.

Exclusion Criteria

1. Subjects who are hesitant to take part in the study.
2. Physically or mentally challenged adolescents.
3. Subjects who suffer from endocrinal disorders, genetic disorders & other chronic disorders.

Study Design

Cross- sectional study was conducted during November 2021 to January 2022 after selecting the schools and colleges randomly from the list of schools given by the Block Education Office of Moodubidire as per inclusion criteria; an interview was conducted by a set of pre-tested questionnaires to assess the mental health and well being among the adolescent group.

Plan of Study

Steps involved in the development of questionnaire development

▪ **Item Generation**

The information regarding the *Sattva Pareeksha* was collected from *Ayurveda Samhitha,* While other information regarding mental health and well being was collected from Common mental health disorder questionnaire[6] and WHO (5) Well being Index[7] and a set of questionnaire was framed.

▪ **Content Validity**

The framed questionnaire was given to subject experts of different institutions for content validity.

▪ **Content Adequacy Assessment**

Based on the content validity by the experts, questions were altered. Later on an online pilot study was carried out during October 2021 among 20 subjects[8] with aid of google forms. The questions were later statistically validated with the application of Cronbach's Alpha Test.[9]

▪ **Internal Consistency Assessment**

The internal consistency was tested with Cronbach's alpha as given by Konting et. al (2009).[9]

▪ **Questionnaire Administration**

45 questions related to mental health were administrated to 400 subjects. The details of the questionnaire validation and assessment will be discussed in the chapter of results.

RESULTS

Table 1: Overall assessment of general physical health.

GENERAL PHYSICAL HEALTH	FREQUENCY	PERCENTAGE
NEGATIVE	196	49%
POSITIVE	204	51%

Out of 400 participants, 204 (51%) were found to be possessing a sound physical health and 196 (49%) were found to be having an unsound physical health based on the questionnaire.
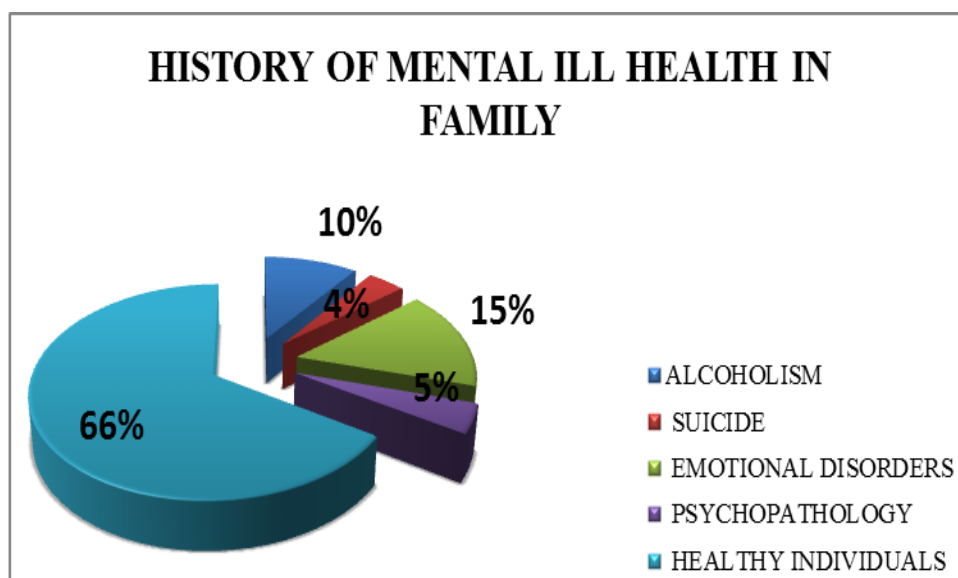

Fig. 1: Distribution of history of mental ill health in the family.

Out of 400 students, 40 (10%) participants have history of alcoholism in their family, 16 (4%) have history of suicides, 62 (15.5%) participants have encountered emotional disorders among their family members, 18 (4.5%) participants have a history of psychopathology in their family and 264 (66%) are not having any history of mental ill health in family.

Table 2: Overall assessment of involvement in physical activity among study population.

PHYSICAL ACTIVITY	FREQUENCY	PERCENTAGE
NEVER	68	17%
RARELY	100	25%
OCCASSIONALLY	120	30%
OFTEN	112	28%
TOTAL	**400**	**100%**

Out of 400 participants 68 (17%) never indulged in physical activity as a routine, 100 (25%) rarely involved in it, 120 (30%) occasionally and 112(28%) often engaged in physical activities as their routine.
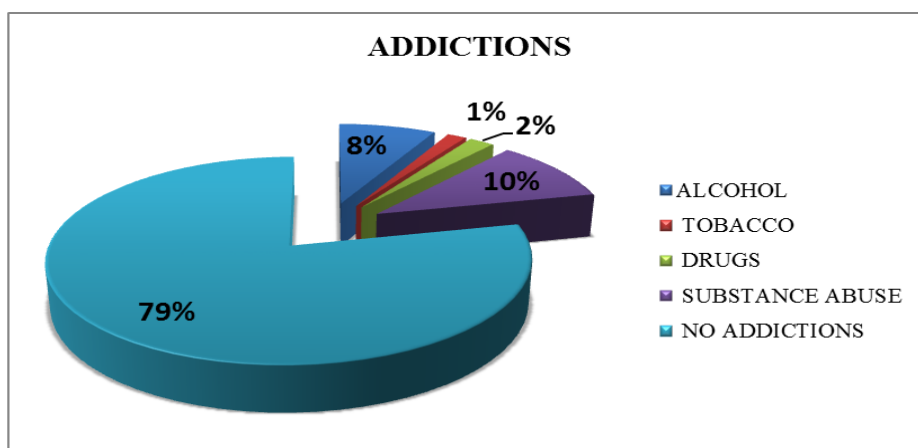
Fig. 2: Distribution based on the addictions among study population.

Out of 400 students, 31 (7.75%) participants consume alcohol, 6 (1.5%) have a habit of tobacco chewing or smoking, 8 (2%) participants had been exposed to drugs, 41 (10.25%) participants have a habit of substance abuse and 314 (78.5%) are not having any kinds of addictions.
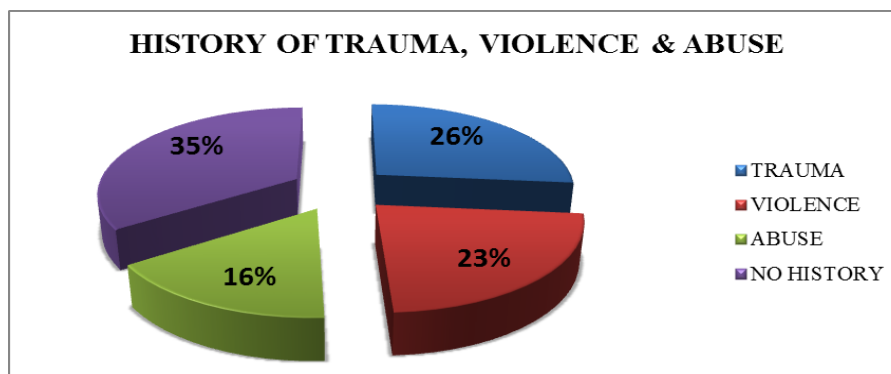
Fig. 3: Distribution based on history of trauma, violence and abuse among study population.

Out of 400 students, 106 (26.5%) participants have history of trauma, 91 (22.75%) have history of violence, 65 (16.25%) participants have encountered with abuse either physically or verbally and 138 (34.5%) are not having any history of trauma, violence and abuse.

Out of 400 students, 183 (45.7%) participants never shown the physical symptoms of stress, 131 (32.7%) participants shown mild level of physical symptoms, 73 (18.6%) shown moderate level of physical symptoms and 12 (3%) shown severe level of physical symptoms of stress.

Out of 400 students, 219 (54%) had never shown the cognitive symptoms of stress, 96 (24%) had shown mild level of cognitive symptoms, 61 (15%) had shown moderate level of cognitive symptoms and 24 (6%) had shown severe level of cognitive symptoms of stress.

Out of 400 students, 151 (37.8%) never experienced the behavioral symptoms of stress, 125 (31.2%) experienced mild level of behavioral symptoms, 89 (22.3%) shown moderate level of behavioral symptoms and 35 (8.7%) shown severe level of behavioral symptoms of stress.

Table 3: Distribution based on *satva* in the study population.

SATVA PAREEKSHA	FREQUENCY	PERCENTAGE
PRAVARA SATVA	5	1.25%
MADHYAMA SATVA	39	9.75%
AVARA SATVA	356	89%
TOTAL	**400**	**100**

Out of 400 students, 5 (1.25%) participants is having *Pravara satva*, 39 (9.75%) belongs to the category of *Madhyama Satva* and 356 (89%) participants belongs to the category of *Avara Satva*.

Table 4: Distribution based on well being index in the study population.

WELL BEING INDEX	FREQUENCY	PERCENTAGE
POOR	301	75.2%
MODERATE	95	24%
GOOD	4	1%
TOTAL	**400**	**100**

Out of 400 students, 301 (75.2%) participants are having poor quality of life, 95 (24%) are having moderate quality of life and 4 (1%) participants are having good quality of life.

Table 5: Correlation between independent variables and mental well being in the study population.

Sl No	INDEPENDENT VARIABLE	CORELATION COEFFICIENT	CORELATION	P VALUE	LEVEL OF SIGNIFICANCE
1	Disturbed sleep pattern	-0.118	Negative Linear Association	0.01	Very significant
2	Irregular bowel movements	-0.155	Negative Linear Association	0.001	Highly significant
3	Loss of appetite	-0.147	Negative Linear Association	0.003	Very significant
4	Irregular menstruation	-0.087	No Significant Relation	0.08	Not significant
5	Sudden weight loss	-0.01	No Significant Relation	0.83	Not significant
6	Sudden weight gain	0.021	No Significant Relation	0.67	Not significant
7	Family history of mental ill health	-0.143	Negative Linear Association	0.004	Highly significant
8	Head ache	-0.104	Negative Linear Association	0.03	Very significant
9	Giddiness / Fainting	-0.073	No Significant Relation	0.14	Not significant
10	Nausea	-0.083	No Significant Relation	0.09	Significant
11	Worry about presence of disease	-0.093	No Significant Relation	0.06	Significant
12	Worry of disease that you read	-0.111	Negative Linear Association	0.02	Very significant
13	Nervousness	-0.157	Negative Linear Association	0.001	Highly significant
14	Panic attack	-0.045	No Significant Relation	0.37	Not significant
15	Too much of worry	-0.105	Negative Linear Association	0.03	Significant
16	Feeling of worthlessness	-0.158	Negative Linear Association	0.001	Highly significant
17	Thoughts of ending life	-0.085	No Significant Relation	0.08	Significant
18	Feeling of loneliness	-0.17	Negative Linear Association	0.0006	Very highly significant
19	Blaming yourself	-0.1	Negative Linear Association	0.04	Significant
20	Feeling of exhaustion	-0.179	Negative Linear Association	0.0003	Very highly significant
21	Lack of motivation	-0.145	Negative Linear Association	0.003	Highly significant
22	Irritability due to frustration	-0.152	Negative Linear Association	0.002	Highly significant
23	Practice of Yoga or Exercise	0.176	Positive Linear Association	0.0004	Very highly significant
24	Physically active for 60 min / day	0.196	Positive Linear Association	0.0008	Very highly significant
25	Alcohol consumption	-0.038	No Significant Relation	0.44	Not significant
26	Tobacco chewing or smoking	-0.044	No Significant Relation	0.37	Not significant
27	Drug abuse	-0.06	No Significant Relation	0.22	Not significant
28	Other substance abuse	-0.041	No Significant Relation	0.41	Not significant
29	History of Trauma	-0.062	No Significant Relation	0.21	Not significant
30	History of Violence	-0.037	No Significant Relation	0.45	Not significant
31	History of Abuse	-0.104	Negative Linear Association	0.038	Significant
32	*Satva Pareeksha*	0.186	Positive Linear Association	0.0006	Very highly significant

DISCUSSION

Discussion on Living Condition

The interaction effect between parent – adolescent attachment and negative life events that has impact on their mental health is observed to be having greater influence, especially adolescents who have unfavorable parent – adolescent attachment. Adolescents who live away from parents i.e. at hostels or along with relatives seem to be a vulnerable group for mental health problems compared to adolescents who live with their parents.

Discussion on History of Mental Ill health in the Family

When we look upon the correlation between the history of mental ill health in the family and mental wellbeing, there exists a negative association where increased instances of mental ill

health in the family leads to declination in the mental wellbeing of the individual. Family level factors may influence the relationship with the risk of psychiatric disorder, since it is confounded by genetic factors that contribute to psychiatric phenotypes. It has been observed that there is a reduction in the optimal mental health of an adolescent in the cases where the 1st degree relative shows some kind of mental ill health, where the causative factors may vary which can be due to either internal or external factors. Studies suggest that shared familial factors i.e. genetic and / or shared environmental factors that are associated with psychiatric illness have an impact in the mental health of the adolescents.[10]

Discussion on Physical Symptoms of Stress

In the case of correlation between the occurrence of headache and mental wellbeing, there exists a negative association where increase in occurrence of headache negatively affects the mental wellbeing of the individual. Headaches that occur with anxiety usually happen as a response to the emotional distress that an individual experiences. Muscle tension is another aspect of anxiety, where long term anxiety tends the body to maintain a state of increased alert and the tension of muscles remains, thus acts a contributory factor to headaches.

In the case of giddiness, during the stress response brain releases hormones that influence the respiratory and cardiovascular systems. Due to the influence of these hormones, there will be narrowing of blood vessels, increased heart rate and causes rapid, shallow breathing. These responses can lead to dizziness or fainting.

In the case of nausea, during a stressful event, individual experiences anxiety which is a natural response that happens when the brain releases neurotransmitters to prepare the body for fight or flight. When these neurotransmitters come in contact with digestive tract, they upset the gut micro biome. The imbalances in the gut micro biome can result in nausea.

DISCUSSION ON COGNITIVE SYMPTOMS OF STRESS

In the case of correlation between illness worry and mental wellbeing, there exists a negative association where increase in illness worry leads to decline in the mental wellbeing of the individual. Illness anxiety disorder which is also called as hypochondriasis is an unrealistic fear that they had a serious medical condition and they may misinterpret typical body functions as signs of illness. This condition is mainly observed among the individuals who had undergone childhood trauma or have a family member who is suffering from a serious chronic disorder.

When we look into the correlation between anxiety and mental wellbeing, there exists a negative association where increase in anxiety leads to deterioration of mental wellbeing of the individual. The major mediators of the symptoms of anxiety disorders appear to be nor epinephrine, serotonin, dopamine and gamma – amino butyric acid (GABA). Other neurotransmitters and peptides like corticotrophin – releasing factor, may also be involved in this process.

When we observe the correlation between feeling of worthlessness and mental wellbeing, there exist a negative association, where increase in the feeling of worthlessness results in the decrease in the mental wellbeing of the individual. When we look upon the correlation between habit of self blame and mental wellbeing, there exist a negative correlation where increase in indulgence of self blaming results in decline in mental health of the individual. When we look upon the correlation between the feeling of loneliness and mental wellbeing, a negative association exist where increase in the feeling of loneliness results in decrease in the mental wellbeing of the individual.

Most of the serotonergic, noradregenic and dopaminergic neurons located in the midbrain and brainstem nuclei suggests that monoaminergic systems are involved in the regulation of a broad range of brain functions including mood, attention, cognition etc. This observations lead to the most significant theory of depression named as monoamine deficiency hypothesis. The monoamine deficiency theory posits that the pathophysiological basis of depression is a depletion or deficiency of the neurotransmitters like serotonin, norepinephrine or dopamine in the central nervous system.

Similar symptoms related to depression are also observed in the case of seasonal affective disorder, which is considered to be recurrent, seasonal pattern of depressive episodes. Seasonal affective disorder had been associated to the biochemical imbalance of melatonin in the brain where people experience circadian rhythm that affects their daily routine. Low levels of vitamin D, caused by decreased dietary intake of the vitamin or inadequate exposure to sunlight have been promptly observed in these individuals.

Discussion on Behavioral Symptoms of Stress

In the case of correlation between the exhaustion and mental wellbeing, a negative association exists where increase in exhaustion simultaneously results in the declination of the mental wellbeing in an individual. In the case of correlation between lack of motivation

and mental wellbeing, there exists a negative association, where increase in lack of motivation results in the decrease in mental wellbeing of the individual. In the case of correlation between irritability and mental wellbeing, there exists a negative association where increase in irritability negatively affects the mental wellbeing of the individual.

Burnout syndrome is a socio-psychological phenomenon of emotional, motivational and physical exhaustion manifested as a result of chronic work related stress. It is mainly manifested as a long term emotional exhaustion, depersonalization and diminished personal and professional achievements. This condition which is usually seen among adults can be observed in adolescents also as they have been continuously pressurized to certain goals and targets related to curricular and co curricular activities from the parents, teachers and society. A compromise in attainment in these targets leads to a slow build up of stress which later on results in the manifestation of chronic stress and development of burnout syndrome.

Discussion on Involvement in Physical Activity

When we observe the correlation between physical activity and mental wellbeing, there exist a positive association where increase in the indulgence in physical activity results in increase in mental wellbeing of the individual.

Exercise neutralizes the effects of psychological stressors on cardiac reactivity and dampens stressor evoked that increases in stress hormones and serotonin.[11] Being physically active improves the way body manages stress because of the changes in hormone response like the elevated levels of endorphins in the plasma following the indulgence in exercise that inhibits the central nervous system and results in sensation of calm and improved mood experienced by the individual. Physical activity also increases the synaptic transmission of monoamines that includes serotonin, dopamine and adrenalin which act as anti depressant.

DISCUSSION ON ADDICTIONS

Hangxiety also known to be hangover anxiety, which is a type anxiety that occurs after consuming alcohol is one among the acute effects shown over the body due to alcohol. During alcohol consumption, body metabolizes it into a toxic compound called acetaldehyde, which causes inflammation. As the body rebalances one may experience mini withdrawal from alcohol, hence called hangover anxiety. Alcohol disrupts the neurotransmitters like dopamine, serotonin and endorphins which causes euphoria. But when these chemicals recede, it results in anxiety and depression.

In the case of tobacco use, Nicotine mainly shows its action through specific nicotinic acetylcholine receptors thereby increasing Ach release and metabolism. Dopaminergic system is also stimulated by it, thus increasing the concentration of dopamine in nuclear accumbens. This property of nicotine is responsible for reinforcing behavioral change and dependence of nicotine.

Discussion on History of Trauma, Violence and Abuse

When we observe the correlation between history of abuse and mental wellbeing, there exists a negative association where increase in the instances of abuse deteriorated the mental wellbeing of the individual. Traumatized individuals frequently develop post traumatic stress disorder, a condition in which the memory of the traumatic event comes to dominate the victim's consciousness, depleting their lives of meaning and pleasure.[12] In normal conditions, only intense stress is accompanied by the release of endogenous, stress responsive neurohormones like cortisol, epinephrine, norepinephrine, vasopressin and oxytocin. In Post Traumatic Stress Disorders, even minor reminders of the trauma may precipitate a full blown neuroendocrine stress reaction which permanently alters how an organism deals with its surroundings on a day to day basis and interferes the way in which the individual copes up with subsequent acute stress.

Discussion on Satva Pareeksha

In this study, we can observe that majority of the study population belongs to the category of *Avara Satva.* When we come across the physical symptoms, cognitive symptoms and behavioral symptoms related to the stress, the majority were showing mild level of these symptoms. Hence we can substantiate that individuals show varied responses to the stressful events and *Satva* of an individual may be one of the factor which is responsible for these varied responses towards the stressful events. Similarly when we observe the correlation between the *Satva Pareeksha* and mental well being, there exists a positive association, where individuals possessing *Pravara Satva* tends to show a increased mental wellbeing.

Discussion on Mental Well Being

When we observe the results of *Satva Pareeksha* among the study population, participants belonging to the *Avara Satva* constituted the majority of the study population, similarly when we observed the mental wellbeing of the study population, majority of the adolescents were leading a poor quality of life. Thus we can see that there is a link between the *satva* of an individual as well as their mental well being.

RECOMMENDATION FOR FURTHER STUDY

- The study can be conducted in different age groups to assess the mental health and determine the causative factors that negatively affect the mental wellbeing in that specific age group.

- The same study can be carried out in larger samples, thus accurately assessing the strength of association between the independent and dependent variables.

- The study can be carried out by applying pre-test and post-test assessments with certain interventions among adolescents.

- This study can be carried out to develop certain specific counseling methods in the field of adolescent mental wellbeing and evaluate its effectiveness.

- This study can be carried out among individuals with different diseases and analyze the association between these diseases and mental wellbeing.

CONCLUSION

- The interrelationship between the *shareera* and *manas* are established at various levels.

- There is influence of mind over the body and body over the mind at both physiological as well as pathological levels.

- *Satvabala* have domineering impact on the mental health of the individual.

- *Satvabala* refers to the stress threshold of the individual.

- Stress may be one of the causative factors for the exacerbation of the symptoms.

- External factors like surroundings and people who are in close interaction does influence the mental health of an individual.

- In the present study, there was a higher distribution of individuals having *avara satva.*

- In the present study, there was a higher distribution of individuals having a poor mental wellbeing thus leading a poor quality of life.

- In the present study, majority of the study population exhibited mild level of physical symptoms, cognitive symptoms and behavioral symptoms of stress.

- Through the present study, it is being established that health is multidimensional wherein the three specific dimensions – physical, mental and social dimension are interrelated to each other.

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