

**EVALUATION OF NUTRITIONAL STATUS AND HEALTH CONDITION AMONG
THE MIDDLE AGE SCHOOL TEACHERS IN PURBA MEDINIPUR DISTRICT, WEST
BENGAL**

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Chapter-I

1. Introduction

The effectiveness of the educational system largely depends on active, resourceful and competent teachers. The teachers carry out this role of moulding the life of children effectively, but at the same time face stress as they are dealing with young children who are difficult to handle. Young children are extremely active, energetic and it is difficult to make them concentrate on the school work. A number of surveys pointed out the stressful nature of teaching. Prat (1976) reported that 60 per cent of teachers and 51 per cent of other professionals experienced severe nervous strain at work. Kyriacou (1980) reported that teachers, when compared to other professionals had the highest level of occupational stress. Trendall (1989) reported that primary school teachers experienced more stress than secondary and special school teachers. Teaching profession was reported to be the most stressful as shown by a survey assessing the stress levels of various jobs by Health and Safety Executive (2006). The sources of stress for school teachers are heavy workload, delayed salaries, duties other than teaching, lack of cooperation from head and colleagues, political interference, students' misbehavior and negative community attitude (Gmelch, 1983). All these stress factors have an impact on the health of the teachers. Thus stress has been found to have a long-lasting impact on the physical, mental and emotional health of primary school teachers. In order to safeguard the health from harmful effects of stress, teachers have to develop certain qualities which act as a buffer and ensure well-being. The phrase quality of teachers includes all the personality dimensions of a teacher *viz.*, span of knowledge, teaching skill and behavior (Dhull *et al.*, 2005). Quality-conscious teachers are those who are committed, enthusiastic, intellectually and emotionally energetic in

their work with children. They are aware of the role played by emotions in classroom teaching. According to Lazarus (1991) understanding and being able to apply emotional intelligence is essential to attain success in teaching. An emotionally competent teacher learns and applies skills to manage stress, improve self-esteem, confidence, personal change, decision making, leadership, assertion, comfort and commitment which raise the quality of teaching along with health and well-being (Nelson *et al.*, 2005). Teachers who understand and improve their emotional competence skills are able to simultaneously develop professional and personal strength by improving the areas of weakness. But unfortunately many teachers often experience negative emotions than positive ones. Negative emotions, such as, anxiety interferes in cognitive capacity for processing information, while positive emotions increase creative capacity for generating new ideas and ability to handle difficulties (Frederickson, 2001). Positive emotions in teachers increase health and well-being and level of adaptation. This is why the capacity to identify, understand and regulate both positive and negative emotions is indispensable in teaching profession, in order to use and generate emotions to favor well-being by overcoming stress. Both working and non-working women should have greater skills of emotional competence and stress management in order to have a sound health. On the second front, the housewives also face stressors in their day-to-day life which affects health and emotions. Looking after the daily household tasks efficiently with less problems and setbacks is a skill that every woman should be endowed with, whether working or non-working in order to have a happy family life. The emotional competence, stress and health status are independent but they have a long lasting impact on the individual's life. The stress and emotional competence interact together and affect the health status. The stress is a negative attribute, while emotional competence is a positive personality factor which can act upon stress. Very few studies deal with interrelation between emotional competence and stress with health of working and non-working women.

1.1. Health

The nations of the world have agreed that enjoying the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief and economic or social condition. Beyond its intrinsic value for individuals, improving and protecting health is also central to overall human development and to the reduction of

poverty. Health is a State of subject; the implementation aspect is the responsibility of the States. Inadequate resource availability in the States may affect the policy implementation

Health is a state of complete physical, mental and social well being and not merely absence of disease or infirmity (WHO, 1964). Physical health is good bodily health and is the result of regular exercise, proper diet and nutrition and proper rest for physical recovery. Mental health has been reported as an important factor influencing on individual's various behaviors, activities, happiness and performance. It is the freedom from disturbing and disabling symptoms that interfere with mental efficiency, emotional stability or peace of mind (Maslow, 1954). The factors affecting both the physical and mental health of the individual are nutritional status, income, age, education, occupation, experience, type of family and emotional well being.

1.2. Global health

Global health is the health of populations in a global context and transcends the perspectives and concerns of individual nations. In global health, problems that transcend national borders or have a global political and economic impact are often emphasized. Thus, global health is about worldwide improvement of health, reduction of disparities, and protection against global threats that disregard national borders.

Any appraisal of the health status of a nation must be done against the backdrop of its population. Recent reports of the World Health Organization (WHO) suggest that in South East Asian Region a large number of adolescents, who constitute 20% of the population in these countries suffer from malnutrition and anemia, which adversely impacts their health and development, and anthropometry is a good indicator of nutritional status and health risks in this group. Inadequate intake of micronutrients can adversely influence growth and development, cognitive performance and increase susceptibility to infections. As a consequence of the socio-economic and demographic transitions that are affecting developing countries such as India, we hypothesize that the nutritional status of the children in middle and high-income groups could be affected by the changes in dietary habits and lifestyle, leading to an increase in the prevalence of overweight and obesity and micronutrient deficiencies.

Developing countries are undergoing nutrition transition due to increased economic development and market globalization leading to rapid changes in lifestyle and dietary habits (WHO 2003). Poor dietary habits combined with decreased physical activity have led to an increase in overweight and obesity among adults and children (WHO 2003). Overweight and obese are not only at risk for insulin resistance syndrome, hypertension, dyslipidemia and hypertryglyceridemia (Li et al., 2005), but also for poor micronutrient status. Reports from countries such as the United States, Israel and Canada have shown that overweight and obese have a higher prevalence of iron deficiency than normal weight persons (Li et al., 2005, Nead et al., 2004) and intakes of other micronutrients such as folate, vitamin D, calcium, magnesium and vitamin E are sub-optimal among obese persons (Pinhas-Hamiel et al., 2003). Inadequate intake of micronutrients can adversely influence growth and development, cognitive performance and increase susceptibility to infections (Haltermann et al., 2001, Benton., 2001, Caulfield et al., 2004).

Recent studies (Law 1993; Fall et al 1995; Lithell et al 1996; Barker 1998) postulate a shift in the paradigm, that life style factors are not likely to explain risks of these adult diseases but are associated with a suboptimal in utero nutritional environment. As a result, several issues of nutritional significance arise. Firstly, it is essential to reduce prevalence of low birth weight. Secondly, it would be unwise to overlook the effect of postnatal undernutrition on adult health as it may amplify these risks determined in utero. Thirdly, the interactive effects of in utero undernutrition and postnatal undernutrition may even be more important than considering either factor in isolation. These issues are being discussed worldwide in view of their implications and have high relevance for us, especially for formulating effective interventions for improving the nutritional status of our populations. We have conducted longitudinal community nutrition studies on maternal nutrition and fetal growth, nutritional status of pre-school children and adolescent growth in rural populations around Pune and would like to report factual data and results from these studies in the light of the above issues and discuss strategies for achieving better health of our people.

1.3. Status of Health and Health System in India

Any appraisal of the health status of a nation must be done against the backdrop of its population. Presently, we are 1 billion and our population is growing at a rate of about 18 million

every year. With only 2.4 per cent of the world land area, India has to support 16 per cent of its population. As per the 1901 census, India's population was 238 million (the then India included India, Pakistan and Bangladesh of today). During these hundred years, the population of India alone has become more than four times. All our economic progress is becoming far outstripped by the increase in numbers. And this galloping growth in population is the most important determinant of all aspects of our national wellbeing including health (Kapilashrami., 2000).

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1.4. Health Status of West Bengal

Health status of West Bengal, as judged by various indicators, is presented below with occasional comparison with the national scenario and with that of some of the important states which has shown good progress. Population of West Bengal as per 2011 census was 9.13 crore, which is around 7.6% of the total population (121.02 crore) of the country. The growth rate of population during the decade from 2001 to 2011 has been 14.0% in the state compared to national growth rate of 17.5%. The growth rate of population in the state in the previous decade (1991-2001) was 17.8%, indicating further reduction of fertility. The birth rate and the death rate of the state as per SRS (Sample Registration System) 2009 was 17.2 (rural 19.1 and urban 12.1) and 6.2 (rural 6.1 and urban 6.4) respectively. In respect of the former West Bengal was behind three bigger states namely Kerala, Tamil Nadu and Punjab. Early conception is fraught with risk of the mother and the child. At the same time 8% of the mothers had unmet need for family planning indicating poor access to services. Education and empowerment of women have strong

correlation with all those factors and there is need for more state interventions in this regard for improving maternal and child health.

India as well as West Bengal is facing a huge challenge related to poor nutritional status of the population, particularly the children and the women. Another cause of concern is persistence of high levels of under-nutrition showing hardly any improvement between 1998-99 & 2005-06. Maternal and Child Under-nutrition is responsible for more than one third of the deaths of children under 5 years. Situation of West Bengal is not much different and is just marginally better than that of the country. The newborn is to be breastfed exclusively up to the first six months and the same has to be started within one hour. Thus there is need for awareness generation and community mobilization for promotion of breastfeeding as well as other child feeding practices. In fact, apart from poverty, the main causes of malnutrition in the state are deficiencies in child caring and poor feeding practices. The status of nutrition of the children becomes worse at the higher age group. Percentage of underweight children in the age group below 3 years was 37.6% as per the survey, which suggests interventions for preventing such decline of nutritional status between six months and three years. This has tremendous impact on development of cognitive skill of the child. Improvement of nutritional level of mother, proper feeding practice, availability of food, control of childhood illness, particularly diarrhoea, worm infestation due to poor hygiene and insanitary environment and proper child care practices including proper implementation of the ICDS programme are very crucial from child's nutrition point of view.

1.5. An anthropometric appraisal to evaluate Health and nutritional status

Anthropometry is of substantial interest to the public health professionals, dieticians, scientists and policy makers. It has long been well established that the use of anthropometry is an efficient indicator of nutritional and health status of adults. Nutrition research in anthropometric assessment of nutritional status in anthropology and biological subjects including health and medicine is therefore, gaining importance in the present days. Low Body Mass Index (BMI) and high levels of undernutrition (based on BMI) are the major public health problems especially among rural underprivileged adults of developing countries. Although adult nutritional status can be evaluated in many ways, the BMI is most widely used because its use is inexpensive, noninvasive and suitable for large-scale surveys. Therefore, BMI is the most established

anthropometric indicator used for assessment of adult nutritional status. BMI is generally considered a good indicator of not only the nutritional status but also the socio-economic condition of a population, especially adult populations of developing countries. Studies worldwide have investigated the anthropometric characteristics and nutritional status of the adults of different ethnic groups. In general, data are scarce on the anthropometric and nutritional status of various tribal populations of India. It has been recently suggested that there is urgent need to evaluate the nutritional status of various tribes of India. Several studies have focused on age variations in anthropometric characteristics and nutritional status of adult men and women of different ethnic groups of both tribal and non-tribal populations (Banik., 2009).

1.6. Health status of school teachers

Teaching profession comes with other roles and commitments to be made towards students, the community and the profession itself. Teachers are responsible to guide students to learn by providing clear directions and explanations in order to educate the future generation. Teachers must be role models and realize that each action taken will reflect upon his/her professional status as teachers (Connecticut Code of Professional Responsibility for Teachers). Teaching has been proven as a stressful job based on previous studies (Shirley & Kathy, 2002; Kyriacou, 1989). Sveinsdottir, Gunarsdottir, and Fridriksdottir (2007) reported that the working environment for teachers is highly stress-provoking. Teacher stress is defined as an uncomfortable feeling, negative emotion such as anger, anxiety and pressure which originated from their work (Maslach & Jackson, 1984). Teachers have to cope with their task to give knowledge; as well as to educate students to be good citizens. With the increasing demand from students and parents, as well as the job requirement made by Malaysia's Ministry of Education, the stress levels are steadily increasing. Teachers in Selangor and Kuala Lumpur areas have been categorized as 'stressful teachers' since they have to spend 74 hours per week in teaching, as well as involved in curriculum activities (Abdul, 2005).

Mental illness among teachers has become an increasing problem in many countries (Bauer et al., 2005; Bauer et al., 2007; Weber, Weltle & Lederel., 2006). According to a study (Sveinsdottir et al, 2007), psychiatric and/ or psychosomatic disorders are the leading causes of premature retirement among teachers. Stressors such as disruptive student, heavy workload and lack of support put teachers' mental health in danger (National Union of Teachers, 2009).

Occupational stress has two conceptual definitions (David, 1984). The first one refers to physiological responses of the individuals such as increased heart rate, blood pressure, as well as the release of cortisol hormone into the blood stream that result from an individual's frustrations of the interaction with the environment. The second one refers to the negative appraisal from the environment itself such as workload and inadequate resources and time that are associated with the current job that lead to anxiety and chronic pressure in meeting the job demand. Another scholar defined stress as the physical, emotional and mental strain resulting from the mismatch between an individual and the environment (Bynoe, 1994). Stress is most likely to occur in situations where; demands are high, the amount of control in an individual is low, and there is limited support or help available for the individual. When a body receives stressor, it can increase the stress level. Proposed model of teacher stress by Richard and Christine (1989) included teaching history and personal factors as the stressor for job stress among the teachers. The positive and negative reactions may in turn influence the risk of developing psychosomatic symptoms. Model of teacher stress by Kyriacou and Sutcliffe (1978) defined potential stressors as physical (such as large number of pupil in classes) and psychological (such as poor relationship with colleagues). The model also contained additional variables such as recognition and inadequate resources and time as potential non-occupational stressor.

1.7. Malnutrition

It is rather obvious that the issue of poor nutrition causing other health problems in the country, including high infant mortality rate and malnutrition is extremely pressing. In fact, the lack of progress over the past decade and the current high levels of malnutrition have led to India being recognized as having, perhaps, the worst malnutrition problem in the world. Malnutrition can take the form of hunger and inadequate nutrition, or overweight and obesity. About 104 million children worldwide (2010) are underweight, and undernutrition contributes to about one third of all child deaths. Undernutrition impairs the immune system, increasing the frequency, severity, and duration of infections (including measles, pneumonia and diarrhoea). Infection is also an important cause and contributor to malnutrition. Micronutrient deficiencies including lack of vitamin A, iron, iodine and zinc are common worldwide and can compromise intellectual potential, growth, development and adult productivity. Interventions to prevent malnutrition include micronutrient supplementation, fortification of basic grocery foods, dietary

diversification, hygienic measures to reduce spread of infections, and promotion of breastfeeding.

Malnutrition in India can be termed as a burning social problem due to the impact of socio cultural influence on nutrition. Malnutrition is more due to lack of knowledge and awareness about proper nutrition at a particular stage of growth and development. The state of malnutrition among children in India Nutrition is essential for human development and the focal point of health and well being. It is accepted that the lack of proper nutrition leads to irreversible effects, endangering survival and development. The reasons for malnutrition are myriad and include poverty, lack of nutritious food, inadequate food, improper infant and child feeding, among others. Malnutrition is a complex phenomenon and it is both the cause and effect of poverty and ill-health, and follows a cyclical, inter-generational pattern.¹ Due to such socio cultural environment developing country like India is unable to tackle the issues related to malnutrition. This condition of under-nutrition, therefore, reduces work capacity and productivity among adults and enhances mortality and morbidity amongst children². There is need find ways to fight against malnutrition of children as they are the future of Nation Pre-school children are one of the most nutritionally vulnerable segments of the population. Nutrition during the first five years has an impact not only on growth and morbidity during childhood, but also acts as a determinant of nutritional status in adolescent and adult life³. Malnutrition, the issue itself is vicious in nature and needs utter attention

Chapter-II

Review of literature

2. Review of literature

Health and prosperity are meant for everyone but it is sad that this has always been neglected in the case of Indian adults. Many of them are malnourished, overworked and powerless and continued to occupy a subservient and passive role in the patriarchal structure of society. In the educational process which involves curriculum and evaluation, syllabus and textbooks, the teachers' role is supreme. The teachers occupy a vital position in the entire system of education. In India, the total number of teachers working at primary, middle and secondary stages is approximately 2 million. According to the Education Commission Report (2000), the women teachers constitute 21.7 per cent of the total teacher population in the recognized schools in the country. Among them, 64.7 per cent are working in primary sections, 23.1 per cent in middle sections and 12.2 per cent in secondary sections.

Significant the role of women in the educational field, as majority of the women teachers (64.7%) are working in the primary sections, where they have to deal with the young children. Since the children of today are the citizens of tomorrow, the task of shaping the lives of children lies in the hands of primary school teachers. The school teachers face high amounts of stress during teaching and handling young students. They face intensive verbal communication, prolonged standing, high volume of workload, overcrowded classrooms and high parental expectations. Along with school responsibilities, they also have responsibilities at home. The dual role of taking care of familial as well as professional jobs has created stress in the life of teachers. Similarly, the housewives also face stress in their life, but it is more due to the familial, social and psychological factors such as lack of support from family members, low status, lack of decision making power and conflicts with relatives. The stress of women affects their health status. Recent research suggests that 60-90 per cent of illness is stress-related. Chronic stress wears the individual day after day and year after year, with no visible escape. It grinds away the mental health of working women as well as housewives causing emotional damage in addition to physical ailments. As sound health is very important for the performance and efficacy of the work, it is important that women learn about stress management in order to safeguard the health

status from deterioration. Every individual has to develop good emotional competence as it helps in stress management. Emotional competence is an essential piece of social maturity and adds to the value of interpersonal relationships. This could be of psychological benefit in terms of stress and burnout in the work. An emotionally competent person can take care of health in spite of the day-to-day stressors faced. Emotional competence acts as a buffer and it is necessary for everyone in order to lead a healthy life with least stress effects. Though the stress and emotional competence are two independent variables, they interact together and have an impact on the health status of the individual.

The occupation is one of the most important factors which bring lots of changes in the life of women. The occupation brings along with it many expectations, pressures, time demands and commitments which may affect the health and emotions and thus create stress among women. The relationship between occupation with health status, emotional competence and stress of women has been reviewed as follows. Linn *et al.* (1985) compared academic and clinical faculty affiliated with a major teaching hospital in terms of work characteristics, job stress, job and life satisfaction and perceived health. Results revealed that there was no significant difference between the two groups on job satisfaction, anxiety, stress or depression scores. Both the groups were equally or more satisfied with their health and their lives.

Thakar and Misra (1999) studied the well being experiences of 196 employed and 54 unemployed women. The results revealed that the unemployed women received significantly more social support, in spite of that, the well being measures indicating mental health was better in employed group.

Upadhyay and Singh (1999) compared the occupational stress level experienced by college teachers and executives. The sample consisted of 20 college teachers and 20 executives indicating their occupational stress index. The significant difference was found between two groups on the experience of stress due to role overload, intrinsic impoverishment and status variable. The experience of stress on various sub scales also differed between the two groups.

Gaur and Dhawan (2000) conducted a study on 120 women professionals including equal number of teachers, doctors, bank officers and bureaucrats. Results revealed that the four professional groups have shared almost similar levels of stress except in the categories of career development and stressors specific to working women.

The difference in the mental health of women working in teaching, nursing and clerical staff was examined by Rastogi and Kashyap (2001). Out of these three, teachers were found to have the most sound mental health, followed by clerks and finally the nurses. The mental health of 120 working and non-working women was determined by Jain and Gunthey (2001). Results indicated that both the groups differed significantly on their mental health scores, indicating that working women are getting difficulty in coping strategies to deal with dual roles effectively and thus get mentally strained. This mental strain is reflected in symptoms like anxiety, tension, restlessness or hopelessness.

Green *et al.* (2001) conducted a survey on health of Victorian primary school principals. Subjects completed the questionnaires measuring the health-related behavior and stress and arousal levels and participated in comprehensive health appraisals. Principals reported higher stress level and worse physical health than a group of white collared employees of similar socio-economic status.

Physical stress management among women was studied by Harshpinder and Anjla (2001). The sample consisted of 75 working and non-working women. Results indicated that working women showed more of diary writing, use of standard furniture and high fiber diet as compared to the non-working women. Physical stress management techniques were used by both groups, but the frequency was more among working women.

Triveni and Aminabhavi (2002) conducted a study to understand the gender difference, if any, in the occupational stress of professionals and non-professionals. The sample consisted of 300 professionals (doctors, lawyers and teachers) and 100 nonprofessionals working in government and private offices and banks. The results revealed that women professionals experienced significantly higher occupational stress than men due to underparticipation in the work place, such as not involving women in decision making and passing resolutions. Among the non-professionals again women showed significantly higher stress than men due to under participation in work place and low status. It was also reported that non-professional women tend to show higher role ambiguity and overall occupational stress compared to professional women.

Bharati and Reddy (2002) studied the sources of job stress among 100 primary school teachers of missionary and government schools. Results revealed that a majority of the missionary school teachers experienced job stress in areas of time demand (40%), poor remuneration (40%) and job security (44%), whereas, the teachers of government schools in

areas of workload (68%), time demand (62%) and community/parents (52%). The total job stress scores revealed that 60 per cent had average, 22 per cent low and 19 per cent high job stress.

Teachers' job satisfaction in relation to their teaching level was studied by Alka and Asthana (2004). Sample consisted of 450 teachers comprising equal number of primary, secondary and degree level teachers. The findings revealed that the level of teaching was not related with the teachers' job satisfaction.

The impact of organizational climate on job satisfaction and job performance was studied by Giri and Pavan Kumar (2007). Sample consisted of 380 employees at top, middle and junior managerial levels from different Indian organizations. Results revealed that organizational climate had a significant effect on job satisfaction and job performance. Both job satisfaction and organizational climate differed significantly across the three levels of hierarchy, namely, top, middle and junior level managers.

The prevalence and impact of voice problems in 550 primary school teachers from 42 schools in Dublin was analyzed by Munier and Kinsella (2007). The results suggested that 27 per cent suffered from severe voice problem, 53 per cent an intermittenent voice problem, while only 20 per cent had no voice problem. Teachers of junior classes were more vulnerable to develop voice problems than those of senior classes. The mean emotional quotient score 214 of Principals of education institutions in Pondicherry found higher than the EQ score (198.34) of teacher educators. Though there existed a slight difference between the two, both of them possessed an average EQ (Ramganes and Johnson, 2008). Hence, almost all the studies revealed significant effect of occupation on health status, emotional competence and stress of women. But few studies showed insignificant effect.

The relationship between work experience with emotional competence, stress and health status of the working persons has been reviewed as follows.

A study to explore the relationship between years of experience and emotional competence of Australian mental health nurses was conducted by Humpel *et al.* (2001). Results revealed that nurses with less than two years of experience in the nursing profession expressed significantly more personal self-doubt than the nurses with more experience.

Bansibihari *et al.* (2004) conducted a study on emotional intelligence of secondary school teachers and found that emotional intelligence developed and increased with the increase in the experience of teachers. The higher emotional intelligence is linked with higher job experience.

Bondu Raju and Viswanathappa (2007) studied the competence of teachers working in primary schools of Andhra Pradesh with an experience ranging between less than 5 years to more than 20 years. Results revealed that there was no significant difference in the competence of experienced and inexperienced teachers.

Experience as a source of stress among higher secondary teachers was found significant with personal stress, lack of support from parents, organizational policy and parental expectations (Ravichandran and Rajendran, 2007).

The psychiatric morbidity among the Spanish school teachers possessing less than 5 to more than 35 years work experience was studied by Abril *et al.* (2007). The results revealed that high frequencies of psychiatric morbidity were significantly associated with higher teaching experience. Hence, the studies indicated significant effect of job experience on health status, emotional competence and stress of women..

A study by Mendes (2003) confirmed that teachers' ability to regulate emotions was related to their perceived level of depersonalization, self-realization and emotional wear. Varma and Dhawan (2006) examined the role of competence in determining the subjective well being of contemporary Indian women

Capel (1992) studied the causes of and differences in stress and burnout in 405 middle, upper, high school and sixth form college teachers in local Education Authority in England. Results revealed that high anxiety, spending more hours on work at home each time it was taken home and high role conflict collectively predicted burnout. There were no significant differences between head teachers and subject teachers, or men and women on stress or burnout.

A study to assess the working women's responsibilities and the mental and physical strains endured in their life situation was conducted on 50 primary and high school teachers from Tirupati town in Andhra Pradesh. Majority of the working women (72%) expressed physical and mental exhaustion due to problems at the home and work place, since they had to perform dual roles single handedly (Nalini Devi, 2000).

Choudhary *et al.* (2004) assessed the cardio-vascular reactivity of 33 primary school teachers with no major risk factors such as diabetes, hypertension and hyperlipidemia. Results indicated that primary school teachers undergo moderate to severe stress during their occupation resulting in cardio-vascular reactivity. Teachers undergo cardio-vascular reactivity during their teaching hours especially at the end of the day. Prolonged exposure to such stress may pose risk for cardio-vascular diseases.

Singh and Singh (2006) assessed the mental health status of middle aged female school teachers. Results indicated that anxiety level, somatic symptoms and depression level was low in 64 per cent, 54 per cent and 92 per cent cases respectively. Social dysfunction was moderate in 80 per cent cases, which proved the presence of psycho-social stress in large number of the subjects.

Chapter-III

Aims and objectives

3. Aims & objectives

School teachers are not conscious about their health and exercise due to their luxury life, hesitation, lack of time etc. Their life also runs away according to community rules, principles, and customs. So this study is most important to identifying the actual health status among the high school teachers.

Present study is an attempt :

1. To assess the health status of school teachers
2. To know the relation between food intake and health condition of teachers
3. To know the influence of emotional competence and stress on health status of teachers

Chapter-IV

Materials and Methods

4. Material and Methods

4.1. Study area selection

Battala anandamoyee high school and Manikasbasan high school are selected as area to be worked. These schools are popular schools situated at Ramnagar in purba medinipur district. Total one hundred teachers are selected from those two school on a random basis.

4.2. Selection of subjects

Total one hundred (100) teachers are selected from those two school of Ramnagar area on a random basis within the age group 30-50 years.

4.3. Determination of economic status of the subjects

Family income per year is determined by questionnaire method. Then monthly per capita family income was calculated.

4.4. Anthropometric measurements

The dietitians received 8 h of instruction in the assessments to ensure a standard approach to data collection. The parameters were measured by the two dietitians to determine intra- and inter-operator variability.

4.4.1. Age: age is determined by questionnaire method.

4.4.2. Height: height has been taken from the subjects with the help of an anthropometric rod. The vertical distance from floor to the top of the head, i.e. vertex, has been taken at eye, ear plane. Subjects are asked to stand erect and look straight ahead.

4.4.3. Weight: has been taken from the subjects with the help of an standard portable weighing machine (Libra). Subjects are asked to stand erect on weighing machine and look straight ahead.

4.4.4. BMI:

A meaningful measure of ideal body weight (in kg) divided by given of the squared height (in meter).

$$\text{BMI} = \text{weight (kg)} / \text{height}^2 (\text{m}^2).$$

Nutritional status was evaluated using internationally accepted BMI guidelines (WHO 1990: 854). The following cut-off points were used: CED BMI <18.5, normal: BMI = 18.5–24.9, overweight: BMI \geq 25.0. We followed the World Health Organisation's classification (WHO 1995: 854) of the public health problem of low BMI, based on adult populations worldwide. This classification categorises prevalence according to percentage of a population with BMI < 18.5: low (5–9%): warning sign, monitoring required; medium (10–19%): poor situation; high (20–39%): serious situation; very high (\geq 40%): critical situation.

4.4.5. Waist circumference (WC):

It measured on subjects according to standard conditions using a measuring tape (precision \pm 0.5 cm);

4.4.6. Hip circumference (HC):

It measured on subjects according to standard conditions using a measuring tape (precision \pm 0.5 cm).

4.4.7. Waist- Hip ratio

According to the World Health Organisation's data gathering protocol, the waist circumference should be measured at the midpoint between the lower margin of the last palpable rib and the top of the iliac crest, using a stretch-resistant tape that provides a constant 100 g tension. Hip circumference should be measured around the widest portion of the buttocks, with the tape parallel to the floor. Other organizations use slightly different standards. The United States National Institutes of Health and the National Health and Nutrition Examination Survey used results obtained by measuring at the top of the iliac crest. Waist measurements are usually obtained by lay persons by measuring around the waist at the umbilicus, but research has shown that these measurements may underestimate the true waist circumference.

For both measurements, the individual should stand with feet close together, arms at the side and body weight evenly distributed, and should wear little clothing. The subject should be relaxed, and the measurements should be taken at the end of a normal expiration. Each measurement should be repeated twice; if the measurements are within 1 cm of one another, the average should be calculated. If the difference between the two measurements exceeds 1 cm, the two measurements should be repeated

4.5. Physiological parameters

4.5.1. Recording of resting pulse rate (Beats/ min):

Pulse rate have been taken from the radial artery. In each case, pulse rate has been determined by sitting condition. At first, the subject is asked to sit on a bench or a stool or a chair, for rest for 5-10 minutes without any excitement. Under this condition the pulse count for one minute to yield the pulse rate of the subject. Three readings were taken for each and the mean value is recorded.

4.5.2. Recording of blood pressure:

The blood pressure of all subjects have been measured with the help of sphygmomanometer by auscultatory method. First, the subjects were asked to lie on a bed and allow to take rest for 10 minutes. The instrument was kept at the level of the heart and rubber cuff was tied around the upper arm of the subject. The chest piece of stethoscope was placed on the brachial artery a little below the cuff. pressure was raised to about 200mm. of Hg and then gradually released. When the air is armlet is increased from outside, the blood vessels become constricted, then the pressure was decreased slowly. Sudden appearance of a clear tapping sound. So the pressure at which this sound is heard was treated as systolic pressure. After sometime the loud sound suddenly become muffled and rapidly begins to fade. This point was taken as diastolic pressure.

4.5.3. Study of working pattern:

The questionnaire was originally developed by a team of professionals (dietitians and nutritionists) and has been previously piloted on a sample of 100 adults and revised accordingly, although its validity and reliability (except for section B) were not formally tested. Two dietitians were trained (4 h of instruction) to undertake interviews to complete the questionnaire

with subjects and their technique was checked for consistency to ensure a standard approach to data collection.

4.6. Nutritional parameters

4.6.1. Eating habits, food like and dislike

Eating habits, food like and dislike etc data of all the subjects are taken by standard questionnaire method. 24-hr recall method is generally used by dietician to obtain a general picture of person's food intake. It is used to elicit an accurate picture of the diet history. In 24-hr recall method, the actual food and drink consumed in the immediate past 24 hours is recorded. Sometimes, a longer period may be used. The recorded food consumed in the last 24 hours is then converted to the nutrients available in each food item used in preparing it and then compared with the Recommended Dietary Allowances.

4.6.2. Disease

Clinical examination is commonly used in survey, since it is relatively simple and do not call for sophisticated equipment. It reveals the anatomical changes due to malnutrition that can be diagnosed by the naked eyes. Several data were collected by questionnaire method.

Sample question for nutritional status

Literacy status survey and income

School- Manikabasan high school

Block-Egra-1

P.S.- Ramnagar

Caste/Sub Caste- S.T./Santal/Gen

Dist.- Purba Medinipur (W.B.)

Sl No.	Name	Age	Sex	Education	Income/month	Remark
1	Susanta Jana	43	Male	M.Sc	41,000	
2	Jayanta Patra	42	Male	M.A	39,000	

3	Sumita Das	50	Female	M.A	38,000	
4	Mitali Karan	45	Female	M.Sc	39,000	
5						
6						
7						
8						
9						

Name of the reporter:- Mousumi Roy

Date of survey:- 17.01.2014

Chapter-V

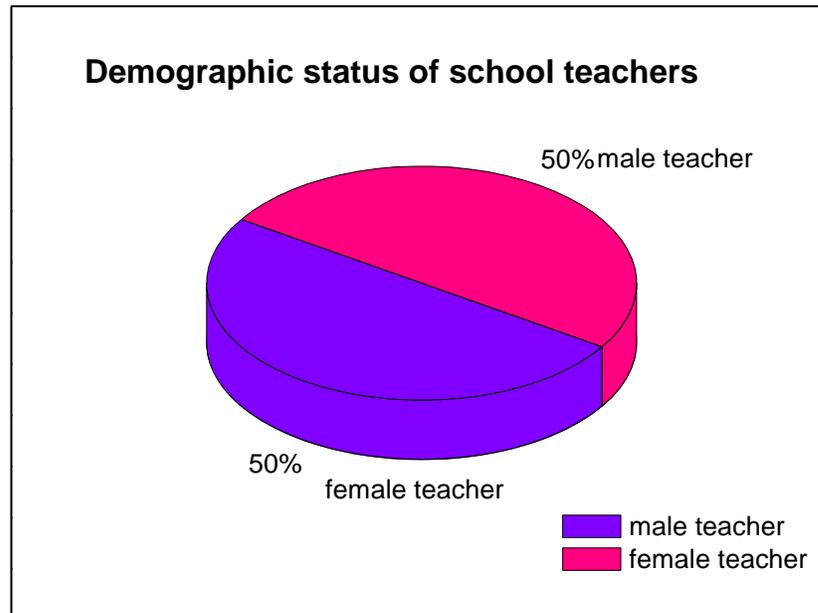
Results and Discussion

5. Results discussion

5.1. Demographic analysis

The main objective of the study was to identify the prevalence of stress and the influencing factors of stress among primary school teachers in ramnagar area, west bengal. Total school teachers are 100 in all the four school of purba medinipur district, Out of them 100(50%) are gents and 100(50%) are ladies. From those results it has been shown that significant number of ladies teachers is available in our society which indicates that females are also more or less same educated with male. It is a good sign for a society.

The pie-chart according male & female is started below ratio is started below:



5.2. Economic status

Due to high salary, the economic status among the school teachers are very much high. the monthly income of the 26% male teacher's was above 40,000/month where 38% and 36% teachers income were 30,000- 40,000 and below 30,000 respectively. But in case of female teachers maximum income in between 30,000-40,000.

The bar diagram according income per month is started below:

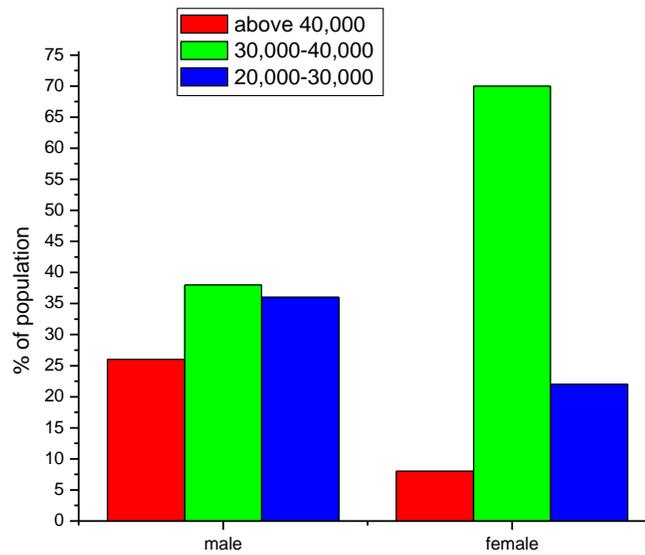


Fig: Economic status among the school teacher

5.3. Anthropometric measurements and BMI

Until recently, trends in anthropometric indicators presented a reasonably clear picture. Whether one looked at, say, the heights or weights of an adult, or the “Body Mass Index” (BMI) of adults, the dominant pattern was one of sustained improvement. Recent nutrition trends can be further scrutinized from available data on adult weights and heights. A useful starting point is the “Body Mass Index” (BMI), defined as the ratio of weight (in kilos) to the square of height (in meters).

Adult undernutrition very simply happens, when you are hungry, and you consistently don’t get anything to eat. Adult malnutrition can be measured by Body Mass Index (BMI) and a BMI below 18.5 indicates chronic undernutrition. According to National Family Health Statistics-3 report (NFHS-3 2005–2006), the prevalence of undernutrition in India is 33.0% among males and 28.1% among females. In urban areas, these figures were 19.8% and 17.5%, respectively. In rural areas, these were 38.8% and 33.1%, respectively. However, the situation is much worse in West Bengal with corresponding prevalence of 37.7% and 31.6%, respectively. Among urban males and females, they were 19.9% and 15.5%, respectively. The corresponding rural figures were 44.9% (males) and 38.0% (females).

But from our investigation it was found that significant number of teachers are overweight. It may be due to luxury life style along with high income, fast food intake and less exercise.

Table : The International Classification of adult underweight, overweight and obesity according to BMI

Classification	BMI(kg/m ²)	
	Principal cut-off points	Additional cut-off points
Underweight	<18.50	<18.50
Severe thinness	<16.00	<16.00
Moderate thinness	16.00 - 16.99	16.00 - 16.99
Mild thinness	17.00 - 18.49	17.00 - 18.49
Normal range	18.50 - 24.99	18.50 - 22.99
		23.00 - 24.99
Overweight	≥25.00	≥25.00
Pre-obese	25.00 - 29.99	25.00 - 27.49
		27.50 - 29.99
Obese	≥30.00	≥30.00
Obese class I	30.00 - 34.99	30.00 - 32.49
		32.50 - 34.99
Obese class II	35.00 - 39.99	35.00 - 37.49
		37.50 - 39.99
Obese class III	≥40.00	≥40.00

Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004.

BMI values are age-independent and the same for both sexes. However, BMI may not correspond to the same degree of fatness in different populations due, in part, to different body proportions. The health risks associated with increasing BMI are continuous and the interpretation of BMI gradings in relation to risk may differ for different populations.

The mean BMI values of male were 27.859±1.982 and in case female it was 26.025±1.018. According to the WHO guideline all the persons are overweight. Specifically both of them were pre-obese teacher. It may be due to excessive weight as well as excess intake of food along with lack of exercise.

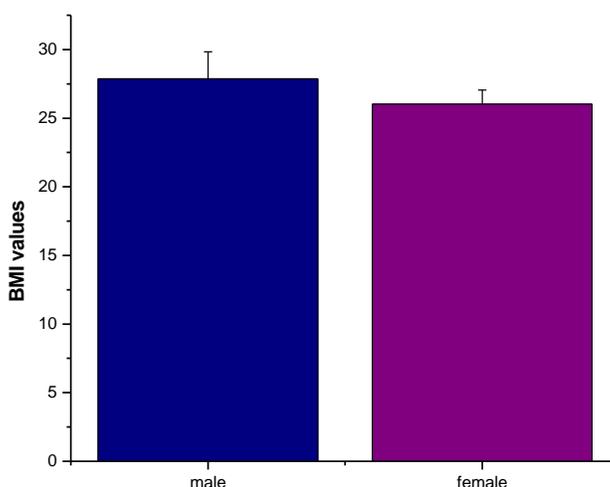


Fig: BMI values of male and female teacher

5.4. Waist Hip ratio

Waist–hip ratio or waist-to-hip ratio (WHR) is the ratio of the circumference of the waist to that of the hips. The WHR has been used as an indicator or measure of the health of a person, and the risk of developing serious health conditions. Research shows that people with "apple-shaped" bodies (with more weight around the waist) face more health risks than those with "pear-shaped" bodies who carry more weight around the hips. WHR is used as a measurement of obesity, which in turn is a possible indicator of other more serious health conditions.

WHO STEPS states that abdominal obesity is defined as a waist–hip ratio above 0.90 for males and above 0.85 for females, or a body mass index (BMI) above 30.0. The National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK) states that women with waist–hip ratios of more than 0.8, and men with more than 1.0, are at increased health risk because of their fat distribution. A WHR of 0.7 for women and 0.9 for men has been shown to correlate strongly with general health and fertility. Women within the 0.7 range have optimal levels of estrogen and are less susceptible to major diseases. Women with high WHR (0.80 or higher) have significantly lower pregnancy rates than women with lower WHRs (0.70–0.79), independent of their BMIs. Men with WHRs around 0.9, similarly, have been shown to be more healthy and fertile with less prostate cancer and testicular cancer.

In our results the mean waist hip ratio of the male was 0.934 ± 0.251 and in case of female it is 0.84 ± 0.125 which indicates health risks women, but case of male, it is also health risk. Due to abdominal obesity and disturbance their fat distribution of the body, this condition was appear.

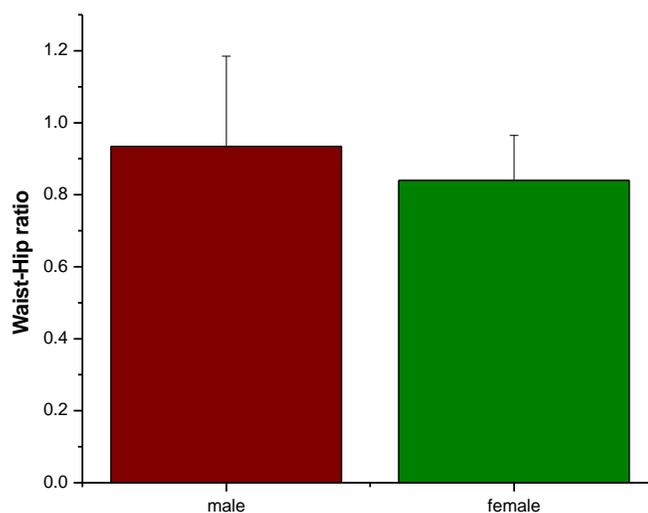


Fig: Waist- Hip ratio of the male and female teachers

5.5. Blood Pressure

Normal human daily Blood Pressure Range can vary widely, so any single blood pressure monitor reading is not reliable. BP monitor readings must be taken at different times of day, to determine average blood pressure levels over time. What is important is your AVERAGE BP, or MAP (Mean Arterial Pressure) over time.

In our experiment the average male systole pressure was 121 ± 4.821 mm of Hg and diastolic pressure was 76 ± 3.364 mm of Hg. In case of female the systolic and diastolic pressure was 106 ± 4.12 , 76 ± 1.26 respectively. This results indicate that the health status of the individuals was pre high blood pressure or normal blood pressure.

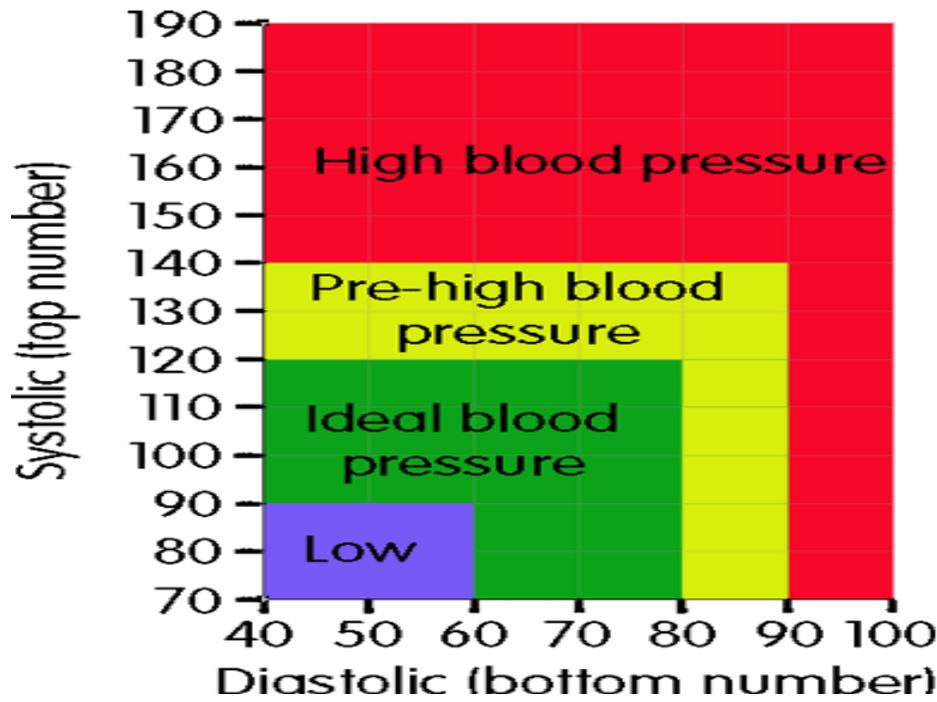


Fig: normal blood pressure levels

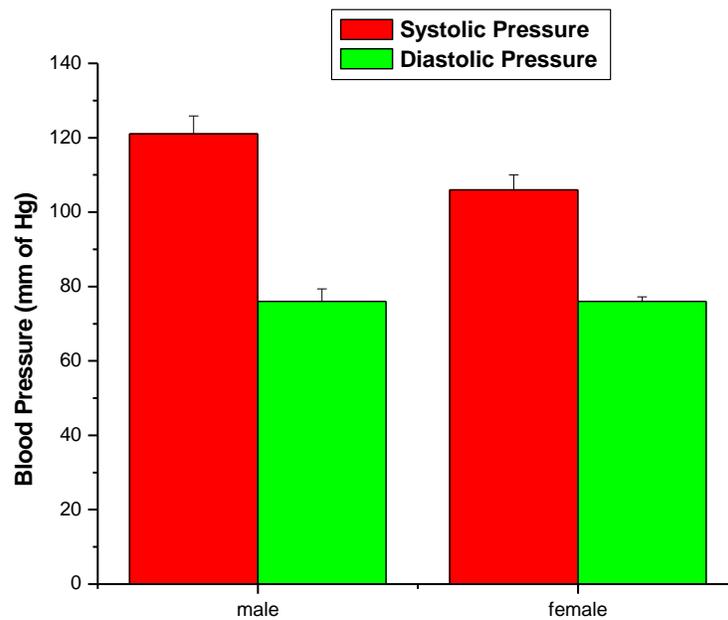


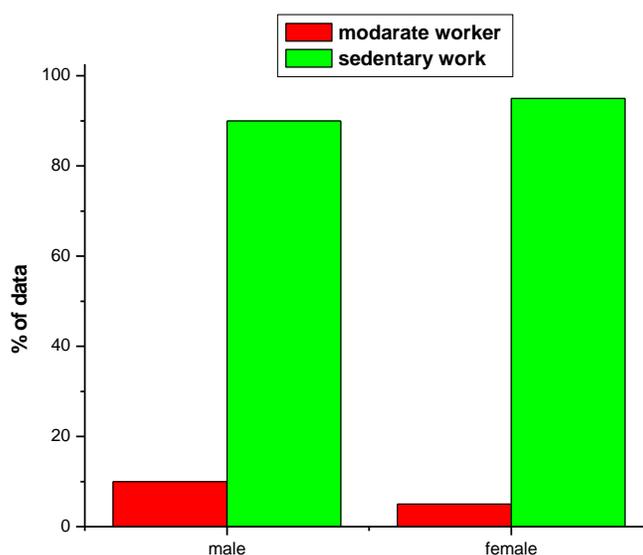
Fig: blood pressure of the population

5.6. Eating habit, Food like and dislike

Among the school teachers many teachers were like fast food and vegetarian teachers were less amount. Diagram shows the patterns of food intake, food like and dislike. Total 98% teachers were like fast food out of all the population of this work. 2% teachers were strongly like vegetables. Near all teachers were like to take fast food. 14% teachers were not interested in fruit.

5.7. Physical activity

Most of the teacher were sedentary worker and few were moderate worker Male teachers are engaged in motor driving, light exercise. Few were heavy worker. They can play football, cricket etc. in case of ladies teacher all are sedentary worker, only 1% teacher are moderate worker.



5.8. Disease

Our study found that the mental health status of the respondents is troubling. Different mental and physiological abnormalities were found. Over weight is the common factor due to lack of sufficient exercise. Different mental problem indicates that the respondents relieve psychological pressure through individual somatic symptoms initiated to attract the attention of others instead of developing positive methods of coping. In the long term, this situation may lead to psychosomatic illness and may affect the respondents' teaching. Additionally, the respondents had mild obsessive-compulsive symptoms, which may be related to teachers' professional characteristics. The teaching profession requires teachers to have exemplary behavior and strict

scholarship, which can easily lead to perfectionism and forced personality tendencies. Our findings are consistent with several previous national studies. Luo et al reported that the mental health status of 182 teachers in remote mountain areas of Shanxi Province was significantly lower than the national norm. Liu et al and Zhang et al reported that rural middle school teachers had a low level of mental health. Studies abroad have also demonstrated that the mental health level of teachers has given rise to significant social concern and increased numbers of psychological interventions. Lodolo D'Oria et al found that the risk of teachers developing psychiatric disorders was 2, 2.5, and 3 times higher than that of clerks, health care professionals, and blue collar workers, respectively. Our results may relate to current social factors and local characteristics. Luoding is a remote mountain area with an underdeveloped economy. There are a number of objective factors that widen the gap between the strong sense of a valued professional role and actual social status, such as low wages, inconvenient transport, a poor teaching environment and facilities, limited staffing, and a lack of mental health education. Moreover, the respondents in our study were graduating class teachers who faced greater pressure and a difficult workload. All of these factors may have aggravated their psychological problems.

Our results shows that many teachers have mental problem, high blood sugar, asthma, joint pain etc. all these disease were happen due to lack of exercise and sitting in a place for long time.

Chapter-VI

Summary and Conclusion

6. Summary and conclusion

This study was conducted to identify the health status of the teachers of four high school in purba medinipur district. This study was described about the problems, health condition, health awarness and health in exposure to multiple problems of the society as well as teacher community. The nutritional status of the adult teachers is in a critical state. To overcome this problem, there is an immediate requirement for appropriate steps to be taken to improve the nutritional status of these groups on the basis of severity of the burden they are facing. So we conclude that.

The current level of impaired mental health among school teachers.the overall health status of the school teacher was not good. They can suffer from different disease, obesity, blood pressure problem etc

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