REVIEW OF LITERATURE
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An essential aspect of an investigation is the review of the related literature which is a general retrospective survey of previous researches pertaining to one’s problem. It is obviously imprudent and wasteful to proceed in any study without knowing what has been done before. The literature in any field forms foundations upon which all future work will be built. If we fail to build this foundation of knowledge provided by the review of literature, our work is likely to be shallow and naive and will often be duplicate work that has already been done better by someone else.

The review of related literature calls for a deep insight and perspective of the overall field. It is a crucial step which invariably minimizes the risk of dead ends, rejected studies, wasted efforts, traits and errors, activity oriented toward approaches already discarded by previous investigations and even more important erroneous findings based on a faulty research design. In the field of research the investigator can have an understanding of the previous work that has been done. One cannot develop his insight into the problem to be investigated unless one has learnt what others have done and what remains to be done in particular areas of his own research interests.

Importance of Review includes the following points:

- Seeking new approach
- Avoiding stressive approach
- Inside into matters
- Recommendation for further research
- Helps in locating comparative data
Present repetition of work

Delimiting Problems

It can be concluded that review of the literature is the backbone of the whole research work and creates background for selection of procedure, helps the investigator in adaptation of tools and provides comparative data to evaluate and interpret the significance of one’s data. Keeping this in mind the investigator surveyed the related literature. The studies for the present work received by the investigator are categorized into following heads:

2.1 Studies related to dietary intake and adolescents
2.2 Studies related to general health and adolescents
2.3 Studies related to mental health and adolescents
2.4 Studies related to life style and adolescents
2.5 Studies related to general profile of adolescent

2.1 STUDIES RELATED TO DIETARY INTAKE AND ADOLESCENTS

Awasthi et.al. (2008) reported that majority of respondents (61.7%) were vegetarian, remaining (38.3%) were non-vegetarian. Regarding the regularity in meal intake, maximum respondents (78.0%) were regular and (22.0%) were irregular in taking meal. The majority of respondents (76.0%) were taking four meals in a day, followed by (19.0%) three meal in a day; remaining (5.0%) were having meal five times per day. Further they found in their study that maximum (48.7%) respondents had good appetite, followed by (40.3%) fair appetite and minimum (11.0%) had poor appetite. Regarding liking of food, most of the respondents (49.0%)
liked spicy food, followed by (34.0%) light food and minimum (17.0%) liked fried food.

Carol E. O' Neil, (2008) in the study on the “relationship between 100% fruit juice consumption and weight in children and adolescents”; assessed relationship between consumption of 100% fruit juice by children and adolescents and their weight, which was contradictory. The purpose of this review was to assess that out of 9 cross-sectional and 12 longitudinal studies that have looked at this association, only 3 reported some association. One of these studied found that preschool children consuming 12 fluid OZ/day of 100% fruit juice had a higher prevalence of overweight than those who consumed less than 12 OZ/day (32% Vs 9%). Later, a separate study showed that this relationship held true only for apple juice. Another study demonstrated an association of overweight and energy from juice. These 3 studies were not nationally representative. Only 3 of the longitudinal studies showed an association between 100% fruit juice consumption and weight; one found an association only with adolescent girls, and other two reported an association with children who were already overweight. None of the longitudinal studies could be nationally representative, but with the sample size of at least 1000 (five studies), two being ethnically diverse, and three being geographically at separate sites, suggests that the finding could be applicable to wider population. Based on the currently available evidence, it can be concluded that there is no systematic association between consumption of 100% fruit juice and overweight in children or adolescents.

Barlow (2007) in the expert committee recommendations on the prevention, assessment and treatment of a child and adolescent, overweight and obesity stated that nationally representative survey data
indicate that only 38% of adolescents had a preventive care visit in the past year and fewer than 50% of adolescent who had such visits and received anticipatory guidance on healthy eating. National guidance for adolescents is important for supporting the development of healthy lifestyle, preventing weight related problems, reducing disease risk, and ensuring that all needs are met for growth and development. In balancing adequate physical activity, with healthy dietary choices, it helps to prevent excess weight gain, iron deficiency anemia and poor bone mineralization among other health problems. Overweight or obesity in adolescence increases the risk for type 2 diabetes and is likely to persist into adulthood also frequently are carried into adulthood. Eating pattern formed during adolescence also frequently is carried into adulthood and, therefore has an effect on future creating risk for the development of chronic disease such as heart disease, osteoporosis, and cancer. Rapid physical growth during adolescence creates a high demand for energy and certain nutrients.

Duncan, et.al. (2007) conducted a study on “evaluation of energy, nutrient and dietary fiber intakes of male adolescents” and observed that median intakes for percent energy from carbohydrate, fat and protein were within the accepted macronutrient distribution ranges. Intake of micronutrients with estimated average requirement values indicated that more than 50% of subjects consumed inadequate amount of vitamin A and Vitamin B6, and more than 75% of subjects consumed inadequate amount of magnesium, phosphorous and zinc. Subjects classified as overweight had significantly lower energy and carbohydrate intake compared to subjects classified as having an acceptable body weight. The prevalence of vitamin & mineral supplement use was 16.1% and 67% respectively, as reported by subjects consuming soft drinks daily.
Hasan et al. (2007) studied the anthropometric profiles of 60 female Asian handball players competing in continental championship. Measurements included height, mass, skin fold thickness, from these measures percentage body fat and muscle mass were estimated. Overall mean (SD) values were 1.708 (0.68) m, 64.6 (7.7) kg, 2.08% (4.4%) 39.6% (5.2%) for stature mass percent body fat and percent muscle mass, respectively. There were small differences between players from different countries but no significant (p>0.05) influence of playing position. They concluded that these female international handball players were differed in some respect in anthropometric characteristics according to their country of origin.

Lenny R. Vartahian et al. (2007) conducted a study on “effects of soft drink consumption on nutrition and Health”. A meta-analysis of 88 studies examined the association between soft-drink consumption and nutrition and health outcomes. They found positive associations of soft drink intake with increased energy intake and body weight. Soft drink consumption was also associated with lower intake of milk, calcium and other nutrients and with an increased risk of several medical problems.

Mette Rasmussen et al. (2006) conducted a study on “determinants of fruit and vegetable consumption among children and adolescents”. A large number of potential determinants have been studied among children and adolescent. However, for many presumed determinants convincing evidences are lacking, mostly because of paucity of studies. The determinants best supported by evidence were: age, gender, socio-economic position, preferences of parental consumption of fruits & vegetables and home availability/accessibility were all consistently positively associated with intake of fruits & vegetables.
Linda. S. Green Finestone Karen Campbell et.al. (2004) found in the study, that the prevalence of vegetarian was 6.5% (CI=4.6–8.4%) among females and 1.0% (CI=0.2–1.8%) among males. Health conscious omnivores consumed more grains, vegetables, fruits and milk products than non-health-conscious omnivores (P<0.05). Health conscious vegetarians ingested more grain products, vegetables, fruits and meat etc. than non health conscious vegetarians (P<0.05). Among non-health conscious vegetarian, none consumed two daily serving of meat and its alternatives, compared to 60.5% of non health-conscious omnivores (P<0.001). Among health conscious vegetarians, milk product consumption was lower than that of health conscious omnivores (P=0.015).

Almeida and Soares (2003) found that adolescent’s diet consisted of high energy and protein intake and low carbohydrate intake. The consumption of calcium, foliate and vitamin E was below the recommendations.

Dahiya (2003) conducted a study on “Nutrition profile of rural and urban adolescent girls of Hisar district of Haryana.” It was concluded that the consumption of cereals, pulses, green leafy vegetables, fat and oils and sugar and jaggery was significantly lower than RDA in both rural and urban adolescents.

The study further revealed that out of the total selected subjects 59% of rural and 40% of urban respondents were vegetarians, whereas 41% of rural and 60% of urban respondents were non vegetarian.

Kamble and Rajkumar (2003) found in their study that out of the total sample of 150 adolescent girls more than fifty percent of the adolescent
girls were found to have below normal values in all the indicators of anthropometry.

**Prabhakaran (2003)** revealed in her study that the mean height of girls was 167.6 cm, while their mean weight was 50.6 kg against the NCHS reference standard of 163.7 cm height and 56.6 kg weight respectively. 46% of the adolescent girls recorded normal BMI values.

**Sztainer (2003)** found that both males and females involved in weight related sports had higher mean protein, calcium, iron and zinc intakes than non sport involved pears. However adolescent females had low calcium intake regardless of sports involvement.

**Tatia and Taneja (2003)** conducted a study on “Dietary intake of tribal adolescent girls of Dhar district in Madhya Pradesh”, and observed deficient intake of almost all nutrition. The calorie, protein as well as iron intake was about half of the RDA while the intake of calcium was around one third of RDA. The intake of beta carotene and ascorbic acid was also much less. Thus, it was concluded that dietary intake of these tribal girls was insufficient with particular reference to all nutrients. Subject who ate RTEC, cooked cereal or quick breads for breakfast had significantly lower BMI compared to skippers and meat and egg eaters (p <0.01) Breakfast skippers and fruit/vegetable eaters had the lowest daily energy intake. The meat and eggs eaters had the highest daily energy intake and one of the highest BMIs.

**Dehuger et.al. (2002)** found in their study that energy intake increased from age of 10-16 years in boys, whereas it decreased in girls from the age of fourteen. Height and weight increased in both males and females over the same period of time.
De Bate (2001) found in their study that out of the 630 college students 64% of the students had acceptable BMI levels 16% of African American females and 15% of African-American males had BMIS indicating obesity (30 or above). Approximately 18% of the students consumed 5 servings per day of fruits and vegetables 7% consumed 2 or more dairy products, 27% reported even eating fast foods.

Hassapidou and Fatiadau (2001) conducted a study on “Dietary intakes and food habits of adolescents in northern Greece.” Study assessed the dietary intakes and food habits of 502 adolescents in Northern green. It was found that boys had higher energy and macro nutrients intakes compared to girls for total energy intake 41% for boys and 43% of girls derived it from fat. Energy intake was found adequate whereas fat intake was much higher than recommended. A percentage of adolescents also had lower than recommended iron, vitamin A, foliate and zinc intake showing an unbalanced diet.

Jondhale and Jaishree (2001) conducted a study on “Nutritional status of school going adolescent girls of Parbhani”. They found in their study that, out of the 300 selected subject 267 adolescents girls were having under nutrition of different grades. Clinical examination revealed that protein energy malnutrition was in maximum number (45). While vitamin A deficiency was in minimum number (24) of adolescents girls.

Sara Stanner (2001) found that most individuals consumed minerals at home. Further the study revealed that consumption of vegetables (90.4 gm.), cereals (181.1 gm) and potatoes (69.7 gm) was low. While considering non-veg food items the consumption of red meat (71.6 gm) and fish consumption was also low (47.7 gm). Girls had insufficient intake of milk (280.9 gm).
Mc Cleary et.al. (1995) conducted a study on “Clinical parameters and dietary intake of mid western adolescent families” and investigated the clinical correlation between clinical parameters and dietary intake of 40 female Psychiatric out patients (mean age 14.2 years) compared to 20 female controls (mean age 15.9 years) over a period of 4 months. They observed that one third of the out Patient group had serum albumin below normal range and were of marginal health status, several Parameters, including weight and mid arm muscle area correlated with anthropometric measurement.

Nagi, et.al. (1993) observed that the intake was low for all the foods. However, the consumption of fruits, milk and milk products, sugar and Jaggery, fats and oils by the subjects of IgII, IgI. The mean daily intake of energy, protein, iron, calcium, vitamin A and vitamin C was inadequate while the intake of fibre was adequate by the subjects as compared to ICMR recommendations. There was no significant difference in Energy, protein and iron intakes among the subjects of three groups. The average body weights and heights of the subjects were normal.

Butley (1992) conducted a study on “Health and nutritional status of adolescent girls in selected slum of Bombay.” The evaluation of the nutrient contents of the diet showed short fall in the energy and iron contents and marginal deficits in the protein and calcium consumption. In nearly 70% of the girls, energy consumption was using 70% of RDA. The mean energy intake was only about 1300 Kcal against a requirement of 2060 Kcal. Nearly 35% of the study group had intake of protein which was less than 70% of the RDA. Statistically satisfactory calcium intakes (79% of RDA) was noted in about 30% of the girls. The dietary contents of more than 85% of the girls was (<60%) of the RDA.
Seshadri and Kanani (1992) conducted a study on “Dietary and nutrient inadequacies and their implications for adolescent growth”. The result revealed that the low income group girls had lower intake of calories, iron, calcium and vitamin A, when compared with those of the higher income group girls RDA. The average intake of protein of 13-15 years for low income group girls was near to the RDA, while that of 10-12 years old substantially lower.

Kanani (1990) conducted a study on Nutrition status of well to do adolescents girls in Baroda." It revealed that the mean intake of calorie, protein, iron and retinal was 88%, 93%, 88% and 68% of RDA of the well to do adolescent girls (10-18 years) respectively.

Qamra, et.al. (1990) reported that 64 percent of school age girls had inadequate intake of energy. The lower intake of foods and nutrients may be due to poor socio-economic condition leading to poor purchasing power, illiteracy and ignorance.

Sarojini and Vijayalakshmi (1989) conducted a study on “Adequacy or recommended dietary allowance of ICMR for adolescent girls.” They observed that milk was included in the diet every day but only small amount were taken as a part of tea.

Rao (1984) conducted a study on “Nutrient requirement of adolescents and the nutritional status of girls from 9-15 years drawn from school catering to the upper socio-economic group in Hyderabad city.” Study observed that the mean height and weight of these girls were significantly lower than those to the upper income group. In the low income group 34.35% of girls had height less than ICMR standards while it was only 6.3% in the higher income group. A similar trend was reported for
weight. The percentage of girls in high and low income groups with less than I.C.M.R. standard was 83.6 and 92.2 respectively.

Verma and Bajaj (1984) conducted a study on “Nutritional profile of school children.” It was observed that girls were found taller and heavier than boys at 10-11 years age. Thereafter, the boys caught up with the growth of the girls and finally surpassed them at the age of 14-15 years. A similar trend was found in mid upper arm circumference. All measurements of low socio economic children were significantly lower than those from higher income group.

Anjla (1981) conducted a study on “Nutritional status of children (5-15 years) belonging to different socio economic groups.” It revealed that the intake of protein, energy, calcium, phosphorus, iron and vitamin A was more among the adolescents in the family of high socio-economic groups. The percentage of adolescent girls with below normal nutritional status was higher in the families of below poverty line groups.

Anjla (1981) discussed about the comparative study on the nutrient intake among different income, occupation and family size categories in rural areas of Punjab and observed that the calories were consumed below the body requirement in low income, large family size and labour class categories. The intake of protein was much higher than the recommended allowances in all the income occupation and family size groups and the consumption ranged between 129 to 169% of the recommended level. They further observed that vitamin-A was below the recommended level in low income group, nonfarm and the labour class, medium and large family size. Whereas vitamin-C level in all the income, occupation and family size categories showing the consumption of imbalanced diet in all the above categories. They further observed that the intake of iron,
calcium and phosphorus was also found to be much above the recommended level in all categories belonging to different income, occupation and family size groups.

Devadas, et.al. (1992) observed that the subjects were not able to consume the quantities of cereals, pulses and green leafy vegetables, prepared according to the I.C.M.R. allowances but quantities of these foods consumed by the subject were than the allowances. It suggested that the consumption does not meet the calories and nutrients allowances.

2.2 STUDIES RELATED TO HEALTH AND ANTHROPOMETRIC DATA OF ADOLESCENTS

Pari Malvalli, et.al. (2009) in their study on anthropometric profile and nutrient intake of overweight/obese women which included 77 household adult women from Mecheri, Salem District, Tamil Nadu, revealed that overall 65% of the adult women identified as overweight and obese. Age, small family and income status were found to be risk factors of obesity. Positive significant correlation was observed between the body mass index and waist hip ratio of the selected obese subjects. Data on assessment of the nutrient intake against the Recommended Dietary allowance (RDA) indicated that the nutrient intake was significantly (P<0.01) higher than RDA. A low degree and non significant correlation was observed between nutrient intake and anthropometric measurements life weight, waist and hip circumference and waist/hip ratio except body mass index.

Jennifer (2006) conducted a study on eighty girls aged 12.8. Self concept, depression and anxiety scales were measured over three years along with their height and weight measurements. All nine self concept
domains were lower in the Highest BMI group and this trend was stable over three years. Highest BMI girls were substantially lower than population norms on the nine scale. Over three years, the physical appearance and close friendships scores of Highest BMI girls decreased compared to lower BMI girls. This pattern was similar for all of the other self concept domains. Several aspects of early adolescent girls, may be adversely influenced by their self image.

Sun (2005) conducted a comparative study on 50 high school adolescent athletes (29 males, 21 females) from a high school physical education class and 47 high school adolescent non-athletes (21 male, and 26 female). In males, the mean height, weight and body fat percentage of athletes and non-athletes were 174.0/172.9 cm, 67.4/68.3 kg. and 8.9/20.0% (p<0.001), respectively. In females the mean height, weight and body fat percentage of athletes and non-athletes were 163.7/159.3 cm (p<0.01), 58.7/55.7 kg (p<0.05), 18.6/30.1% (p<0.001), respectively.

Linda (2004) observed that young people in their teens constituted the largest age group in the world. It is a special stage recognized across the globe as the link in the life cycle between childhood and adulthood. Longitudinal studies in both developed and developing countries and better measurement of adolescent behavior are producing new insights. The physical and psychological changes that occur during puberty make manifest generational and early childhood risks to development in the form of individual differences in respect such as growth educational attainment self esteem peer influences as well as closeness to family. They also anticipated threats to adult health and well being. Multidisciplinary approaches especially between the biological and the social science as well as studies of socio-economic and cultural diversity
and determinants of positive outcomes are needed to advance knowledge about this stage of development.

Verma (2004) observed in their study that the prevalence of anaemia (Hb<12gm/dl) was 81.8% (n=1153) and had significant association of father, habit of post meal consumption of tea/coffee, consumption of green leafy vegetables and body mass index.

Almeida and Soares (2003) undertook a study to assess the anthropometric profiles of 25 female adolescent volleyball players of Rio De Janerio city of Brazil (15-20 years old). The results of anthropometric evaluation showed that athletes had body mass of (64.35 ± 6.12 kg), stature of (1.74 ± 0.06 m) and fat mass of (20.51 ± 2.43%).

Diejmah et.al. (1982) conducted a study on “The height and weight of secondary school in Benin city Nigeria.” it was observed that the overall mean height and weight of the adolescents studied were 158.0 cm. ± 7.2 and 49.4 Kg ± 7.9 respectively. The height and weight increased rapidly with age until age 14 years, more gradually until age 17 years after which the height remained static, while the weight continued to increase gradually. The findings indicated that in Indian adolescents significant increases in height should not be expected after age of 19 years.

2.3 STUDIES RELATED TO MENTAL HEALTH OF ADOLESCENTS

Fred Kigozi et.al. (2010) reported an overview of Uganda’s Mental health Care system: results from an assessment using the world health organization’s assessment instrument for mental health (WHO-AIMS), Uganda’s draft mental health policy encompasses many positive reforms,
including decentralization and integration of mental health services into primary Health Care (PHC). The mental health legislation is however outdated and offensive services are still significantly under founded (with only 1% of the health expenditure going to mental health), and skewed towards urban areas. Per 1,00,000 population, there were 1.83 beds in mental hospitals, 1.4 beds in community based psychiatric inpatient units, and 0.42 beds in forensic facilities. The total personnel working in mental health facilities were 310 (1.13 per 1,00,00 population) only 0.8% of the medical doctors and 4% of the nurses had specialized in psychiatry.

Romeo, et.al. (2005) conducted a study on economic evaluations of child and adolescent mental health intervention and stated that behavioral disorder have been given relatively large attention in economic evaluations of child and adolescent mental health. These studies tentatively suggest child behavioural gains and parent satisfaction from parent and child training programs, however the cost effectiveness of the location of delivery for behavioural therapies in less clear. In general the quality of economic evaluations was limited by small sample sizes.

Mohamed, (2004) observed that socio-economic and other in equalities are significantly related to mental health. Psychiatric disorders are more common in people from lower socio-economic group.

WHO (2003) theme for mental health week for the year 2003 was “Emotional and Behavioural problem of children and adolescents”, 37% of the population in our country are under the age of 18 years (census of 2001) Epidemiological research in developing countries including India shows prevalence rate of 7 to 9% of emotional and behavioural problem in children. As one-third of one hundred and two crores populations are children and adolescents their mental health needs to go geared up.
Surender, (2002) stated in recent years issues relating to positive mental health have began to receive greater attention good mental well being does not mean the mere absence of mental health problems instead it means much more; especially in terms of development of emotionally creativity, intellect and spirituality, initiative, development and maintenance of social relationship to face problems and draw lessons for future self aeration and empathy.

Patel, et.al. (1998) stated that mental health problems in India affected approximately ten million people in the country who were suffering from serious mental illness. Taking into account, common mental disorders such as depression, anxiety and somatoform disorders the prevalence is 2-3 times higher.

Walker and Townsend (1998) found in their study promoting adolescent mental health in primary care that high levels of psychological disturbance amongst adolescents have been linked to behaviours which can damage physical health and can cause mental health problem in adulthood. The aim of this review was to see if published literature supports the hypothesis that primary care is a suitable setting in which mental health problems in adolescents can be prevented by early detection and treatment. Medline, BIDS, SIGLE and psychic data bases (January 1990- February 1997) were systematically searched for english language studies on adolescent health promotion and mental health in primary care, reference sections were checked for earlier work. When offered, adolescent health checks and clinics have been well received with attendance rates of 73% and 83% reported respectively. Primary care offers a setting for the prevention and detection of mental health problems in adolescents.
Kandel, Denise (1995) investigated the relationship of depression and suicide with adolescent delinquency and eating disorder. Risk factors for the problems were also examined. Poor relationship with parents, lack of interaction with peers, and life events, which in turn leads to depression, further leads to suicidal ideation. Depressive symptoms were affected by estrangement from parents and peers and a stressful environment.

Bertocci Doris (1992) surveyed the mental health needs of undergraduate students. Respondents were most concerned about academic and school related issues followed by concerns in the area of love relationships. Multiple regression analysis revealed certain health and mental health problems that were significantly associated with these concerns. The study identified serious psychological problems, including suicidal homicidal thoughts sexual abuse depression anxiety phobias and panic attack. These indicated preference for walk in service over all other treatment options. Treatment preferences varied significantly with the type of mental health concern.

Yadav (1992) pointed out that as the family size increased the degree of satisfactory adjustment of adolescent girls decreased. The second born in generals in all the families was found to be well adjusted. There after the second born, had more negative effect on the first both, consequently the third and fourth born were better adjusted than the first born in the areas of home, health, social, emotional and in general adjustment.

Baumrind, (1991) suggested that parenting style are also a good predictor of the mental health of the adolescents. Adolescents whose parents adopt authoritative style are generally competent both Socially and cognitively.
Jamuna, et.al. (1991) examined the adjustment and mental health of widows and non widows belongings to forward and backward classes in the age groups 50-60 and 60-70 (N=400). The individuals were personally interviewed to get information on adjustment problems and mental health. Results indicate lower incidence of Psychological distress and less problems of Adjustment among BC’s backward castes when compared to their forward caste counterparts. Also, there was a positive association between mental health and adjustment.

Anderson et.al. (1987) found that phobias are more common in girls than in boys. Simple phobias had a prevalence rate of 24% in children.

Mohan and Chopra (1986) investigated personality variation of females during Premenstrual and post menstrual periods. The results reveal significant differences between premenstrual and postmenstrual psychotism, neuroticism and anxiety scores, with scores increasing significantly during the premenstrual period.

Boyd and Weissman (1985) in epidemiologic studies indicated that 8-12% of men and 12-26% of women had experience a major depressive episode in their life time.

Giffelman et.al. (1984) reported that depression was for more common in children and adolescents than was previously believed and was increasingly seen as a major cause of poor school performance and rebellion in adolescents.

Gupta and Gupta (1980) observed that adolescence in urban India to be a period of calm transition from childhood to maturity, social, personal and school problems were reported to be the most prominent problem
areas. Physique, health, courtship, sex and marriage were reported to be the last prominent areas of adolescent problems.

2.4 STUDIES RELATED TO LIFE STYLE AND ADOLESCENTS

Ellin Holohan (2010) stated that teens sleep less than 8 hours a night were more likely to eat a high fat diet that puts them at risk for obesity and many health problems connected with it.

Bhatti (2010) observed that majority of adolescents 64.33% skipped their meal and remaining 35.67% did not skip their meal.

John Wiley and Sons (2010) conducted a study on interventions for treating obesity in children and stated that life style interventions focused on physical activity and sedentary behaviour in 12 studies diet in 6 studies and 36 concentrated on behaviorally orientated treatment programs. Three types of drug interventions (metformin, orlistat and sibutramine) were found in 10 studies. No surgical intervention was eligible for inclusion. The studies included varied greatly in intervention design, outcome measurement and methodological quality. Meta-analyses indicated a reduction in overweight at 6 and 12 months follow up in life style interventions involving children, and lifestyle intervention in adolescents with or without the addition of orlistat or sibutramine. A range of adverse effects was noted in drug resistant.

Michael et.al. (2010) conducted a study on three hundred fifty five girls aged 10-14 years about eating behaviour, body satisfaction. Views from parent, peers and magazines in regards to weight management techniques and the importance of slenderness were collected. The study reported that
majority of them receiving a clear message from fashion magazine and peer or family member that slenderness is important and attainable through dieting and other methods. Two strong correlate of drive for thinness and disturbed pattern of eating was (a) reading magazine that contain information and ideas about an attractive body shape and about weight management (b) Weight/shape related teasing and criticism by family. This study indicates that body dissatisfaction and weight concerns reflect adoption of a socially approved female role. It also raises the possibility that some young adolescent girls live in a subculture of intense weight and body shape concern that places them at risk for disordered eating behaviour.

Elizabeth Vaquera (2009) stated that social scientists have long suspected that friendship are not always reciprocated and those that reciprocated are likely to be more intelligent.

Sarah Danielsson (2009) concluded that adolescents do not look to their favorite actors for fashion choices and they do not preferred to shop from designer stores.

Kim, Kyvng Hu; Ryo, Eunjung; Chan, mi-young; Yeun, Eun-ja et.al. (2008) examined the relationship of internet addiction to depression and suicidal ideation in Korean adolescents .The participants were 1573 high school students living in a city. Who completed the self reported measures of the internet addiction scale the Korean version of the Diagnostic interview scheduler for children, major depression disorders simple questionnaire junior. A co relational survey design was employed. Among the sample 1.6% was diagnosed as internet addicts, while 38.0% was classified as possible internet addicts. The prevalence of internet addiction did not vary with gender. The levels of depression and suicide
ideation were highest in the internet addicts group. Future studies should investigate the direct relationship between psychological health problems and internet dependency.

**Piyushi (2009)** found that 74.0% adolescents consumed food outside home and remaining (26.0%) did not consume food outside home.

**S. Karger AG (2008)** stated that three-quarters of the secondary school students lived a sedentary life and more than half were dissatisfied with their body weight more than 40% of the girls had been on a slimming diet at least once. Half of the students regularly consumed vitamin and/or mineral supplements. Nearly 25% of the adolescents did not have breakfast and nearly 60% of the school-leavers smoked regularly.

**Stewart, Trost and Paul (2008)** conducted a study promoting healthy life style in children and adolescents and observed that regular physical activity is an important component of a healthy life style in children and adolescents. However, despite the noted short and long-term health benefits associated with physical activity, monitoring and surveillance studies show that a significant percentage of children and adolescents fail to meet the recommended guideline of 60 minutes or more of moderate to vigorous physical activity daily. This review examined key evidence from the public health and health promotion literature on promotion of health-enhancing physical activity in children and adolescent. We describe best practice in three key behavior settings-schools, homes, and health care setting. In school-based settings, it has been shown that physical education programs can be modified to increase the percentage of class time engaged in moderate to vigorous physical activity. In the home setting there is evidence that teaching parents to establish and monitor physical activity goals and provide appropriate rewards for meeting their
goals results in gains in physical activity and/or physical fitness. In health care settings, evidence from two studies suggests that physician-based counseling coupled with stay appropriate written materials can be effective among adolescent youth.

Alpi et.al. (2007) observed that majority (36.00%) of the total respondents consumed food weekly outside home followed by 23.00% respondents consumed food daily outside home and minimum 3.00% respondents did not consume food outside home. Further they found that majority of (52.00%) of the total respondents had a monthly income of Rs. 0-10,000 followed by 32.00% respondents having Rs. 10,000-20,000 and the rest 16.00% respondents had an income of above Rs. 20,000.

Alpi et.al. (2007) observed that 38.00% of the total respondents liked moderate work, followed by 37.00% sedentary work and 25.00% liked heavy work. The study further observed that majority of the adolescents attended the party with their parents.

Marilyn H. Cughetto (2007), gave a model specifying body mass index (BMI) as mediating the relationship between life style factors, and lipid profile were tested on a sample of 205 adolescents (73% boys) who were on an average at risk of being overweight aerobically unfit and from ethnic minority groups. In this well fitting model, consuming a diet low in fat and cholesterol and being aerobically fit predicted lower BMI, which together resulted in increase in high density lipoprotein cholesterol and decrease in Triglyceride and low density lipoprotein cholesterol. Being physically active, predicted greater aerobic fitness.

Cofei.Com, (2006-2008) observed that the nutritional coffee association says that the younger coffee drinkers are becoming larger in parentage
than the occasional coffee drinker segment, as the category of cold coffee beverages continues to grow. NPD group aid a market ‘research’ from based in port washington, N.Y. has statistics showing the number of teens drinking coffee in cafes or restaurants has increased 12 percent since last year on top of a 15 percent rise the year before.

Hequembourg, Amy, Mancuso, Richard and Miller Brenda (2006) studied, “A comparative study examining associations between women’s drug related life style factors and victimization within the family”. Significantly indicated that life span adolescents and adult partner victimization were the strongest predictors of women’s drug related life style activities. Three proposed hypotheses were supported suggest that an association exists between the respondents life span adolescence and partner victimization scores and drug related life style activities scores with these relationship modified by intervening variables such as age marital status, partner substance use, and drug related life style activities scores, with these relationship, modified by intervening variables, such as age, marital status, partner substance use and parental substance use. Finding also indicate significant differences among the four-sample group in terms of victimization and drug related life style factors. Implications, limitations and areas for future research are discussed. The result suggest that SES group may use smoking like other cultural tastes to distinguish their life styles from those of others. Preferences for blue grass, Jazz and heavy metal music are associated with higher smoking.

Lochner, Jennifer, Rugge, Brain and Judkins Dolors (2006) studied that how effective or life style changes for controlling hypertension. Life style changes are advocated as first line therapy for hypertension this review examined the evidence on exercise dietary interventions, weight
loss, alcohol moderation and smoking cession. Aerobic exercise with at least one 40 minute session of moderate intensity per week was associated with a drop in SBP of about 5 mm Hg and a drop in DBP of about 4 mm Hg for hypertensive patients. Cochrane review of 18 trials with 2611 participants conducted that for overweight hypertensive patient’s weight loss of 34, to 9% of body weight is associated with 3 min Hg decrease in both SBP and DBP. Smoking cessation has other well documented health benefits and should still be recommended for patients with hypertension. The seventh report of the joint National committee on prevention, Detection, Evaluation and treatment of High Blood pressure recommends lifestyle modifications for all patients with hypertension.

Reveman, et.al. (2006) used socio economic status in health Research. Regarding socio economic status (SES) in health research, Druher and colleagues illustrate that measure of SES may vary not only by the specific outcome and population groups being studied but also by country and within a given country over time. The same concerns also may apply across regions within a given country. This underscores a much broader concept: SES measurement must be context specific. Because time, place, economic and social conditions and other circumstances might alter what a given SES measure reflects, researchers (and readers of research) should always consider whether particular SES measures and assumptions about their meaning are applicable for a given health outcome and study population in a particular setting. Measurement No single study can measure all relevant socio-economic factors, researchers must select measures based on the best available knowledge of pathways and mechanism and explicitly acknowledge how unmeasured socio-economic factor might affect study’s conclusions.
Wikstrom and Butterworth (2006) in their study on adolescent crime: individual differences and lifestyle stated that preliminary finding from the time-budget diary study shed more light on offender's routine activities. Key findings include that nearly all offense occur in the presence of peers and in public. Offenders offend an average of less than two hours a week. Routine activities varied a little by family structural risk but much more by individual risk-protection, time event on school and peer related (but not family) activities. It varies by community structural risk, peer centeredness vs. family centeredness mediated between poor parental monitoring and offending. Time spent in high risk situation mediated between peer centeredness and offending, and peer centeredness does not have an impact on offending levels for youths with protective individual risk-protection scores but family centeredness reduces offending for youth with less protective scores.

Gilson, N.D., Cooke C.B. and Mahoney C.A. (2005) observed domain and sub-domain physical self-perceptions have been associated with adolescent moderate intensity. Physical activity although having association with different types of adolescent moderate intensity physical activity remains unclear. This study seeks to examine the relationship between personal self-perceptions and adolescent sport/exercise and lifestyle moderate intensity physical activity frequency. A total of 122, 13 to 14 year old, English adolescents from Leeds, West Yorkshire (58 boys and 64 girls had their personal self-perceptions, sport/exercise and lifestyle moderate intensity physical activity assessed. No significant positive relationships were found between boys personal self-perceptions and lifestyle moderate intensity physical activity. However, a range of week (r = 0.34-0.42) but significant relationship (p <0.01) were found between personal self perceptions and boys sports/exercise frequency. In contrast,
only perceptions of strength competence were significantly related to girls sport/exercise frequencies (r = 0.28; p < 0.05). While all personal self perception scales were significantly related to girls life style moderate intensity physical activity (r = 0.26 - 0.32; P < 0.05). The use of correlation analyses by this study placed limitations on the extent to which cause-effect relationships were established. Furthermore, girls sport/exercise was poorly distributed, which may have led to the non-significant relationship found between this activity type and personal self-perceptions. The presence of a significant relationship between their two variables should therefore not be discounted. This study seems to be the first to investigate and identity variations in the personal self perception moderate intensity physical activity relationship relative to activity type. Although more research is required, findings have implications for practitioners coming to tailor physical activity interventions to this group and researchers aiming to match specific correlates to different types of adolescent physical activity.

Rosemary Hopper (2005) studied on “Adolescent fiction reading habits and reading choices” This article considers the finding from a study of the reading over one week in May 2002 of 707 school student aged between 11 and 15, undertaken in 30 schools in the south west of England. The findings are related to earlier research by amongst others, white head, Benton and Hall and Coles. The article reflects on adolescent reading choices, influences on those choices and the importance of validating all reading experience including the new literacies.

Nalan Bayar and Melike (2005) in “Risk taking behaviours in a non-western urban adolescent sample” analyzed the age and gender related risk-taking behaviours of Turkish adolescent in an urban sample. The
study revealed that both the type and the frequency of risk-taking behaviours were changed according to age and gender. All risky behaviours except hitchhiking increased until the college level and then decreased. Boys outperformed the girls in most of the risk-taking behaviours.

Townsend, Wilkes, Haines and Jarvis (2005) conducted a study on adolescent smokers seen in general practice health, lifestyle physical measurements and response to anti smoking advice and found that 73% of the adolescents (491) attended for the health check. A total of 68 (14%) were regular smokers. By age 17 those who smoked regularly had a significantly lower systolic blood pressure than those who had never smoked regularly (by 6mm Hg; P=0.025) despite a significantly higher body mass index (by 1.5; P<0.001) (Corrected) Cotinine concentrations increased with smoking exposure from 0.7mg/ml. when no family member smoked to 155 mg/ml in active smokers of six or more cigarettes a week. Significantly more regular smokers than never regular smoker drank greater than or equal to 8 alcohol a day ($\chi^2=15.2$ adjusted for age and sex p less than 0.001); regular smoker exercised less (1.0 hrs/week in boys and 0.8 hrs/week in girls v 3.4 hrs/week in boys and 2.2 hrs/week in girls; P less than 0.001) and slept less (8.0 hrs/night v 8.5 hrs/night at age 17; P less than 0.005) persistent health problems, mostly asthma or allergic symptoms, were reported by 25% (17/68) of the smokers and 16% (60/381) of the non-smokers of the smokers given counselling, 60% (26/43) made an agreement with the practice doctor or nurse to give up smoking.

Gisks, Katrina, Turrell, Gavin, Puterson, Carla, New Man, Beth (2002) reported that males and females aged 13 to 17 years (n=793) data
had been collected by household interview (61% response rate) for adolescent from all Australian states and territories. Intake of total fat, saturated fat Monounsaturated fat polyunsaturated fat vitamin A folate and vitamin C. Mean nutrient intakes for each socio-economic group were compared using a general linear model procedure that adjusted for age and energy intake.

www.healthofchildren.com (2001) observed that American school adolescents watched on average 4-5 hours of television a day. Repeated studies have shown that adolescents who watch a lot of television perform more poorly in school. In addition, there is a definite link between television watching and adolescence obesity. The link is strongest among African, American and Latino children. The eating habits of children who watch a lot of television are influenced by this advertising. Many studies have linked real life violence to the reputed watching a violence on television. Some expert theorizes that adolescents become immune to violence after seeing it repeatedly on television.

Hale et al. (2001) studied the development of gender role qualities (personality, leisure activities) from middle childhood to early adolescence was studied to determine whether siblings gender role qualities predicted their sisters and brothers. Participants were 198 first born and second born sibling (ms =10 years 9 months and 8 years 3 months respectively in year 1) and their parents. Families were interviewed annually for 3 years. First born sibling’s qualities in years predicted second born children’s qualities. They showed a controlled pattern consistent with a social learning model of sibling influence. Parental influence was more evident in predicting first born qualities for first born sibling’s influences suggested a depending process.
Rosen Craig, S. (2000) reanalyzed 47 cross sectional studies and determined that use of change processes varies by stage but the sequencing of processes is not consistent across health problems. In smoking assessment cognitive processes were used in earliest than behavioural processes. In exercise adoption and diet change, use of behaviour and cognitive processes increased together. Results for substance abuse and psychotherapy were less consistent. Substituting new behaviour making a commitment considering consequences seeking information controlling focus and using new wards varied means by stage. Future longitudinal studies should assess these processes as potential mediators of life style change.

Omen et.al. (2000) stated the effects of major life events on subsequent exercise adherence, fat of individuals (N=173) participating in 2 years randomized controlled clinical trial of 3 different exercise conditions (higher intensity home based lower intensity class based). For 3 of 4-6 month exercise adherence periods an analysis of variance indicated a significant main effect (p<0.05) for major life events as compared with participants reporting 0 or 1 major life events. Exercise adherence in the maintence phase was significantly lower for those reporting 3064 major life events regardless of exercise condition. No significant life event exercise adherence relationship was found in adoption phase of exercise participation (i.e. months of 1 to 6). The deleterious effect of life events emphasizes the importance of instruction regarding how far high risk situations that can lead to misses exercise sessions or to program attribution.

(N=2977, response rate 83%) were used to identify which particular aspects of lifestyle are typical of adolescent who select various educational tracks and thus have different probabilities of ending up in low or high social position. The dependent variable, educational tracks, was formed by classifying the respondents into five successive categories predicting their social position in adulthood. Lifestyle is measured by health behaviours, leisure-time activities and social relations. The probability of belonging to educational track with good social prospects in adulthood was high among adolescents who placed much emphasis on health enhancing behaviours (not smoking, physical exercise, low milk-fat diet, dental hygiene, use of seatbelts etc.) who did not spend much time watching T.V. or listening to music and who attended church or other religious meeting weekly. Health related lifestyle at the age of 16 is oriented towards the social group. The individual is likely to behave as an adult. The study provides evidence for a strong association between health related lifestyle and educational track in adolescence.

William W. Dressler (1990) indicated in his study that lower education was associated with; higher blood pressure and mortality from cardiovascular diseases. It was hypothesized that education is most important as a risk factors for high blood pressure to the extent that an individual’s style of life is incongruent with his or her education. Style of life is defined here on the basis of the accumulation of consumer goods and exposure to mass media, similarly it has been found, in a study of blood pressure in an African American community, that life style incongruently or the degree to which style of life excluded education, was associated with higher systolic and diastolic blood pressure, adjusting for age, sex, body mass index, income chronic social stressors and type A.
behavior. It is argued that this in-congruity leads to recurring frustrating social interactions, which in turn are related to higher blood pressure.

Tseny et.al. (1988), conducted a study on “Food intake in Taipei school children, comparison of nutrient intake with the nutrient intake of California school children.” Mean intake for eight different nutrients were calculated by sex and grade (8th and 11th grade children) and compared to the result of a previous dietary survey of California school children. Taipei Children consumed low level (below the RDA for the U.S.) of the vitamin A, riboflavin and calcium as compared to California children whereas California children consumed iron less than their Taipei counterpart.

2.5 STUDIES RELATED TO GENERAL PROFILE OF ADOLESCENTS

Manorma et.al. (2009) observed that 76.47% respondents were living in nuclear families and 23.53% were living in joint families. 76.48% were from the families having monthly income ten thousands Rupees and above and remaining 23.52% were from the families having monthly income below Rupees ten thousands. 55.88% were from the families having 1-6 members, followed by 36.76% from the families having 6-10 members and remaining 7.36% were from the families having 10 and more members in the family. Majority of the father were of 45 years and above while majority 73.07% fathers were above 45 years in working and nonworking. Majority of mother were in the age group of 45-60 years in working and nonworking. Further they found that 74.27% were educated up to graduate level and above, followed by up to intermediate 25.73%
and, majority of the mothers, 66.17% were educated up to intermediate, followed by 33.83% up to graduate level and above.

**Fauzia et.al. (2007)** observed in their study that 72.0% respondents were Hindu and remaining 28.0% were of other religion and 44.0% of them were of upper caste followed by 41.0% of backward caste and rest 15.0% were of schedule caste. they also observed that majority 50.0% of fathers were engaged in service followed by 41.0% of businessman and rest 9.0% were engaged in agriculture. While majority 91.0% of mothers were housewives followed by 6.0% service women and rest only 3.0% were business women. Majority 39.0% of parents were earning between Rs. 10,000-25,000 per month followed by 36.0% of parents earning up to Rs. 10,000 and rest 25.0% reported an average monthly income above Rs. 25,000.

**Danoff-Burg et.al. (2006)** examined relation of genetic and communal personality traits to health behaviour, substance use, and consequences of substance use in a sample of 201 undergraduates. As predicted, unmitigated agency was associated with gravity of maladaptive health behaviours including binge eating reckless driving and substance use. By contrast, agency was associated with adoptive health behaviours such as physical activity and healthy eating patterns. Unmitigated communion was unrelated to behavior. Findings were consistent with “growing body of theory and research suggesting that unmitigated agency is a risk factor for externalizing. Problems were of agency is linked to positive health practices.