Chapter II

RAEVIEW OF RELATED LITERATURE

In an attempt to understand the background of this study, the investigator reviewed different literature connected to the problem. To get a face picture of what has been done earlier in relation to the problem, the present researcher studied the relevant literature on physical exercise, alternative therapies and obesity as follows:

Bertisch, et. al., (2008)\(^1\) had done a survey on alternative medicine supplement for one year. The authors were analyzed with multivariable mode. They explored the association with body mass index and use of seven complementary alternative medicine supplement ways. It has revealed that the obesity adults had lesser existence by use of yogic therapy including relaxation, use of herbs, massage and health behavior. Still the obese adults had higher illness.

Sharpe, et. al., (2007)\(^2\) conducted a study with the view to find out the existing relationship of complementary and other alternative medicines and diet supplements for controlling body weight for one year. It was surveyed through telephone among American people. It pointed out that those who were using complementary and other medicines had weight control exercises, taken less carbohydrates, high protein food, used weight loss products and physically active. It was concluded that the complementary and other medicines therapy and diet supplements used person's body weight was reduced. The yoga therapy was used frequently.

Garrow and Egede (2006)\(^3\) compared the diabetic and non diabetic patients to find out the relationship by using of complementary and alternative medicine. They have done research in urban and rural areas in Israel with the help of medical assistants for a period of six months. Along with complementary and alternative medicine eight therapies was used. The result indicated that there is no significant difference for diabetic patients. It was concluded that the diabetic patients were using more prayer but less therapies than that of without diabetic patients.
Ben, et. al., (2009) examined the use of complementary and alternative medicine in a primary care practice in Israel to determine prevalence and pattern of use. It was done through questionnaire based on the use and beliefs of complementary and alternative medicine and about its safety and efficacy. They found that women visiting primary care clinics in Israel used complementary and alternative medicine more often than men. Arabian women used less of complementary and alternative medicine than Jewish women but had a greater confidence in complementary and alternative medicine efficacy and safety.

Jones, et. al., (2007) designed a study with a view to measure complementary and alternative medicine therapies used by person with fatiguing illness in the American population. They compared the study with fatigued and non-fatigued persons. It was done through a random digit dialing survey based on body based therapies, mind-body therapies and energy modalities. It was concluded from the survey that the utilization of complementary and alternative medicine was common in fatigued illness than non-fatigued illness. Further it was found that fatigued were more likely to use body-based and mind-body based therapies than non-fatigued persons.

Arteburn, et. al., (2005) conducted a study on the impact of morbid obesity on healthcare expenditures by using representative sample of American adults. Per capita health care expenditures of representative sample were calculated. It was found that comparing with normal weight adults, health care expenditure were two times more among obese adults with morbid obesity and overweight adults.

Karacabey (2009) had done an investigation over the effect of exercise on leptin insulin, cortisol and lipid profiles in obese children. Two groups were made, one group were given aerobic exercise program for 12 weeks and other group were kept as a control. The results of investigation showed low density lipoprotein, cortisol, leptin and insulin level were significantly lower, in exercise group where as in the control group, low density lipoprotein, cortisol and leptin levels were significantly higher but high density lipoprotein were significantly lower. The above study
indicates the importance of regular exercise in the regulation of body weight and protection against cardiovascular risk factors among obese children.

Li, et. al., (2010)\(^8\) aimed the study on the changes of leptin resistance, blood lipids and inflammatory response before and after the exercise therapy in obese children. Obese children selected for the study were received an exercise therapy for two months and normal children were kept as control group. After 2 month it was found that the levels of leptin, total cholesterol and body mass index in obese children were significantly reduced after the exercise therapy.

Reinehr, Sousa and Wabitsch (2006)\(^9\) have done a research on the benefits of two different therapeutic approaches on cardiovascular risk factors in obese children and adolescents. Two groups were made that is Group A and Group B. Six –week inpatient intervention based on life style changes was given for Group 'A' and one year outpatient intervention with diet restriction and exercise therapy was given for Group 'B'. They compared lipoprotein – cholesterol levels, insulin, blood pressure, triglyceride for these groups. The result showed that the cardiovascular risk factors improved in obese children comparing with the one year outpatient intervention. Group ‘A’ had greater decrease of total and low density lipoprotein cholesterol levels and Group ‘B’ had considerable improvement in insulin, triglycerides, and high – density lipoprotein cholesterol levels.

Aycan, et. al., (2005)\(^10\) conducted a study on body mass index with three objectives such as the relationship between plasma leptin and TNFalpha, difference between hyper-insulinemic and normal insulinmeic, and to investigate the TNFalpha G308A mutation in obese children. They evaluated by giving oral glucose tolerance test, insulin level, mass index fasting plasma glucose, homeostasis model assessment of insulin resistance in obese children. They have concluded that the plasma leptin did not show any relationship with TNFalpha levels in obese children. The other factors were similar in hyper insulinemic and normal insulinemic for obese children. The plasma leptin levels did not match with body mass index fasting insulin.
Savoye, et. al., (2002)\textsuperscript{11} carried out a study with a view to find out the existing relationship between low leptin levels and prediction of change in adiposity in pre-pubertal and pubertal over both male and female obese children. Fasting insulin, leptin levels, height and weight and body mass index were calculated for the study through $Z$ score. The same were calculated after two and half years. They found that the plasma leptin levels were higher in obese girls than the obese adolescent boys. No gender differences were observed in insulin level in both the groups. The multiple regression analysis showed that leptin levels were associated with greater changes in body mass index only girls and there by future weight gain chance.

Valle, et. al., (2005)\textsuperscript{12} had done an experiments on the levels of C-reactive protein leptin and adiponectin and their connection with metabolic syndrome, fibrinogen and plasminogen in obese prepubertal and children. It was found from the observation that the level of C-reactive protein serum and leptin were higher in obese children and was positively correlated with body mass index insulin, homeostasis model assessment triglycerides, uric acid and fibrinogen in obese children. However Adipocytokines negatively correlated with the above factors and was found low in young obese children and higher in non obese children. Further it was found inflammation and adipocytokines play an important role in etiopathogeny of metabolic syndrome.

Wu, Shen and chu (2001)\textsuperscript{13} conducted a study with the aim to find out the association of plasma leptin and lipid profiles among school children in Taiwan. The anthropometric variables life style factors, biochemical and parameters among these children were assessed. The result of the study suggested that plasma leptin and BMI were independently associated with the lipids and lipoprotein profiles among Taiwanese Children. In both genders, children in the top 25$\%$ of the leptin distribution have more adverse lipid and lipoprotein profiles.

Sari, et. al., (2007)\textsuperscript{14} aimed a study with a view to evaluate the acute effect of aerobic exercise on plasma leptin and insulin sensitivity in obese women with stable caloric intake. The women selected for the study were given twenty exercise sessions.
Insulin and leptin levels were determined. The result of study showed that at the end of first exercise session, plasma leptin level did not change but decreases insulin resistance. However at the end of seventh and twentieth exercise session, homeostasis model assessment was lower than baseline with the significant decrement of leptin. Thus decrement in leptin level was evident at the end of first exercise session which was lasted till the end of exercise session.

Zhange, et. al., (2008)\textsuperscript{15} conducted a study on the cardiovascular risk factors in overweight and obese children by using Chinese body mass index and weight and height index as screening criterion. 108 subjects were selected from schools and their aged between 7.5 and 13 years. They were classified into obese and overweight. The investigation showed that the non – obese children had lesser lipoprotein. The obese children had increased level of triglyceride, low density lipoprotein cholesterol. The overweight children had shown higher triglyceride, low density lipoprotein, insulin levels and lower. This study revealed that in overweight and obese children, body mass index and weight – for – height criterion are associated with increased levels of cardiovascular risk factors.

Isik, Kaloronal and Okten (2004)\textsuperscript{16} examined the effect of leptin and lepid profiles in marasmic children and to discover existing relationship between leptin and Sex. They explored that in the marasmic group, body mass index, leptin total cholesterol, high density and low density lipoprotein cholesterol levels were lower and triglyceride levels were higher than control group. They also explored in females leptin was positively correlated high density lipoprotein cholesterol and inversely correlated with triglyceride level. In males a positive correlation was found between leptin and low density lipoprotein cholesterol. Thus leptin has nothing to do with cardiovascular risk factor. However dyslipidemic may be a risk factor for cardiovascular complications in marasmic children in the future.

Reiterer, et. al., (1999)\textsuperscript{17} conducted a study with the aim to study the influence of three week intervention programe including diet and sports on leptin concentration body composition and insulin levels in obese children. They studied on gender and
biological development of obese children. The subjects selected for the study were examined before and after training intervention. After intervention it was revealed that the body, mass fat mass leptin and insulin were decreased in both sexes. A greater change was also found in serum leptin in girls and higher fat mass in body. Thus it was concluded that serum leptin levels were highly related with adiposity in obese children and the weight reduction programme decreased serum leptin insulin and body fat in all children.

Change, et. al., (2008)\textsuperscript{18} aimed a study with a view to evaluate the effect of long term exercise on weight maintenance and its effect on metabolic risk factors and physical fitness in obese children in prepuberty age. The subjects selected for the study were made divided into, control and exercise group. Physical fitness was examined before and after intervention of both the group. They noticed that after the intervention, body mass index, triglyceride levels, fasting serum glucose, insulin level and homeostatic model assessment for insulin resistance decreased in the exercise group than the control group. It was also observed that after terminating these exercises all these factors returned back as before the intervention among the subject. Thus it was concluded that exercise slowdown the progress of obesity, improve insulin sensitivity and metabolic risk factors but if it was stopped, the benefits gained from it vanished.

Molero, et. al., (2006)\textsuperscript{19} had done an observation to determine the relationship among insulin, leptin and growth hormone levels in a group of adolescents including both boys and girls. After studying their medical and nutritional history, it was observed that leptin and insulin levels were positively associated with body mass index and obesity index. Insulin leptin and obesity markers were negatively associated with growth hormone level. Some adolescents were considered metabolically obese because of elevated levels of insulin, triglycerides and leptin. It was concluded from the observation that hyperinsulinemia, and low growth hormone levels may be risk factors to obesity marker and can lead to diabetes and cardiovascular diseases.
Fu, et. al., (2007)\textsuperscript{20} had done survey on prevalence of metabolic syndrome on a group of obese children and adolescents in Zhejiang in China. Risk factors such as insulin resistance adiponectin level, etc. were compared with simple obese group and non obese healthy group. They also evaluate the effect of metaformin and lifestyle intervention over metabolic syndrome group. After three months follows up it was found that prevalence of metabolic syndrome in severely obese children and adolescents in Zhejiang area had reached to high level. Insulin resistance and hypoadiponetinemia were found in these children. Metaformin combined with lifestyle modification was proved to be an efficient and safe method in treating the obese adolescent with metabolic syndrome.

Yang, et. al., in (2003)\textsuperscript{21} investigated the relationship between fasting serum levels of leptin, glucose, insulin resistance, lipids in simple obese children. Methods: Fasting serum levels of leptin and insulin (Fins) were measured by RIA in 42 obese and 42 normally-weighted children matched on age, sex and height, and their total cholesterol, triglyceride, high density lipoprotein-cholesterol were analyzed with enzymatic methods. HOMA-IR and LDL-C were calculated. Results: Serum level of leptin was micro g/L and micro g/L in obese and normally-weighted children, respectively, with an average level of leptin (log) significantly higher in obese group than that in control group (P < 0.001). Serum level of leptin was positively correlated with BMI, WHR and percentage of body fat. Of obese children, 83% were leptin resistant. Serum levels of total cholesterol, triglyceride, low density level and insulin were significantly higher in obese leptin-resistant group than those in normally-weighted control group, but no significant difference in them between obese leptin-sensitive group and its normally-weighted control group was observed. Significantly higher serum levels of, triglyceride and lower high density level were observed in obese leptin-resistant group, as compared with those in obese leptin-sensitive group. Conclusions: A big difference in serum level of leptin between obese and normally-weighted children was found, suggesting most obese children were resistant to endogenous leptin. Leptin resistance correlated significantly with the risk of metabolic syndrome and cardiovascular disease, indicating serum level of leptin could be used as an indicator in screening obese children at high risk.
Ramel, et. al., (2009) had done an investigation over the relationship between cardiovascular risk factor with excess body fat in young overweight and obese adults. The factors such as anthropometric measurements, blood pressure, dietary intake, fatty acid in erythorocyte membrane were analyzed and the effect of physical activity over there factors was collected. Information on this study showed that body mass index was highly associated with increased cardiovascular risk factors and the physical activity and docosahexaenoic acid can decreased the negative health effect related with obesity and overweight.

Tungtrongchitr, et. al., (2001) compared males and females in intervention group with the males and females in a control group to find out the relationship of weight, height, body mass index, waist/hip ratio with serum leptin and lipid profiles of both the groups. They found significant relationship between weight, height, body mass index, waist, waist/hip ratio and serum leptin in both overweight male and female subjects. A negative correlation was found between serum leptin and low density level cholesterol/ density level cholesterol ratio among both the overweight and obese.

Moussa, et. al., (1998) had done an investigation compared pre-pubertal kwati obese with non obese to study the relationship of the fasting plasma insulin level with indices of obesity. They found that fasting plasma insulin level can be used as he indictor for the development of obesity associated metabolic disorder and increased blood pressure in children.

A research was conducted by Kim (2004) to provide basic information about the effects of aerobic exercise on physiological change in middle-aged obese women according to differences of beta 3-adrenergic receptor polymorphisms. Method: Twenty-nine middle aged obese women with over 30% BMI were divided into three groups according to beta 3-adrenergic receptor gene polymorphism ,Variable Group 9, Normal Group :10, Control Group :10. The variable group and normal group groups performed walking at 50% exercise intensity for 30 minutes a day, 4 days a
week, for 12 weeks. The data was analyzed using the SPSS program. Result: The level of leptin, insulin and % body fat in the variable group and normal groups were significantly lower than those of the control group after 12 weeks. In addition, the level of high density level in the variable group and normal groups was significantly higher than that of the control group after 12 weeks. However, total cholesterol, triglyceride and body weight between groups didn't appear significant at the end of 12 weeks. Conclusions: Aerobic exercise didn't cause differences in persons with differing beta 3-adrenergic receptor gene polymorphisms, but aerobic exercise affected the physiological change in middle-aged obese women. The findings suggest that aerobic exercise is a desirable nursing intervention for obesity control in middle-aged obese women.

Huang, et. al., (2004) Set out on investigation to find out the relationship of plasma leptin level with the anthropometric indicators body mass index fat mass lipids and insulin resistance among non diabetic adolescents in Taipei city in Taiwan. They found from the above investigation that plasma leptin was significantly associated with insulin resistance index without taking into consideration age, gender; body mass index, body fat mass, waist circumference triglycerides and et could be taken as the indicator for the development of metabolic syndrome disorders and cardiovascular diseases.

Sramkova, et. al., conducted on study in (2002) performed statistic analysis in order to identify linkage between leptin levels and anthropometric parameters in a group of 285 Czech obese children (152 girls and 133 boys) aged 7 to 18 years. The children were measured using the standard anthropometric technique according to Martin and Saller [16] at the beginning and end of a five-week therapeutic weight reduction programme. The skin fold thickness at 14 sites was assessed by means of Best calliper. The body composition was evaluated using Matiegka's technique. The leptin levels were investigated on the beginning and end of the reduction programme by direct enzyme linked immunosorbent assay. For the evaluation of the grade of obesity, body weight, body mass index, Rohrer's index, fat mass index and normalized
body weight, normalized body mass index and Rohrer's index were plotted. Correlation analysis shows relation between leptin concentration and fat mass index to be the most significant. As to ponderal indexes, normalized Rohrer's index shows the most significant positive correlation. Leptin concentrations are negatively correlated with the proportion of the weight of skeletal muscles by Matiegka both in girls and boys. Intersexual differences in correlations between leptin concentrations and normalized circumferences are observed, as well as in correlations between leptin and particular skin fold thickness. We also tested relations between the magnitude of leptin decreases and magnitude of decreases of anthropometric parameters. There is a strong endorsement both in girls and boys of positive correlation between decrease of leptin concentration and fat reduction. Interestingly, differences between boys and girls in relations between leptin decrease and change in lean body mass had been observed.

Parente, et. al., (2006) conducted a study over two group, Group ' D' and Group ' DE'. They gave the first group Hypo caloric diet and hypo caloric diet plus aerobic physical activity for 1 hour 3 times in a week till five months to group second. It was found that the group given hypo caloric diet plus exercise showed increased in level of high density cholesterol, irrespective to baseline and reduction in triglyceride and low density level – C than group only given hypo caloric diet.

Ganguly, Bera and Gharote (2003) experimented on students the effects of three year yoga exercise program on health related physical fitness and academic achievements of school boys, aged 10 -13 physical fitness variable tested were – Cardiovascular function, Body fat percentage, Abdominal muscle strength/endurance, flexibility. The significant reduction in body fat % may be due to increased utilization of fat contents. The results of this study are consistent with other reports that yoga exercise increases gastric sectorum and appetite so that the possibility of deposition of excessive fat contents in body is less. Perhaps yoga exercises have followed the mechanism of fat depletion, which caused excessive fat reduction. The results suggest that yoga exercise is effective in controlling obesity as well as improving health related fitness of school children. It has also been observed that in
spite of introducing short course (year 2) and full course (year 3) of yoga, the body fat % maintained a steady or plateau state. This in turn suggests that the level of body fat % becomes normal even after introducing easy course of yoga, it remained in a steady during year 2 and year 3. Improved flexibility level as obtained in this study was due to better states stretching of muscles and tendons of related joints as generated by yogic exercises. Such results suggest that yoga exercise might have turned up the strength reflect mechanism and imparted proper training to the muscle spindle, measure and nerve endings.

Telles, et. al., (2010)\textsuperscript{30} conducted a research to study the effect of yoga and changed diet programe on obese person. The persons selected for the study were given six day residential training program of yoga and diet change. The variable selected for the study were body mass index, waist and hip circumferences, hand grip posture stability, Serum lipid profile and fasting serum leptin level. After the intervention the benefits seen were better postural stability and grip strength, reduction in waist and hip circumference, decreased in serum leptin. It was concluded the above program can pose certain risks of obesity.

Sabet, et. al., (2009)\textsuperscript{31} conducted a study to see the effect dietary behavior on obese adolescent girls. Based on hypothesis that obesity is the most important. Disease among and connected with the eating habit, they gave behavior modification program for 16 weeks to a group of adolescent girls. They compared the study between the experimental group and control group. They found so much difference in changes in body weight, body mass index and Arm circumference in experimental group. Difference in eating behavior emotional eating, internal eating and retrained eating in experimental group were also observed than the control group. It was concluded in the study that health care can address obesity and encourage children to acquire a healthy lifestyle.

Innes, Vincent and Taylor ( 2007)\textsuperscript{32} Published an article regarding the potential benefits of the interrelation of psychological and physiological component of
health, yoga and other traditional mind-body therapies that offers particular promise for the prevention of both primary and secondary cardiovascular disease.

Bhogal, Oak, Gore, Kulkarni and Bera, (2005). A month-long Yoga/Aerobic training and 6 monthly follow-up programme revealed a more beneficial effects in the Residential Yoga Group, in terms of reduction of Anxiety, as compared to Non-Residential Yoga Group. This may be credited to good motivation, persistent and regular practice with patience, dietary regulations and full faith in Yoga Therapy. These groups of obese Indians were not the patients of Anxiety Neurosis.

Vyas, Raval and Dikshit (2008) designed a study to study the effect of practice of raja yoga mediation of Bramakumaris on serum lipids and cholesterol level in normal Indian women. The women selected for the study were divided into premenopausal and post menopausal group further into non mediators short the on mediators and long term mediator. The found that serum cholesterol was lowered in post menopausal group with short and long term mediator than non mediators in post menopausal women. No significant difference was found in lipid profile in premenopausal group. Thus they conducted that. It reduced the risk of coronary arteries diseases among post menopausal.

Yadav, et. al., (2005) had done a survey on the concentration of thiobarbituric acid reactive substances as indicator of oxidative stress that contribute variety of chronic degenerative diseases. For the study they organised on educational yoga based life style modification program of nine day where the participants were given the knowledge of both the theory and practice of yoga, asanas pranayam, meditation relaxation, stress management and nutrition technique. The blood samples were collected on the first and last day of the program. They found that lifestyle intervention program reduced oxidative stress by controlling thlobarbitiume acid in blood.

Vyas and Diskhit (2002) did a comparative study on respiratory function, cardiovascular study on respiratory functions, cardiovascular parameters and lipid
profiles of short and long term Raja yoga mediators with non mediators. They found serum cholesterol and diastolic blood pressure was lower in both type of mediators in addition to these the long term mediators also had higher vital capacity, expiratory pressure and lower heart rate.

Steven, et. al., (1999)\(^{37}\) conducted a study to evaluate the if impact of a school health behavior intervention among boys and girls known as planet health on obesity, they compared the behavior of subjects in the five intervention school with the five control schools. They found greater reduction in obesity among the body and girls participating in interdisciplinary intervention over 2 school years, as the intervention reduced television hours and increased fruits and vegetable consumption habit among them. They also concluded that the school based program help to reduce obesity.

Lolage and Bera (2002)\(^{38}\) trained forty (n=40) male college Kho Kho players aged ranged from 20 to 30 years from Pravra college of physical education. Their cardiovascular efficiency was assessed by administering three test viz., Harvard step test (r= 0.63 p<0.01) 8 minute run test (r = 0.60, p < 0.01) The experimental group underwent training of Pranayama (Viz., Anulom-Vilom, Ujjayi, Suryabhedana & Bhashrika) in two session of 45 minutes each day morning and evening 6 days a week for total period of 3 months. The subject of control group did not participate in the above interesting activities separately during experimental period. The result of ANCOVA revealed, treatment affect of pranayama on three test of cardiovascular efficiency were not affected. Harvard step test could measure C.V. efficiency with insufficient reliability whereas the other tests i.e. 8 minute run test and 1600 M run test could measure this variables with acceptable reliability selected Pranayama were found useful in improving cardiovascular endurance of Kho Kho players.

Austin, et. al., (2005)\(^{39}\) assessed the impacts of the prevention intervention on the use of purging in diet pill to control weight. Middle schools selected for the study were divided into two groups, intervention schools and control schools. By using
multivariable generalized estimating equation model they found that girls in intervention school were less than were likely to report purging or diet pill at follow-up compared with girls in control schools. Thus it was concluded that school based intervention can effectively help both in controlling obesity as well as disordered weight control behaviors.

Singh, et. al., (2009) had done a survey to determined whether a multi component health promotion intervention for Dutch adolescent would be successful in influencing body composition, and dietary and physical activity behavior in both the short and long term. Ten intervention and eight control prevocational secondary schools were selected for the study. The variables selected for the study were body height and weight waist circumference, four skin fold thickness measurement and dietary and physical activity behavior. They found that intervention affects little on the consumption of snacks but it had beneficial effects on the sum of skin fold thickness measurement and consumption of sugar containing beverage both in boys and girls both in short term and long term.

Hence, Kein and chiodo (2003) conducted a research based on the hypothesis that increasing incidence of obesity in middle school children is due to lack of confidence or physical skill to participate in competitive physical activity but if they provided with non competitive outdoor activities during summer and after school program, it would increase the physical activity and control obesity. They conduct an experiment by providing a group of children summer recreation program for two hours and while they watched video tape. They did another experiment by providing a group of children after school programs and then during similar period at home. They found in both the program energy expenditure as well as physical movement increase than watching video tape and physical activity at home.

Ganguly, Bera and Gharote (2001) examined the effects of three-year Yoga exercise programme on health related physical fitness and academic achievements of schoolboys, aged 10-13. Physical fitness variables tested were cardiovascular
function, body fat percentage, abdominal muscle strength/endurance and flexibility, whereas the variables of academic achievement were the marks secured in theoretical subjects as per the school examination. The subjects participated in the selected Yoga exercise program 3 days per week for 45 min. per day for consecutively three years. Results indicate that performance on all variables of physical fitness and academic achievement was improved significantly. A comparison of Yoga exercise subjects with a comparable control group revealed significant interaction between treatment and time on all variables. During three year period of experiment, pretest to posttest scores of the yoga exercise subjects tend to improve progressively with faster rate over the scores of control subjects. The results of Pearson correlation indicate that body fat % is inversely related to all the variables of academic achievement, whereas other attributes of physical fitness indicate a low but positive relationship with academic achievement.

Epstein, et. al., (2000)\textsuperscript{43} compared decreases in sedentary behavior vs increases in physical activity in the treatment of obesity in children. They selected preadolescent children from ninety families. They were provided with a behavior weight control program that includes dietary control and behavior change information. They found during years study that decreases in sedentary behavior and increased physical activity was greatly related with decreased in body fat and improvement in aerobic fitness. Thus it was concluded that it can be used as treatment of pediatric obesity.

The literature available so far does not indicate any study on the combined effect of yoga and naturopathy on physiological and biochemical variables associated with obesity in obese school children. Hence, it seems this present investigation is new of its kind to introduce yoga and naturopathy treatment in school children for prevention of obesity and associated disorders. Thus, the literature as presented above supports the feasibility of this study.
REFERENCES


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