

**EFFECT OF PHYSICAL ACTIVITY ON ACADEMIC ACHIEVEMENT,
ADJUSTMENT AND SELF-ESTEEM IN ADOLESCENTS**

By
SHAIK.ANJUM
(14PCP004)

**A Thesis Submitted To Avinashilingam Institute for Home Science and
Higher Education for Women, Coimbatore-641043**

In partial fulfillment of the requirement for the degree of

Master of Science

in

Counselling Psychology

APRIL 2016

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Certified as a Bonafide Research Work

Signature of the Professor & Head

Signature of Guide

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“Gratitude felt and not shared is like a present received and not opened.”

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INTRODUCTION

Chapter I

Introduction

“Movement is a medicine for creating change in a person’s physical, emotional, and mental states.”

(Carol Welch)

In the present days, the existence of a sedentary lifestyle is spreading widely, wherein not only elders but children as well are getting used to inactive entertainments like television, computer games, etc. Physical activity is no longer being a natural part of our existence. Advances in science and technology have reduced the necessity for any physical effort in carrying out one’s daily activities. The society is getting highly automated, with advanced machinery and software to fulfill all the requirements. All developed as well as developing countries are going through an era of physical inactivity, which occurs to be a major threat. Research findings show evidence for the negative outcomes of being physically inactive, such as increased incidence of diseases, reduced life expectancy, lowered immunity levels, etc. It also increases the risks associated with hypertension, heart diseases and stroke, thereby causing high morbidity and mortality. Low levels of physical activity are thought to be major causes of diabetes, obesity and different types of cancers (Harati, 2011).

Physical Activity

“Physical activity is any body movement that gives work to one’s muscles and requires more energy than resting” (Edwards, Edwards & Basson, 2012).

➤ Walking

- Running
- Dancing
- Swimming
- Yoga
- Gardening

-are a few examples of physical activity. Physical activity refers to any deliberate movement that enhances health and fitness. Exercise is a term used to refer to physical activity that is highly planned and structured. Lifting weights, aerobic movements, and playing a sport, etc., are examples of exercise. They are easy to practice and are evidently helpful in keeping oneself fit and healthy. Regularity in exercise is necessary for the preservation of good health. It is a good source of energy, stamina and strength. Consistency in performing the exercises adds to the results. Lack of regularity and consistency does not bring good results (Edwards, Edwards & Basson, 2012).

Significance of Physical Activity. Physical activity not only helps with maintaining good health but enhancing positive experiences and beneficial developmental outcomes as well. It gives an opportunity to sustain growth and development with a set of physiological, psychological and social processes where one learns pro-social values, attitudes and competencies, involvement in organized activities, etc which in turn helps build positive social networks (Coopers, 1996).

Participation in physical activities throughout life is said to have a positive effect on self-esteem, body image and physical strength. It is also found to improve goal-setting,

leadership and competition. The lessons learnt in playing team sports are also carried forward to other situations in life such as enhancing one's adjustment, helping one to be a better team member, enhancing leadership qualities, and the like (Ossip-Klein, 1989).

Role of Physical Activity. Physical activity has been found to improve a number of different aspects ranging from academic performance, assertiveness, memory, perception and work errors. Exercise can improve self acceptance by giving an individual a more positive view about them self. Exercise has positive effects on the brain chemicals, cognitive, mental and psychological processes such as self-esteem, distraction and sociability. Involvement in physical activity has been found to make an individual active, physically as well as psychologically (Fox, 1999).

Physical activity helps in physical and psychological betterments, such as to

- Overcome depression
- Alleviate anxiety and stress reactivity
- Improve cognitive performance
- Enhance sleep quality
- Facilitate Health promotion
- Reduce overweight and obesity
- Break down HDL cholesterol
- Regulate blood pressure
- Increase insulin resistance
- Improve skeletal health
- Repair musculoskeletal injuries

- Enhance psychological well-being
- Build self-esteem

Academic Achievement

Academic achievement is the outcome of education, indicating the extent to which a student, teacher or institution has achieved their educational goals. Academic achievement may also refer to a person's strong performance in a given academic arena (Mildred Murray-Ward, 1996). It can be measured in terms of a student's marks, rank, performance ability, in aspects related to academic performance.

Role of Academic Achievement. Academic success is important because it directly decides the positive outcomes of the students after graduating. Students with good degrees or high levels of education are more probably to be employed and paid a higher salary grade than others with no academic success. Academic success might represent the gap between doing the job for earning money and enjoying the job. Students who show good academic achievement are found to be

- More sustainable in their jobs
- Having better health
- More confident about their income
- More active, helpful and healthy
- Safer from illegal activities

Determinants of Academic Achievement. In 2007, Kuh and his assistants pointed out that there should be five factors that influence the academic success of the students, including

- Background characteristics of students, such as his or her demographic and other pre-college experiences
- Structural features of the institution, such as its dimensions, missions and admission standard
- Interactions between student and faculty, student and institute staff, and student and peers
- Student's awareness of the learning environment
- Achievement behaviors of students during their study period at an institution

There are some more factors which can influence Academic Achievement, such as

- Motivation
- Peers' and Parents' Interaction
- Teaching quality
- Environment and society
- Individual differences
- Physical activity

Effect of Physical Activity on Academic Achievement

A very major enhancer of academic achievement is the presence of physical activity. Physical activity can increase neural activity in the brain. Exercise specifically increases executive brain functions such as attention span and working memory (Basch, 2010). Active Living Research (2010) has showed scientific evidence for the increase in grades and scoring standards as an outcome of exercise.

The CDC , Columbia University, New York City Health Department and Department of Education, Universities of Illinois, West Virginia, and California has stated that physical activity can have an impact on the cognitive skills, attitudes and academic behavior, all of which are important components of improved academic performance. There has also been evidence for increased attention and concentration as well as enhanced classroom behavior.

Exercise is found directly impact the behavior and development of the brain. It is seen that the effects of physical activity on cognition has been remarkably evident through its effect on the brain plasticity. The brains of youth require this plastic nature in order to grow and develop different abilities (Basch, 2010).

Basch summarizes the effect of physical activity on executive functioning to produce

- Increased oxygen flow to the brain
- Increased brain neurotransmitters
- Increased brain-derived neurotrophins that support neuronal differentiation and survival in the developing brain. Neurotrophins are chemicals that assure the survival of neurons in areas responsible for learning, memory, and higher thinking.

Adjustment

Adjustment is the process of arriving at a balanced state between the need of an individual and one's satisfaction. It may be defined as a process of altering behavior to reach a harmonious relationship with the environment (Toheed, 2012). The term 'adjustment period' refers to a period of change where the individual is searching for a balance between himself and

the environment or a means of accepting the changes that has occurred recently within himself, around himself or in relation to others.

The term adjustment refers to the extent to which an individual's personality functions effectively in the world of people. It refers to the harmonious relationship between the person and the environment. In other words, it is the relationship that comes among the organisms, the environment and the personality. A well adjusted personality is well prepared to play the roles which are expected of the status assigned to him within the given environment (Toheed,2012).

Psychologists have interpreted adjustment from two important points of view, such as

Adjustment as an Achievement. Adjustment can be interpreted as a process, in working towards a goal and as the outcome of the process in the form of achieving the goal. When a poor child studies in the corner of a play ground because the absence of a proper place to study at home, he is said to be in the process of adjustment. As a result of that adjustment, if he secures good grades in the examination, it is an achievement. Thus 'adjustment as an achievement' explains how an individual can function effectively in changed circumstances (Toheed, 2012).

Adjustment as a Continuous Process. The process of adjustment is continuous. It starts at one's birth and goes on without stop till one's death. An individual as well as his environment go through modifications and changes constantly, as are his needs in accordance with the demands of the changing external environment. Consequently, the process or terms of an individual's adjustment can be expected to change from situation to situation. According to Arkoff (1968), there is nothing like satisfactory or complete

adjustment which can be achieved once and for all time. It is something that is constantly achieved and re-achieved by us (Mangal, 2006).

There are three areas where an individual needs to be adjusted to live a balance life.

These are: Family and home, School, and Society. But Students need to adjust mainly in two areas. They are

- Family and home
- School (Toheed, 2012)

Adjustment at Family and Home. If family relationships have been good, not only during childhood but also during adolescence, the person develops into a well adjusted individual. One of the important roles of family is presumed to be the socialization of the child. Home is first social institution where a child needs to get adjusted. When a child becomes aware of other individuals who comprise his social environment at home, he tends to regard them as a means through which he may attain personal satisfaction. He needs to be trained to modify his purely self centered interests and to cooperate in the activities of and for the welfare of others. This learning that happens within the child's home is transformed to societal adjustment, carried along through the different walks of life (Toheed, 2012).

Factors related to adjustment in the family. The early parent-child relationship plays a basic role in constructing relations with people throughout the life span. Parental relation and the nature of the family process have a remarkable effect on adjustment. The following are a few factors which can affect a child's learning towards adjustment are:

Parental divorce. Children of divorced parents show poorer adjustment than their counterparts in a non divorced family. Those children who have experienced multiple divorces are at greater risk (Toheed, 2012).

Step families. Due to increase in the divorce rate and re-marriage the number of step-families has also increased. Like the divorced families, children and adolescents in the step families also have adjustment problems as compared to their equivalents in the biological families or non divorced families. Their problems are much like that of the children of divorced families, including academic problems, externalizing and internalizing problems, lower self esteem, delinquency and so on (Toheed, 2012).

Single-mother families. Children living in single-mother or single-father family structures were more likely to report maladjustment when compared to those living in non divorced families where both the biological parents are part of the family structure (Toheed, 2012).

Working mothers. Working mothers who come home after heavy work pay little attention to their children due to shortage of time and the load of work. This situation effects the children in two ways: either they become adapted to the circumstances or they develop certain adjustment problems (Toheed, 2012).

Adjustment at School. Successful adjustment to school largely depends on past experiences at home and on children's skill and knowledge (Dockett, Perry & Tracey, 1997; Fabian, 2000). As children start school they face many challenges. Personal challenges occur as children take a new identity at school. Children face the challenges to adjust to the strange building, new teachers, new academic activities, and they need to mix with the new and more diverse group of children.

Dimensions of school adjustment. Following are the important dimensions of adjustment in school:

Adjustment to the new building and school routine. A child should not feel himself a stranger in the new school building, for which he requires to get adjusted to the newer environment. He should learn to feel comfortable while playing in the play ground, using the toilets, and while performing different activities at school (Toheed, 2012).

Adjustment to academic and co-curricular programs. This includes getting most out of specific studies and activities, overcoming learning problems and instructional difficulties, and making satisfactory progress in exploratory experience, which requires the child to adjust to the environment and the newly arisen requirements (Toheed, 2012).

Psychological adjustment. Development of good memory, desirable interest, good temper, and desirable attitudes referred to the psychological adjustment of child constitute the development of psychological adjustment (Toheed, 2012).

Adjustment to and within self. Adjustment to and within self explains self-understanding and acceptance, proper insight into needs, attitudes and values, overcoming emotional difficulties and the maintenance of health and personal hygiene (Toheed, 2012).

Social adjustment. This requires development of a harmonious relationship with other students and teachers, proper understanding of social needs, realizing one's requirements and the group's goals, and meeting effectively to the social requirements of the home, peer groups, culture and the community simultaneously (Toheed, 2012).

When children exhibit a range of social skills associated with cooperation, initiating interactions or assertion, and self control, they are more likely to adjust easily to school. Difficulties are likely to arise when children are: non compliant; disorganized; distractible; or when they are anti social and have difficulty considering the rights of others. Adjustment to schooling is influenced by a variety of personal and family characteristics, and societal trends. It is the interaction of the child's personal characteristics and their experiences that ultimately determines how a child adjusts to school (Margetts, 2002).

Factors facilitating adjustment at school. The above discussed dimensions of adjustment can be broken down to different factors that influence the process of adjustment of a child, such as:

Proper training to teachers. Teacher's training in educational psychology may help students in their adjustment. Teachers' personality and democratic attitude are also important factors which can promote adjustment in students.

Adequate curriculum. Curriculum should be planned, and transacted in such a way that it should fulfill psychological and social needs of students. Need fulfillment leads to better adjustment (Toheed, 2012).

Adequate recreational facilities. Facilities, such as sports, library, debates and excursions may help students in their adjustment (Toheed, 2012).

Classroom climate. If the classroom climate is affectionate and cooperative enough, it facilitates better adjustment in students (Toheed, 2012).

Proper relationships between administrations. Cordial relations between the Principal and teachers, between teachers, as well as teachers and office staffs also plays an important role in a creating harmonious and congenial environment in the school.

Evaluation system of the school. Evaluation should be rigid cum flexible so as to avoid high levels of subjectivity and unreliability. Numerical marking should be avoided and grades should be given to students. Due to low marks, students lose confidence in their life which then affects their mental health. Words that are harsh or judgmental can be avoided by the teachers.

Adjustment Mechanism. An adjustment mechanism is a process used by an individual to achieve satisfaction of needs indirectly. This helps reducing tensions and in assisting him/her in maintaining self-respect. With limits, adjustment mechanisms are desirable and very helpful in dealing with frustration. Lack of a proper adjustment mechanism carried to an extreme, can lead to behavior disorders. Following are a few adjustment mechanisms (Toheed, 2012):

Compensation. Compensation is a concept where the individual attempts to cover up his/her weakness in an area by exhibiting his strength in another. A student deficient in physical activities may compensate himself in showing good results in the academic field and vice versa.

Identification. Identification is a concept where an individual attempts to identify himself with successful people. To hide his own failures, a student may identify himself with his father and talk about his success.

Rationalization. Rationalization means shifting of responsibility for our failures to factors outside oneself such as a student attributing his failure to a stiff question paper.

Projection. This is a tendency to ‘push out’ upon another person one’s own unrealized, frustrated ambitions, or attribute to another one self’s faults. For example, school learners are often the victims of their parents’ projection of their former hopes for higher education and higher social status.

Day dreaming. The imaginative fulfillment of needs is called day-dreaming. Day dreaming provides mental relief to an individual if it is done with limits. It becomes very detrimental when it is carried to excess (Aggarwal,1995).

Self Esteem

Self-esteem is defined as a person’s overall sense of self-worth or personal value (Braden, 1969). According to Patel (2012), having a good self-esteem is essential, because

- Helps to feel good about things
- Gives the courage to try new things
- Helps to make independent decisions
- Honors oneself and helps make choices that nourish the mind and body
- Helps make healthy eating choices, exercising, or taking time off to do something

Self-esteem is about the value one places on oneself. It is the fundamental assessment an individual makes of his/her own worth as a human being. It is affected by the extent to which one considers living life according to self’s aspirations and standards and also by the actions and reactions of other people towards one. Feeling good about oneself not only means greater

enjoyment from life, but it can impact greatly on one's performance. But not many people make a high estimation of one's self-worth. Individuals often experience feelings of inferiority, self doubt and anxiety. Such limitations on self-esteem may mean that one

- Stays in the comfort zone avoiding new experiences
- Tortures oneself with doubts about self's capabilities
- Fails to assert oneself when the situation demands
- Gains only fleeting satisfaction from success
- Punishes self or blames others for misfortunes rather than taking responsibility for changes
- Expend energy comparing oneself with others and resenting success

Vicious Circle of Low Self-Esteem. The self esteem of an individual is not a onetime estimation, but is an experience which is part of a vicious circle. This circle not only shows the self esteem of an individual at a particular point of time but also influences the performance of other activities. Some common feelings that contribute to the circle are:

- Other people are generally brighter and more competent than oneself
- One can never stick at anything for long enough to see it through
- Other people always take advantage of one
- One is not an attractive person
- If one approaches those perceived attractive, one will suffer painful rejection

Causes of Low Self-Esteem. Low self-esteem is caused by certain factors depending on the background and status of the person, surroundings, age and association with the outside world, which according to Laishram (2013) are as follows:

- Child abuse and punishment
- Negligence
- Excessive criticism
- Comparison with other's expectations
- Physical appearance
- Peer pressure and bullying
- Financial and social position
- Lack of achievement
- Unemployment
- Betrayal
- Ill-health and trauma
- Negative experiences
- Negative beliefs
- Lack of assertiveness
- Lack of self confidence

Dealing with Low Self-Esteem. There are a few ways stated by Laishram (2013), by which low self-esteem can be dealt with effectively. In order to deal with low self-esteem, one has to:

- Avoid negative situations
- Use a journal to record positive outcomes and emotions
- Replace negative thoughts by positive ones
- Exercise regularly
- Have self-confidence

- Adopt a healthy lifestyle
- Reprogram one's self talk by using positive affirmations
- Develop positive beliefs
- Act assertively
- Acknowledge mistakes

Enhancement of Self-Esteem. Some strategies for enhancing self-esteem include eliminating negative self-talk, recognizing strengths and self-worth, accepting mistakes and rejections, etc (Frank, 2011) One should stop comparing self with others, stop putting oneself down, accept all compliments with gratitude, associate with positive and supportive people, make a list of past successes and positive qualities, get involved in work and activities and be true to oneself in order to enhance self-esteem (Fox, 2011).

Developing greater self-esteem includes oneself being

- More at ease and in control of situations
- Able to bounce back from failures and disappointments
- Positive and optimistic in one's expectations of self and others
- Able to act independently without being overly reliant on the views of others
- Ready to stand up for oneself when need arises
- Prepared to take on new challenges without being wracked by fear and worry about how things might turn out
- Honest and open with oneself and others

Need for the study

Advance in technology has completely eliminated the necessity of physical activity in daily life. At present, we live in an automated society that with a simple push of a button our needs are accomplished. This has brought a change in the lifestyle of the children of this generation. Children have lost the interest to be physically active. Unfortunately, many schools cancel physical education with the belief that more rigid classroom time would somehow stimulate students to learn more. This study is conducted to understand the relationship between physical activity and Academic Achievement, Adjustment and Self-esteem. The study will provide valuable foundation for information in this developing area of research. Though numerous studies have examined the effect of physical activity on various psychological aspects, this study would be more needed for the present situation, where in academic achievement and self-esteem are found to be highly related. Observations of present day children also gives hint for the link between how one's self-esteem can play a role in motivating oneself for being more adjusted and for putting more efforts into his/her academics. Such studies are also required to prove to the teaching as well as parenting fraternities of the relationship of the above said variables, all of them required for healthy survival.

REVIEW OF LITERATURE

Chapter II

Review of Literature

The review of literature relating to the study, ‘Effect of Physical activity on Academic Achievement, Adjustment and Self-Esteem in Adolescents’ includes studies conducted on

- Academic Achievement

- Adjustment

- Self-esteem

and the effect of physical activity on them.

Academic Achievement and Curriculum-based Physical Activity

Bunketorp, Malmgren, Olsson, Linden and Nilsson (2015) conducted a study titled ‘Effects of a Curricular Physical Activity Intervention on Children’s performance, Wellness, and Brain Development’ on 545 students, 122 in the intervention school, and 423 in 3 control schools. Health-related quality of life and socio-demographic data were collected with child and proxy versions of ‘Kidscreen’ and the Strength and Difficulties Questionnaire (SDQ). Overall, 79 students in grades 5 and 6 were recruited for an in-depth study, consisting of a submaximal oxygen consumption test and magnetic resonance imaging of the brain. Results suggested that Curriculum-based physical activity in schools may improve the academic achievement and psychological health of children, particularly for girls.

Academic Performance and Energy Expenditure

A study, 'Physical activity, physical fitness and academic achievement in adolescents: A self-organizing maps approach' was conducted by Chenoll et al (2015), where four hundred and forty-four students participated. The physical activity and physical fitness of the participants were measured, and the participants' grade point averages were obtained from the five participant institutions. Four main clusters representing two primary student profiles with few differences between boys and girls were observed. The clustering demonstrated that students with higher energy expenditure and better physical fitness exhibited lower body mass index (BMI) and higher academic performance, whereas those adolescents with lower energy expenditure exhibited worse physical fitness, higher BMI and lower academic performance.

Another study was conducted by Kibbe (2011) titled 'Ten Years of TAKE 10!: Integrating physical activity with academic concepts in elementary school classrooms', where TAKE 10!, a program for physical activity in classrooms was reviewed. Evidence from journal articles, published abstracts, and reports were examined to summarize the impact of 'TAKE 10!' on student health and other outcomes. The conclusions suggested that teachers were willing and able to implement classroom-based physical activity integrated with grade-specific lessons and the children participating in the TAKE 10! program experienced higher physical activity levels, reduced time-off-task, and improved reading, math, spelling and composite scores. Furthermore, students achieved moderate energy expenditure levels and studies suggest that BMI may be positively impacted.

Academic Achievement and Computer Games

In 2015, Hermoso and Marina attempted to study the 'Relationship of weight status, physical activity and screen time with academic achievement in adolescents'. The present cross-sectional study included 395 adolescents. The International Obesity Task Force cut-off points were used to define the weight status. Physical activity was assessed using the Physical Activity Questionnaire for Adolescents and screen time was assessed using several questions about television, videogame and computer use. Academic achievement was measured using the mean of the grades obtained in mathematics and language subjects. This study shows that when combined, obesity, low-medium levels of physical activity and excessive screen time might be related to poor academic achievement.

Academic Achievement and Physical Activity in Children

Howie and Pate performed a research titled 'Physical activity and academic achievement in children: A historical perspective' in 2012. The study aimed to discover how the decline in physical activity can affect academic achievement, through a historical perspective. It included review on the science of physical activity and academic achievement prior to and during the past 5 years. A total of 125 published articles were included and reviewed. The majority of conclusions showed a positive effect of physical activity on constructs related to academic achievement. The review suggested for the requirement of studying the relationship between the above variables by the use of a stronger methodology.

Nino et al (2009) researched on 'Physical Fitness, Obesity, and Academic Achievement in School children', a cross-sectional study including 893 school children, aged 9-11 years, from Cuenca, Spain. They measured academic achievement (mean of the grades obtained in several

core subjects), physical fitness (cardio-respiratory fitness, muscular fitness, and speed/agility), weight, height, and parental education. Multivariate logistic regression models were used to estimate the probability of being in high quartiles for academic achievement after controlling for potential confounders. The study found that Academic success is associated with higher fitness levels. Schools should consider strategies to improve fitness as part of their overall strategy for improving academic achievement.

Academic Achievement and Gender Differences

Kwak et al (2014) conducted a study on ‘Associations between Physical Activity, Fitness, and Academic Achievement’ to explore the associations between objectively assessed intensity levels of physical activity and academic achievement and test whether cardiovascular fitness mediates the association between physical activity and academic achievement. Cross-sectional data were gathered in Swedish 9th-grade students (n = 232; mean age = 16 years; 52% girls). School grades, pubertal phase, skinfold thickness, cardiovascular fitness, and physical activity were measured objectively. The results showed that among girls, academic achievement was associated with vigorous physical activity and not mediated by fitness, whereas in boys only fitness was associated with academic achievement.

Adjustment and Achievement Goals

Shim and Finch (2014) conducted a study titled ‘Academic and social achievement goals and early adolescents' adjustment: A latent class approach’. Data was collected from 440 middle school students. Analyses identified 3 latent classes based on academic goal orientation, and 2 social goal classes, resulting in a total of 6 (3 × 2) distinct latent groups. Subsequent analysis found that these 6 groups showed differences in academic adjustment (academic engagement,

help seeking behaviors, learning strategies, academic self-efficacy, academic worry), and social adjustment (perceived peer support, social satisfaction, social self-efficacy, and social worry).

The results indicate that middle school adjustment can be better understood when both academic and social achievement goals were taken into account.

Adjustment in Adolescents

A study named 'Psychosocial adjustment in aggressive popular and aggressive rejected adolescents at school' was conducted by Estevez, Emler, Cava and Ingles (2014). A sample of 457 adolescents, aged 11 to 18 years old (48% girls), participated in the study. Differences between groups were examined via a series of multivariate analyses of variance and discriminant function analyses. Results indicated that although aggressive popular adolescents revealed more academic involvement and social integration in the classroom, their levels of emotional and family adjustment were as adverse as those of aggressive rejected students.

Adjustment and Individual's Personality Factors

Vazsonyi, Ksinan, Mikuska and Jiskrova (2015) attempted to study 'The Big Five Personality Dimensions and adolescent adjustment: An empirical test across six cultures'. This cross-cultural study tested the measurement of the Big Five personality dimensions and the relationship between them and four measures of adjustment and well-being, namely measures of depression, anxiety, well-being, and self-esteem. Anonymous data was collected on 5835 middle and late adolescents from six different cultural contexts, namely China, Czech Republic, Slovenia, Spain, Taiwan, and Turkey. Findings from path analyses provided evidence that the Big Five factors explained from an average of 21% of the variance in anxiety to 26% in low well-being, net any effects by background variables. Consistent with some previous work, the

study provided new evidence on the links between the Big Five and four measures of adolescent adjustment and well-being across six distinct cultural contexts.

Fox, Hunter and Jones (2016) conducted study on ‘Children's humor types and psychosocial adjustment’. Participants were 1234 adolescents (52% female), aged 11–13 years, drawn from six secondary schools in England. Self-reports of humor styles and psychosocial adjustment were collected at two time points, 6 months apart. A cluster analysis was performed using the child humor styles scores at Time 1. Four humor types were identified: ‘Interpersonal Humorists’ (high on aggressive and affiliative humor, low on self-defeating and self-enhancing humor), ‘Self-Defeaters’ (high self-defeating humor, low on the other three), ‘Humor Endorsers’ (high on all four humor styles), and ‘Adaptive Humorists’ (high on self-enhancing and affiliative humor, but low on aggressive and self-defeating humor). ‘Self-Defeaters’ scored highest in terms of maladjustment across all of the outcomes measured. The analyses support the presence of distinctive humor types in childhood and indicate that these are related to psychosocial adjustment.

In a similar attempt, Pan and Bin yeh (2015) studied the ‘Mood Disturbance in Adolescents Screened by the Mood Disorder Questionnaire Predicting Poorer Social Adjustment’. In the first year, adolescents aged 15–17 years old from a Taiwanese senior high school (N = 1,151) completed the Chinese version of Mood Disorder Questionnaire (MDQ), Impulsiveness Scale, and a set of questions about risky behaviors. A subgroup of respondents (N = 184) picked randomly were interviewed to validate the diagnosis of bipolar disorder. In the second year, the Social Adjustment Inventory for Children and Adolescents was applied for the same sample of subjects for the measurement of their adaptive functions. Higher MDQ scores predicted risky behaviors in adolescents at baseline measurement. MDQ scores were found

significantly correlated with the total score on the Impulsiveness Scale. In the follow-up evaluation, participants with an MDQ score of ≥ 7 had poorer social adjustment. Findings suggest that untreated mood disturbance among adolescents lead to impaired social adaptive functioning in the forthcoming years.

Adjustment and Physical Activity

Goldfield et al (2011) attempted to study the relationship between ‘Physical activity and Psychological adjustment in adolescents’. 1259 students responded to surveys on leisure time physical activity, depressive symptoms, anxiety, and body image. Results suggested that those who performed greater bouts of vigorous physical activity exhibited better psychological adjustment than adolescents engaging in mild to moderate intensity activity.

Similar results were found by a study conducted by Koo and Lee on ‘An effect of physical activity-based recreation programs on children’s optimism, humor styles, and school life adjustment’ in 2015. This study put its purpose in identifying the effect of the participation in physical activity-based recreation programs on the optimism of children, humor styles, and school life adjustment. To achieve the study purpose, the study selected 190 senior students of elementary schools who participated in the physical activity-based recreation in the metropolitan areas as of 2014. The result of the study was that the effect of participation in physical activity-based recreation programs on the school life adjustment, participation period and participation intensity has a significant effect on school life adjustment, while participation frequency has a significant effect on regulation-observance and school life satisfaction.

The above results were found to ascertain the findings of Mousavi (2012) in a study on ‘Evaluation and Comparison of Individual and Group Sports in the Social Adjustment of

Students' to examine the role of physical activity in different sport fields. In order to compare the social skills of male students participating in the team and individual sports in Islamic Azad University of Zanjan, they chose 30 students randomly as the sample. In order to gather information demographic questionnaire and social skills questionnaire were used. The results of this study confirm a considerable effect of team sports on levels of social adjustment compared with individual sports.

Adjustment and the Influence of Parents

Raudino, Fergusson and Horwood conducted a study on 'The quality of parent/child relationships in adolescence is associated with poor adult psychosocial adjustment' in 2013. This study used data gathered over the course of a New Zealand longitudinal study ($N = 924$) to examine the relationships between measures of parental bonding and attachment in adolescence (age 15–16) and later personal adjustment (major depression; anxiety disorder; suicidal behaviour; illicit drug abuse/dependence; crime) assessed up to the age of 30. The study findings suggest that the quality of parent/child relationships in adolescence is modestly related to later psychosocial functioning in adulthood.

Yong um and kim (2015) attempted to study 'The influence of adolescent physical abuse on school adjustment in South Korea: The mediating effects of perceived parenting types'. Participants included 1354 South Korean adolescents from 26 schools in a metropolitan area of Seoul. Structural equation modeling and hierarchical regression analyses were conducted. Results suggested that the perceived acceptance fully mediated the association between physical abuse and school adjustment. Moreover, the negative association between physical abuse and

school adjustment is likely to be less strong for adolescents with high perceived acceptance than those with low perceived acceptance.

Following this, Gerard and Booth (2015) conducted a study on 'Family and school influences on adolescents' adjustment: The moderating role of youth hopefulness and aspirations for the future'. Using a school-based sample of 675 adolescents, this short-term longitudinal investigation examined the relationships among individual, family, and school influences on adolescent adjustment problems. Adolescents' perceptions of school climate and their sense of connectedness to school were negatively associated with conduct problems. A significant interaction between parental academic support and adolescents' academic aspirations was detected for the total sample, boys, and White youth, indicating that parental support serves a protective function against conduct problems for students with low academic expectations.

Adjustment and Peer Influence

Gower and Borowsky (2013) conducted study on the 'Associations between Frequency of Bullying Involvement and Adjustment in Adolescence'. The analytic sample included 128,681 6th, 9th, and 12th graders who completed the 2010 Minnesota Student Survey. Logistic regression and general linear models examined the association between bullying frequency and adjustment correlates including emotional distress, self-harm, physical fighting, and substance use while controlling for demographic characteristics. Gender and grade were included as moderators. Results showed that infrequent bullying perpetration and victimization were associated with increased levels of all adjustment problems relative to those who did not engage in bullying in the past 30 days.

Adjustment and Institutional Environment

Popp (2007) attempted to study the 'International student athlete perception of college sport and its effect on adjustment to college'. A national sample of international and domestic student-athletes from 11 NCAA Division I institutions completed an assessment comprising of the social adjustment and institutional attachment scales from the Student Adaptation to College Questionnaire (Baker and Siryk, 1989) and the seven factor scales from a modified version of the Purpose of Sport Questionnaire developed by Duda (1989). A total of 288 student athletes completed the instrument, 174 of whom were international student-athletes representing 49 different countries. Results showed international student-athletes scored significantly lower on the social adjustment and institutional attachment scales compared to domestic student athletes.

Another study by Raju and Rahamtulla (2007) on 'Adjustment Problems among School Students' intended to examine the adjustment problems of school students from urban and rural schools of Visakhapatnam district. The study was conducted on a sample of 461 students (197 boys, 264 girls) randomly selected from various government and private schools from urban and rural areas of Visakhapatnam district. The major findings of the study have shown that adjustment of school children is primarily dependent on the school variables like the class in which they are studying, the medium of instruction present in the school, and the type of management of the school.

Self-Esteem and Adolescence

Birkeland, Melkevik, Holsen and Wold attempted to study the 'Trajectories of global self-esteem development during adolescence' in 2012. Based on the data from a 17-year longitudinal study of 1083 adolescents, from the ages of 13 to 30 years, the average development

of self-reported global self-esteem was found to be high and stable during adolescence.

However, there was considerable inter-individual variance in baseline and development of global self-esteem. This study used latent growth mixture modelling to characterize three trajectory classes of global self esteem between ages 14 and 23 years: consistently high, chronically low, and U-shaped.

Self-Esteem and Individual Factors

Maltese, Alesi and Maria Alu conducted study on ‘Self-esteem, Defensive Strategies and Social Intelligence in the Adolescence’ in 2012. The subjects in this study were 786 students, attending the 3th or the 5th final years of high school (humanistic, scientific, technical and pedagogic schools) with a mean age of 17.2 years. Their self-esteem was measured by the Self-Esteem Scale (Rosenberg, 1965). Students were administered a questionnaire aimed at evaluating the Defensive Strategies consisting of 20 items, 10 for the proactive excuses and 10 for the retroactive ones (Alesi and Pepi, 2011). Finally they were given the Tromso Social Intelligence Scale (Silvera, Martinussen and Dahl, 2001) articulated in three subscales: Social Information Processing, Social Awareness and Social Skills. On the whole, results indicated negative significant correlations between Negative Self-Esteem, Proactive Excuses and all the three Social Intelligence domains. Retroactive Excuses correlated significantly and negatively only with Negative Self- Esteem. Instead, Self-Esteem was strongly and positively correlated with behavioural and emotional components of Social Intelligence.

Tyszkiewicz et al (2015) conducted a research to answer the question of ‘Does body satisfaction influence self-esteem in adolescents' daily lives?: An experience sampling study’. One hundred and forty-four adolescent girls (mean age = 14.28 years) completed up to 6

assessments per day for one week using Palm Digital Assistants, in addition to baseline measures of trait body satisfaction and self-esteem. Results showed considerable variation in both state-based constructs within days, and evidence of effects of body satisfaction on self-esteem, but not vice versa.

A study titled ‘Participation in organized sport and self-esteem across adolescence: the mediating role of perceived sport competence’ was conducted in 2014 by Wagnsson, Lindwall and Gustafsson. The purpose of the study was to test longitudinal (2 years across three occasions) associations between sport participation and self-esteem across adolescence (10-18 years), addressing the mediating role of perceived sport competence from a developmental perspective. Three waves of data were collected from three age cohorts (10-12, 13-15, and 16-18 years) of school-aged youth (N = 1358). The results demonstrate that Sport participation and Self-esteem were related across time and that Perceived sport competence had an important mediating role in this relationship, both from a skill development and a self-enhancement perspective. In the skill development model, the mediating role of Perceived sport competence was significantly stronger in the youngest cohort whereas the effect of Perceived sport competence on subsequent Sport participation in the self-enhancement model was significantly stronger in the 13-15 age group compared with the youngest age group.

Self-Esteem and Environment

A recent study was conducted by Cribb and Haase on ‘Girls feeling good at school: School gender environment, internalization and awareness of socio-cultural attitudes associations with self-esteem in adolescent girls’ in 2016. Two hundred and twelve girls ($M = 13.8$ years) attending either a single-sex or co-educational school completed measures on socio-cultural

attitudes towards appearance, social support and self-esteem. Though marginal differences between school environments were found, significantly higher internalization was reported among girls at the co-educational school. School environment moderated relations between internalization and self-esteem such that girls in co-educational environments had poorer self-esteem stemming from greater internalization. Thus, in a single-sex school environment, protective factors may attenuate negative associations between socio-cultural attitudes towards appearance and self-esteem in adolescent girls.

Another research by Weisman, Daniel, Schiefer, Mollering and Noam (2015) attempted to study 'Multiple social identifications and adolescents' self-esteem'. Early adolescents ($M = 11.4$, $SD = .95$) and mid-adolescents ($M = 15.9$, $SD = 1.18$) from Germany and Israel ($n = 2337$) were studied. Respondents described their social identification as students, family members, and as members of the majority national group and reported self-esteem. A longitudinal, cross-sectional and cross-cultural design revealed that, as predicted, multiple social identifications related positively to self-esteem concurrently; they also related positively to self-esteem longitudinally over the course of a year.

Self-Esteem and Physical Activity

Hasanpour, Tabatabaei, Alavi and Zolaktaf (2014) conducted a study on the 'Effect of aerobics exercise on self-esteem in Iranian female adolescents covered by welfare organization'. The sample consisted of 72 female adolescents aged 13 to 19 years. Participants were assigned into intervention and control groups by matched random sampling. Intervention included 8 weeks of aerobics exercise. Coppersmith Self Esteem inventory was administered before and after intervention as well as after one month follow-up. The results demonstrated a low level of

pre-Self-esteem in both groups. However, a significant improvement was seen in posttest of the intervention group which persisted even one month after intervention.

Contrasting evidence was stated by another study conducted by Liu, Wu and Ming (2015) on “How Does physical Activity Intervention Improve Self-Esteem and Self-concept in Children and Adolescents?: Evidence from a Meta-Analysis”. Twenty-five randomized controlled trial (RCT) studies and 13 non-randomized controlled trial (non-RCT) studies including a total of 2991 cases were identified. Significant positive effects were found in randomized control trials for intervention of physical activity alone on general self outcomes, self-concept and self-worth. There was no significant effect of intervention of physical activity alone on any outcomes in non-RCTs, as well as in studies with intervention of physical activity combined with other strategies. Intervention of physical activity alone is associated with increased self-concept and self-worth in children and adolescents.

A previous study suggested a relationship between physical activity and Self-esteem. Norlena, Harun and Rashed (2014) studied ‘The Effects of Selected Aerobic Exercise Modalities on Self-esteem among Female Students’. This study used the experimental design on a sample of 120 female under graduate students. The instrument used was the self – esteem scale. Data was analyzed used inferential statistics. Analysis of variance revealed that there was a significant difference ($F=81.299$, $P<0.01$) between the four modalities of aerobic exercise programs and post hoc test showed that combination of step dance aerobics and weight training program was most effective in increasing self-esteem among female-students.

Prusak et al (2013) performed a study on ‘The Effects of Fitness Testing on Social Physique Anxiety and Physical Self-esteem’. Students in college fitness classes ($N = 65$) initially

completed the Social Physique Anxiety Scale (SPAS) and the Physical Self-Perception Profile (PSPP). Most predictions were accurate (58%), but when inaccurate, participants received 'good news' significantly more often than 'bad news' (33% vs. 9% overall). There were no experimental effects on the SPAS or on the five PSPP scales, except that males scored higher than females on the general physical self-worth sub-scale.

A similar study was conducted by Schmalz, Deane, Birch and Davison (2007) titled 'A Longitudinal Assessment of the Links between Physical Activity and Self-esteem in Early Adolescent Non-Hispanic Females' on 197 non-Hispanic White girls. Girls' participation in physical activity and their global self-esteem were assessed when they were 9, 11, and 13 years old. Panel regression was used to assess the lagged effect of physical activity on self-esteem and the lagged effect of self-esteem on physical activity, controlling for family socioeconomic status (SES) and girls' body mass index (BMI). Results suggested that participating in physical activity can lead to positive self-esteem among adolescent girls.

A further study by Wojcicki et al (2013) titled 'Physical Activity, Self-efficacy and Self-esteem: Longitudinal Relationships in Older Adults' attempted to study the relationship between physical activity and Self-esteem among older adults. Community-dwelling older adults (N = 179) were recruited to participate in a 12-month exercise trial examining the association between changes in physical activity and fitness with changes in brain structure and psychological health. Physical, psychological, and cognitive assessments were taken at months - 1, 6, and 12. As a result the involvement in a 12-month exercise program increased the importance that participants placed on physical activity; this positive change was similar across exercise condition and sex.

The above studies conducted on the variables Academic Achievement, Adjustment, Self-esteem and the effect of physical activity on them state a positive relationship between them. The present research studies the inter-relation between these variables and the effect of physical activity on them. The study focuses on the relationship between the studied variables in a South-Indian context, assessing the variables in the present setting.

METHOD

Chapter III

Method

The procedure pertaining to the present study, 'Effect of physical activity on academic achievement, adjustment and self-esteem in adolescents' covered the following methods.

- Operational definitions
- Objectives
- Research Questions
- Hypotheses
- Area of the study
- Sample
- Tools
- Procedure
- Analysis of Data

Operational definitions

Physical Activity. Physical activity refers to the involvement in sports-related activities, both individual and team sports, where the individual is undergoing regular training.

Academic Achievement. Academic achievement refers to the ability of the students in securing marks in their examination, conducted as per the curriculum.

Adjustment. Adjustment is the process of adapting or becoming used to a new situation.

It covers the ability of the subject to adjust himself/herself in the areas of emotions, education and social.

Self-Esteem. Self-esteem refers to the perception one has about oneself, based on the evaluation he/she performs on his/her abilities, qualities, feedback, etc.

Objectives

The present study focuses on the following objectives:

- To find the effect of physical activity on Academic Achievement
- To find the effect of physical activity on Adjustment
- To find the effect of physical activity on Self esteem
- To find the correlation between Academic Achievement and Adjustment
- To find the correlation between Academic Achievement and Self esteem
- To find the correlation between Adjustment and Self esteem
- To find the gender differences in Academic Achievement, Adjustment and Self esteem

Research Questions

The above objectives have been framed in purview of answering the following research questions:

- Is there any effect of physical activity on Academic Achievement?
- Is there any effect of physical activity on Adjustment?
- Is there any effect of physical activity on Self esteem?
- Is there any correlation between Academic Achievement and Adjustment?
- Is there any correlation between Academic Achievement and Self esteem?
- Is there any correlation between Adjustment and Self esteem?

- Are there any gender differences in Academic Achievement, Adjustment and Self esteem?

Hypotheses

The hypotheses pertaining to the research questions evolved and the objectives framed are as under:

- There will be no difference in the Academic Achievement of students with respect to participation and non participation in sports
- There will be no difference in the Adjustment of students with respect to participation and non participation in sports
- There will be no difference in the Self-esteem of students with respect to participation and non participation in sports
- There will be no relationship between Academic Achievement and Adjustment in the sample population
- There will be no relationship between Academic Achievement and Self-esteem in the sample population
- There will be no relationship between Adjustment and Self-esteem in the sample population
- There will be no gender differences on Academic Achievement, Adjustment and Self-esteem in the sample population

Inclusion Criteria

- Boys and girls who are involved in sports at Zonal or District levels and undertake regular practice (For participant sample)

- Boys and girls who are not involved in sports (For non-participant sample)
- Boys and girls between the age range of 12-15 years
- Boys and Girls studying in classes 7th, 8th and 9th
- Boys and Girls who are part of Coimbatore

Exclusion Criteria

- Boys and Girls outside the age range of 12-15 years
- Boys and Girls studying in classes other than 7th, 8th and 9th
- Boys and girls with any physical or psychological health conditions
- Boys and girls involved in physical activities other than sports (Yoga, swimming, etc)
- Boys and girls who have emigrated from other districts or states

Area of the Study

The study has been conducted at the district of Coimbatore, situated in Tamilnadu, a Southern state of India. Data was collected from Shree Baldevdas Kikani Vidyamandir Matriculation Higher Secondary School, Coimbatore.

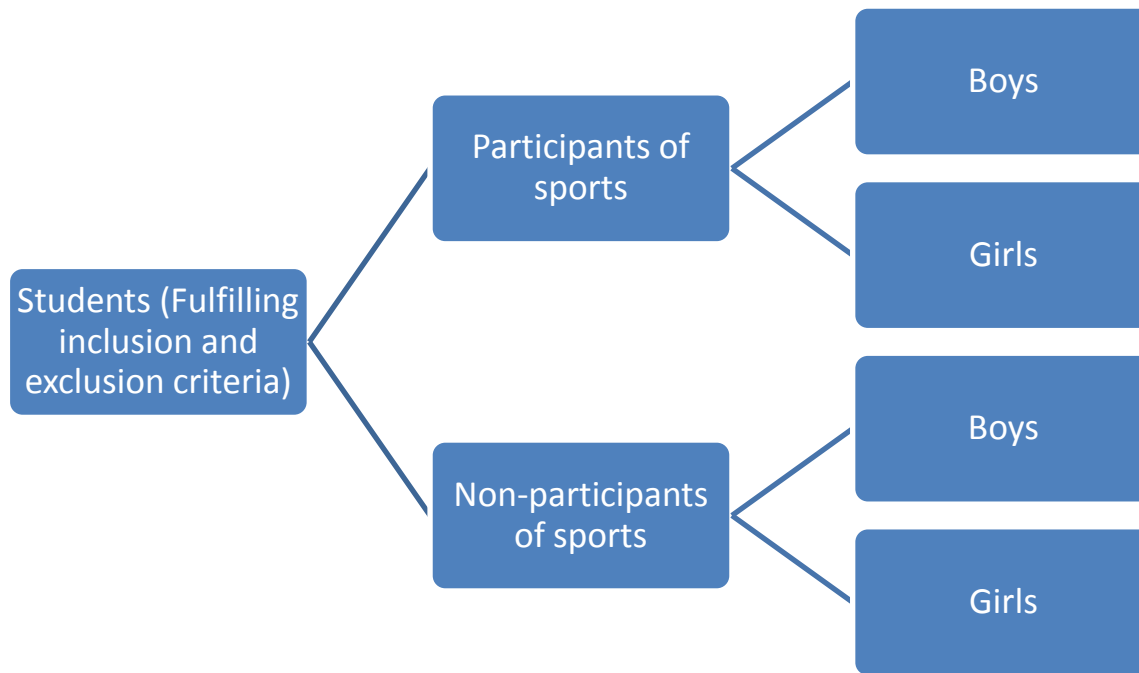
The reasons for selecting this area for the study are

- To gain a deeper understanding of the efficacy of sports-related activity on the variables among students living in this area, as similar studies has not been performed here
- To examine if the cultural and societal beliefs of the area has an effect on the efficacy of sports-related activities
- Availability of the required number of samples for the study
- Permission and co-operation provided by the school management

- Willingness of the sample

Sample

The sample for the study comprises of hundred boys and hundred girls (n=200) of Coimbatore district in the age range of 12 to 15 years, out of which fifty are participants of sports-related activities and are under regular training whereas the other fifty do not involve in sports-related activities. Purposive sampling technique was used to collect the data, so as to fulfill the inclusion and exclusion criteria stated by the researcher.



Tools

The following tools were used by the researcher to collect data from the sample for the present study.

Informed Consent Form. The willingness of the sample to participate in the study was collected using the Informed Consent Form developed by the researcher. The form

included a brief description of the study, details of the tests used, ethical disclosure and the contact details of the researcher wherein the subject had to make a signature to convey their willingness to participate in the study.

Socio-Demographic Status Profile. The Socio-Demographic Status Profile, developed by the researcher was used to collect the social and demographic details of the sample including age, class of study, location, etc. It also included items so as to gather information pertaining to the inclusion and exclusion criteria related to participation/ non-participation in sports, involvement in regular practice sessions, presence of any physical or psychological health issues, etc.

Adjustment Inventory for School Students. The Adjustment Inventory for School Students (AISS), constructed and standardized by A. K. P. Sinha and R. P. Singh (n.d.) was used to assess the level of adjustment of the sample. The scale consists of 60 statements. The tool can be used for school students between 10-16 years of age. It provides a total score for Adjustment and scores for three sub categories such as social, emotional and educational adjustment.

Rosenberg Self-Esteem Scale. The Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used to assess the level of self-esteem of the sample. The scale consists of 10 statements which have to be answered on a 4 point scale, including 'Strongly Agree', 'Agree', 'Disagree' and 'Strongly Disagree'. The subjects were asked to make a tick mark on the suited choice.

Academic Achievement Scores. The half-yearly examination marks of the students were used as a measure of the Academic Achievement. The marks obtained in five different

subjects was collected from the school management and the total marks secured out of 500 was used as a measure.

Procedure

After the variables for the study was chosen and the area of the study decided, the researcher collected information related to sports activities in different schools of the district. Based on the initial exploration, Shree Baldevdas Kikani Vidyamandir Matriculation Higher Secondary School was chosen and the researcher obtained permission from the school management for the data collection. The students were given an initial briefing about the nature of the study and the informed consent form as well as the Socio-Demographic Status Profile was given to them. Based on the details furnished in the Socio-Demographic Status Profile, the students who fulfilled the inclusion and exclusion criteria of the present study were chosen to form the sample. Data was collected from the selected 200 samples using the , which was scored and interpreted. The samples were given a post-data collection briefing on the scores and their interpretation in general. The data was then analysed to verify the stated hypotheses.

Statistical Analysis of Data

The data was analyzed by using SPSS software. In order to analyze the effect of physical activity on academic achievement, adjustment and self-esteem the mean and the independent sample t-test scores were considered. To further analyze the relationship between Academic Achievement and Adjustment, Self-esteem and Academic Achievement, Adjustment and Self-esteem, Pearson's Product-Moment Correlation method was used. The gender differences were analysed using independent sample t-test. Data collected and analysed through the above methods was used to discuss upon the finding of the study.

RESULTS AND DISCUSSION

Chapter IV

Results and Discussion

The study on, 'Effect of physical activity on academic achievement, adjustment and self-esteem in adolescents' was conducted in Coimbatore. The data was collected from two hundred subjects (100 participants and 100 non participants in sports), where they were selected using purposive sampling technique. The tools adopted to collect the data included Socio Demographic Status profile, Adjustment Inventory for School Students and Rosenberg self-esteem scale. The Academic Achievement of the students was assessed using the half-yearly exam marks, the total converted into percentage.

The data was analysed using independent sample t-test to find the effect of physical activity and gender on the Academic Achievement, Adjustment and Self-esteem respectively. The relationship between the variables was analysed using Pearson's Product-Moment Correlation.

Table 1

Effect of Physical activity on Academic Achievement

Variable	Participants (Mean)	Non participants (Mean)	t value	Significance
Academic Achievement	3.80	2.94	16.69	.00**

** = Significant at 0.01 level

Table I shows the effect of physical activity on Academic Achievement between participants and non participants in sports. It is observed that there is a significant difference between the two groups ($p > 0.01$) on their Academic Achievement, thereby rejecting the hypothesis that there is no relationship between Academic Achievement and physical activity. The mean scores of the participants ($x = 3.80$) and non-participants ($x = 2.94$) also show the presence of a difference on the academic achievement of the students. This can be attributed to the activation of the brain cells and other somatic cells when involving in physical activity. The intake of oxygen is found to be higher when involving in any type of exercise (Fedewa & Ahn, 2011), which in turn increases the receptivity of the cells, attention and concentration.

A similar study titled 'Physical activity, physical fitness and academic achievement in adolescents: A self-organizing maps approach' was conducted by Chenoll et al (2015) which also shows significant difference on academic achievement between those participating and not participating in physical activity. The results of the study showed a positive correlation between the amount of energy expended and academic achievement. Research evidence also shows an association between involvement in physical activity and reduced drop-out rates in schools (Trudeau & Shephard, 2008).

Table 2*Effect of Physical activity on Adjustment*

Variable	Participants (Mean)	Non participants (Mean)	t value	Significance
Adjustment	30.99	31.01	0.67	0.41 ^{n.s.}

n.s. = Not Significant

Table 2 shows the effect of physical activity on Adjustment between participants and non participants in sports. It is observed that there is no significant difference ($p > 0.05$) in Adjustment between the subjects with regard to physical activity. The mean value of both the groups have only a slight difference proving that both participants ($x = 30.99$) and non participants ($x = 31.01$) in participants are equal in the level of adjustment. Hence, the hypothesis stating the lack of relationship between Adjustment and physical activity has been accepted. This might be attributed to other extraneous variables such as family environment (Ramaprabou, 2014), temperament (Zalewski, Lenqua, Wilson, Trancik & Bazinet, 2011), school atmosphere (Goel, 2013), personal values (Simonovich, 2008), etc.

Table 3*Effect of Physical activity on Self-esteem*

Variable	Participants (Mean)	Non participants (Mean)	t value	Significance
Self-esteem	24.54	25.44	1.50	0.22 ^{n.s.}

n.s. = Not Significant

Table 3 shows the effect of Physical activity on Self-esteem between participants and non participants in sports. It is observed that there is no significant difference ($p > 0.05$) in the Self-esteem of the subjects in relation to physical activity, thereby accepting the hypothesis stating the lack of relationship between the same. The mean value of both the groups has only a slight difference proving that both participants ($x = 24.54$) and non participants ($x = 25.44$) in physical activity are almost equal in the level of self-esteem.

Though a few studies show evidence for the relationship between involvement in physical activity and Self-esteem (Tremblay, Inman & Willms, 2000), the lack of relationship in the above case can be related to other intervening factors such as relationship with the trainer, team cohesion, motivation, etc in those participating in sports (Coatsworth & Conroy, 2006) and other talents (Kort-Butler & Hagemen, 2011), personal evaluation, social and family support, etc in case of non participants.

Table 4*Relationship between Academic Achievement and Adjustment*

Variable 1	Variable 2	Correlation	Significance
Academic Achievement	Adjustment	-0.018	0.801 ^{n.s.}

n.s. = Not Significant

Table 4 shows Relationship between Academic Achievement and Adjustment. It is observed that there is no significant relationship ($p > 0.05$) between Academic Achievement and Adjustment of the subjects, thereby accepting the hypothesis stating the lack of relationship between the same. Previous researches in this area state evidence both for (Devi, 2015) and against (Kumar, 2013) the influence of Adjustment on Academic Achievement and vice-versa. This can be due to personal and environmental factors such as personality, school competence, school environment (Patrick, Yoon, Murphy, 1995; Sylva, 1994), peer influence (Johnson, 2000), socio-economic influences (Davis-Kean, 2005), parenting styles (Hanafi, 2008) and the like.

Table 5***Relationship between Academic Achievement and Self-esteem***

Variable 1	Variable 2	Correlation	Significance
Academic Achievement	Self-esteem	.114	.107 ^{n.s.}

n.s.= Not Significant

Table 5 shows the relationship between Academic Achievement and Self-esteem. It is observed that there is no significant relationship ($p > 0.05$) between Academic Achievement and Self-esteem of the subjects, thereby accepting the hypothesis stating the lack of relationship between the same. Similar results were obtained in the research by Vialle, Heaven and Ciarrochi (2011), where the relationship between self esteem and academic achievement was determined. A contradictory finding was reached in another study where there was a strong positive correlation between the variables (Rosli et al, 2012), thereby stating evidence for the influence of personal (Dunne, 2015; Amirazodi & Amirazodi, 2011) and environmental factors (Murillo & Garrido, 2012; Morgan & Walker, 2008) on both Self-esteem and Academic Achievement.

Table 6*Relationship between Adjustment and Self-esteem*

Variable1	Variable2	Correlation	Significance
Adjustment	Self-esteem	0.100	.158 ^{n.s.}

n.s.= Not Significant

Table 6 shows relationship between Adjustment and Self-esteem. It is observed that there is no significant relationship ($p > 0.05$) between Adjustment and Self-esteem of the subjects, thereby accepting the hypothesis stating the lack of relationship between the same. Opposing evidence has been stated by a study conducted in 2012 by Pasha and Munaf, where there was presence of correlation between Self-esteem and Adjustment whereas a previous study shows a lack of relationship between them (Ningamma & Armin, 2010). Such findings provide evidence for the role of other explicit and implicit variables in determining Self-esteem and Adjustment, but a lack of relationship between the two.

Table 7*Gender differences on Academic Achievement, Adjustment and Self-esteem*

Variables	Males	Females	t value	Significance (2-tailed)
Academic Achievement	3.19	3.56	0.044	0.004**
Adjustment	30.52	31.48	2.865	0.151 ^{n.s.}
Self-esteem	24.63	25.35	0.190	0.63 ^{n.s.}

** = Significant at 0.01 level; n.s. = Not Significant

Table 7 shows the gender differences on Academic Achievement, Adjustment and Self-esteem. It is observed that there is a significant difference ($p > 0.01$) between the two groups on Academic Achievement, whereas there is no significant difference ($p > 0.05$) for adjustment and self esteem. Though the differences in the mean scores of Adjustment (x (males) = 30.52; x (females) =31.48) and Self-esteem (x (males) = 24.63; x (females) =25.35) do indicate higher scores in females than males, the difference is not of statistical significance.

The presence of gender differences on Academic Achievement has proved by previous researches as well, where girls show higher levels of Academic Achievement as compared to boys (Dayioglu & Turut-Asik, 2004). The influence of gender on Adjustment (Brown & Portes

2006) and Self-esteem (Bleidorn et al, 2015) is in favour of girls than on boys, which is pronounced by previous studies as well. Hence the hypothesis stating the lack of gender differences on the above said variables has been rejected in the case of Academic Achievement but accepted in the cases of Self-esteem and Adjustment.

SUMMARY AND CONCLUSIONS

Chapter V

Summary and Conclusion

The study on, 'Effect of physical activity on academic achievement, adjustment and self-esteem in adolescents' was carried out with the following objectives:

- To find the effect of physical activity on Academic Achievement
- To find the effect of physical activity on Adjustment
- To find the effect of physical activity on Self esteem
- To find the correlation between Academic Achievement and Adjustment
- To find the correlation between Academic Achievement and Self esteem
- To find the correlation between Adjustment and Self esteem
- To find the gender differences in Academic Achievement, Adjustment and Self esteem

The study was conducted in Shree Baldevdas Kikani Vidyamandir Metriculation Higher Secondary School, Coimbatore. Two hundred samples which included hundred boys (50 participants and 50 non participants in sports) and hundred girls (50 participants and 50 non participants in sports) comprised the sample of the study. The samples were selected using Purposive sampling technique, so as to fulfill the inclusion and exclusion criteria. Consent forms were distributed to the participants to obtain one's consent to participate in the study. The tools adopted to collect the data included Socio Demographic Status profile, Adjustment Inventory for School Students and Rosenberg Self-esteem Scale. The Academic Achievement of the students was assessed using the half-yearly exam marks.

Hypotheses

- There will be no difference in the Academic Achievement of participation and non participation in sports
- There will be no difference in the Adjustment of participation and non participation in sports
- There will be no difference in the Self-esteem of participation and non participation in sports
- There will be no relationship between Academic Achievement and Adjustment
- There will be no relationship between Academic Achievement and Self-esteem
- There will be no relationship between Adjustment and Self-esteem
- There will be no gender differences on Academic Achievement, Adjustment and Self-esteem

Findings of the Study

- There is a significant difference in the Academic Achievement of the subjects with regard to participation and non participation in sports.
- There is no significant difference in Adjustment of the subjects with regard to participation and non participation in sports.
- There is no significant difference in the Self-esteem of the subjects with regard to participation and non participation in sports.
- There is no significant relationship between Academic Achievement and Adjustment in the subjects.
- There is no significant relationship between Academic Achievement and Self-esteem in the subjects.
- There is no significant relationship between Adjustment and Self-esteem in the subjects.
- There is a significant gender difference on Academic Achievement in the subjects.

- There are no significant gender differences on Adjustment and Self-esteem in the subjects.

Conclusion

The results show that physical activity has a great impact on Academic Achievement. The study highlights the need to educate teachers' and parents' to encourage students to participate in any kind of physical activity.

Recommendations

Recommendations suggested by the findings of the present study are as follows:

- To educate parents about role of physical activity on Academic success
- To educate teachers and school management about the need for physical education in the school system

Limitations of the Study

- It was a time-bound study.
- A larger sample could not be taken for the study as it was difficult to obtain permission from the authorities of the schools and was restricted to subjects within the city.
- Other extraneous variables that influence Academic Achievement, Adjustment and Self-esteem have not been studied owing to the practical difficulties.

Suggestions for Further Research

- The sample size can be increased to get true representation of the population.
- Other extraneous variables that influence Academic Achievement, Adjustment and Self-esteem can be studied.

- Other dependent variables such as team cohesion, motivation, parenting styles and well-being, etc, could have been studied along with the variables considered in the present study.

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APPENDICES

Appendix I

Informed Consent Form

You are being invited to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please take the time to read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information. The purpose of this study is to ascertain ‘Effect of physical activity on academic achievement, adjustment and self esteem in adolescents’.

Study Procedure:

You’ll be given two tests of paper-pencil type, along with the socio-demographic profile. You need to respond to all the items in the test. There is no expected time commitment for this study. Any amount of time can be taken to complete the tests.

There is no risk in undertaking the study. There will be no direct benefits to you for your participation in this study. Your responses to the questions will be anonymous and kept confidential. If you have any questions about the research or any related matters, please contact the researcher at rumank13@gmail.com.

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign this form. You are free to withdraw at any time and without giving a reason. There are no costs to you for your participation in this study. There is no monetary compensation for you to participate in this study.

Consent

“By signing this consent form, I confirm that I have read and understood the information and have the opportunity to ask questions. I understand that my participation is voluntary and I am free to withdraw at any time, without giving a reason and without cost. I voluntarily agree to take part in this study.”

Name of the Participant: _____

Signature: _____

Place: _____

Date: _____

Appendix II

Socio-Demographic Status Profile

Name :

Age :

Gender :

Class :

Address :

Are you a sportsperson :

If yes, what sport do you participate in :

For how many years have you been participating in it :

How many hours per week do you practice :

Are you suffering from any medical condition :

If yes, please state what condition :

Are you suffering from any psychological condition :

If yes, please state what condition :

Appendix III

Adjustment Inventory for School Students

Instructions: On the next pages, there are some questions covering your school problems those have two response alternatives 'Yes' and 'No'. Read every question carefully and decide whether you want to answer it with 'Yes' and 'No'. If your answer is 'Yes', then put a \checkmark mark under 'Yes'. If it is "No", put a \checkmark mark under 'No'. Remember your answers will not be told to any person, so please give the correct answer without hesitation. You may take your own time, but try it as soon as possible.

Sl. No.	Areas	Statements	Yes	No
1	A	Are you always afraid of something in your school?		
2	B	Do you avoid meeting your classmates?		
3	C	Do you forget soon what you have read?		
4	A	Suppose, your classmates do something unreasonable unknowingly, do you immediately get angry with them?		
5	B	Are you of a shy nature?		
6	C	Are you afraid of examinations?		
7	A	Do you worried of your teacher scolding you for your mistakes?		
8	B	Do you hesitate in asking a question when you don't understand something?		
9	C	Is it difficult for you to understand the lessons taught in the class?		
10	A	Are you jealous of those friends whom teachers appreciate very much?		
11	B	When some of your teachers are together, do you go there without any complex?		
12	C	Can you note down the lessons taught in class correctly?		
13	A	Do you envy those classmates whom you think better than you?		
14	B	Do you feel sometimes, as if you have no friend in your school?		

Sl. No.	Areas	Statements	Yes	No
15	C	Do you yawn when lesson is taught in your class?		
16	A	When you see, some students talking themselves, do you think they are gossiping about you?		
17	B	Are you able to get friendly easily?		
18	C	Are you satisfied with the method of the teaching of the teachers of this school?		
19	A	Do you express your anger to others when you are not asked to come forward in any programme in your school?		
20	B	When some students are talking together, do you join them freely?		
21	C	Do you think that the teachers in the school do not pay any attention to your problems?		
22	A	Are you often sad and distressed in the school?		
23	B	Do you like to join your classmates working together?		
24	C	Are you satisfied with progress in your studies?		
25	A	Do you feel the teachers neglect you?		
26	B	Do you try to attract the attention of your teacher yourself in the class?		
27	C	Is it a burden for you to study?		
28	A	Do you get yourself worked up and try to harm student when he / she complains against you?		
29	B	Do you often like to be alone?		
30	C	Are your teachers always ready to solve your problems, concerning your studies?		
31	A	Are often dissatisfied with your school?		
32	B	Do you establish a friendly relationship with the students in the school?		
33	C	Do your teachers in the school praise you?		
34	A	Do you try to rationalise your mistake?		

Sl. No.	Areas	Statements	Yes	No
35	B	Do you like to sit in the front seats in the class?		
36	C	Do you often get less mark in the examination?		
37	A	Do you resent it when your teachers ask you a question in the class?		
38	B	Do you have a friendly association with your fellow students?		
39	C	Do you like the idea of having more holidays in the school?		
40	A	Do you get wild when one of your classmates jokes with you?		
41	B	Do you openly take part in the school assemblies?		
42	C	Do you often quarrel with your classmates?		
43	A	Do you sometimes go home before the school closes?		
44	B	Do you take part in the school sports?		
45	C	Do some of your teachers often keep on scolding you for the studies?		
46	A	Do you often have doubt on others in the school?		
47	B	Are you shy of talking to the senior students in school?		
48	C	Do you look at your teachers respectfully?		
49	A	Do you show impertinence (arrogance) towards something good sent by a mate with whom you don't get along well?		
50	B	Do you have some intimate friends in this school?		
51	C	Do you pay attention to the lesson being taught in class?		
52	A	Do you develop resentful feelings towards you teachers when you get less mark?		
53	B	Are you always ready to help your classmates in every way?		
54	C	Do you borrow books and magazines from the school library and read them?		

Sl. No.	Areas	Statements	Yes	No
55	A	Are you often afraid of meeting the senior students?		
56	B	Do you enjoy irritating other students in the school?		
57	C	Do you take part in the debates?		
58	A	Do you feel mentally depressed when you meet the senior students?		
59	B	Do you lend your books or note-books gladly when your classmates ask for it?		
60	C	Are you interested in the things, regarding education?		

Scoring Table				
Adjustment Area	Emotional (a)	Social (b)	Educational (c)	Total (d)
Scores				

Appendix IV

Rosenberg Self-Esteem Scale

This questionnaire consisted of ten items as follows:

S. No.	Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
1	On the whole, I am satisfied with myself				
2	At times I think I am no good at all				
3	I feel that I have a number of good qualities				
4	I am able to do things as well as most other people				
5	I feel I do not have much to be proud of				
6	I certainly feel useless at times				
7	I feel that I am a person of worth , at least on an equal plane with others				
8	I wish I could have more respect for myself				
9	All in all , I am inclined to feel that I am a failure				
10	I take a positive attitude towards myself				

INSTITUTIONAL HUMAN ETHICS COMMITTEE



Avinashilingam

Institute for Home Science and Higher Education for Women

University

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Mrs. Judith Justin

11th March 2016

To
Ms. Shaik. Anjum
Department of Psychology
Avinashilingam Institute for Home Science and
Higher Education for Women
Coimbatore – 641 043

Dear Madam,

Ref : Your proposal No. IHEC/15-16/PSY/03 entitled "Effect of physical activity on academic achievement, adjustment and self-esteem in adolescents" submitted for approval of the IHEC

The Institutional Human Ethics Committee of our University hereby grants approval to your research proposal No. IHEC/15-16/PSY/03 entitled "Effect of physical activity on academic achievement, adjustment and self-esteem in adolescents" submitted by you. The Approval number for the same is AUW/IHEC/PSY-15-16/XMT-02.

We wish you all the best in your research endeavours.

Regards,

P.R.P.
11/3/16
Dr.P.R.Padma
Member Secretary

