AN ASSESSMENT OF RELATIONSHIP BETWEEN SOMATOTYPING AND SELECTED PSYCHOLOGICAL PARAMETERS OF SPECIAL HOME FEMALE ADOLESCENT STUDENTS

A Dissertation Submitted to the Department of Education Jadavpur University for the Partial Fulfillment for the Degree of Master of Philosophy in Education

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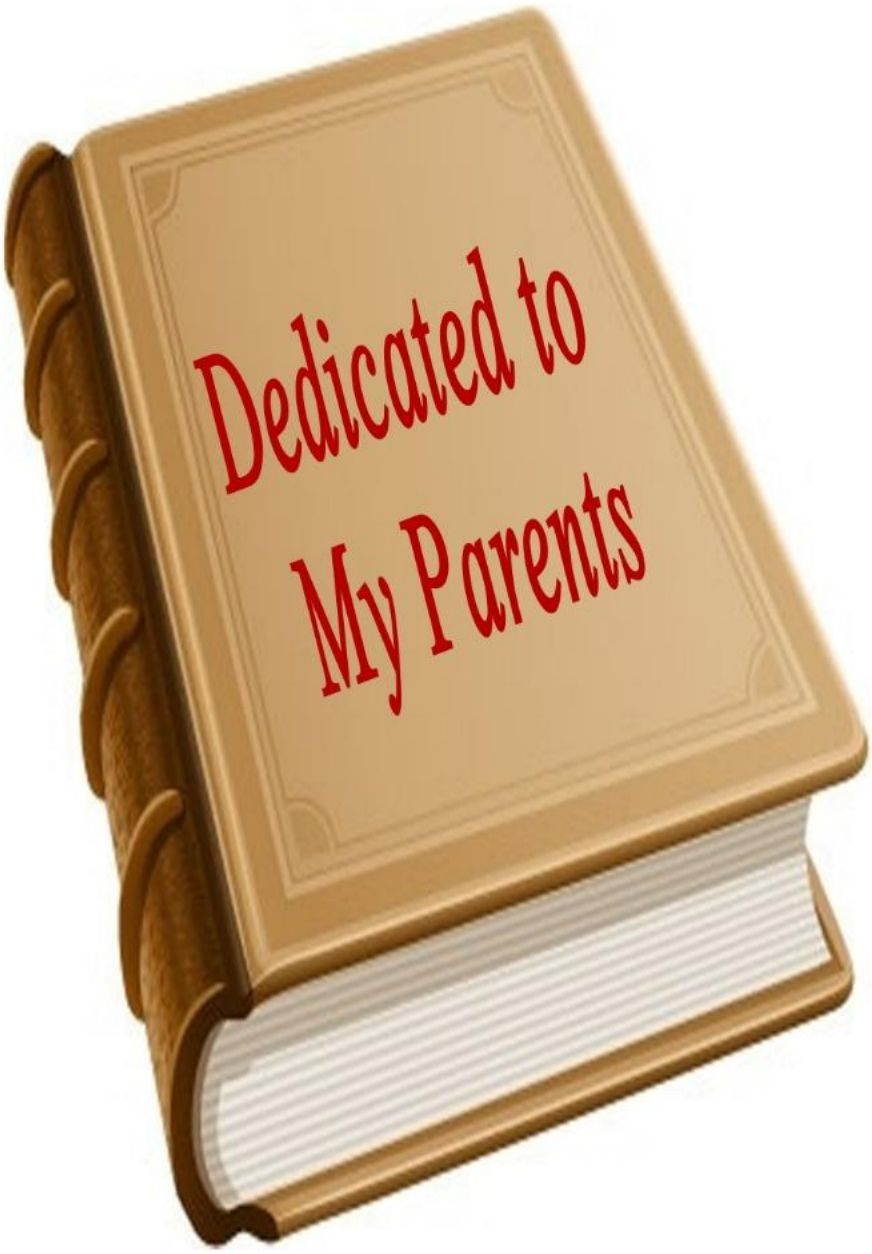
KOLKATA

2019


Dedicated to
My Parents

ACKNOWLEDGEMENT

For the preparation of this thesis, the researcher has received encouragement, assistance and co-operation from various persons.

In the very first place the investigator express her heartiest gratitude and respect to her guide Dr. Gopal Chandra Saha, Professor, Department of Physical Education, Jadavpur University for his valuable guidance, concrete suggestions and helpful criticism throughout the course of this study and preparation of the report.

The researcher expresses her special gratitude to Dr. MuktipadaSinha, Associate Professor, Depart of Education, Jadavpur University for his significant keystrokes in the research work.

The researcher is grateful to Dr. Bishnupada Nanda, Head of the Department of Education, Jadavpur University for his kind permission and sincere co-operation with providing necessary facilities during the course of her study.

Further researcher expresses her best regards and special thanks to SumantaDaw, Research Scholar, Department of Physical Education, Jadavpur University for his valuable suggestions, unconditional support and encouragement during the research work.

The researcher expresses her gratitude and thanks to all the friends who have helped her research work.

The researcher expresses special thanks and best gratitude to the authority of Gobindo Kumar Home, Panihati, for theircontinuous helped in the collection of data for the study.

The researcher is also indebted to various authors, publishers and organizations whose books, articles and websites, she consulted during the preparation for the study and to librarians of different libraries for their immense help and sympathetic co-operation.

Simultaneously the researcher expresses her thankfulness to Department of Education and to the Department of Physical Education, Jadavpur University for allowing her to conduct this study for her dissertation.

Finally, the investigator expresses her gratitude and special thanks to her husband Mr. Arijit Pal.

Lastly the researcher expresses her heartiest gratitude and respect to her parents and God, whose blessings and positive energy helped her in every moment for the completion of such a work.

Date: 09th May, 2019. ARPITA CHAKRABARTI

Place: Kolkata

DECLARATION

I, Arpita Chakrabarti do hereby declare that this dissertation entitled as**"An assessment of relationship between somatotyping and selected psychological parameters of special home female adolescent students"** submitted by me to the Department of Education, Jadavpur University, Kolkata, West Bengal, for the partial fulfillment of Degree of Master of Philosophy in education is a record of original research work carried out by me under the supervision and guidance of Dr. Gopal Chandra Saha, Professor, Department of Physical Education, Jadavpur University, Kolkata and that it has not been submitted for the award of any Degree, Diploma or any other recognition to any other candidate to any University or Institution before.

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This is to certify that the dissertation entitled as"**AN ASSESSMENT OF RELATIONSHIP BETWEEN SOMATOTYPING AND SELECTED PSYCHOLOGICAL PARAMETERS OF SPECIAL HOME FEMALE ADOLESCENT STUDENTS"**is a record of original research work done by **Arpita Chakrabarti**under my supervision and guidance. It contains the result of the candidate's personal investigation. The candidate has fulfilled all the necessary requirements according to the regulation of Jadavpur University, Jadavpur, Kolkata and fit for submission to the University for the partial fulfillment of Master of Philosophy in Education under the Department of Education.

I, further certify that no part of the dissertation has been submitted for any other degree.

She is duly permitted to submit her work to the university.

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CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF PHOTOGRAPHS

APPENDICES

CHAPTER-I

INTRODUCTION

CHAPTER - I

INTRODUCTION

In this chapter of research report the study has been introduced with its historical background and relevance to the field of education and psychology. This chapter also contains statement of the problem, objective of the study, delimitations of the study, limitations of the study, definitions and explanations of the related terminologies, assumption in the form of hypothesis and significance of the study.

1.1 GENERAL INTRODUCTION

Parents are among the most important people in the lives of young children.[1] From birth, children are learning and rely on mothers and fathers, as well as other caregivers acting in the parenting role, to protect and care for them and to chart a trajectory that promotes their overall well-being. While parents generally are filled with anticipation about their children's unfolding personalities, many also lack knowledge about how best to provide for them. Becoming a parent is usually a welcomed event, but in some cases, parents' lives are fraught with problems and uncertainty regarding their ability to ensure their child's physical, emotional, or economic well-being**(www.nap.edu)**.

At the same time, this study was fundamentally informed that the task of ensuring children's healthy development does not rest solely with parents or families. It lies as well with governments and organizations at the local/community, state, and national levels that provide programs and services to support parents and families. Society benefits socially and economically from providing current and future generations of parents with the support they need to raise healthy and thriving children **(Karoly et al., 2005; Lee et al., 2015)**. In short, when parents and other caregivers are able to support young children, children's lives are enriched, and society is advantaged by their contributions.

To ensure positive experiences for their children, parents draw on the resources of which they are aware or that are at their immediate disposal. However, these resources may vary in number, availability, and quality at best, and at worst may be offered sporadically or not at all. Resources may be close at hand (e.g., family members), or they may be remote (e.g., government programs). They may be too expensive to access, or they may be substantively inadequate. Whether located in early childhood programs, school-based classrooms, well-child clinics, or family networks, support for parents of young children is critical to enhancing healthy early childhood experiences, promoting positive outcomes for children, and helping parents build strong relationships with their children**(www.nap.edu).**

In addition, the issue of poverty persists, with low-income working families being particularly vulnerable to policy and economic shifts. Although these families have benefited in recent years from the expansion of programs and policies aimed at supporting them the number of children living in special home hasincreased **(Sherman and Trisi, 2014)**.Moreover, the portrait of different characteristics of adolescent children can be found from this study.

When looking at life aspects many things need to be taken into consideration. Some of those things involve what we base our thoughts on and what we believe to be true and what we believe to be false. What a lot of people do not realize is that our world is constructed on the ideas of theories. One theory specifically curious to me is the Constitutional Theory, specifically focusing on the idea of somatotyping.

Somatotype is a taxonomy developed in the 1940s by American psychologist William Herbert Sheldon to categorize the human physique according to the relative contribution of three fundamental elements which he termed "somatotypes". He named these after the three germ layers of embryonic development: the endoderm, (which develops into the digestive tract), the mesoderm, (which becomes muscle, heart and blood vessels) and the ectoderm (which forms the skin and nervous system)**(Hollin& Clive, 2012)**. His initial visual methodology has been discounted as subjective and largely discredited, but later formulaic variations of the methodology, developed by his original research assistant Barbara Heath, and later Lindsay Carter and Rob Rempel are still in academic use. **(Vertinsky, 2007)**

Constitutional psychology is a now neglected theory, also developed by Sheldon in the 1940s, which attempted to associate his somatotype classifications with human temperament types. The foundation of these ideas originated with Francis Galton and eugenics. Sheldon and Earnest Hooton were seen as leaders of a school of thought, popular in anthropology at the time, which held that the size and shape of a person's body indicated intelligence, moral worth and future achievement. **(Vertinsky, 2007)**

Before Sheldon there were general theories about the relationship between temperament and body-type going back to Hippocrates. Sheldon knew about the efforts of others, but chose to start from scratch to develop his method based on physical measurements that would facilitate scientific investigations that could be repeated by other researchers. When Sheldon began his research, body types were a vague concept with just a few general categories without any way of visualizing how the dimensions mixed by degrees with numerical values. Rather than imposing vague concepts gleaned from a small population of patients or acquaintances, Sheldon wanted to build on a foundation consisting of a large number of subjects. The initial population in his research consisted of 4,000 college students. He took photographs of each student from the front, side, and back. Special care was taken to control the type of camera, lighting, lens, and camera distance to avoid distortion. **(http://www.mysomatotype.com/body-type/)**

The classification of somatotype is made using anthropometric measurements and body composition or using photoscopic method. The earlier method is considered more accurate than the photoscopic method**(Carter, 2002)**. Evidences have demonstrated that somatotype varies with age, sex, nutritional status **(Koleva, Nacheva and Boev, 2000)**physical activity **(Reis et al., 2007)**.

Sheldon's "somatotypes" and their associated physical and psychological traits were characterized as follows**(Roeckelein, 1998; Kamlesh, 2011)**:

- **Ectomorphic**: characterized as skinny, thin, slender, slim, lithe, lanky, neotenous, flat-chested, lightly muscled, weak, fragile, delicate, and usually tall; described as intelligent, contemplative, melancholic, industrious, effeminate, submissive, inferior, perfectionist, quirky, idiosyncratic, sensitive to pain, soft, gentle, loving, helpful, placatory, calm, peaceful, vulnerable, humble, self-deprecatory, socially awkward, solitary, secretive,

concealing, self-conscious, introverted, shy, reserved, defensive, uncomfortable, tense, and anxious.

- **Mesomorphic**: characterized as hard, rugged, triangular, muscular, thick-skinned, and with good posture; described as athletic, eager, adventurous, willing to take risks, competitive, extroverted, aggressive, masculine, macho, authoritative, strong, assertive, direct, forthright, blustering, dominant, tough, strict, fortunate, vigorous, energetic, determined, courageous, and ambitious.
- **Endomorphic**: characterized as fat, round, heavy, usually short, and having difficulty losing weight; described as open, outgoing, sociable, amiable, friendly, affectionate, accepting, happy, pleased, satisfied, laid-back, easily complacent, lazy, ungenerous, selfish, greedy, well-endowed, and slow to react.

So it can be said that the somatotype is the morphological characteristic of the body built which is a phenotypic entity capable of changes with ageing, growth, exercise and nutrition **(Carter & Heath, 1990)**. It is defined as the quantification of the present shape and composition of the human body and expressed in a three -number rating components representing endomorphy, mesomorphy and ectomorphy respectively, always in same order. Endomorphy is the relative fatness, mesomorphy is the relative musculo -skeletal magnitude, and ectomorphy is the relative linearity or thinness of the physique **(Norton & Olds, 1986)**. It is important to recognize the somatotype as a description of the body in general, and does not answer more specific questions related to the specific dimensions of the body **(Carter & Heath, 1990)**.

Heath-Carter phenotypic somatotype ratings, covering as they do wide variations in shape, absolute and relative body size, and body composition, are well suited for analyzing the widely recognized changes in human beings during growth, maturation and process of aging **(Carter & Heath, 1990)**.With minor limitations, the Heath and Carter method (1967) can be applied to both sexes at all ages for studying growth and maturation **(Heath & Carter, 1967).**

Studying somatotyping is important for several reasons. Somatotyping is linked to pathological conditions **(Kalichman, Livshits&Kobyliansky, 2004)**, morphometric variations in children **(Tambovtseva&Zhukova, 2005)** and identification of particular physical

characteristics of athletes in a variety of sports and competitive levels. Populations differences in mean somatotypes can be attributed to nutritional or activity adaptations as well as to genetic background **(Rebato, Jelenkovie&Salces, 2007)**.

Somatotype assessment of adolescents has met with varying degree of success. In addition, physical characteristics as well as psychological information especially the female students who are living in a home may contribute in terms of some important aspects of life.

Somatotype has been used in its original and modified forms, in a variety of ways to note similarities and differences among diverse groups or populations. Differences in physique exist among populations in due to differences in geography and socio-economic status as well as cultural variance. Children exhibit different somatotype patterns relative to adults. Although there are some changes in somatotype between 6 and 12 years of age, there are greater changes during adolescence and into adulthood **(Buffa et al., 2003)**.

Adolescence is defined as the period of transition between childhood to adulthood that involves biological, cognitive, and socioemotional changes. A key task of adolescents is preparation for adulthood. Indeed, the future of any culture hinges on how effective this preparation is **(Larson et al., 2002)**. Adolescent referred as a period of transition and challenge for children and their families both. It is a psychological process of change accompanying the period from the onset of puberty to the attainment of adulthood whereas puberty refers to the physical process of maturation. It is a critical important stage between childhoods to adulthood. Broadly, it covers three stages namely, early adolescence (11-14 years), middle adolescence (14-17 years) and late adolescence (17-20 years).

The concept of self-efficacy which relates to judgment people make concerning their ability to execute behaviour relevant to a specific task or situations. It refers to the confidence in once ability to behave in such a way or to produce a desirable outcome **(Bandura, 1977)**. Self-efficacy makes a difference in how people feel, think and act. Self–efficacy pertains to optimistic belief about being able to cope with a variety of stressors. People with high self-efficacy choose to perform more challenging and difficult task. In terms of feeling low level of self-efficacy is concerned with depression, anxiety and helplessness. People with high level of self-efficacy

approach life with a can – do attitude that allows them to see challenges as problems to be solved instead of threats that must be avoided. They also set appropriately challenging goal for themselves and maintain a strong commitment to those goals. People with strong self–efficacy enjoy life because they are highly engaged. When they encounter stressful situations their belief in their ability to manage situations to their benefit allows being self-confident. People with low level of self-efficacy typically view difficult task through the lens of fear. Low self –efficacy becomes a cycle: lack of faith in ability produces lack of action. Lack of action contributes to more self doubt. They become doubtful of their own capabilities and are more easily stressed and more frequently depressed than people with high level of self-efficacy. The self–efficacy has also been linked to the expectancy theory **(Vroom, 1964)** by suggesting that the expectations can influence the thought patterns, emotional reaction. A number of structural conditions impact self-efficacy: social class, race, level of educations rural and urban backgrounds and gender all affect an individual global self- efficacy **(Birch, 1987)**. Family structure to have a direct relationship to adolescent's self-efficacy. Family have a significant place sometimes for domestic abuse demoralization, negative feedback and criticism are the most extreme example of negative social persuasion. People need positive mastery experiences to develop and maintain high level of self-efficacy. Wellbeing is a broad concept that includes experiencing pleasant emotion, low level of negative mood and high life satisfaction. It is not only the lack disease or illness or the absence of anxiety or depression. It is a state of complete physical and social health. It can also be defined as person's cognitive effective evaluation of his or her life **(Schneewind, 1995)**.

Self-efficacy is also one of the factors that influence an increase in the belief that one can manage to solve problems, increasing the inner-motivation needed towards formulating goals as well as increasing our initiative in taking action. Individuals with high self-efficacy augment the amount of effort they put in achieving an objective when obstacles are encountered or when they are unhappy with a certain outcome. Despite the negative emotions one feels when dealing with failure, such individuals mobilizes and renew their efforts. In contrast, individuals with a low sense of self-efficacy who encounter obstacles or failures frequently become apathetic, depressed and abandon their goals. Self-efficacy may therefore have both a direct and indirect impact on making healthy behavioral choices, which includes physical activity. Another factor that was pointed out in literature on adolescent physical activity levels was self-esteem. It is defined as the feeling individuals have of themselves, one that is encompassed by numerous psychological

dimensions and influences the behavior of individuals **(Koft&Doliński, 2000)**. Although self-esteem can be made up of these different individual dimensions (appearance, knowledge, intelligence, specific skills), not all are equally important for a given individual. Self-esteem can be assessed intentionally, from information gathered on one's ability, such as by the implementation of a task at hand, or unintentionally, based on an evaluation (by assessing oneself or by being assessed by others) of the results of their own actions. Among the information derived from different sources about oneself, there is a number of interactions that make up global self-esteem; it is a collection of all the elements of self-esteem. Another differentiating factor of physical activity is body image, usually understood as the internal representation of one's external appearance, i.e., the perception of one's body **(Thompson, Heinberg&Antabe, 1999)**. It is closely connected to the emotional sphere (thoughts and feelings), and in some cases it can have an impact on an individual's behavior. Depending whether an individual's body image is positive or negative, it can lead to either positive emotions or depressive bouts, or even behavioral disorders resulting from too many negative emotions.

Self-efficacy beliefs have also been strongly linked between body image, physical activity and participation in sports has been reported to improve body image and increase self–esteem. **Ikeda &Naworski (1992)** argue that "body image and self-esteem" are woven together to form the fabric of how we feel about ourselves. Therefore, improving self-esteem is likely to improve body image and vice versa. Similarly, **McCabe &Ricciardelli (2003)** used 507 adolescents to investigate the role of gender, age, and body mass index in the development of self-esteem, body image concerns and weight loss. It was found that children with low self-esteem were more dissatisfied with their bodies. The researchers concluded that self-esteem is more likely to influence body image among girls than boys. In similar **Steese, et al. (2006)** surveyed 63 girls ranging in age from 10 to 17 years to investigate the positive impact on self-efficacy, self-esteem, perceived body image, locus of control and perceived social support among girls who participated in Girls' Circle Program. The findings showed significant increases in perceived social support, self-efficacy, and perceived body image, supporting the hypothesis that the Girl's Circle model is effective as gender specific intervention.

In present society, it is a common occurrence for one's body to be on constant display. This can lead one to experience to an array of emotions, as any social context is subject to human

opinion and judgment **(Hausenblas& Downs, 2001)**. To provide a theoretical framework for this phenomenon, self-presentation theory suggests that individuals attempt to influence the perceptions of those around them **(Schlenker& Leary, 1982)**. According to these authors, persons may bring special attention to certain aspects of the self that they are fond of (personality aspects or accomplishments) while deemphasizing others that cause particular amounts of stress or anxiety (i.e. physique or body image). Further, an awareness of the perceptions others have can often lead to anxiety associated with behavior or performance in social settings, which may lead to feelings of inferiority thereby decreasing one's self-esteem.

Self-presentation is often a goal-oriented behavior; those who present themselves to others are typically aware that they are doing so and therefore take specific actions in attempting to form a particular impression in the minds of those surrounding them **(Schlenker& Leary, 1982)**. Specific motivations behind achieving one's goal of a positive self-presentation include the longing for confirmation of one's own self-perceptions, peer approval, respect, fear of the negative perceptions of others, or seeking a sense of autonomy. The awareness of the interaction between one's own self-perceptions and the perceptions of those around them in a social setting can cause feelings of anxiety to occur and thereby eliciting the response of having self-presentational apprehensions.

It has been also been observed in case of well-being. It defined as a dynamic state characterized by a reasonable amount of harmony between individual's abilities, needs and expectation, and environmental demands of opportunities **(Levi, 1987)**. The connectin between Well-being and somatotyping is viewedas a harmonious satisfaction of different types of persons desire and goals **(Checola, 1975)**. Psychological well-being is the subjective feelings of contentment, happiness satisfaction with life's experiences and one's role in the world of work, sense of achievement, utility belongingness, and no distress dissatisfaction or worry etc. **(Sastre&Ferriere, 2000)** showed that various factors affect the relationship between somatotyping and adolescent's level of psychological well-being.

Well-being is a topic in trend in social sciences, even the definition of this concept is not yet estab-lished and unitary. The notion of well-being is in tight relation and sometimes used interche-angebly, with quality of life, physical and mental health promotion, good living, or happyness. Quality of life is also the subject of academic debate in economics aiming to measure

and compare changes in quality of life within and between communities, cities, regions, and countries **(Galloway, 2006)**. Over the past 40 years grow the idea that economic indicators alone could not reflect accurate the quality of life of populations. New indicators and datasets were created to capture social and environmental aspects that Gross National Product failed to incorporate. Therefore, social and psychological indicators have been developed to assess various facets and dimension of subjective well-being. This included indicators measuring education achievements, health outcomes, and environmental degradation **(Conceicao&Romina, 2008)**. Major studies on well- being and quality of life are now undertaken by the most important global organizations such as UNO, the OECD, or WHO. Subjective well-being is related to individual perceptions, opinions, beliefs, cultural pat- terns, and feelings about own life. The range of variables showing significant associations with subjective well-being includes health, employment status, income and material wealth, education, marital status, social relationships, migrant status, trust in others, volunteering, governance, confidence in institutions, freedom, water and air quality, personal safety, and crime—among others **(Boarini, 2012)**. Still the most important drivers of well-being seem to be considered the income, social connection, and health. Diener et al. **(Diener, Scollon& Lucas, 2003)** proposed a structure of four groups of concepts that summarize subjective well-being: 1. Positive emotions: glad, strong, proud, determined, interested, etc. 2. Negative emotions: worried, sad, guilty, insecure, angry, etc. 3. Satisfaction of life: satisfaction, fulfillment, sense, achievement, aims, etc. 4. Domain satisfaction: family, career, health, financial status, living conditions, etc**(Diener, Scollon& Lucas, 2003).** Well-being develops individually and depends on the attitude individuals evaluate their lives. The psychological aspect of well-being has important repercussions on self-esteem and self-confidence and has a wide range of consequences for how a person deals with society and life. In the last 20 years, psychologists have had a constant regard of self-esteem as a significant psychological predictor for health and quality of life. An important number of studies has linked the self-esteem concept with a wide range of topics from violence and aggression **(Baumeister, Smart &Boden, 1996)** to life satisfaction **(Zang& Leung, 2002)**, moderated by age, gender or ethnicity. Regarding the relationship between self-esteem and body image perception, studies have revealed a preference for Caucasian female samples confronted with Western cultural patterns.

In this relation the adolescent girls deserve to be healthy, happy, safe, and to have the opportunity to fulfill their personal and social goals. When given the proper tools, support, and platforms, and when listened to as experts on their own needs and experiences, girls will demonstrate their brilliance and power to shape their lives and that of their households and communities. Despite their potential, in every part of the world, adolescent girls remain one of the most marginalized and vulnerable populations, falling through the gulf between development efforts targeting children and adult women. Furthermore, adolescent girls are diverse, with varying experiences, skills, and identities that intersect and affect the resources and opportunities that they are able to access. Wellbeing is multi-dimensional, including physical, emotional, civil, and social dimensions that combine and affect an individual's experiences and actions. Ensuring adolescent girls' wellbeing and improving their lives in measurable and sustainable ways requires more than broad cross-sector commitment and integrated approaches. It requires accountability, reliable and quality resources, robust evidence, collaborative and targeted programs, long-term investment, political will, and above all, listening to and working with girls as equal partners. Addressing the complex needs of adolescent girls requires that all actors see each adolescent girl as a whole person, with unique and intersecting needs and talents, and that adolescent girls have the opportunity to be heard, to express their needs, and to have those needs met **(www.womenstrong.org)**.

The definition of well-being has different interpretations and is thus unclear, and a range of similar terms such as happiness and life satisfaction are used interchangeably **(Stanley & Cheek, 2003)**. **Dodge et al., 2012** regard well-being as a balance point between an individual's resource pool and the challenges she/he faces. Their definition is based on the concept of a set point of well-being, the inevitability of equilibrium/ homeostasis and a fluctuating relationship between challenges and resources. Various studies have demonstrated that there are sex-related differences in health and well-being **(Vingilis, Wade & Seeley, 2003)**: girls experience more and varied symptoms than boys, and seem to exhibit more symptoms as they age **(Delfabbro, 2011)**. The finding that girls are exhibiting more adverse symptoms cannot be regarded as a transient phenomenon **(Valimaa, 2000)**. Because knowledge about adolescents' own definitions of well-being is partly narrow **(Kuronen, 2011)** and adolescents conceptualize well-being differently **(Aminzadeh, 2013)**, consultations with young people could provide valuable information that would enable the design of effective interventions (1820). This has also been emphasized by

UNICEF's Convention on the Rights of the Child: children have the right to have their say in matters that concern them **(UNISEF, 2014)**. Young people are sensitive to how they are involved and heard in matters that concern them **(Brydon, 2011)**.

Adolescence is a key developmental period characterized by significant changes in brain development, endocrinology, emotions, cognition, behavior, and interpersonal relationships. From the very origins of psychology, adolescence has been considered a difficult stage in the process of development into adulthood. However, some empirical studies have shown that in reality, the majority of adolescents go through this stage successfully without experiencing particular traumas, reporting a level of relative well-being **(Offer and Schonert-Reichl 1992)**. Well-being in childhood and adolescence is a growing field of study and discussion; however, different authors use different concepts to refer to the well-being phenomenon. The definition of well-being used to organize this chapter was that of **Andrews et al. (2002)** who noted that well-being is: 'healthy and successful individual functioning (involving physiological, psychological and behavioral levels of organization), positive social relationships (with family members, peers, adult caregivers, and community and societal institutions, for instance, school and faith and civic organizations), and a social ecology that provides safety **(Andrews et al. 2002)**. This definition was used because the inclusion of many different dimensions of adolescent lives as well as the importance of relationships and formal and informal supports meant it was coherent with the conceptualization of the adolescent as described in the holistic perspective **(Bergman 2001)**.

Adolescence is a time when identity development takes center stage. Developing a coherent self involves individual as well as interpersonal processes. The selfconcept can be described as the cognition and evaluation of specific aspects of self, the ideal self, and the overall self-regard including, gender identity, family status, personal goals, and self-esteem. The child and adolescent self-concept has been found to vary with gender, age, and educational transition. Self-concept becomes more organized and hierarchical through adolescence, and the level of the self-concept decreased during preadolescence and increased during late adolescence and adulthood **(Marsh 1989)**. The process of individuation is often related to higher well-being during adolescence **(Allen et al. 1994)**.

A negative self-concept is regarded as both a risk factor influencing social functioning and as problem behaviors during adolescence contributing to different kinds of mental health

problems and protective factors that impede psychological problems and promote general well-being. A number of empirical studies have linked a negative self-concept to aggressive behavior, rule-breaking and delinquent behavior, anxiety and depressive symptoms, and eating problems **(O'Dea, 2006)**. Self-esteem is the most important part of the self and evaluates the self-concept. Self-esteem refers to a smaller, evaluative component of an individual's self-perception. Self-esteem is considered to be an individual's positive or negative attitude toward the self as a totality and as such has cognitive and affective components. Conceptually, self-esteem is closely related to self-worth, where people with high self-esteem see themselves as having worth, whereas people of low self-esteem may be dissatisfied with themselves. Adolescent self-esteem has received a great deal of attention because, on average, it declines during adolescence, particularly for girls **(Robins and Trzesniewski, 2005)**.

However, results from a longitudinal study have shown that self-esteem in some adolescents increases over the course of adolescence, particularly for those who conform to normative gender roles **(Block and Robins, 1993)**. Low self-esteem has been considered an important symptom of depression, and self-esteem has been found to be the most important factor for retaining psychological and social health during adolescence **(winter, 1996)**. Studies have convincingly shown that low self-esteem is related to internalizing types of child and adolescent psychopathology, including anxiety **(Muris et al., 2003)**, depression **(Harter, 1993)**, and eating problems **(Stice, 2002)**. The relationship between self-esteem and externalizing problems such as aggression, antisocial behavior, and delinquency is less clear and subject to debate. Some authors have argued that externalizing problems are associated with high self-esteem **(Baumeister et al., 1996)**, whereas others have found these problems to be linked to low levels of self-esteem **(Donnellan et al., 2005)**. Research on the relationship between self-esteem and substance abuse is also inconclusive, with some researchers reporting that adolescents with low self-esteem are more likely to engage in drug or alcohol abuse **(Carvajal et al., 1998)**, while others have observed no relationship between self-esteem and substance abuse **(Kokkevi et al., 2007)**.

The construction of a sense of a personal self and the establishment of a healthy sense of independence, as revealed in tasks regarding identity and autonomy, are particularly salient for adolescent girls and could be considered as a tool for the analysis of different types of well-

being. Empirical evidence shows associations between exploration of body type and well-being, suggesting that the process of exploration may assume the significance of a personal self-confidence about one's personal identity, and for these reasons, the researcher constructed such study with reference to the special home.

1.2 STATEMENT OF PROBLEM

The purpose of the study was to find out the relationship between somatotyping and selected psychological parameters of the female who are living in a disciplined and bounded area and accordingly the problem was stated as **"AN ASSESSMENT OF RELATIONSHIP BETWEEN SOMATOTYPING AND SELECTED PSYCHOLOGICAL PARAMETERS OF SPECIAL HOMEFEMALE ADOLESCENT STUDENTS"**

1.3 OBJECTIVES OF THE STUDY

The objectives of the study were as follows:

1. To determine the different somatotype component of adolescent female students.
2. To assess the well-being of adolescent female students.
3. To assess the self-efficacy of adolescent female students.
4. To find out the relationship between somatotyping and selected psychological parameters of adolescent female students. .

1.4 DELIMITATIONS

1. **Design of the Study**-The present study was survey research. Inthis study the researcher wanted to know about the relation between somatotyping and selected psychological parameters of adolescent female students.
2. **Sample**-In the present study, researcher hadselected 50adolescence Orphan female students from Govindo Home Panihati, West Bengal. Random sampling technique was used for the selection of the sample.

3. **Tool**- Researcher used the following tools:
   a) Well-Being Index (WBI–CVSV) by V. L. Chauhan and Varsha Sharma.
   b) Self-Efficacy Scale (SES–SANS) by A. K. Singh and ShrutiNarain.

1.5 LIMITATIONS

The following under stated issues were considered as limiting factors:

1. Motivation and interest level of the subjects acted as limiting factors.
2. Socio-economic status and life style of the subjects were the limiting factors for the study.
3. Financial assistance was considered as limiting factor for the present study.
4. Level of education for each subject was taken as limiting factor for the present study.

1.6 HYPOTHESES

It was hypothesized that:

1) H_0: There would be no significant relationship between somatopying and well-being of special home female adolescent students.

2) H_0: There would be no significant relationship between somatopying and self-efficacy of special home female adolescent students.

1.7 DEFINITION AND EXPLANATION OF THE TERMS

Well-being:The World Health Organization defined quality of life as: an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal

beliefs, social relationships and their relationship to salient features of their environment. The different well-beings are emotional well-being, Psychological well-being and Social well-being**(World Health Organization, 1997)**.

Self Efficacy: The concept of self-efficacyhas its roots in the social cognitive theory proposed by **Bandura (1986)**, which emphasizes the role of observational learning and social experience in the development of personality. Various researcher done in the field of self-efficacy by Bandura and other have shown that adolescent's perception of their success. The ease with which the transition from childhood to the demands of adulthood is made depends on the strength of personal efficacy built up through prior mastery experiences, seeing people similar to oneself, manage task demand successfully, social persuasion that one has the capabilities to successes in given activities and inferences from somatic and emotional states indicative of personal strengths and vulnerabilities.It is a strong sense of efficacy enhances human accomplishment and personal well-being in many ways such as (a) self confidence, (b) efficacy expectation (c) Positive attitude and (d) outcomes expectation**(Santrock, 2006).**

Somatotype: It's a human body shape and physique type. The term somatotype is used in the system of classification of human physical types developed by U.S. psychologist W.H. Sheldon. In Sheldon's system, human beings can be classified as to body build in terms of three extreme body types: endomorphic, or round, fat type; mesomorphic, or muscular type; and ectomorphic, or slim, linear type. A somatotype number of three digits is determined for an individual classified by the system, with the first digit referring to endomorphy, the second to mesomorphy, and the third to ectomorphy; each digit is on a scale of 1 to 7. Hence, the extreme endomorph has the somatotype 711, the extreme mesomorph 171, and the extreme ectomorph 117. The classification numbers are negatively correlated, so that a high number in one class precludes high numbers in the others; in practice, extreme types (711, 171, 117) are rare or nonexistent, and the person of normal build has a somatotype approaching 444, evenly balanced between extremes **(Carter, 2002).**

1.8 SIGNIFICANCE OF THE STUDY:

- The finding of the study might help to inform about the different facts related to the association between psychology and body type.
- The results of this study might provide useful information about different types of body type characteristics related to girl students studying in special home.
- The study might provide information regarding the psychological wellbeing of special home female adolescent students.
- The study might provide valuable information regarding the association between body type and psychological aspects of wellbeing and self-efficacy.

CHAPTER-II

REVIEW OF RELATED LITERATURE

CHAPTER – II

REVIEW OF RELATED LITERATURE

In this chapter a brief review of related literature has been presented considering the issues related to somatotype in a generalized manner. Further, this chapter presents an overview of literature on somatotype, and psychological interventions with relation to self-efficacy and well-being. All the literatures were available in the form of books, journals, reviews and other documents. For the purpose of better understanding these literature have been presented as follows:

Flanagan (1951) found fencer to be more dominating thanbasketball players, volley ball players and boxers and more feminine than the basketball players. The badminton players were judged to be the most extrovert group. The volley ball players were the most emotionally unstable and boxers were found the most aggressive.

Frank and peter (1953) compare the endomorphs, mesomorphsand ectomorphs in the male university student populating on tests of endurance, speed strength and agility. Each subject was selected as a member (0) one somatotype group on the basis of a high rating (5to7) for one component and low rating (below 3) for the other components. It was concluded that mesomorphs are superior to both endow and ectomorphs and ectomorphs are superior to endomorph in speed and agility.

Carter and associates (1960) compared the physical structure ofOlympic athletes and concluded that throwers were heavier and taller and had greater sitting height, leg length, shoulder and hip width, thigh girth and calf girth than other sportsman. Gymnasts were lighter and shorter and had short arm and small legs, broad hip and thigh and calf girth than other athletes. Swimmer, hockey and football player were intermediate on most variables wit few differences among themselves.

Brown (1960) conducted a study to determine the relationshipbetween body type and body alignment and center of balance. Data were collected from 58 women students at

Washington state university. Each subject was classified into body type components of endomorph, mesomorph and ectomorph. Statistically, somatotype was no balance. However, significant alignment or with the center of balance significant correlations were found to exist between height and truck length measures and between a ratio for trunk measures and body alignment.

Hebbelinek (1963) studied the anthropometric measurements,somatotype ratings and certain motor fitness tests of physical education major in South Africa. The anthropometric data showed a predominant trend towards athlete type. The relationship between motor fitness and body measurement found to be low except neck girth and shot put. The mesomorph trait was most distinctive feature of the subject's somatotype. Mesomorphs were superior in all motor fitness tests except 60 yard dash. Ecto-mesomorph served better than endo mesomorphs in all events except shot put.

Alan (1968) conducted a study and took the truck indexassessment (Sheldon) which produced higher somatotype designation of components for all ages than did the anthroposophist method (Health carter). Correlations between the two methods forth various ages ranged from 0.394 to 0.758 consistently for the several ages. The truck index method identifies more subject wit endomorph, the anthropometric method identified and more boys as mid types. The somatotype components by anthropometric assessment correlate higher with maturity, body size, strength and motor ability tests than did the trunk index assessment in 91% of the comparison where a significant difference occurred.

Wilmore (1970) validated the first and second components of the Heath-Carter modified somatotype method. An attempt was made to validate the contention that the first and second components of the Heath-Carter somatotype system reflect relative fatnessleanness and lean body weight respectively. Heath-Carter somatotypes and underwater weighing determinations of percentage body fat and lean body weight were performed on 128 young women and 133 young men. The analysis of the resulting data indicated only a moderate relationship between the first component and percentage body fat and practically no relationship between the second component and lean body weight. Also, a fairly high correlation was found between the second and third somatotype components indicating a possible lack of discrimination between the two.

Carter (1970) displayed that five U.S.S.R. female gymnastswere shortest. Lightest and most mesomorph (3.8-5.2-1.6) although the sample was small, their mean height (157cm.) and the female shympic gymnasts, reported by herata in 1966. His 102 gymnasts had a mean height of 157 cm. and a mean weight of 52 kg. The small neat mesomorph physique is well suited to the requirements of women gymnasts. The Olympic gymnasts of 1968 were fairly evenly divided between mesomorph and ectomorph. But the level of endomorph was consistently low in all subjects. A gold medalist and the pummeled horse was the mesomorph gymnasts with a somatotype of 1-7-2.5 (De Ganey et al. 1974).

Gilder (1971) carried out research project entitled somatotypegroups and their relationship to personality heart rate recovery and selected one hundred college men and who were classified into five somatotype categories viz., endomorphs, mesomorphs, ectomorphs, endo-mesomorphs and mid types. ANOVA followed by schaffer's pattern between personality factors and a specific somatotype pattern. The research scholar has made a sincere attempt to review the related literature to the present study and some of the important ones are cited below.

Berans (1978) concluded that gymnasts were significantlyheavier and they had larger hummers and femur diameter then that of distance runners. Gymnasts were also found to be mesomorph ectomorph while distance runners were balanced ectomorph. Further it was concluded that top gymnasts had a balanced mesomorph somatotype while less accomplished gymnasts showed equal, endomorph and ectomorph.

Bevan's (1978) studied female gymnasts (N – 35) and distancerunners (N – 53) from a college population. Twelve measurements were taken to determine soma type by the use of the health carter anthropometric method. Analysis of data showed that the gymnast were significantly greater than distance runners in body weight and the skin fold measurements of sub scapular, supra-iliac and calf values as well as of body fat. The gymnasts also had larger hummers and diameter. Distance runners group were balanced ectomorph.

Hessen (1981) conducted a study to compare selected somatotypeon strength. Body dimension and body composition as a result of strength training program potential as were somatotyped using the health carter method of anthropometric somatotyping and the 26 So who were qualified to participate in this study were in 1 of the 3 following groups endomorphs (N-5),

mesonmpohs (N-3), ectomorphs (N-8) all So participated in the same strength training program for 100 weeks. There was no significant difference in the rate of gain in strength body composition when the groups were compared. It was concluded that changes in strength, body dimension and body composition are the same for all body types when engaging in the same strength development programme.

Bandura &Schunk (1981) tested the hypothesis that self-motivation through proximal goal setting serves as an effective mechanism for cultivating competencies, self-percepts of efficacy, and intrinsic interest. 40 children (7.3–10.1 yrs. of age) who exhibited gross deficits and disinterest in mathematical tasks pursued a program of self-directed learning under conditions involving either proximal subgoals, distal goals, or no goals. Results of the multifaceted assessment provide support for the superiority of proximal self-influence. Under proximal subgoals, Ss progressed rapidly in self-directed learning, achieved substantial mastery of mathematical operations, and developed a sense of personal efficacy and intrinsic interest in arithmetic activities that initially held little attraction for them. Distal goals had no demonstrable effects. In addition to its other benefits, goal proximity fostered veridical self-knowledge of capabilities as reflected in high congruence between judgments of mathematical self-efficacy and subsequent mathematical performance. Perceived self-efficacy was positively related to accuracy of mathematical performance and to intrinsic interest in arithmetic activities.

Lee (1982) conducted a study on the Self-efficacy as a Predictor of Performance in Competitive Gymnastics. The prediction of sporting performance is clearly important to athletes and coaches. It has been suggested that one's expectations are more important predictors of behavior than is previous behavior. Evidence to support this covers a number of tasks, including physical strength and sporting activities. The present study, involving 14 girl gymnasts, examines the accuracy of athletes' expectations, their coach's expectations, and their previous competition scores as predictors of competition performance. Athletes' expectations are found to be more accurate estimates than are previous scores, while coach's expectations are more accurate still. A person's expectations seem to be important variables even in sports requiring a high degree of physical skill, and this finding has important implications for sport psychology.

Kawamura (1984) et al conducted a study to compare thephysique component between Japanese and French judo players. For this purpose y maestro’s morphology and posture of

reinforced all Japan Judaists (N-13) and of French team (N-10) and have tried to clarify some of the characteristics of each Judaist' somatotyping and posture.

They studied each component separately and compared the physique characteristics of Japanese's judo players with French players the average of endomorph element of the Japanese players was 3.38 while that of the French players was 1.15 it denotes that the skin fold fat of the Japanese players is thicker than that of the French players. The average of mesomorph element of the Japanese players was 8.54 which are comparatively high.

The value of ectomorph element of both Japanese and French players was very small which means that they are not slender persons. Observing he element of endomorph mesomorph and ectomorph by the health carter method, it was found that the Japanese heavy weight class players had a large accumulation of fat as well as develop muscle.

Kawamura (1984) et al. analyzed the somatotypes and posturesof Japanese and French Judaists. Modified health carter method was used and he found that the Japanese heavy weight class players had a large accumulation of fat as well as developed muscles. According to physique indexes of queteletkaup, reties, live and pondered the reinforced all Japan players showed the tendency of corpulence in comparison with the reinforced French player. It is conjectured that it is because of the large volume of body fat. He also concluded that Japanese players have comparatively good posture. The players in the Indian national team dominated other groups in all anthropometric measurements (Sodhi and Sidhu). They were lighter in proportion to stature with proportionately shorter trunks, longer lower extremities, smaller chests and narrower hips. The rating of endomorphic and mesomorph component was higher in their case. They had greater muscular skeletal tissue in the thigh relative to the upper arm and possessed wider knees relative to the elbows then players of lower standards. However the amount of body fat was least in them.

Davis (1985) conducted a study on Perceived Somatotype, Body-Cathexis, and Attitudes toward Clothing among College Females. The purpose of this study was to investigate the relationship between perceived somatotype and body-cathexis for female subjects and to determine the perceived ideal somatotype of college females. The relationship between perceived somatotype and attitudes toward fashion and clothing use was also examined. 91 female undergraduates were administered the Perceived Somatotype Scale, the Body-cathexis Scale, and

several measures of fashion and clothing interest and use. Analysis of variance indicated that the ectomorphic build was perceived as the ideal somatotype for college females. As subjects' self-perceived somatotype deviated from the ideal and moved toward the mesomorphic and endomorphic, body-cathexis scores decreased. Contrary to stereotypic assumptions, perceived somatotype was unrelated to the fashion and clothing measures.

Holloway, Beuter and Duda (1988) conducted a study on Self-Efficacy and Training for Strength in Adolescent Girls. This study is to test the hypothesis that a gain in self-efficacy about strength training could generalize to other areas of life and positively affect self-esteem, untrained adolescent female volunteers were tested before and after participation in 12 weeks of strength training and compared with nonactive and mildly active volunteer controls. Pretest-posttest results for the treatment group showed improvement in strength (+40%), weight training efficacy, confrontation efficacy, and total efficacy summed over 11 tasks. There were related positive changes in perceived physical ability, physical self-presentation confidence, and general effectiveness in life. The treatment group improved posttest over controls on all these variables; controls did not change or worsened. These findings offer preliminary support that weight training for strength can improve confidence about a variety of life tasks in adolescent girls and could provide the basis for new modalities of therapy for low self-esteem. Kenneth& Charles (1989) conducted a study on the Physical Self-Perception Profile: Development and Preliminary Validation. The purpose of this study was to develop an instrument that would permit the application of recent advances in self-esteem theory to the study of self-perception in the physical domain. Open-ended questionnaire responses were used to identify important contributors to the physical self-esteem of a college age population. Based on these data, four subdomain subscales designed to assess perceived bodily attractiveness, sports competence, physical strength, and physical conditioning were constructed along with a general physical self-worth subscale as the basis of the Physical Self-Perception Profile. The sensitivity, reliability, and stability of the subscales were supported for both genders across three independent samples. Exploratory and confirmatory factor analysis indicated the discriminant validity of the subdomain subscales, supporting the concept of multidimensionality within the physical domain. Zero-order correlation, partial correlation, and multiple regression analyses provided results consistent with a three-tier hierarchical structure among self-perception

elements. In addition, initial predictive validity of the subdomain subscales was evidenced through their association with degree and type of involvement in physical activity.

Treasure (1996) conducted a study to find out the relationship between self-efficacy, wrestling performance, and affect prior to competition. This study examined the relationship between self-efficacy, wrestling performance, and affect prior to competition. 15 minutes prior to competition, 70 male high school wrestlers (M = 16.03 years) completed a self-efficacy assessment, the Positive and Negative Affect Schedule (Watson, Clark, &Tellegen, 1988), and the Cognitive and Somatic Anxiety Inventory-2 (Martens, Burton, Vealey, Bump, & Smith, 1990). Self-efficacy was found to be significantly associated with positive and negative affect and cognitive and somatic anxiety. Consistent with social cognitive theory, self-efficacy was a stronger predictor of performance when the measure was process oriented rather than win-loss. The findings suggest that confusion and equivocality in the literature could be removed if researchers assessed self-efficacy in a micro analytical fashion. Future research investigating the affective antecedents of performance should go beyond merely assessing negative states and recognize the potential role positive affect may play in sport behavior.

Wiens, Kynga and Tarja (2004) conducted a descriptive qualitative study of adolescent girls' well-being in Northern Finland. Background. Previous studies have shown that girls present welfare-related symptoms differently than boys and that the severity of their symptoms increases with age. Girls living in Northern Finland experience reduced well-being in some aspects of their lives. However, the opinions of girls on these matters have not previously been studied. Objective. The aim of this study was to describe girls' well-being in Northern Finland. Method. This is a descriptive qualitative study. The participants were 117 girls aged between 13 and 16 who were living in the province of Lapland in Finland and attending primary school. Data were collected electronically; the girls were asked to respond to a set of open-ended questions using a computer during a school day. The responses were evaluated by using inductive content analysis. Results. Four main categories of girls' well-being were identified: health as a resource, a beneficial lifestyle, positive experience of life course, and favorable social relationships. Health as a resource was about feeling healthy and the ability to enjoy life. A beneficial lifestyle was about healthy habits and meaningful hobbies. Positive experience of life course is related to high self-esteem and feeling good, safe, and optimistic. Favorable social relationships meant having

good relationships with family and friends. Conclusions. To the participating girls, well-being was a positive experience and feeling which was revealed when they interact between their relationships, living conditions, lifestyle, and environment. Knowledge about girls' description of their well-being can be used to understand how the girls themselves and their environment influence their well-being and what can be done to promote it.

Covassin&Pero (2004) studied the relationship between self-confidence, mood state, and anxiety among collegiate tennis players. The purpose of the study was to examine the relationship between self-confidence, anxiety, and mood states in collegiate tennis players. The Competitive State Anxiety Inventory--2 (CSAI-2) and the Profile of Mood States (POMS) were utilized based on their ability to assess a number of different psychological states thought to be crucial for proper mental preparation prior to athletic competition as well as for their psychometric properties. These inventories were employed to determine pre-competition levels of anxiety, selfconfidence and mood disturbance and their relationship to successful or unsuccessful tennis match outcome. Twenty-four collegiate tennis players completed the POMS and CSAI-2 30 minutes prior to their tennis match during their participation in the NCAA Regional (VII) Team Tennis Tournament. Results revealed winning tennis players displayed significantly higher self-confidence, lower cognitive and somatic anxiety levels, and lower total mood disturbance scores than losing players. In addition, winning tennis players exhibited the iceberg profile on the POMS, which is consistent with the findings in similar research conducted with successful athletes in other sports. As such, athletes who displayed high self-confidence and low anxiety levels were potentially able to remain calm and relaxed under pressure and were not as affected by negative events. Furthermore, these results suggest that mental state prior to the start of a tennis match plays a crucial role in overall success or failure.

Marte and Wilde (2008) carried out research that focused on the relationship between self-concept, self-esteem, and relational aggression in relation to preadolescent girls' participation in a ten-week empowerment program. This empowerment group was based on team building, healthy assertiveness, and safety for girls, bullying, conflict resolution, peer relations, body image, leadership, and career development. The author also discusses counseling needs and strategies, and implications and recommendations for further research on empowerment intervention efforts.

Lopez, Sanche and Alvarez (2010)conducted a study on Self-efficacy expectations in teacher trainees and the perceived role of schools and their physical education department in the educational treatment of overweight students. This study is about the relation between self-efficacy expectations and the attitude towards child and youth obesity, as well as the role of the school in this matter. A questionnaire was given to a sample of 436 trainee physical education teachers from eight universities in Andalusia (Spain). The questionnaire was a version of Teaching Self-Efficacy in Higher Education (Prieto, 2007) and of Perceptions of Youth Obesity among Physical Educators (Greenleaf and Weiller, 2005). The results indicated that those trainees who possessed a higher level of perceived self-efficacy for the assessment of not only their own teaching, but also of the knowledge acquired by overweight students and of school intervention in their learning process, tended to show more favorable attitudes towards the educational treatment of child and youth obesity, and towards obese students' fitness and healthcare. The trainees with a perceived higher level of self-efficacy for the assessment of the progress made by overweight students and with a more favorable disposition towards revising their teaching practice tended to show a more negative attitude towards obese people.

Kearney (2010) carried out the differences in self-concept, racial identity, self-efficacy, resilience, and achievement among African American gifted and non-gifted students. Specifically, the study evaluated if gifted students are more resilient, report higher self-efficacy and self-concept, express differing attitudes of racial identity, and achieve at higher rates, compared to non-gifted students. Previous literature in this area has been limited to college-aged students and further studies are needed with school aged population. The study utilized a causal comparative Ex-Post Facto design and separate t test and Mann Whitney tests of independent samples to examine if there were significant differences between the scores of 37 gifted (n=37/15 males and 22 females) students and 38 non-gifted students (n=38/16 males and 22 females) students on the four measures: self-efficacy, resiliency, self-concept and racial identity. Analysis of data indicated that students in the gifted sample scored higher on indexes of resilience, self-concepts and self-efficacy, as well as different racial identity levels. As expected, findings also indicated students in the gifted sample reported higher grades and GPA's than did the non-gifted sample. These findings are discussed in terms of implications for educational policy and service practices for school psychology to improve the retention and persistence in gifted programs.

Sterkowicz (2011) conducted a study on Validation of the first and second components of the Heath-Carter modified somatotype method. The objective of the paper was to determine body composition and somatotype of male Greco-Roman wrestlers grouped by different weight categories and level of competition. Twenty three contestants (aged 24.9±5.5 years, training experience 13.7±5.8 years) were examined during their competitive period. They were divided into heavier (n=12) and lighter weight categories (n=11). An experienced evaluator performed 10 measurements necessary to designate Heath-Carter somatotypes and additional skinfolds to estimate the percentage of body fat and body composition. Heavier wrestlers (weight=92.4 kg) exhibited more endomorph and mesomorph than lighter wrestlers (weight=70.1 kg). Heavier wrestlers were characterized by higher BMI, fat mass, fat percentage and fat free mass index than wrestlers in lighter weight categories. Sports level was evaluated with discriminate analysis which revealed significant results. Discriminant function = 0.593774 * Training Experience - 0.300177 * EN + 0.627894 * ME - 0.242241 * EC - 0.636081 * Pelvis / Shoulder Ratio. Among the 23 observations used to fit the model, 19 (82.6%) were correctly classified. When compared with untrained subjects, wrestlers exhibited higher body mass and lower height-weight ratio. Wrestlers' somatotypes differed from those of untrained subjects. They were also characterized by lower adiposity. In conclusion, body build and composition in wrestlers depend on their weight category. In heavier categories, characteristic type is endomorph-mesomorph, whereas lighter weight categories are dominated by balanced mesomorph. A considerable difference in endomorphy and indices of body composition can also be observed. Higher sport experience with lower endomorphy (tendencies for lower fat content) and Pelvis/Shoulder Ratio are interrelated with higher competition level presented by wrestlers.

Ghaderi&Ghasemi (2012) conducted a study on the association between personal characters (Extroversion, Introversion) and emotional intelligence with choose type of sport (team and individually). This study investigated the association between personal characters (extroversion and introversion) and emotional intelligence with choose type of sport (team and individually) in adolescent girls. 100 adolescent female athletes (50 individually athlete, 50 team athlete) participated in this study. Schutte emotional intelligence and Eysenck personality questionnaire were used to assess the emotional intelligence and personality type. Independent t test and Pearson correlation test was used for data analyses. The results showed that team athletes are more extroverted than individually athlete. Also this study revealed that there is no

significant difference between team and individually athlete in emotional intelligence and its sub-scales (emotional adjustment, emotional assessment and expression, use of emotional and social skills). The results also showed that there was no significant relationship between extroversion, introversion and emotional intelligence and its sub-scales.

Park & Cho (2012) conducted a study on Self-efficacy and Body Satisfaction according to College Students Appearance Management Attitudes Typology. The purpose of this study was to classify appearance management attitudes into groups and analyze the difference of self-efficacy and body satisfaction by the groups. Questionnaires were administered to 255 college students living in Deagu Metropolitan City and Kyungbook province. The data collected were analyzed by using frequency, factor analysis, cluster analysis, correlation analysis, ANOVA, Duncan-test, t-test, and χ 2 -test. The findings were as follows. Appearance management attitudes of college students were classified into three groups such as group health body, low body interest group, emphasizes collective body. The appearance management attitudes showed significant correlation with the sub-variables of self-efficacy and body satisfaction. Male students showed no significant difference in self-efficacy by the groups while female students showed a significant one in task performance which was a sub-variable of self-efficacy. Both of the male and female students showed a significance of difference in the gap between actual and ideal weight which was a sub-variable of body satisfaction by the groups. Gender of college students showed distinction between the sub-variables of self-efficacy factors such as task performance, and anxiety and body satisfaction such as BMI, the difference between current height and ideal height, the difference between current weight and ideal weight.

Noh (2013) studied the Somatotype of Korean wrestling athletes and compared them with non-athletes for sports health sciences. In this study, they first observed 32 elite and professional ssireum athletes and 15 non-athletes. The participants were measured with the modified somatotype method of Heath-Carter, resulting in three kinds of somatotype (endomorph, mesomorph, and ectomorph) and a balanced type (central type). The non-athletes consisted of 2 endomorphic, 3 mesomorphic, 5 ectomorphic, and 5 central types. The ssireum athletes consisted of 30 mesomorphs and 2 endomorphs. Subdividing the athletes' somatotypes resulted in 23 endomorphic mesomorphs, 6 mesomorph-endomorphs, 2 mesomorphic endomorphs, and 1 balanced mesomorph, respectively. Ssireum athletes had higher weights,

body mass index, and endomorphic and mesomorphic component values than did the nonathletes. However, the ectomorphic component in the athletes was lower than in the non-athletes. Furthermore, a higher weight division was positively correlated with a higher body mass index and endomorphic and mesomorphic components, but negatively correlated with the ectomorphic component. Our study provides in part physical characteristics of ssireum athletes to establish a reference for the studying sports health sciences.

Noh (2014) studied the somatotype of elite boxing athletes to compare with non-athletes of sports physiotherapy. The somatotypes of 23 elite boxing athletes and 23 nonathletic were measured with the Heath-Carter method. The subjects were divided into four weight divisions as follows: lightweight, light middleweight, middleweight, and heavyweight class. The endomorphic component values of the boxing athletes were lower than those of the nonathletic. However, the mesomorphic component values of the boxing athletes were higher than those of the nonathletic. There was no significant difference in the ectomorphic component between the two groups. The higher weight divisions tended to have higher values of height, weight, and BMI than the lower weight divisions. The higher weight divisions also tended to have higher values for the endomorphic and mesomorphic components and a lower value for the ectomorphic component than the lower weight divisions. The data from this study provides in part physical characteristics of elite boxing athletes that can be used to establish a reference for systemic study of sports physiotherapy.

Ramirez (2014) conducted a study titled anthropometric characteristics and physical performance of Colombian elite male wrestlers. The objective of the study was to evaluate anthropometric characteristics and physical performance of elite male wrestlers. The Colombian Wrestling Team was evaluated while in preparation for the Olympic Games. Athletes were tested on anthropometric and fitness parameters: body composition, somatotype distribution according to Heath-Carter, aerobic capacity, vertical jump, and anaerobic power. The evaluations showed a mean body fat percentage of 13.6% ± 3.0%, muscle mass of 46.4% ± 2.2%, Ponderal index of 41.0 ± 1.8, body adiposity index (BAI) 25.1 ± 3.6, and somatotype distribution mesomorphic-ectomorph (5.3-1.6-3.8). Mean aerobic capacity was 45.9 ± 6.6 mL/kg/min, vertical jump was 36.4 ± 6.6 cm, and anaerobic power was 92.6 ± 19.5 kg/s. These results provided a profile of

elite wrestlers that could be used as training targets for developing athletes. The results may also provide information for training and tactical planning.

Natovova and Chylova (2014) conducted a study on is there a relationship between self-efficacy, well-being and behavioral markers in managing stress at university students? This paper addresses the question of mutual relationship of the perceived self-efficacy, well-being and particular health-promoting behaviors in respondents – students of the Faculty of Economics and Management of the Czech University of Life Sciences. A descriptive, correlational research design was conducted. The Czech version of the General Self-Efficacy Scale GSES, Czech version of the Satisfaction with Life Scale SWLS and Czech version of Stress Vulnerability Scale was administered to 211 undergraduate students from September to October 2013. Having tested normal distribution of each variable via Kolmogorov-Smirnov and Shapiro-Wilk test, our statistical analysis was based on the calculation of values of the nonparametric Spearman's rank correlation coefficient. Results show significant correlations between all of examined variables. In terms of the examined variables, self-efficacy, behavioral markers connected to vulnerability to stress and well-being in particular appear to be meaningful concepts that can be well used in education and counselling related to coping with stress during university studies.

Lee, Kum and Manan (2015) conducted a study on Body Somatotype, Anthropometric Characteristics and Physical Activity of College-Age Adults in Selected Institutions of Higher Learning in Kelantan, Malaysia. The objective of this cross-sectional study was to determine the body somatotypes, anthropometric characteristics and physical activity levels of young adults. Methods: Using a systematic sampling approach, a total of 180 students were recruited from three institutions of higher learning in the state of Kelantan. Body weight, height and other anthropometric dimensions including skinfold, bone breadth and limb girth were measured to determine their body mass index (BMI) and body somatotypes. Physical activity level was determined using the Short Form - International Physical Activity Questionnaire (IPAQ). Results: Almost half (49.4%) of the respondents were with a mean age of 21.5 (1.5), and mean BMI of 22.1 (4.5) kg/m2. The proportion of overweight and obese respondents based on the World Health Organization (WHO) classification was 17.2% and 6.7%, respectively. In terms of body somatotype, 57.2% and 18.3% of them were classified as endomorphic and mesomorphic somatotype groups respectively, while another 24.4% were ectomorphic. The IPAQ scoring

protocol indicated that 35.0% of them achieved high physical activity levels, while 19.3% reported low physical activity levels. There were significantly more endomorphic females, whereas the males significantly dominated the mesomorphic somatotype group. Conclusion: Respondents with mesomorphic body somatotype (relative muscularity) were categorized as obese under the BMI classification although their body weight could be due to higher skeletal/muscle mass. The somatotyping method can be used as an additional tool to the conventional BMI indicators for assessing adiposity.

Yang (2015) conducted a study on the adult physique with the Heath-Carter anthropometric somatotype in the Han of Xi'an, China. The study sample consisted of 429 people of Han nationality (207 males, 222 females) from Xi'an, China, aged ≥20 years old. The Heath-Carter anthropometric method was employed. We evaluated the differences in age and sex by one-way ANOVA and t test. A comparison of somatotypes between the Han and other nationalities was made using the U test. The results showed that the male and female samples all could be classified as having a mesomorphic endomorph profile. The difference in endomorphy was strongest between sexes in all age groups ($P < 0.01$). There were prominent differences in mesomorphy and ectomorphy between males and females in the 50-59- and ≥60-year-old age groups. In females, the differences in somatotype components appeared to be distinguished between ages ($P < 0.01$ or $P < 0.05$). However, in males, there were prominent differences in somatotype components between the 20-29 year olds and all other age groups ($P < 0.01$ or $P < 0.05$) except for between those 20-29 and ≥60 years old in endomorphy. Compared with the other five nationalities, there were prominent differences in somatotype components between males and females. These results suggest that the somatotype of the Han population in Xi'an, China, has a predominantly mesomorphic endomorph profile. The endomorphic component shows distinct differences between ages and genders, respectively. Additionally, there are distinct differences in the somatotype components between Xi'an Han and five other nationalities in China in males and females.

Deepika (2015) conducted a comparative study of aggression in state and district level sports persons of Haryana (Body Builders). The study was aimed at studying a comparative study of aggression in State and District level sports persons of Haryana. (Body Builders) was measured with the help of aggression questionnaire by G.C. Pati (1977). Total sample of the

study comprised of 100 sports persons (Body Builders) were consisted in which Group I consisted of 50 sports person of District Level. The Group II consisted of 50 sports person of State Level. Obtained data analyzed with the help of t-test. Result showed no significant difference between state and district level sports person (Body Builders) on aggression has been supported. Results have been discussed in the light of previous studies

Rothberger et al., (2015) conducted a study on the Relationship of Gender and Self-Efficacy on Social Physique Anxiety among College Students. The anxiety or fear associated with physique evaluation is defined as Social Physique Anxiety (SPA). Numerous studies have examined this construct, yet a gap exists exploring this phenomenon among current college students with SPA, self-efficacy, and gender concurrently. Therefore, the purposes of this study included quantitatively analyzing the association between SPA, gender, and self-efficacy. Participants included 237 students at a Southeastern university participating in jogging, body conditioning, or weight training courses. Analysis of Variance yielded a significant main effect for self-efficacy as well, as those with lower self-efficacy displayed higher levels of SPA ($p<$ 0.001). Stepwise regression analysis indicated self-efficacy and gender were both significant predictors of SPA. This information could aid in creating interventions designed to decrease the prevalence of SPA and increase levels of self-efficacy among the current college student population.

Kaur et al. (2016) conducted a study on age related variations in endomorphic, mesomorphic and ectomorphic components of somatotype in urban women of Punjab. Somatotyping is an effective technique for study of anthropometric variations in any population. The present study was conducted on a sample of 300 healthy urban women of age 50-80 years, subdivided into six age groups.Somatotypes were computed according to the equation given by Carter (1980). The resultsshow a dominance ofendomorphic component over the other two somatotype components, having maximum endomorphic values for the women in the age group of 56-60 years (8.23). Minimum and maximum ectomorphic values were observed at the age group of 50-55 years (0.62) and 71-75 years (1.73) respectively.Minimum mesomorphic values are at the age group of 71-75 years i.e. 3.09. A maximum mesomorphic value is observed at the age group of 56-60 years (4.71). Maximum scattering of individual somatotype was found in 56-60 years of age group as indicated by maximum values of SDM and SAM.

Pop (2017) conducted study on Physical Activity, Body Image, and Subjective Well-Being. The notion of well-being is in tight relation and sometimes used interchangeably, with quality of life, physical and mental health promotion, good living, or happiness. Physical appearance is one of the first individual characteristics noticed by others and has an important impact on social interactions and therefore has become very important construct in contemporary societies. The aim of this chapter is to discuss the influence of physical exercise on the subjective well-being dimension related to better health and eventually happiness. In contrast, the physical inactivity determined by the increasing amount of time spent in sedentary activities is becoming an issue with serious consequences, being the cause of more than 5 million death/year globally. Physical activity favorably influences mental health, improves the emotional state and reduces the incidence and severity of diseases and pathological conditions, such as cardiovascular disease, type II diabetes, osteoarthritis, osteoporosis, and obesity. Promoting physical activity, physical and health education and sport as healthy lifestyle components in schools, universities and lifelong learning targets the enhancement of vigor, resilience, employment, and social outcomes for graduates and communities. Motives of physical inactivity were discussed aiming to underpin possible remedial solution for better health, quality of life and well-being.

CHAPTER-III

METHODOLOGY

CHAPTER -III

METHODOLOGY

It is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the fundamental principles associated with the branch of knowledge. Typically, it encompasses concepts such as paradigm, theoretical model, phases and quantitative or qualitative techniques. Moreover this chapter gives details about the subjects, selection of variables, instruments and tools used, procedure for collecting data, procedure for administering test, reliability of the test, testers' competency, Design of the study, statistical procedure and level of significance.

3.1 SELECTION OF SUBJECTS:

I. **Population-**In the present study, all the female students living in special home of West Bengal were included in the population. The population included students from different socio-economic conditions as well as the students belonging to rural and urban area of West Bengal.

II. **Sample-**In the present study, researcher hadselected 50adolescence female students from Govindo Home Panihati, West Bengal. The random sampling technique was used for the selection of the sample.

3.2 SELECTION OF VARIABLES:

1. **Physical Variable-**Height and weight was taken for personal details and different body measurements were considered for the assessment of somatotype component such as endomorph, mesomorph and ectomorph. As age has direct influence on these parameters so age will also be taken into consideration.
2. **Psychological Variable-**Well-Being Index and Self-efficacy scale were used for the measurement of psychological state of the subjects.

3.3 SELECTION OF TOOLS:

Researcher used the following tools:

a)Well-Being Index (WBI–CVSV) constructed by V. L. Chauhan and Varsha Sharma. This Index scale consists of 50 items divided into six dimensions–I. Emotional, II. Psychological,III. Social, IV. Spiritual, V. Self-Awareness, VI. Physical. It was administered on age of 13 & above year.

Table – 1: The Norms for Interpretation of the Level of Well-Being

Sr. No.	Range of z-Score	Grade	Level of Well-being
1.	+2.01 and above	A	Extremely High
2.	+1.26 to +2.00	B	High
3.	+0.51 to +1.25	C	Above Average
4.	-0.50 to +0.50	D	Average
5.	-1.25 to -0.51	E	Below Average
6.	-2.00 to -1.26	F	Low
7.	-2.01 and below	G	Extremely Low

b)Self-Efficacy Scale (SES–SANS) constructed byA. K. Singh and ShrutiNarain. This scale consists 20 items divided into four area I. Self-confidence, II. Efficacy, III. Positive expectation attitude, IV. Outcome expectation. It was administered on 12 years and above.

Table – 2: Qualitative Interpretation of Scores of Self-efficacy scale

Score	Interpretation
85 and above	High Self-efficacy
74 to 84	Average Self-efficacy
73 or less	Poor Self-efficacy

3.4 STATISTICAL PROCEDURE

The obtain data in form of digital score were treated statistically to get results and to draw conclusions. The Mean and SD was used as descriptive statistics. Pearson Coefficient of correlation was used to measure the degree of relationship.

3.5INSTRUMENTS AND TOOLS USED

Instruments:

Following instruments were used for administering the test:

- **Weighing Machine:-**Weighing machine was used to measure the weight of the subjects. The reading was recorded in kg.
- **Wall mounted measuring tape:-**It was used to assess the height of the subjects. The reading was recorded in cm.
    - **Skinfold caliper:--**Skinfold caliper was used for measuring skinfold of biceps, triceps, subscapular, suprailliac, supraspinale and calf, all of these were measured in mm.
- **Steel tape :--**Steel tape was used for measuring girths of biceps and calf, those were measured in terms of cm.
- **Sliding caliper :--**Sliding caliper was used for measuring breadths of femur and humerus which was measured in cm.

Tools:

Following instruments were used for administering the test:

- **Madhyamik Pass Certificate:-**Date of birth as evident from MP Certificate was used to calculate chronological age.
- **Well-Being Index:** It was used for the measurement of wellbeing of the subjects.
- **Self-Efficacy Scale:** It was used for the measurement of self-efficacy of the subjects.

3.6PROCEDURE FOR COLLECTING DATA

3.6.1 HEIGHT

Purpose: To measure the body height from head to foot of the subject.

Facilities and Required Equipment: A Steel Tape, Horizontal Surface and Scale.

Procedure: Each subject was asked to stand erect on a horizontal surface and to stretch as much as possible taking care that heels were touching each other on the horizontal surface and to stretch as much as possible taking care that heels were touching each other on the horizontal surface vertically and the horizontal arm was brought down so that it touched the highest point on the head in the mid sagittal point.

Scoring: The height was recorded in cm. Photograph 1 & 2 show the technique used.

Photograph 1 & 2 Measurement of the body height

3.6.2. WEIGHT

Purpose: To measure the body weight of the subject.

Facilities and Required Equipments: A weighing machine for measuring body weight of the subject.

Procedure: A standard weighing machine was used for measuring weight. The subject stood on the weighing machine maintaining erect posture.

Scoring: The body weight was recorded in kg. Photograph 3 & 4 show the technique used.

Photograph 3 & 4 Measurement of the body weight

3.6.3. AGE

School Final Pass Certificate: Date of birth as evident from Birth Certificate was used to calculate chronological age.

3.6.4. MEASUREMENT OF SKINFOLD THICKNESS:

Skinfold measurement was taken in millimeter from erect standing position of the subject by skinfold caliper.

3.6.4.1 BICEPS: The skinfold measurement was taken parallel to the long axis of the arm at the biceps skinfold side was considered as the biceps skinfold.

Subject position- The subject was found in a related standing position. The right arm was relaxed with the shoulder externally rotated and the elbow extended by the side of the body.

Method- The skinfold was measured by raising a vertical fold at the mid acromiale-radiale line in the interior surface of the arm. Photograph 5 & 6 shows the technique used.

Photograph 5 & 6 Measurement of the Biceps skinfold

3.6.4.2. TRICEPS: The skinfold measurement was taken parallel to the long axis of the arm at the triiceps skinfold side was considered as the triceps skinfold.

Subject position- The subject was found in a standing position. The right arm was relaxed with the shoulder externally rotated to the midsprone position and the elbow extended by the side of thebody.

Method-The measurement was takenon the posterior surface of the arm. Photograph 7 & 8 shows the technique used.

Photograph 7 &8 Measurementof the Triceps skinfold

3.6.4.3. SUBSCAPULAR: The skinfold measurement was taken with the fold running obliquely downwards at the subscapular skinfold side was considered as the biceps skinfold.

Subject position- The subject was found in a relaxed standing position with the arm hanging by the sides of the body.

Method- The line of the skinfold was determined by the natural fold lines of the skin. Photograph 9 & 10 shows the technique used.

Photograph 9 &10 Measurement of the Subscapular skinfold

3.6.4.4. SUPRAILLIAC: The skinfold measurement was taken horizontally at the illiac crest skinfold side and was considered as the suprailliacskinfold.

Subject position- The subject was found in a relaxed standing position when the arm was abducted.

Method- The line of the skinfold generally ran slightly downward posterior anterior by the natural fold lines of the skin. Photograph 11 & 12 shows the technique used.

Photograph 11 &12 Measurementof the Suprailliacskinfold

3.6.4.5. CALF: The skinfold measurement taken vertically at the medial calf skinfold side medial calf skinfold side was considered as the calf skinfold.

Subject position- The subject was found in a relaxed standing position with the right foot placed on the box or chair. The right knee was bent at about 90˚.

Method- The subject's right foot was placed on a box or chair with the calf-relaxed. The fold was parallel to the long axis of the leg. Photograph 14 shows the technique used.

Photograph 13Measurement of the calf skinfold

3.6.5. MEASUREMENT OF BREADTH:

The breadth of humerus and femur were measured by sliding caliper in cm.

3.6.5.1. HUMEROUS: The linear distance between the most lateral humeral epicondyle and the most medial aspect of the medial humeral epicondyle was considered as the humerous breadth.

Photograph 14Measurement of theHumerous Breadth

Subject position- The subject was found in arelaxed standing position or seated position. The right arm was raised anteriorly to the horizontal and the forearm was flexed at the right angles to the arm.

Method- With the small sliding caliper gripped correctly, the middle fingers were used to palpate the epicondyles of the humerus, starting proximal to the sides. The bony points first left were the epicondyles. The caliper faces were placed on the epicondyles and maintain strong pressure with the index fingers until the value was read. Because the medial epicondyle is normally lowere than the lateral epicondyle the measured distance may be somewhat oblique.

3.6.5.2 FEMUR: The linear distance between the most lateral humeral epicondyle and the most medial aspect of the medial humeral epicondyle was considered as the femur breadth.

Photograph 15Measurement of the Femur Breadth

Subject position- The subject was found in arelaxed seated position with the hand clear of the knee region. The right leg was flexed at the right angles to the thigh.

Method- The distance was measured between the medial and lateral epicondyles of the femur. With the subject seated and the caliper was placed, the middle fingers were used to palpate the epicondyles of the femur, starting proximal to the sides. The bony points first left were the epicondyles. The caliper faces were placed on the epicondyles and maintain strong pressure with the index fingers until the value was read. Because the medial epicondyle is normally lowere than the lateral epicondyle the measured distance may be somewhat oblique.

3.6.6. MEASUREMENT OF GIRTHS: The girths were measured by steel tape graduated in cm. The measurement was taken in such a way that the tape was kept as right angle to the long axis of the body segments. During measurement compression on the skin by the tape was asless as possible.

3.6.6.1. BICEPS: Biceps girth was considered as the circumstances of the arm perpendicular to the to the long axis of the arm at the level of the peak of the contracted biceps, when the arm was raised anteriorly to the horizontal.

Photograph 16Measurement of the Biceps Girth

Subject position- The subject was found in a relaxed standing position with the left arm hanging by the side. The subject right arm was raised anteriorly to the horizontal with the forearm supinated and flexed at about 45˚ - 90˚ to the arm.

Method- The measurer stood by the side of the subject and with the tape loosely in position. The subject was asked to partially tense the elbow flexors to identify the probable peak of the contracted muscles.

3.6.6.2. CALF: The circumference of the leg at the level of the medial calf skinfold side, perpendicular to its long axis was considered as the calf girth.

Photograph 17Measurement of the Calf Girth

Subject position- The subject was found in a relaxed standing position with the arms hanging by the sides. The subject's feet were separated with the weight evenly distributed.

Method- The subject usually stood in an elevated position. This elevated position made it easier for the measure to align the eyes with the tape. The tape was passed around the calf and then slided the tape to correct plane. The stub of tape and the housing were both held in the right hand while the left hand was used to adjust the level of the tape.

3.7 TESTER'S COMPETENCY

The data were collected by the investigator herself with the help of the guidance of her supervisor Prof. (Dr.) Gopal Chandra Saha who is working in the field of physical education. The investigator already had theoretical and practical knowledge of using techniques and tools to measure the variables. Thus researcher was regarded competent enough for the purpose of the present study.

3.8 DESIGN OF THE STUDY

The result of the study was generalized on the basis of sample information. For this study descriptive researchdesign was used.

3.9 LEVEL OF SIGNIFICANCE

Level of significance for the present study was set at 0.05 level.

CHAPTER-IV

ANALYSIS OF THE DATA AND RESULTS OF THE STUDY

CHAPTER – IV

ANALYSIS OF THE DATA AND RESULTS OF THE STUDY

In this chapter the data of the present study that were collected using procedure mention in the Chapter – III have been presented in reverence with selected parameters of measurement. The investigator has tried to show the utility of collecting different types of data related to Girl adolescent students. The following things such as statistical analysis of the data, results obtained out of analysis of the data, interpretation of results in light of available knowledge and testing of hypothesis have also been presented in this chapter.

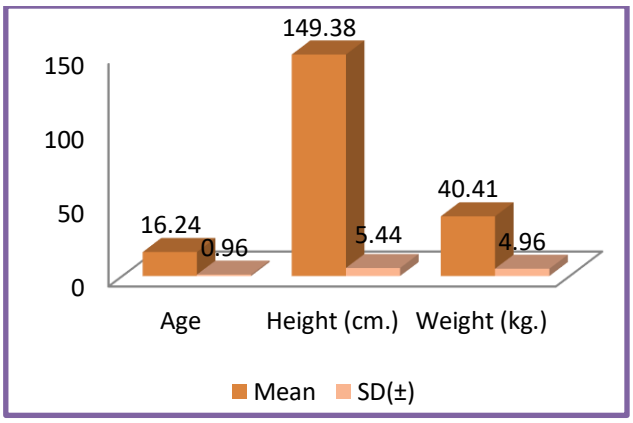
4.1 RESULTS AND FINDINGS

In this segment each variables were measured statistically and outcomes of those statistical evaluation were presented in tables and diagrams for better understandings.

The Mean and SD of Age, Height and Weight of girl adolescent students have been presented in Table no-3and Figure No-1

Table-3& Figure-1:- Mean & SD of Age, Height and Weight of girl adolescent students.

Particulars	Age (yrs.)	Height (cm.)	Weight (kg.)
Mean	16.24	149.38	40.41
SD(±)	0.96	5.44	4.96

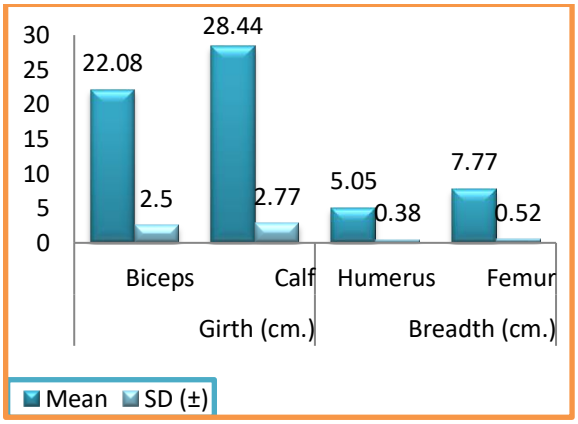


It was evident from table-3& figure No. 1 that the mean of age, height and weight of femaleadolescent studentswere 16.24, 149.38 & 40.41 and SD of age, height and weightof female adolescent students were ±0.96, ±5.44 and ±4.96 respectively.

The Mean and SD of girths of Biceps & Calf and breadths of Humerus and Femur of girl adolescent students have been presented in Table no-4 and FigureNo-2

Table-4& Figure-2:- Mean & SD of girths of Biceps & Calf and breadths of Humerus and Femur of girl adolescent students.

Particulars	Girth (cm.)		Breadth (cm.)	
	Biceps	Calf	Humerus	Femur
Mean	22.08	28.44	5.05	7.77
SD (±)	2.50	2.77	0.38	0.52



It was clear from table-4& figure No. 2 that the mean and SDof girth of biceps & calfwere 22.08 & 28.44 and ±2.50 &±2.77 and mean and SD of breadth of humerus& femur were 5.05 & 7.77 and ±0.38 &±0.52 of female adolescent students.

The Mean and SD of skinfold of girl adolescent students have been presented in Table no-5 and FigureNo-3.

Table-5:- Mean & SD of skinfolds measurements of girl adolescent students.

Particulars	Skinfold (mm.)					
	Biceps	Triceps	Subscapula	Suprailliac	Supraspinal	Calf
Mean	5.78	10.04	11.94	10.90	10.08	8.76
SD (±)	1.69	2.91	2.87	3.81	4.50	2.37

It was apparent from table-5 that the mean score of biceps, triceps, subscapula, supraillacsupraspinal and calf were 5.78, 10.04, 11.94, 10.90, 10.08 & 8.76 and SD of biceps, triceps, subscapula, supraillac, supraspinal and calf were ± 1.69, ±2.91, ±2.87, ±3.81, ±4.50 and ±2.37 respectively.

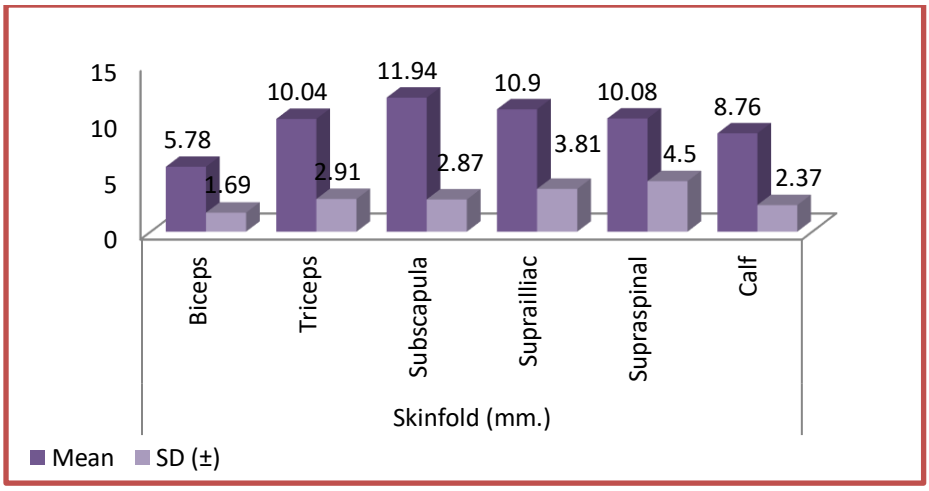
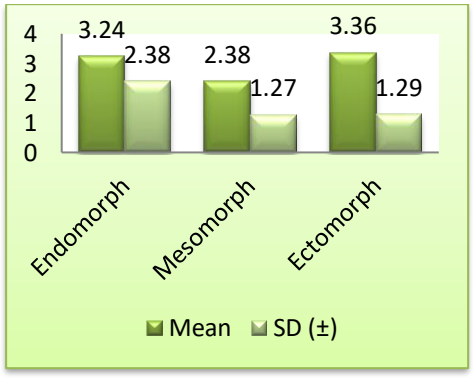


Figure-3: Graphical representationMean & SD of skinfold measurements of girl adolescent students

The Mean and SD of somatotyping characteristics of girl adolescent students have been presented in Table no-6 and FigureNo-4

Table-6& Figure-4:- Mean & SD of Somatotyping characteristics of girl adolescent Students.

Particulars	Endomorph	Mesomorph	Ectomorph
Mean	3.24	2.38	3.36
SD (±)	2.38	1.27	1.29

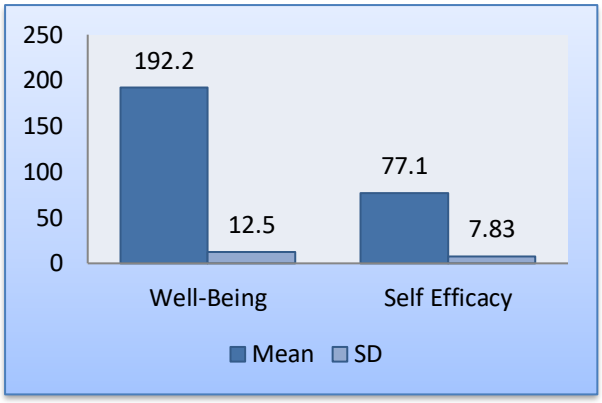


It was clear from table-6& figure No. 4 that the mean and SDof endomorphic, mesomorphic and ectomorphic componentwere 3.24, 2.38 & 3.36 and ±2.38, ±1.27 &±1.29. It could be said that the selected samples were belongs to Endomorphic ectomorph category.

The Mean and SD of psychological characteristics of girl adolescent students have been presented in Table no-7 and FigureNo-5

Table-7& Figure-5:- Mean & SD of Self efficacy and Well-being characteristics of girl adolescent Students.

Particulars	Well-Being	Self Efficacy
Mean	192.2	77.1
SD(±)	12.50	7.83



It was apparent from table-7& figure-5 that the mean score of well-being and self efficacy were 192.2& 77.1 and SD were ±12.50 and ±7.38 respectively.

Relationship between somatotyping profile and psychological parameters of girl adolescent students have been presented in Table no-8

Table-8:- Coefficient of correlation between somatotyping components and selected psychological parametersof girl adolescent students.

Particulars	Endomorph	Mesomorph	Ectomorph
Well-Being	-0.281*	0.013	0.030
Self Efficacy	-0.348*	-0.073	0.259

'r' value with df48 for n=50 is 0.279 at 0.05 level of significance

It was apparent from table-8 that the mean score of well-being and self efficacy has significant relationship with endomorphic characteristics as calculated 'r' i.e. -0.281 and -0.348 was greater than the table value which is 0.279. In this regard it was more evident as per sample characteristics stated in table no-7 & table no-8.

Somatotyping characteristics of all the samples lie within the mixed somatotyping body type. So from the table no-9 we can depict the overall picture of the sample.

Table-9:- Different types of somatotyping components of girl adolescent students.

Particulars	Ectomorphic endomorph	Endomorphic ectomorph	Mesomorphic endomorph	Endomorphic mesomorph	Mesomorphic ectomorph	Ectomorphic mesomorph	Balanced ectomorph	Balanced endomorph
Number of students falling in different categories	09	14	11	03	06	05	01	01

From the above table it can be seen that the samples which was consider in the study were falling in different categories of body type. Some them which appeared maximum time are endomorphic ectomorph (14 samples), mesomorphic endomorph (11 samples) and ectomorphic endomorph (09 samples). As we know that the concept of mixed body type was taken into consideration by Sheldon himself which states that a person may have mixed body type feature and accordingly the present study states the same phenomenon.

4.2 DISCUSSION OF FINDINGS

During the human growth, the body changes significantly in size, structure, proportions, and composition **(Kalichman&Kobyliansky, 2006)**.The general tendency to an increase in endomorphy, a decrease in mesomorphy and an increase in ectomorphy during growth is apparent in children **(Carter & Heath, 1990)**. However, this pattern of ST development was not obvious among the female adolescent students who are living in special home. The endomorphy component was less, with an increase in mesomorphy and ectomorphy components. The result of the present study stated in table-9 agrees with the general statement that females were more ectomorphic and less mesomorphic**(Carter & Heath, 1990; Malina& Bouchard, 2004)**.

Additionally, variations in the somatotype components of adolescent female from special home compare with other studies underlie the differences in physique between populations highlighting the cultural differences between populations as all the females were not belongs to

same cultural background. Somatotypes vary between population groups as well as during growth in the same population **(Sing & Sidhu, 1980)**.

Several studies have suggested a strong genetic background for the three somatotype components, and many somatotype studies based on family **(Song, Malina& Bouchard, 1993)** or twin data **(Reis et al., 2007)** have demonstrated that somatotype variation is genetically mediated and that mesomorphy exhibits a higher degree of heritability than ectomorphy and endomorphy**(Peters et al., 2007)**.

As, present study assessed that the relationship between somatotype with self-fficacy and somatotype with well-being were found to be negatively correlated in case of endomorphic component of body type (table-8). Well-being and self-efficacy were showing significantly negative correlation in case of endomorphic characteristics than mesomorph and ectomorph. Anotherstudy of adolescents (15–18 years of age) conducted in Valparaíso between 2009 and2010 reported that the somatotype of adolescent females was mainly endomorphic(i.e. mesomorph–endomorph in profile) and it differed from that of mesomorph and ectomorph with relation to psychological parameter.

It was evident from the results stated in the table-7 that mean score of Well-being was 192.2 and mean score of self-efficacy was 77.1, which suggested that the female adolescent students living in special home posesExtreme level of well-being and Average level of self-efficacy.

As we know that the body type of endomorph is likely to be very fatty and round shaped, so it is evident from the results which was also supported the study of **Ibrahim (2012)**that well being is higher in case of the people who do regular exercises and the persons who remain fit. So it may happen that the component mentioned within the wellbeing and self-efficacywas mostly related with physically and mentally fit person.

CHAPTER-V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

CHAPTER –V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, summary of the work done for research study has been presented. It is the summary of all the previously discussed chapters for this research report. The conclusions are dawn on the basis of results which ultimately lead to initiate in further research process. Recommendation for the future study has also been included this chapter.

5.1 SUMMARY

The purpose of the study was to find out the relationship between somatotyping and selected psychological parameters of the female adolescent students who are living in a disciplined and bounded area. In the present study, researcher had selected 50 adolescence female students from Govindo Home Panihati, West Bengal. The random sampling technique was used for the selection of the sample. Height and weight was taken for personal details and different body measurements were considered for the assessment of somatotype component such as endomorph, mesomorph and ectomorph. As age has direct influence on these parameters so age will also be taken into consideration.Well-Being Index and Self-efficacy scale were used for the measurement of psychological state of the subjects.The obtain data in form of digital score were treated statistically to get results and to draw conclusions. The Mean and SD was used as descriptive statistics. Pearson Coefficient of correlation was used to measure the degree of relationship.The subjects were thoroughly acquainting with the testing procedure as well as the purpose and significance of the study. According to somatotyping assessment the group which was selected as sample were belongs to Endomorphic ectomorph category. It was also evident from the results that the female adolescent students living in special home poses Extreme level of well-being and Average level of self-efficacy. It was apparent that the well-being and self efficacy has significant relationship with endomorphic characteristics as tabulated ‘r’ i.e. -0.281 and -0.348 was greater than the table value which is 0.279. In this regard the study was also

showed that the well-being and self efficacy was positive in case of ectomorph, although it was prove to be insignificant statistically.

5.2 CONCLUSIONS

According to the objective of the study, the following conclusions were made:

1) The overall body type of female adolescent students belonging from Endomorphic ectomorph category.

2) The well-being of female adolescent students was extremely high.

3) The self-efficacy level of female adolescent students was not so high and not so low, it lies in a very average state.

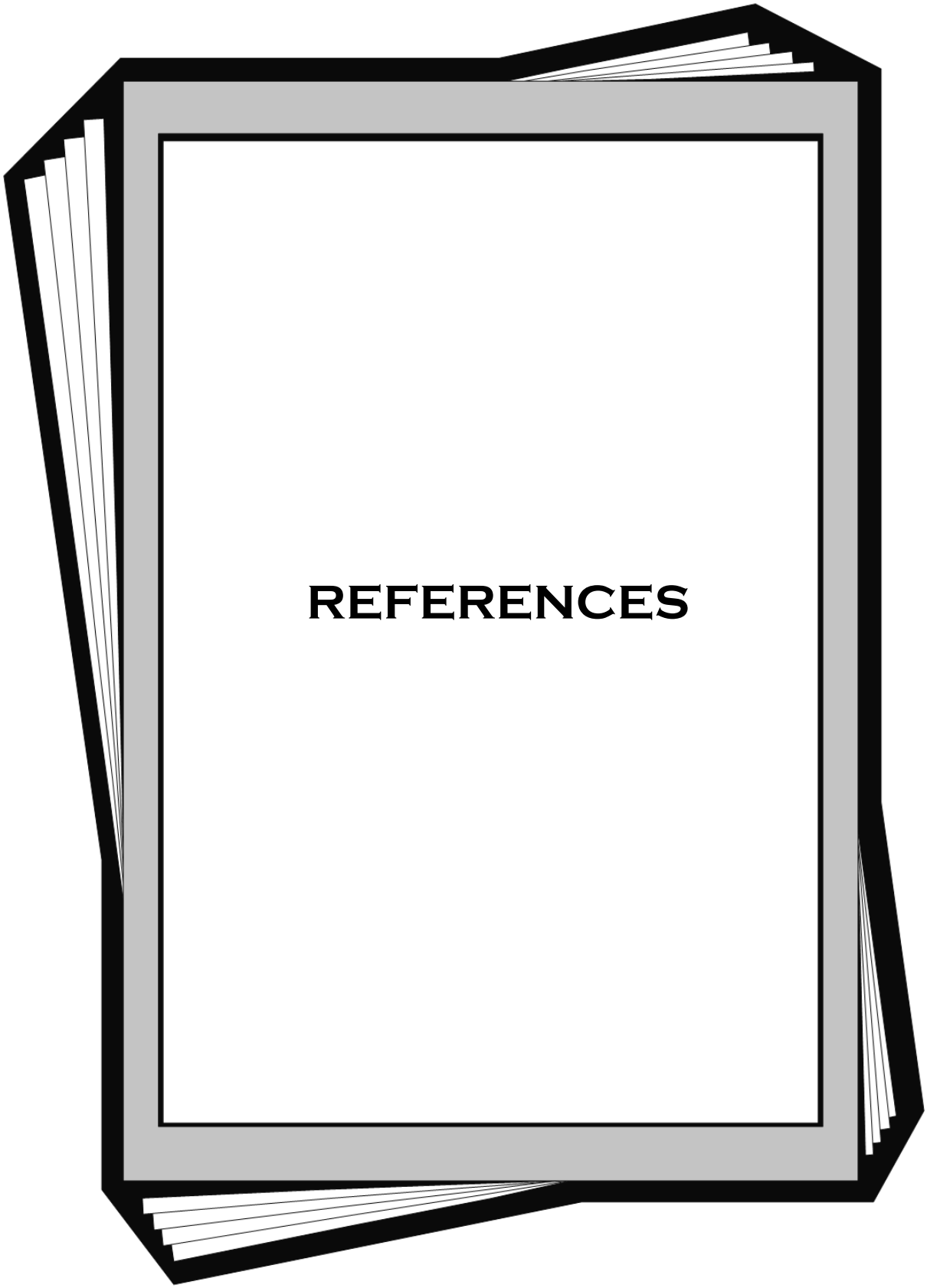
4) The relation between somatotyping and selected psychological parameters such as well-being and self-efficacy of adolescent female students was proved to be negatively significant in case of endomorphic body type.

5) It was observed that the well-being and self-efficacy was positive in case of ectomorph, although it was prove to be insignificant statistically.

5.3 RECOMMENDATIONS

On the basis of results and conclusions, following recommendation were made for future investigation

1. Similar study may be conducted on a large sample size.
2. Other psychological parameter such as personality traits,agreeableness, anxiety and openness can be used.
3. Parallel study can be conducted upon both male and female students.
4. A comparison can be done between male and female with respect to age wise developmental pattern.
5. A relationship study can be done between parental body type and their child's body type and its relevance towards future health prospect.



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APPENDICES

Approval & to ratified in next F.C.Arts Meeting
Sd 12/4/19.

To all HoDs
Sd 12/4/19

Certified that the thesis entitled, As Assessment of relationship between somatotyping and selected psychological parameters of special home female adolescent students submitted by me towards the partial fulfilment of the degree of Master of Philosophy (Arts) in Education of Jadavpur University, is based upon my own original work and there is no plagiarism. This is also to certify that the work has not been submitted by me for the award of any other degree/diploma of the same Institution where the work is carried out, or to any other Institution. A paper out of this dissertation has also been presented by me at a seminar/conference at Edu. in the 21st Century: Issues and challenges, Belda College, thereby fulfilling the criteria for submission, as per the M.Phil Regulation (2017) of Jadavpur University.

Arpita Chakrabarti
Roll No - 001701503008
Registration No - 142416 of 2017-18

(Name of the M.Phil Student with Roll number and Registration number)

On the basis of academic merit and satisfying all the criteria as declared above, the dissertation work of Arpita Chakrabarti entitled As Assessment..., is now ready for submission towards the partial fulfilment of the Degree of Master of Philosophy (Arts) in Education of Jadavpur University.

Bnanda 30.4.19	Sd 30/04/19	Sd 30/4/19
Head	Supervisor & Convener of RAC	Member of RAC

Department of ....

(DR. BISHNUPADA NANDA)
PROFESSOR & HEAD
DEPARTMENT OF EDUCATION
JADAVPUR UNIVERSITY

Prof. (Dr.) Vijayalaxmi Chauhan *(Udaipur)*
Dr. Varsha Sharma *(Udaipur)*

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of

Wbl-cvsv

(English Version)

Please fill in the following entries : ***Date*** ☐☐☐☐☐☐☐☐

Name_____ **Father's Name**_____

Date of Birth ☐☐☐☐☐☐☐☐ **Gender : Male** ☐ **Female** ☐

Education Qualification_____ **Type of Family : Single** ☐ **Joint** ☐

Occupation_____

Teaching Experience_____ **Place : City** ☐ **Village** ☐

Belong to Area : Urban ☐ **Rural** ☐

INSTRUCTIONS

On the following pages 50 statements regarding Well-being have been given. Read each statement carefully and decide your responce on any one of the Five alternatives, viz., ***Always, Often, Sometimes, Rarely*** and ***Never*** and put a tick mark ☑ in the box of alternative which is close to your thinking.

Kindly answer to all the 50 statements.

Your answers will be kept confidential.

Scoring Table

	Raw Score			z-Score	Grade	Level of Well-being
Page	2	3	4			
Score						
Total						

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UG-1, Nirmal Heights, Near Mental Hospital, Agra-282 007

Sr. No.	STATEMENTS	Always	Often	Some-times	Rarely	Never	SCORE
1.	I lead purposeful life.	☐	☐	☐	☐	☐	⬭
2.	My social relationships are satisfactory.	☐	☐	☐	☐	☐	⬭
3.	I eat healthy food.	☐	☐	☐	☐	☐	⬭
4.	I easily get irritated.	☐	☐	☐	☐	☐	⬭
5.	I feel myself competent.	☐	☐	☐	☐	☐	⬭
6.	I feel happy to be engaged in my routine activities.	☐	☐	☐	☐	☐	⬭
7.	I have a deep and sound sleep.	☐	☐	☐	☐	☐	⬭
8.	I feel people respect me.	☐	☐	☐	☐	☐	⬭
9.	I am optimistic about my future.	☐	☐	☐	☐	☐	⬭
10.	I feel myself energetic.	☐	☐	☐	☐	☐	⬭
11.	I easily lose control over my temper.	☐	☐	☐	☐	☐	⬭
12.	I try to give space to others.	☐	☐	☐	☐	☐	⬭
13.	I feel I have a good personality.	☐	☐	☐	☐	☐	⬭
14.	I am useful for others.	☐	☐	☐	☐	☐	⬭
15.	I believe in God.	☐	☐	☐	☐	☐	⬭
16.	I feel myself as rejected member of my family.	☐	☐	☐	☐	☐	⬭
17.	I actively participate in social activities.	☐	☐	☐	☐	☐	⬭
18.	I regularly do exercise.	☐	☐	☐	☐	☐	⬭

Total Score Page 2 ☐

Sr. No.	STATEMENTS	Always	Often	Some-times	Rarely	Never	SCORE
19.	I feel my life is full of happiness.	☐	☐	☐	☐	☐	⬭
20.	I have never been rewarded for my labor.	☐	☐	☐	☐	☐	⬭
21.	I always try to learn from experience of others.	☐	☐	☐	☐	☐	⬭
22.	I believe in myself.	☐	☐	☐	☐	☐	⬭
23.	I feel nothing is impossible in life.	☐	☐	☐	☐	☐	⬭
24.	Spirituality makes me disturbed.	☐	☐	☐	☐	☐	⬭
25.	I feel I have a good neighborhood.	☐	☐	☐	☐	☐	⬭
26.	I like to share my feelings with others.	☐	☐	☐	☐	☐	⬭
27.	I respect my elders.	☐	☐	☐	☐	☐	⬭
28.	I believe in 'simple living and high thinking'.	☐	☐	☐	☐	☐	⬭
29.	I feel my life is hopeless.	☐	☐	☐	☐	☐	⬭
30.	I love to learn new skills.	☐	☐	☐	☐	☐	⬭
31.	I rarely participate in family functions.	☐	☐	☐	☐	☐	⬭
32.	I always try to help the needy.	☐	☐	☐	☐	☐	⬭
33.	I am satisfied with my life.	☐	☐	☐	☐	☐	⬭
34.	I think to be happy is the moral duty of everyone.	☐	☐	☐	☐	☐	⬭
35.	I feel spirituality makes me peaceful.	☐	☐	☐	☐	☐	⬭

Total Score Page 3 ☐

Sr. No.	STATEMENTS	Always	Often	Some-times	Rarely	Never	SCORE
36.	Financial disturbances make me fearful.	☐	☐	☐	☐	☐	☐
37.	I fell myself physically fit.	☐	☐	☐	☐	☐	☐
38.	I feel my family puts so many social responsibilities over me.	☐	☐	☐	☐	☐	☐
39.	I have to follow social norms.	☐	☐	☐	☐	☐	☐
40.	I am happy with the care and support I get.	☐	☐	☐	☐	☐	☐
41.	I feel physical exercise produce weakness in me.	☐	☐	☐	☐	☐	☐
42.	I feel myself safe.	☐	☐	☐	☐	☐	☐
43.	I feel that in the busy schedule I never find time for myself.	☐	☐	☐	☐	☐	☐
44.	My past memories disturb me a lot.	☐	☐	☐	☐	☐	☐
45.	I share my feelings with my close friends.	☐	☐	☐	☐	☐	☐
46.	I hardly maintain any social relation for a long time.	☐	☐	☐	☐	☐	☐
47.	I hate my family.	☐	☐	☐	☐	☐	☐
48.	I don't like to follow the suggestion of others.	☐	☐	☐	☐	☐	☐
49.	I feel my parents would never understand me.	☐	☐	☐	☐	☐	☐
50.	I wish I would have born in opposite sex.	☐	☐	☐	☐	☐	☐

Total Score Page 4 ☐

Dr. Arun Kumar Singh *(Patna)*
Dr. Shruti Narain *(Patna)*

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SES-SANS

(English Version)

Please fill in the following informations : **Date** ☐☐☐☐☐☐☐☐

Name _____

Age _____ **Sex : Male** ☐ **Female** ☐

Name of School/College _____ **Class** _____

Present Residence : Town ☐ **Village** ☐

Monthly income of parents :

(a) ₹ 50,000 and above ☐ **(b) ₹ 30,000 to 49,000** ☐ **(c) ₹ 20,000 to 29,000** ☐

(d) ₹ 10,000 to 19,000 ☐ **(e) Below ₹ 10,000** ☐

Father's Educational Qualification :

10th/12th/Graduate/Post Graduate/Above Post Graduate _____

Mother's Educational Qualification :

10th/12th/Graduate/Post Graduate/Above Post Graduate _____

INSTRUCTION

Following are some statements which are related to any persons self-confidence, self-respect, promise etc. For each statement, there are five resoponse options like **"Strongly Agree", "Agree", "Neutral", "Disagree"** and **"Strongly Disagree".** Read each statement carefully and tick ☑ mark only that option which you find that is most appropriate and true in your case. There is no time limit as such but it generally takes about 15 minutes to complete this.

These answers will be always kept confidential.

Scoring Table

	Raw Score			Interpretation
Page	**2**	**3**	**4**	
Score				
Total Score				

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Sr. No.	STATEMENTS	Strongly Agree	Agree	Neu-tral	Dis-agree	Strongly Disagree	Score
1.	I feel confident about my capabilities that with little efforts I can resolve difficult problems.	☐	☐	☐	☐	☐	⬭
2.	I am confident that I can achieve all targets that I set for myself.	☐	☐	☐	☐	☐	⬭
3.	I am so confident of my capabilities that I can finish tasks on time.	☐	☐	☐	☐	☐	⬭
4.	Despite hard work, I feel I will not succeed.	☐	☐	☐	☐	☐	⬭
5.	I feel I can keep self control even at difficult times.	☐	☐	☐	☐	☐	⬭
6.	In any circumstance, I can achieve what I desire.	☐	☐	☐	☐	☐	⬭
7.	I have enough self-confidence to finish any work.	☐	☐	☐	☐	☐	⬭

Total Score Page No. 2 ☐

Sr. No.	STATEMENTS	Strongly Agree	Agree	Neu-tral	Dis-agree	Strongly Disagree	Score
8.	With my efforts, I can achieve anything.	☐	☐	☐	☐	☐	⬭
9.	My own potential and capabilities are responsible for all my achievements so far.	☐	☐	☐	☐	☐	⬭
10.	It is usually not possible for me to achieve any targets.	☐	☐	☐	☐	☐	⬭
11.	I am able to balance myself even in most difficult times.	☐	☐	☐	☐	☐	⬭
12.	I am unable to face difficulties without any help and support.	☐	☐	☐	☐	☐	⬭
13.	Even in most difficult situations, I can strategise to resolve and deal with it.	☐	☐	☐	☐	☐	⬭
14.	I try my level best to achieve my targets.	☐	☐	☐	☐	☐	⬭

Total Score Page No. 3 ☐

Sr. No.	STATEMENTS	Strongly Agree	Agree	Neu-tral	Dis-agree	Strongly Disagree	Score
15.	I can keep my cool even when others try to take up fight with me.	☐	☐	☐	☐	☐	☐
16.	If I get stuck in some work, with little efforts I can resolve it.	☐	☐	☐	☐	☐	☐
17.	If I try sincerely, I am confident I shall be able to succeed.	☐	☐	☐	☐	☐	☐
18.	Despite concentrating on my aim, I will fail.	☐	☐	☐	☐	☐	☐
19.	If I am determined to succeed, I shall be able to achieve success.	☐	☐	☐	☐	☐	☐
20.	If work as per plan, I shall be able to reap results quickly.	☐	☐	☐	☐	☐	☐

Total Score Page No. 4 ☐