

**Relationship between Locus of Control and Aggression Among Gym  
Goers and Non-Gym Goers**



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## Certificate

This is to certify that M.Sc. research report on “Relationship between Locus of Control and Aggression” prepared by Haadia Tariq has been approved for submission to Quaid-i-Azam University, Islamabad.



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### Abstract

The present research aimed to examine the relationship between locus of control and aggression among gym goers and non-gym goers. A comparative sample ( $N=298$ ) of gym goers ( $n=150$ ) and non-gym goers ( $n=148$ ) participated in the research with their complete consent. The data from gym goers was collected via gyms located in the vicinity of Islamabad and Rawalpindi whereas the data for non-gym goers was collected from university students belonging to the twin cities. The age of the participants ranged from 17-34 years ( $M=23.15$ ,  $SD=2.7$ ). The self-report instrument of Internal Powerful Others Chance (IPC) Scale (Levenson, 1973) was used to measure Locus of Control and the self-report measure of Buss Perry Aggression Questionnaire (BPAQ) (Buss & Perry, 1992) was used to measure Aggression. The results of the study suggest that internal locus of control is negatively related to aggression among gym goers and non-gym goers whereas external (powerful others and chance) locus of control is positively related to aggression among gym goers and non-gym goers. Internal locus of control is a significant negative predictor of aggression whereas chance locus of control is a significant positive predictor of aggression. Results indicate that gym goers are less aggressive as compared to non-gym goers and gym goers are high internals whereas non-gym goers are high externals. Results show nonsignificant gender differences on locus of control and aggression. The results of demographic variables were also discussed and explained in the light of the literature. Media and clinicians can help in reducing aggression among youth and clinical population by providing them with an appropriate outlet through promotion and use of exercise to express and manage aggression.

**RELATIONSHIP BETWEEN LOCUS OF  
CONTROL AND AGGRESSION AMONG GYM  
GOERS AND NON-GYM GOERS**



## **INTRODUCTION**



## Chapter 1

### Introduction

Locus of control is deemed as one of the substantial aspects of psychology. It is related to a person's belief about the factors responsible for the main events that occur through the course of his life. The name Locus of Control of the Reinforcement was originally given to the theory by Rotter, in order to bridge the gap between the cognitive and behavioral psychology (Rotter, 1990). He believed that the reinforcement a person receives in his/her life greatly influences his actions and also plays a key role in the development of his ideologies. Such beliefs become prominent in their mindset and hence determine their attitudes which results in action. This means that the outside world has the massive impact on our life and the way we see it (as cited in Kundi, 2014).

To the Locus of Control can be thought of as a medium that flows from the external to the internal. An individual possessing an internal locus would attribute his successes to his own abilities. Hence the person will feel more motivated and will be able to pick up very easily. Someone who believes in luck and fate may not strive that hard for success and might leave everything to fate or luck. This is known as the external locus of control. In another opinion they say that they can't manage the circumstances and thus will reflect their own aggression (as cited in Breet, Myburgh, & Poggenpoel, 2010). When individuals accept the responsibility of their actions their behaviors and choices mirror their beliefs (as cited in Breet et al., 2010). There is some association between the aggressive behavior and the external locus of control (Ridling, 2010; Davis & Mettee, 1971; Hall, 2006; Osterman et al., 1999; Sadowski & Wenzel, 1982; Williams & Vantress, 1969). There may be the differences in the gender that could result in that way. For example, when it comes to the male, the physical aggression is linked with external locus of control. While in the females, verbal aggression is believed to be linked with an external locus of control (as cited in Ridling, 2010). On the contrary, better treatment is associated with the internal locus of control due to increased participation of the patient during treatment and enhanced help accepting behavior (Page & Scalora, 2004).

In a study conducted by Hall (2006), the relationship between aggression and the external locus of control was found. In this study, Hall concluded that the correlation between external locus of control and aggression may be due to the fact that such individuals view event as unpredictable which leads to aggressive behavior to assert their influence on the results.

When it comes to work out or exercise, it has been shown that it makes significant positive effect on the student. Even moderate physical workout reduces aggressive behavior and resentment while an individual who does not work out demonstrates more aggression (Liu, 2004). The verbal aggression reduced in the heavy weight training group and the vigor scores also reduced in the non-heavyweight training group (as cited in Buckaloo, Krug, & Nelson, 2009).

In children who worked out, a positive effect was observed the Anger Out and Anger Expression scales (Tkacz, Young-Hyman, Boyle, & Davis, 2008). Physical activity is positively correlated with an internal locus of control. Females with an internal locus of control gain more fulfillment from physical activity whereas, males tend to develop higher expectation of a positive result from any physical exertion (as cited in Cobb-Clark, Kassenboehmer, & Schurer, 2014).

### **Locus of Control**

It basically refers to a theory of personality in which a person's view of the his life events are shaped by his own behaviour or the environmental factors (Grantz, 1999). Locus of control explains the extent to which a person views that life events result from one's own behavior or external factors. Thus, a continuum is produced with internal control on one end and external control on the other.

This theory was developed to view reinforcement as either dependent on an individual's own behavior or as a result of external factors not under a person's control. The ambiguous concepts proposed here indicate the different types of external control; belief in the lack of order in the universe, or the ordered nature of the world and the presence of a higher power.

**Internal locus of control.** It states that personal behavior or the actions of an individual have a direct impact on the consequences (Rotter, 1990). Such an

individual credits his/her entire success and the efforts during that process to his own abilities.

**Powerful others.** Described by the Rotter and modified by the Levenson (1981), such people believe that authority figures or powerful others have the total control over the outcomes of their life.

**Chance locus of control.** People who fall in such a category have the mindset that their life is under the direct influence of fate and the luck. Such people believe they have less control over their lives as stated by Levenson (Levenson, 1981).

### **Theories of Locus of Control**

There are three major theories of locus of control which are described below, while this research has focused more on the Attribution Theory of Rotter.

**Social learning theory.** Social learning theory revolves around the reinforcements given by society and the members of the society. According to this theory, goals are given the prime attention that directs and determines the human's behavior. Rotter believed that people feel more satisfied when they express the learned behaviors in those specific conditions and respond to them in which they have learned that behavior (Rotter, 1966). The expectations of an individual are also related to social learning theory. Strain described the social learning theory as the human's expectations with regard to the reinforcement which is valuable to him. Such type of reinforcement increases the probability of a specific behavior that is conditioned with the required reinforcement (as cited in Khan, 2011).

Rotter connected the social learning theory with the phenomenon of locus of control. Majority of the behaviors are learned from different social situations, and a person feels an elevated level of satisfaction when he displays those learned behaviors that comply with the behaviors of the other members of the society (as cited in Khan, 2011). Another aspect of social learning theory is presented by Bandura's, which portrays that people can learn through a number of ways that can involve observation, modeling, or imitation of the behavior of other people. The attitude and behaviors of other people and the outcomes of those behaviors are being observed by other people who then adopt those behaviors and incorporate them in their personality which is

called social learning (Leff, Posner, & Tulleners, 2009). Through observation, a person notes when a new behavior should be performed, and in times of need, the person exhibits that behavior by using his observation as a guiding tool.

There is a continuous reciprocal interaction between the environmental stimuli, behavioral and cognitive influences which predicts human behavior. Social learning theory also focused on the aspects of motivation, memory, and attention and therefore plays a mediating role in behavior and cognitive theories. Morris (1993), states that there must be a relationship between actions and outcomes then it will be referred to as contingency, but in case of learned helplessness, there must not be a relationship between the behavior of a person and outcomes of the event.

**Theory of learned helplessness.** A study found that mental illnesses including severe depression stem from supposed lack of control over one's life (Seligman & Isaacowitz, 2000). When exposure to uncontrolled outcomes is prolonged with the absence of motivation that affects the process of learning, then the probability of learned helplessness is increased. Contingency, behavior, and cognition are the three main fundamentals of the theory of learned helplessness (as cited in Khan, 2012).

When there is an association between the actions of a person with the outcome which he expected, then it is referred to as contingency, but the absence of this association leads to helplessness. The perception and understanding of contingency are explained by cognition. People might make accurate perceptions of the uncontrolled events but sometimes these perceptions can also be inaccurate and explanation of these inaccurate perceptions will lead to helplessness that makes the person believe that what he expects is not going to happen. Such perception slows down his activity and decreases the motivation level to bring change or put more efforts. The behaviors challenging the uncontrolled situations are decreased or end up in a failed or weak attempt. Such type of behaviors and failed outcomes are then accompanied by anxiety, fear and negative emotions like sadness that further leads to depression and low self-esteem (as cited in Khan, 2012).

Learned helplessness is defined by the explanatory style of a person that is comprised of pervasiveness, personalization and permanence, (as cited in Overmier, 2002). Though, there is a tendency to change learned helplessness with learned

optimism when the explanatory style of a person is changed in a positive way (Peterson, 2000). Techniques proposed by Seligman are somehow similar to the cognitive theory that can successfully help children and adults to deal with their learned helplessness and depression. The techniques involved are to determine the accuracy of the negative interpretations of certain and decatastrophizing (Donenfeld, 2008).

**Attribution theory.** Attribution theory is a social psychology theory developed by Heider (1958), Jones (1965), and Kelley (1967). The attribution theory revolves around the explanation of certain behaviors of a person's self and others (Woolfolk, 2007). Heider (1958) explained the attribution theory in terms of internal and external factors; when people explain their behaviors or the behavior of others with respect to the internal factors, then it is called dispositional attribution. However when the behaviors are explained in terms of external factors then it is called situational attribution (Khan, 2011).

People explain their successes and failures in terms of three sets of characteristics; one of them is attributing internal or external factors to the failure or success like the inner qualities or deficits or the environmental factors. Sometimes, people attribute the reasons for failure or success as being stable or unstable which is the second characteristic of attribution theory. If a person attributes the reason or cause as being unstable then the outcome might be different on another occasion, however, if he considers the cause as being stable, then the outcomes will remain constant. The other characteristic is the controlled or uncontrolled causes of failure or success (Hilton, 2007). According to attribution theory, one can change the cause or regulate it if he considered as a controlled cause, however, he would be unable to alter it if he believes that it is an uncontrollable factor. People have a greater tendency to attribute such factors to their failure or success which are more likely to help them in maintaining their positive self-image. So, it is important to note that people will be more likely to interpret environmental factors as per their own will (Malle, 2011).

### **Aggression**

Aggression involves self-protecting pathways such as flight or fight and is an involuntary response. An aggressive behavior involves no thought process and is expressed abruptly. However, aggression could not be classified easily. For example,

some well thought out strategy to plan a murder could not be classified as an aggressive behavior since we said earlier that aggression is an automatic response. Therefore, no traditional category or differentiation of aggression can adjust such cases. A more reasonable strategy to examine the role of aggression, however, could be that aggressive acts may be analyzed across three dimensions: the extent to which the aim is to provide harm to a victim and advantage to the committer, the existence of hostile/ frantic emotion and the level to which thought process was involved in the aggressive act (Anderson and Huesmann, 2003).

### **Types of Aggression**

Aggression on the basis of Bryant & Smith theory could be classified into four types:

1. Anger 2. Physical aggression 3. Hostility 4. Verbal aggression

**Anger.** Anger is a factor that enhances aggression. It is an emotional response which involves the facial skeletal and autonomic nervous system (Buss, 1961).

**Physical aggression.** Buss (1961) has defined physical aggression as getting rid of an individual or displacing a hurdle through the use of body or weapons in order to produce a harmful stimulus.

**Hostility.** The events and people are interpreted and judged in a negative way which leads to hostility (Buss, 1961).

**Verbal aggression.** Verbal aggression can be described as delivery of noxious stimuli to another individual through raising voice rejection, and threat (vocal response) (Buss, 1961),

### **Theoretical Background of Aggression**

**Instinct theory of aggression.** Sigmund Freud advanced the instinct theory of aggression. The earlier literature by him suggested that he believed in the human behavior developing directly or indirectly from the life instinct Eros which facilitates the reproduction of living beings. If aggression is taken in this context, it can be comprehended as merely a reaction to the obstruction of libidinal impulses. Therefore, aggression could not be considered an involuntary or indispensable event. However, referring to the psychoanalysis course and specifically after the World War II,



Freud's viewpoint was changed, and he became aware of two basic desires; Eros and Thanatos (life/ death instinct) instead of one (life instinct) (Beck & Carlson, 2006).

The instinct of death or destruction gives rise to the instinct theory of aggression. In accordance with physiology, the death instinct serves as a power to damage the organic life and convert the organic matter into inorganic form. The instinct theory of aggression provides that aggression has a global prevalence which according to Freud and coworkers is urgency and it is indispensable to protect as well as to aid in reproduction (Schunk, Pintrich, & Meece, 2008).

**Lorenz's theory of aggression.** Some psychologists studying aggressive behavior in animals argue that aggression is a drive which is innate, instinctive and biological. Konrad Lorenz was of the view that humans resemble with other organisms in having the fighting instinct or aggression that leads to physical harm to others. The energy for this response is produced spontaneously in organisms at almost equal rate (Lorenz, 2005).

According to Lorenz, aggression is a true, primarily species preserving instinct which exists both in humans and animals. Although the analysis of animal behavior implicates that the innate instinct in animals moves them to display aggressive behavior, yet this could not be applied to human beings necessarily, and if it is being considered that way, the view would be highly debatable (Cui, Durtschi, Donnellan, Lorenz, & Conger, 2010).

**Frustration-aggression hypothesis.** Frustration in the view of Miller and Dollard could be described as a condition which prevails on interference with a goal. Frustrating acts inhibit the goal-oriented behavior of an individual, thus challenging the self-esteem or depriving him of the chance to accomplish his immediate goals and significant objectives (as cited in Thibaut, 2017).

An event or a situation is thought to be frustrating when it disturbs or distresses the child or adult. But in some circumstances, a frustrating event for one person may not be frustrating for another. A number of factors play their role in tolerance to frustration such as parental training, economic class, early childhood training and social status (Baron & Richardson, 2004).

The supporters of the Frustration-Aggression hypothesis believe that aggression is always a response to some frustration. Moreover, they are of the view that the reactions to frustration can be tolerated, suppressed, delayed, displaced, disguised or sometimes deflected from the set goals but they could not be destroyed completely. Therefore aggression and frustration always act together (Averill, 2012).

### **Exercise**

Exercise is described as a physical activity that enhances the use of energy above the basal level through the contraction of the skeletal muscles (Booth, Roberts & Laye, 2012). The exercise intensity and frequency lead to a training effect which displays as better physical performance. Naturally, exercise is considered to involve movement which is facilitated by the persistent locomotor performance (Nathan et al. 2008).

Scott suggests that people seek out institutions because they feel a responsibility towards changing and shaping their identities. This moral imperative stems from the fact that we live in a therapy culture which calls for constant introspection in order to obtain happiness and personal satisfaction. Discipline and goal orientation is a fundamental element in organizations when the idea of success or progress is being emphasized. Progress can belong to any category such as the physical, mental or psychological.

Featherstone (2010) states that in contemporary Western societies, the body is understood as a reflection of one's inner self so that one may argue that body modification technologies and body enhancement regimes can be understood as attempts to construct not only a beautiful, strong and fit appearance but also a beautiful, strong and fit self. One may then ask if people work out at gyms for more than body-related reasons, that is to say, if gyms also function as places in which people seek to alter and reinvent themselves in a more general sense.

### **Theoretical Background of Exercise**

**Health belief model (HBM).** Health belief model (HBM) is one of the earliest models of health behavior and was developed in the 1950s. It is understood that a positive attitude and subjective norm enable a person to develop a habit of exercise. The model was an elaboration of understanding the reason behind some



people being health conscious while others not careful about preventing diseases. According to the HBM model, specific health behavior prevails most probably when people assume that they are challenged with certain afflictions. When people comprehend the severity of the diseases, they develop a target health behavior which helps them to overcome the risk of getting those diseases (Carpenter, 2010).

The HBM model suggests that the individuals are directed towards a regular habit of exercise when they start to believe that they may be victim of the diseases that result from sedentary lifestyles such as type II diabetes and ischemic heart disease. Since these diseases are a potential threat to physical, social and psychological wellbeing, carrying out exercise may decrease the risk of such diseases or may alleviate the symptoms. The benefits of exercise overpower the hurdles of carrying it out and because of which the individual is willing to overcome the challenges through performing exercise (Juniper, Oman, Hamm, & Kerby, 2004).

**Trans-theoretical model (TTM).** The trans-theoretical model is thought to be most famous traditional models of exercise behaviors. According to this model, individuals pass through multiple stages of willingness to change, or just stages of change, while performing exercise. The five stages that have been determined in this model are: pre-contemplation (inability to exercise and lack of motivation to stay active), contemplation (inability to exercise with an intention to carry out exercise within six months), preparation (exercise irregularity), action (regularity in exercise but no more than six month period) and maintenance (exercise regularity as a well-developed habit) (Hutchison, Breckon, & Johnston, 2009).

**Theory of planned behavior.** The model establishes that the exercise behavior of an individual could be judged from his/ her intention to perform and this intention as a result is the function of his/ her conduct towards the exercise and the personal habit. It can be retrieved from this fact that the only driving force for exercise is the intention. A person's willingness to carry out a particular behavior is cognitively represented through intention. For our case, the exercise is the behavior for which intention is required which is thought to be immediate precedent of behavior. Intention itself can be identified through three things: inclination towards the exercise behavior, subjective norms and perceived behavioral control. Only particular attitudes towards the exercise behavior can probably predict it according the

theory of planned behavior (McEachan, Conner, Taylor, & Lawton, 2011). Other than estimating the attitudes towards exercise, it is also necessary to determine the subjective norms people hold, their conception about how people they are concerned about will perceive exercise. Lastly, intentions are controlled through perceived behavior control. For the case we are discussing, perceived behavioral control may be referred to as the belief of people regarding their ability to exercise. Such predictors may determine the intention. It is a general rule that the more satisfactory the attitude and the subjective norm, the greater is the perceived control and ultimately the stronger will the person's intention to carry out exercise (Ogden, 2012).

**Self-efficacy theory.** The perception about control and self-efficacy is another potential type of exercise-related barriers. People more commonly have negative and discouraging opinions related to exercise which is why having belief in the power to control one's personal health and aging, expectation of a positive result, and self-determination play a vital role in developing a custom of regular exercise. It is important to consider the self-efficacy beliefs because it renders the person to continue exercising with a greater chance despite being tired or busy. In view of Bandura and as per the social-cognitive model of exercise, healthy supportive perceptions of exercise or physical activity could be determined primarily through self-efficacy (Lee, Arthur, & Avis, 2008). It is however essential to observe that there is a reciprocal relationship between the exercise behaviors and exercise beliefs. The outcome expectations and sense of controllability also determine the behavior change which means that does the person believe that his actions may follow desirable outcomes. The level of self-efficacy of one person may be high for exercise but he may be less motivated to adhere to exercise if he has a perception that exercise does not play a role in preventing or alleviating the disease or if he holds a belief that exercise does not lead to any health benefits (Lachman, 2006).

People more commonly have negative and discouraging opinions related to exercise which is why having belief in the power to control one's personal health and aging, expectation of a positive result, and self-determination play a vital role in developing a custom of regular exercise (Lachman, 2006; Neupert, Lachman, & Whitbourne, 2009).

### **Relationship between Locus of Control and Aggression**

In the opinion of Lintner the relationship between frustration and aggression is directly proportional to each other (as cited in Breet, Myburgh, & Poggenpoel, 2010). Cooper (2010) argued that there is great focus on the increase of destructive nature of aggressive attitude. Aggressive behavior in adolescents is developed due to lack of social skills that cause them irritation (Cefai & Cooper, 2010). As far as boys are concerned, aggression corresponds greatly to external locus of control. While in case of girls, there is no considerable association between aggression and locus of control. If both the genders are considered together, the external locus of control was linked greatly to all kinds of aggression but comparatively higher with physical than the indirect aggressive behavior (as cited in Breet et al., 2010).

The moderation between self-esteem and aggression is achieved through locus of control in a way that low self-esteem was linked to greater level of aggression for individuals possessing external locus of control. There have been numerous studies reported to have found a relationship between aggressive behavior and external locus of control (Davis & Mettee, 1971; Hall, 2006; Osterman, et al., 1999; Ridling, 2010; Sadowski & Wenzel, 1982; Williams & Vantress, 1969). In the results of study reported by Osterman et al. (1999), variations among genders were identified. In males, there was correlation between external locus of control and aggression while in females the correlation existed between external locus of control and verbal aggression (Osterman et al., 1999).

Hall (2006) debated that the perception of self-control over life and aggression are known to exist in an inverse relationship. Nevertheless, this study was able to determine only the association between external locus of control and physical aggression. No relationship for verbal aggression could be determined. A number of studies, as discussed earlier, have come to conclude that aggression and locus of control are linked to each other (Davis & Mettee, 1971; Hall, 2006; Osterman et al., 1999; Sadowski & Wenzel, 1982; Williams & Vantress, 1969)

### **Relationship between Aggression and Exercise**

The level of aggression is known to be affected through exercise. It has been reported that children who tend to engage themselves in physical and extracurricular

activities are known to display less aggressive behaviors (Fleming et al. 2008; Molnar et al. 2008; Nelson and Gordon-Larson 2006). There may be an existence of specific association between proactive aggression and exercise. It may also be possible that there is a negative correlation between the two. This trend of relationship would provide that exercise might be a critical factor to study proactive aggressive behavior and its developmental phases.

Even a little bit of exercise can have a vigorous healing effect against the development of anger (Kanning & Schlicht, 2010). In Pakistan, physical inactivity and sedentary lifestyle are increasingly becoming common owing to adoption of western culture and increase in urbanization. Along with that, there is also increased trend of physical aggression in adolescents. Literature suggests there is an association between lack of exercise and physical aggression (Jackson & Vaughn, 2018).

Enhanced health which results from direct physical activity was meaningfully linked to the lower anger scores. Anger is linked to the amplified activity of prefrontal lobe, and earlier cross-sectional work has linked health to enriched managerial functions and concentrated anger in grown person. The prefrontal cortex is perceived to be the center of executive function involving the self-consciousness and self-discipline. Emotions are caused and assimilated with other data and reserved by the prefrontal cortex. Physical training has been observed as the factor in the improvisation of the executive function in adults, and even it is greatly observed (Tkacz, Hyman, Boyle, & Davis, 2008).

An association between anger, exercise and fitness are also reported in some studies. Exercise is an important aspect of some anger management therapies. A potential positive influence of vigorous exercise on hostile attitude was described in an intervention study involving adolescents. Two studies are also known to report association between anger and level of physical fitness. A study by Stewart et al (2003) showed a significant correlation between higher level of aerobic fitness and optimum scores on an anger management survey. It was also found that men are more likely to exercise for competitive purposes. The high lab test values for cholesterol, triglyceride and glucose levels predicted high anger scores among a sample of healthy middle-aged women who were physically inactive. Thus, it can be proved that

exercise can suppress anger and decrease the physical consequences of anger (Tkacz, Young-Hyman, Boyle, & Davis, 2008).

### **Relationship between Exercise and Locus of Control**

Health behaviors are linked to internal vs. external locus of control. Regulating the bond among the exercise participation and subscales of locus of control might be useful in organizing programs for the promotion of health for fulfilling the needs of reinforcement on individual and group levels (as cited in Folkman, 2013). Locus of control has been used by the research studies for studying the behaviors related to health promotions. Associations are there between internal locus of control and performances of fitness classes (Albery & Munafò, 2008).

People having internal locus control show a greater ability to exercise. Though no connection has been described between the orientation in the future and compliance to exercise. Gender differences can be found in the exercise patterns as the males having internal locus of control can achieve better health with their exercise efforts and in their diet controls. On the other hand, females having internal locus of control are supposed to have higher fulfillment levels than females having external locus of control. (Cobb-Clark, Kassenboehmer, and Schurer, 2012)

Suggestions were given by Steptoe and Wardle (2001) about the fact that the physical exercise is positively related to internal locus of control and negatively related to other locus of control having chance and power. It was suggested in the last literature that the human capital investments are influenced by locus of control like health habits related to exercises, in which investments are made for an outcome (Coleman and Deleire, 2003). Therefore, people with internal locus of control are supposed to invest more on the activities related to their health because they have the belief of getting good health outcomes from the investments as compared to the people with external locus of control (Caliendo et al., 2010; McGee and McGee, 2016; McGee, 2015).

The internal locus of control along with the exercise has been seen as linked to each other whereas the chance locus of control and the powerful others locus of control are supposed to have a negative association with exercising (Khan, 2013). As indicated by Mushtaq, Gull, Mushtaq, Shahid, Shad, and Akram (2011) in Pakistan

the studies have not been carried out to analyze the connection between the locus of control, chance locus of control and sedentary lifestyles, physical activity.

People having internal locus of controls in a study of male university upper-class men had been measured which showed that people with interests towards exercise were fitter and had a more will to go through the physical challenges (Sonstroem & Walker, 1973).

A study of people who do jogging suggests that joggers have higher internal scores as compared to the people who don't exercise (as cited in Cramer, Lauche, Langhorst, & Dobos, 2013). It was found in research of the health locus of control and exercising in leisure timing that positive and healthy behaviors were recorded by the people with the higher internal scores as compared to the people with more external score (Zielińska-Więczkowska, 2016).

There is a positive correlation between the exercising and the internal locus of control whereas, the correlation between the external locus of control and exercise was found as negative. The correlation between the chance locus of control and the measures of exercises given by Walker after his study was negative. Same is the correlation between the powerful others locus of control and the three measures of exercises (as cited in Rejeski and Mihalko, 2001).

### **Relationship between Locus of Control and Aggression in Pakistan**

Ghasemzadeh and Saadat (2011) assessed that female students for the locus of chance control received higher scores than the male students. The students of the faculties of basic sciences, psychology and educational sciences, power and computer showed significant difference on the locus of internal control and external locus of control. Internal locus of control with meaningful level had a direct and positive relationship with the educational achievement of students.

A research aimed to study relationship among self-esteem and locus of control of university students. According to the results, all self-esteem components have a positive and considerable relationship with internal locus of control, though this relationship became negative at the time conversating regarding external and likelihood kinds (Ghasemzadeh, Karami, Saadat, and Soleimani, 2012).



The research focused on exploring the direction of Locus of control as well as gender difference on locus of control among graduation students in Pakistan. Results of this research indicate that men have internal locus of control and women scored high on external locus of control. So the gender difference is significant on Locus of Control (Zaidi & Mohsin, 2013).

The common thing in Pakistani society is to have experiences of violent, aggressive and intolerant behavior of youth in the streets, roads and other common places. Proliferation of violence has become the most serious social problem in Pakistan today. Not a week, often not a day, goes by without some terrible act of violence shaking public confidence in the city dwellers because of cultural norms includes revenge, jealousy, social race for material attainment, or of absence of social justice and of frustration. Aggression among students enhances two types, physical aggression includes such behaviors as pushing, shoving, hitting, slapping, biting, kicking, hair-pulling, stabbing, shooting, and rape. Verbal aggression includes threatening and intimidating others and engaging in malicious teasing, taunting, and name-calling. The study discovers that there are many factors that cause aggression like social, cultural, psychological, economical and educational. Each one had its impact on our covert thinking and overt behaviors (Mushtaq & Kayani, 2013).

Aggressive behavior is a product of multiple factors operating on many levels in the absence of protective factor which affects youth largely within the context of their environment and experiences. The study aimed to explore all possible social factors affecting the aggressive behavior among youth. A sample of 175 students was taken randomly from Bahauddin Zakariya University Multan, Pakistan. Results showed that although a number of factors such as family environment, attitude towards religious sect, educational attitude, dissatisfaction with job and media violence are influential in causing aggressive behavior among youth but relationships with peer group is such an important factor that is more significant in causing aggressive behavior among youth (Imtiaz, Yasin, & Yaseen, 2010).

In Pakistan, like other countries, physical inactivity is found to be more prevalent in females as compares to males. A study conducted by World health organization in 2008 found that in Pakistan, the prevalence of physical inactivity is

lower in men as compared to women, whereas the pooled estimate of physical inactivity for individuals from mainly low and middle income countries was lower for men and higher for women. Some of the major reasons of the physical inactivity in women are societal and cultural factors. Studies conducted in Arab countries and Iran have found child care responsibility, lack of security, lack of time, traditional views about women, etc., as some of the reasons for lack of physical activity among women. Even among eastern women residing in western countries, reasons for lower level of physical activity were found to be cultural factors and norms that women should stay indoors (Kahan, 2015).

### **Role of Demographic Variables in Locus of Control, Aggression, and Exercise**

**Gender.** Contradictions can be found between the researchers in the literature over the differences of gender in locus of control (Gursoy and Bicacki 2007), no difference can be found in others (Lester, 19922; Almajali, 2012). A relationship between locus of control, gender, and level of capability was inspected by Manger and Eikeland (2000). Boys were found as having less internal locus of control as compared to girls. No relationship was found between the middle school learners' locus of control and gender (Almajali, 2012). Whereas, there are some prominent differences between the gender and the locus of control, girls were found to be less internal than boys (as cited in Padmaja et al., 2018).

In another study, there were found no gender differences among the locus of controls (Khan, 2013). Similar studies in the past have shown similar differences. The Japanese social workers found no gender differences in the locus of controls (Hirokawa, Yagi, & Miyata, 2002). Same are the views of the students and Polish population (Guszkowska and Kuk, 2012). In another study, no gender differences were found in scale of multidimensional health locus of control (Athale, Aldridge, Malcarne, Nakaji, & Sadler, 2010). The Canadian students also could not find any difference in the locus of control (Saklofske, Austin, Galloway, & Davidson, 2007).

It is generally supposed that males tend to be more aggressive as compared to the females. Although males often involve themselves into physical aggression or outburst as a reaction, females are more inclined towards the relational aggression or passive aggression, i.e. distancing themselves from their peer group (Crick, 1995; Crick, Grotpeter, and Bigbee, 2002; Hadley, 2003; Moffitt, Caspi, Rutter, and Silva,



2001). Verbal aggression can be common in both men and women on equal levels (as cited in Khan, Mohsin, Doger, Awan, & Imtiaz, 2011). Excessive stress and loss of self-control can cause aggression in women. Whereas aggression is taken as an exercise by the men. They take it as an act of controlling others. The acts of aggression are seen by the men in a positive manner (instrumental aggression). While getting aggressive, women are more prone to feel guilty, and they become more concerned about their aggressive acts. Least importance has been given to aggression by the gender role played by the traditional females. It has given more importance to other societal qualities (as cited in Rosen, Beron, & Underwood, 2017).

It has been assumed in the past research regarding the peer aggression that women show their aggression rarely which is why aggression is more referred to males historically (Björkqvist, 1994). This gender biases regarding the aggressive behaviors has been challenged by the researchers which have summoned the explanation of aggression. It has been researched by Björkqvist that the differences lie in the quality of the aggression rather than the quantity of aggression among males and females. It has been researched that at times the aggressive expression of adolescents might be in a form of physicality, manipulation, or bullying (Paquette & Underwood, 1999).

Reports have shown that there are various gender differences among the males and females regarding aggression with respect to physical aggressiveness (Archer & Coyne, 2005; Eagly & Steifen, 1986; Feingold, 1994; Hyde, 1984, 2005; Moffitt, Caspi, Rutter, & Suva, 2001; Reinisch & Sanders, 1986). A relatable normative study on physical/verbal aggression, anger, and hostility shows that men were more aggressive physically and verbally as compared to the women (Buss & Perry, 1992). Impulsiveness, competitiveness, and assertiveness are the reason behind the physical aggression and verbal aggression (Burton, Hafetz, & Henninger, 2007).

It has been shown in the recent study that there is a difference between men and women with respect to exercising (Lustyk, Widman, Paschane, & Olson, 2004; Tiggemann & Williamson, 2000). A higher level of self-esteem and quality life is being lived by the women who engage in activities of low intensity activities as compared to the ones who get engaged in the higher intensity activities. On the other hand, males who get engaged in more exercising are more likely to have higher self-

esteem whereas women with exercising activities are supposed to have lesser self-esteem (Tiggemann & Williamson, 2000).

Prior researches have recommended that males tend to be more active than females in the leisure-time, though not all were constant (Crawford & Eklund, 1994; Furman, Badmin & Sneade, 2002; Hsiao & Thayer, 1998; McDonald & Thompson, 1992; Prichard & Tiggemann, 2005; Strelan, Mehaffey & Tiggemann, 2003; Tiggemann & Williamson, 2000). Current data presented that, when all areas of the active practice are well-thought-out, and no gender differences are perceived (Hallal, Victora, Wells, & Lima, 2003). Men can have high activity ranks in the matter of moderate-intensity, vigorous-intensity, and whole leisure-time physical movement exercise. Walking was the most common activity observed in both the genders. Hence, there is a requirement to highlight the implication and welfares of weight training and high intensity interval training (HIIT) workouts which are commonly performed at gyms in Pakistan.

Inconsistent findings have been found in gender differences regarding exercise. It has been found that men claim to exercise for specific social and competitive goals (Markland & Hardy, 1993; Silberstein et al., 1988). On the other hand, it has been found that females tend to exercise for physical goals like losing weight (Crawford & Eklund, 1994; Furman, Badmin & Sneade, 2002; Hsiao & Thayer, 1998; McDonald & Thompson, 1992; Prichard & Tiggemann, 2005; Strelan, Mehaffey & Tiggemann, 2003; Tiggemann & Williamson, 2000).

Generally, females are more into exercising as compared to males. The reason behind females found with more exercising was that females tend to have lesser weight exercises which are light in activity (Craft, Carroll, & Lustyk, 2014). The reasons stated by women for exercising were body shaping (Furman, Badmin & Sneade, 2002; Markland & Hardy, 1993; McDonald & Thompson, 1992; Prichard & Tiggemann, 2005; Silberstein et al., 1988; Strelan, Mehaffey & Tiggemann, 2003; Tiggemann & Williamson, 2000). It was found that women get into the aerobic classes for having good appearances, unlike men, who are likely to get into exercising for enjoyment.

Previous studies (Azevedo, et al., 2007; Jones et al., 1998; Tiggemann & Williamson, 2000; Vilhjalmsson & Kristjansdottir, 2003) have shown that men have a

tendency to take up leisure activities involving more physical exertion as compared to females. Recent studies (Craft, Carroll, & Lustyk, 2014) have elaborated on this concept by concluding that these high activity exercises can be ranked as moderate intensity, vigorous intensity, and whole physical movement exercise (Pratt, Macera, & Curtis 1999). The most common activity by both men and women was found to be walking.

Another study showed very important variations in the genders activities. This study was conducted on the analysis of aggressive behaviors in the adolescents. Males were found to be more aggressive in the levels of physicality, verbal and aggression related to property issues as compared to the females. Different levels showed different variations according to the backgrounds (Selah-Shayovits, 2004).

From the previous studies, it is concluded that with the passage of time males and females are becoming more external. However, females are more inclined towards such behavior (Semykina & Linz, 2007). Schultz and Schultz (2005) analyzed that many important gender differences in locus of control have not been discovered yet in adults, but it can be assumed that men may have an advanced level of internal locus of control. In Pakistan, the example of such trend can be found (Zaidi & Mohsin, 2013).

**Grade Level.** A higher level of internal locus of control was found at the graduate level and higher educated levels as compared to the lesser levels of education (Smith, 2003). No uniformity in the locus of control was found in the different kinds and groups of employees in a study which examined the differences among the workers' locus of control with respect to the demographic gender variables. Higher internal locus of control was found in the people with higher educational backgrounds among others (D'souza, Agarwal, & Chavali, 2013).

It has been found in the previous studies that with the increase in the educational levels, the aggression levels get lowered (Selah-Shayovits, 2004). Aggressive behaviors are opted and developed with the passage of time in a person's life. It gets developed through the stages of life. In the childhood, the physical aggression is on the top. Verbal aggression comes in the elementary stage in schooling era, and the indirect aggression develops during adolescence (Selah-Shayovits, 2004).

Multiple studies suggest that age and educational level share an indirect relation with readiness to allow aggressive behavior. The literate individuals as compared to the individuals without higher academic education often disregard aggressive behavior and consider it much destructive. Also, the facts were observed in a study concerning the concept of aggressive behavior in college and high-school students which included males and females. Also, it had been demonstrated through the study that more situations were viewed as violent by college males in comparison to the high school students (Selah-Shayovits, 2004).

An age-concerned deterioration regarding physical movement was perceived which could be sharper amongst individuals having less education. Deficiency of physical movement was assumed by deteriorating health and concentrated workforce involvement, though such links share a diversity regarding education level. For the individuals having low education, no work and job loss was linked with less physical movement while for the well-literate individuals the effect is different or opposite (Shaw & Spokane, 2008). Undoubtedly the relationship that both the education and the physical activity during the aging process share cannot be predicted easily.

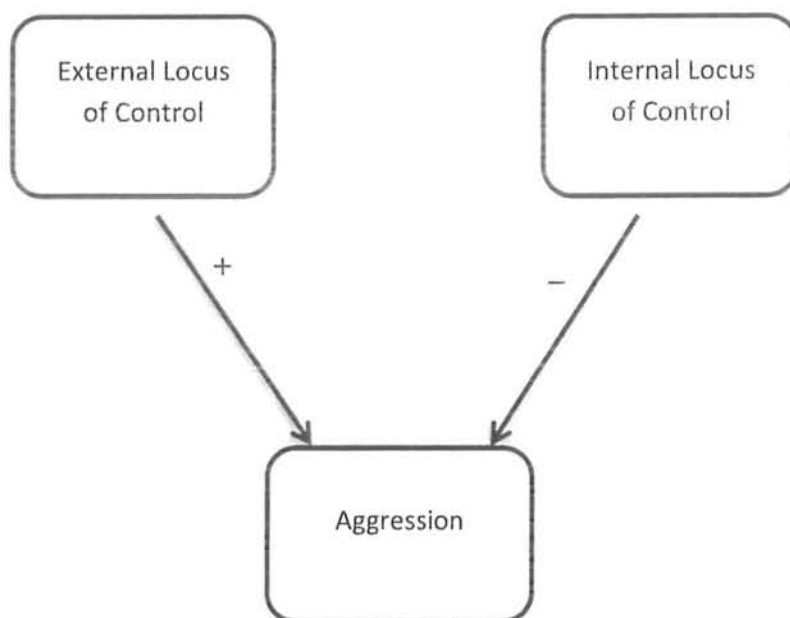
The association between level of education and exercise habits through the years cannot be established easily because many confounding factors such as aggression and mental disorders may influence the result (Chad et al., 2005; Grzywacz & Marks, 2001; Kaplan, Newsom, McFarland, & Lu, 2001; King et al., 2000; Kubzansky, Berkman, Glass, & Seeman, 1998). Simultaneously, some physical movement including active work-related activity can be considered as the indirectly related factor to the education level (He & Baker, 2005).

Well educated individuals can also be better furnished for the maintenance of consistent physical activity following an accident or disability. For instance, higher education may deliver the persons with a bundle of benefits which mostly result in the promotion of the physical activity. Even in cases of age-related variations in aptitudes involving the amplified knowledge about the welfares, a solid sense of self control and self-efficacy regarding the physical movement, improved inspirations from the fellows of social network, having a better admittance to the means that simplify such physical activity (McAuley et al., 2006; Mirowsky & Ross, 2003; Wray, Herzog, Willis, & Wallace, 1998).

**Family system.** A study concerning the control, uncertainty, routine and emotional regulation having a compared analysis of the two family structures that include combined and nuclear systems in college students proposes that both the joint and nuclear family of college students don't share a strong relation in context to the locus of control (Gavit, 2017). According to Pattankar (2014), both the joint and nuclear families don't share any significant relation and the influential feature of locus of control between athletes. Kaura and Sharma (2015) also observed through their study that all the factors; powerful others, chance control (external factors), and youngsters in the nuclear and combined family structures. Likewise, there is no significant dissimilarity among the individual control (internal factors) and adolescents having a relation to the nuclear and combined family systems. Also, it was observed that the youngsters who belong to the nuclear family structure hold more external locus of control as compared to the youngsters who have to belong to a combined family structure. Instead, they hold more internal locus of control.

### **Conceptual Framework of the Study**

The theoretical context for the study has been projected after carefully analyzing the literature that recommends the presence of an association among the variables meant for study, i.e. locus of control, violence, and exercise. Internal locus of control can be positively linked to exercise while the two processes of external locus of control including the powerful others and chance can negatively link to physical activities (Wilson, Mack, & Grattan, 2008). Previous studies indicate a negative relationship among internal locus of control and aggression while the factors like chance and powerful others locus of control and aggression tend to display a positive relationship (Bagherian, Ahmadzadeh, & Baghbanian, 2009). As presented, the factors aggression and exercise share a negative correlation (Hsieh & Chen, 2017). However, the current study is aimed at exploring the differences that the two groups share in the study: gym goers and non-gym goers the way they link to the two variables: locus of control and aggression. It is observed that the gym goers will hold a higher internal locus of control scores resulting in the promotion of exercise behavior which, as a result, tends to lessen the aggression. The non-gym goers will tend to display higher external locus of control scores which share a negative correlation to the exercise behavior while its positive relationship is observed with aggression.



*Figure 1.* Relationship between locus of control and exercise among gym goers and non-gym goers.

The above model indicates a positive relationship between external locus of control and aggression, therefore people who are high externals would be more aggressive, whereas, the model suggests a negative relationship between internal locus of control and aggression, and thus, individuals who are high internals would be less aggressive. It is believed that due to participation in exercise at the gym, the gym goers would have lower level of aggression as compared to the non-gym goers. Gym goers would also be high internals whereas non-gym goers would be high external regarding the locus of control.

### **Rationale of the Present Study**

The purpose of this study is to bridge the gap in the literature and propose a consistent finding for the target culture. The study aims to explore the changing trends in locus of control amongst the genders and the association between each measure of aggression as it relates to the demographic variables (gender, family system, and grade level) as well as the presence of exercise as a behavior. Prior research has focused on clinical population when considering the benefits of physical exercise and explored its value as a treatment module rather than a preventive measure. The present study, however, focuses on the general young adult population. Young adults (ages 18–24 years) are reported to have the highest homicide rate (Liu, Lewis, &



Evans, 2012). Therefore, this particular age group needs strategies for a healthy expression of anger and aggression.

Exercise is seen to be helpful for both the physical and mental well-being (Sharma, Madaan, & Petty, 2006). The lifespan of physically active individuals is observed to be greater as compared to the less physically active individuals. In recent times, Bucksch & Schlicht (2006) determined that physically inactive men and women tend to have lower risks of a whole spectrum of diseases just by having 30 minutes of moderate-intensity activities per day usually in a week.

Multiple researches have been made on the variables under study. Though the combined study of these has never been done and for that reason, the combined effect of locus of control and exercise on aggression is needed to understand the relationship between locus of control and aggression as it is affected by the role of exercise. Prior studies have reported mixed findings in understanding the relationship between the variables under study. Some researches display substantial positive correlations whereas others do not offer any relationship among these variables.

There is comorbidity between aggression and mental illness, along with the other mental disorders, i.e. schizophrenia and alcoholism which also contributes in the aggressive behavior (Liu, Lewis, Evans, 2013). Aggression can have explicit effects which can be quite destructive that are also included in the quick-tempered personality disorders. On the other hand, the implicit effects are also included which leads towards the extreme self-destruction including suicide (Raine, 1993, Stoff, Breiling, & Maser, 1997). Prior work recommends a negative correlation among the aggression and physical exercise. Therefore, such promotion of health operational series that mark physical fitness can aid in the anger management and vigorous expression of aggression.

Health promoting measures help individuals and communities promote and maintain their health (Pledger & Watson, 1986). These can include physical exercise and fitness. Regular exercise is perceived to be essential for the ideal functioning of the human body (Astrand, 1987). The major concern of the healthcare professionals who plan such health promotion programs is to define an optimal strategy to encourage behavior change including an increase of participation in exercise and the apprehension of a physical fitness goal.

Research investigating the relationship between locus of control, aggression, and exercise may reveal patterns that will help health professionals who take the effects of locus of control and type of aggression into account while planning exercise regimen which are more appropriate for a larger part of the general population. The relationship between higher internal locus of control, lower levels of aggression, and greater rate of physical exercise may allow the health professionals to understand and allocate the right amount of energy and time with these individuals and utilize the saved time on individuals who possess a greater degree of powerful others and chance locus of control and might need a different strategy and training.



## **METHOD**

### Method

In order to study the relationship between locus of control and aggression amongst the two comparative young adult groups i.e., gym goers and non-gym goers, the following objectives and hypotheses are established.

#### Objectives

1. To see the relationship between locus of control and aggression among gym goers and non-gym goers.
2. To see the demographics (age, gender, family systems, and grade level) related differences on locus of control and aggression among gym goers and non-gym goers.

#### Hypotheses

1. Gym goers score low on aggression as compared to non-gym goers.
2. Gym goers score high on internal locus of control as compared to non-gym goers.
3. Non-gym goers score high on external (powerful others and chance) locus of control.
4. External locus of control (powerful others and chance) is positively related with aggression.
5. Internal locus of control is negatively related with aggression.
6. Men score high on internal locus of control as compared to women.
7. Women score high on external locus of control (powerful others and chance) as compared to men.
8. Men score high on aggression as compared to women.

#### Operational Definitions

**Locus of control.** Locus of Control was originated by Julian Rotter in 1954. It considers the tendency of people to believe that control resides internally within them, or externally, with others or the situation. Levenson (1973) has modified

Rotter's work on locus of control. She has split external locus of control into two subsets: powerful others and chance while retaining the original internal locus of control.

*Internal locus of control.* The extent to which persons expect that reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics (Rotter, 1990). Those who score high on internal locus of control subscale believe that they are in control of their life events.

*Powerful others.* It is the degree to which persons think that a world is ordered but powerful others are in control. In this case a potential for control exists. It is quite conceivable that a person believing in control by powerful others could perceive enough regularity in the actions of such people to obtain reinforcements through purposeful action. People who score high on powerful others believe that powerful others such as God or any authority is in control (Levenson, 1973).

*Chance.* It refers to a degree to which a person believes in chance regarding the events of life. People who score high on chance measures believe that chance is responsible for all good and bad happening in their lives (Levenson, 1973).

*Aggression.* Social psychologists define aggression as a behavior that is intended to harm another individual who does not wish to be harmed (Baron & Richardson, 1994). Aggression can be of four types:

*Anger.* Anger is defined as emotional response with facial-skeletal and autonomic factors that intensifies aggression (Buss, 1961).

*Physical aggression.* According to Buss (1961), physical aggression is defined as overcoming an organism or removing a barrier by using body parts or weapons to deliver noxious stimuli.

*Hostility.* Hostility is negative implicit interpretation and evaluation of events and people (Buss, 1961).

*Verbal aggression.* Verbal aggression is defined as delivering noxious stimuli to another organism through vocal response, such as rejection and threat (Buss, 1961).

## Instruments

**Demographic sheet.** A demographic sheet was used to obtain information regarding the demographics of the participants. This sheet included information about the respondent's gender, age, level of education, and their current status as a gym goer or a non-gym goer.

**Levenson's Locus of Control Scale.** Levenson's Locus of Control Scale was developed by Hanna Levenson in 1973. Each of the Internal, Powerful Others, and Chance scales consists of eight items in a 6 Likert format which are presented to the subject as a unified attitude scale of 24 items. The response options include: -3 *Strongly Disagree*, -2 *Disagree*, -1 *Slightly Disagree*, +1 *Slightly Agree*, +2 *Agree*, +3 *Strongly Agree*. The Internal scale measures the degree to which a person considers he has control over the consequences of his behavior; the Powerful others scale deals with the role of powerful others in determining the life events of an individual's life; and the Chance scale is concerned with the belief that luck or chance influence the outcome of events or behaviors. All the statements are phrased so as to pertain only to the subject himself. They measure the degree too, to which an individual feels he has control over what happens to him, not what he feels is the case for people in general. The scoring range for IPC scale is 0-48. High score on a subscale indicate the tendency of an individual to attribute life scenarios to that particular locus of control. Kuder-Richardson reliabilities are in the .60 and .70. Split-half reliabilities (Spearman Brown) for an adult sample are all in the .60. Test-retest reliabilities for a one-week period are .60 and .70 (Levenson, 1973).

**Buss-Perry Aggression Questionnaire (BPAQ).** The Buss-Perry Aggression Questionnaire (1992) is a 29-item, four-factor instrument that measures physical aggression (9 items), verbal aggression (5 items), anger (7 items), and hostility (8 items). The scoring options rate from 1 to 5, whereas 1 represents *extremely uncharacteristic of me*, 2 represents *somewhat uncharacteristic of me*, 3 represents *neither uncharacteristic nor characteristic of me*, 4 represents *somewhat characteristic of me*, and 5 represents *extremely characteristic of me*. There are two reverse scored items: 9 and 16. The score range lies between 12 to 80. The score range for subscales is as follows: anger 7-35, physical aggression 9-45, hostility 8-40, and verbal aggression 5-25. Cronbach's alpha for the total scale is .89, for Physical

Aggression .80; for Verbal Aggression .66; for Anger .60; and for Hostility.61.

### Research Design

The present study is correlational and cross-sectional. The aim was to study the relationship between locus of control and aggression among gym goers and non-gym goers. The psychometric properties of the instruments were explored and the proposed objectives and hypotheses were tested empirically.

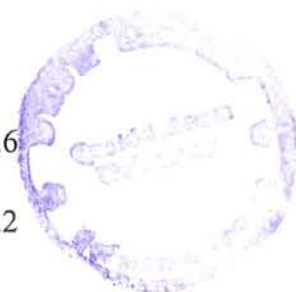
### Sample

A comparative research sample comprised of young adults between the ages 17-34 (adolescents and young adults) was included in the present study ( $N=298$ ). The two groups: regular gym goers ( $n=150$ ) and non-gym goers ( $n=148$ ). Amongst both groups, half were males (gym goers male,  $n=75$ , female  $n=75$ ) and half were females (non-gym goers male,  $n=74$ , female  $n=74$ ). Both groups were constant in their health status (no genetic predispositions reported), grade level, age range, and urban status. The participants (gym goers and non-gym goers) of the study belonged to Islamabad and Rawalpindi. The criteria for gym goers included gym participation for a period of 6 months or over. Non-gym goers were mainly students belonging to different universities in the twin cities.

Table 1

*Demographic profile of the sample (N=298)*

<b>Demographics variables</b>	<i>f</i>	%
Gym Goers	150	50.3
Non Gym Goers	148	49.7
<b>Gender</b>		
Men	149	50
Women	149	50
<b>Grade Level</b>		
BS/B.A/B.Sc.	57	43.6
M.A/ M.Sc.	119	33.2



M.Phil./MS	122	23.2
<b>Family System</b>		
Nuclear	236	79.2
Joint	62	20.8

Table 1 shows sample characteristics and its frequencies and percentages for gym goers and non-gym goers, gender, grade level, and family system. There are 149 men and 149 women in the sample. Age of the sample ranges from 17-34 (adolescence and young adults) ( $M=23.15$ ,  $SD=2.7$ ). Undergraduate students comprise 43.6% of the total sample while Master students make up 33.2%, whereas M.Phil./MS students include 23.3% in the total sample. 79.2% of the participants belonged to nuclear family systems while 20.8% belonged to a joint family system. Of the total sample, 50.3% were gym goers and 49.7% were non gym goers.

### Procedure

Data was collected from individuals who were current members and goers of the gyms located in the twin cities. The following gyms were approached in Islamabad: Smarts Health & Fitness Club F-7, The Gym Beverly Center, Fitness Lounge Blue Area, Fitdiction F-8, Body Fit Gym G-11 while in Rawalpindi the data was collected by the following gyms: Hard Stone Gym Satellite Town, Safari Gym, Hill View Rd, UFC Fitness Gym, Chaklala Scheme 3, Shehzad Shaukat Gym, Asghar Mall Scheme, and House Of Pain Gym, Muslim Town. As for the non-gym goers, data was collected from accredited universities within Islamabad and Rawalpindi such as COMSATS, QAU, NUST, Bahria University and, ARID. Informed consent was taken from each participant and they were informed regarding their right to quit at any given time in the research. All participants were ensured about the confidentiality of their data and its use only for the purpose of the present research. Each participant was briefed on how to fill out the questionnaire and was instructed to fill in all the items as well as the demographic sheet placed before the questionnaire. Participants were informed that there were no right or wrong answers and only their honest responses are required. Subsequent to the filling out of data, the participants were thanked for their contribution in the research.

## RESULTS

## Results

The aim of the present study was to investigate the relationship between locus of control and aggression amongst gym goers and non-gym goers. After the collection of data from 298 adolescence and young adults, the obtained data was entered in SPSS (Statistical Package for Social Sciences) for quantitative analysis. Descriptive and inferential statistical analyses were ran to analyze the collected data.

### Reliability Estimates and Descriptive Analysis of Measures

The reliability and descriptive statistics were assessed for locus of control and aggression. The results produced are presented in the table below:

Table 2

*Descriptive and reliability value of Buss Perry Aggression Scale and Internal Powerful others Chance Scale (N=298).*

Variables	Items	$\alpha$	$M$	$SD$	Range		Skew	Kurt
					Potential	Actual		
Anger	7	.76	30.89	5.46	7-35	10-34	-.37	-.00
PhysicalAGG	9	.70	28.86	5.43	9-45	09-44	-.44	21.8
Hostility	8	.74	24.82	5.78	8-40	08-39	.12	-.34
VerbalAGG	5	.72	16.47	3.59	5-25	06-25	-.37	.05
ILOC	8	.69	32.71	6.25	0-48	13-46	-.44	-.21
POLOC	8	.72	20.71	7.82	0-48	02-40	.12	-.34
CLOC	8	.70	25.44	6.91	0-48	03-41	-.37	.05

*Note.* ILOC= internal locus of control, PLOC=Powerful others, CLOC=chance, PhyAGG=physical aggression, VerbalAGG=verbal aggression.

Table 2 illustrates the descriptive, alpha-coefficient, and number of items for locus of control and aggression. Good reliability values are the sign of internal consistency within the scale, the values for reliability coefficients range from 0-1.0. Alpha values for all measures fall in acceptable ranges, for internal locus of control .69, for powerful others .72, for chance .70, for anger .76, for physical aggression .70, for hostility .74, and for verbal aggression .72. The reliability coefficient for physical



activity subscale is .77. The values for skewness and kurtosis lie between -1 to +1 which suggests normal distribution of data. Observation of the mean values for aggression suggests that the population has high anger and verbal aggression. The mean values for physical aggression and hostility lie on average. The population also has high mean value for internal locus of control whereas average values for powerful others and chance locus of control.

### Relationship between Locus of Control and Aggression among Gym Goers and Non-Gym Goers

Pearson correlation was to evaluate the relationship between locus of control (internal, powerful others, and chance) and aggression (anger, physical aggression, hostility, and verbal aggression). The results obtained through analysis are given below:

Table 3

*Correlation between Buss Perry Aggression Scale and Sub-scales of Internal Powerful others Chance Scale among Gym Goers and Non-gym Goers (N=298).*

#	Variables	M	SD	1	2	3	4	5	6	7
Total Sample (N = 298)										
1	Anger	21.24	5.31	-	.64**	.57**	.54**	-.08	.18**	.23**
2	PhysicalAGG	24.27	6.77		-	.46**	.52**	-.13*	.14**	.20**
3	Hostility	24.85	5.85			-	.47**	-.12*	.34**	.35**
4	VerbalAGG	16.51	3.57				-	.00	.11**	.19**
5	ILOC	32.71	6.24					-	.01*	-.05
6	POLOC	20.71	7.85						-	.52**
7	CLOC	26.57	6.91							-
Gym-Goers (n = 150)										
1	Anger	20.28	5.53	-	.62**	.58**	.57**	-.02**	.11**	.10**
2	PhysicalAGG	22.89	6.56		-	.40**	.48**	-.06**	.02**	.05**
3	Hostility	23.48	6.48			-	.50**	-.03**	.34**	.26**
4	VerbalAGG	16.04	3.98				-	.15	.06**	.15*
5	ILOC	33.84	6.30					-	.03	.10
6	POLOC	20.20	5.53						-	.53**
7	CLOC	25.22	6.92							-
Non-Gym Goers (n = 148)										
1	Anger	22.10	4.95	-	.63**	.51**	.48**	-.09**	.25**	.31**
2	PhysicalAGG	25.54	6.71		-	.51**	.53**	-.13**	.27**	.29**
3	Hostility	26.09	4.92			-	.40**	-.16**	.34**	.42**
4	VerbalAGG	16.89	3.10				-	-.14	.17**	.19*

5	ILOC	31.57	6.01	-	.00	-.15
6	POLOC	21.23	7.10		-	.49*
7	CLOC	27.94	6.64			-

*Note.* ILOC=internal locus of control, PLOC=Powerful others, CLOC=chance, PhysicalAGG=physical aggression, VerbalAGG=verbal aggression. CI=Confidence Interval, LL=Lower limit, UL=Upper limit.

\* $p < .05$ , \*\* $p < .01$

Table 3 shows correlation between locus of control (internal, powerful others, and chance), and aggression (anger, physical aggression, hostility, and verbal aggression). Results show that there is statistically significant relationship between aggression (anger, physical aggression, hostility, and verbal aggression) and external locus of control (powerful others and chance). It means that individuals who have an external locus of control will be aggressive. This supports the fourth hypothesis, "External locus of control (powerful others and chance) is positively related with aggression among gym goers and non-gym goers". However, there is a negative correlation between internal locus of control and aggression (anger, physical aggression, hostility, and verbal aggression) which shows that people who have internal locus of control will not be aggressive. This verifies that fifth hypothesis, "Internal locus of control is negatively related with aggression among gym goers and non-gym goers".

The second section of the table indicates the correlation between measures of locus of control (internal, powerful others, and chance) and aggression (anger, physical aggression, hostility, and verbal aggression) amongst gym goers. Results show that there is statistically significant negative correlation between aggression (anger, physical aggression, and hostility) and internal locus of control which shows that people who have an internal locus of control will be less likely to have anger. Individuals with an internal locus of control who are gym goers will not be physically aggressive. There is a statistically significant and positive correlation between aggression (anger, physical aggression, hostility, and verbal aggression) and powerful others. People who believe in the powerful others' role in influencing their life and circumstances are physically aggressive. As for chance locus of control, aggression has a positive and statistically significant correlation. Thus, people who believe that chance or luck or fate plays a role in determining the events of life are aggressive.

### Variables Predicting Aggression among Gym Goers and Non-Gym Goers

Linear regression analysis was performed in order to identify which variables describe most variance in aggression; the results of the analysis are illustrated in the following table:

Table 4

*Multiple Linear Regression Analysis for the effect of Locus of Control on Aggression (N=298).*

Predictors	Model 1 $\beta$	Model 2 $\beta$	Aggression	
			Model 2	
			95% CI	
			<i>LL</i>	<i>UL</i>
Constant	87.62***			
Gender	.02			
Grade Level	-.04			
Family System	.01			
Constant		79.60***	65.74	96.47
Gender		.01	-3.73	4.64
Grade Level		-.05	-3.99	1.53
Family System		-.00	-5.00	4.76
ILOC		-.12**	-.67	-.05
POLOC		.11	-.04	.54
CLOC		.24***	.29	.95
$R^2$	.002	.002		
$\Delta R^2$		.118***		
F	.195	.195		
$\Delta F$	6.5***	12.97***		

*Note.* ILOC= internal locus of control, PLOC=Powerful others, CLOC=chance.

\* $p < .05$ , \*\* $p < .01$

Table 4 shows multiple linear regression analysis with gender, education, family systems, internal locus of control, powerful others, and chance locus of control. Results show that internal locus of control is a significant negative predictor of aggression and chance locus of control as a significant positive predictor of aggression. Internal locus of control negatively predicts aggression and accounts for 12% of variance in aggression whereas chance locus of control positively predicts aggression and accounts for 24% of variance in aggression.

### Comparison between Gym Goers and Non-Gym Goers

Table 5

*Comparison between gym goers and non-gym goers on aggression and locus of control (N=298).*

Variables	Gym Goers (n=150)		Non-gym Goers (n=148)		<i>t</i> (298)	<i>P</i>	95% <i>CI</i>		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>	
Anger	20.28	5.53	22.10	5.31	-2.99	.00	-3.01	-.62	0.33
PhysicalAGG	22.89	6.56	25.54	6.77	-3.44	.00	-4.16	-1.13	0.40
Hostility	23.48	6.48	26.09	5.85	-3.90	.00	-3.92	-1.29	0.42
VerbalAGG	16.04	3.98	16.89	3.57	-2.04	.04	-1.66	-.03	0.22
ILOC	33.84	6.30	31.57	6.24	3.18	.00	.86	3.67	0.36
POLOC	20.20	8.47	21.23	7.85	-1.13	.25	-2.81	.75	0.12
CLOC	25.22	6.92	27.94	6.91	-3.45	.00	-4.26	-1.17	0.39

*Note.* ILOC=internal locus of control, PLOC=Powerful others, CLOC=chance, PhysicalAGG=physical aggression, VerbalAGG=verbal aggression. CI=Confidence Interval, LL=Lower limit, UL=Upper limit.

Table 5 shows the *t* test results for gym goers and non-gym goers on the measures of aggression (anger, physical aggression, hostility, and verbal aggression), and locus of control (internal, powerful others, and chance). Analysis produced a significant *t* value for anger, physical aggression, hostility, and a non-significant *t* value for verbal aggression. An examination of mean values reveals that non-gym goers score higher on anger, physical aggression, and hostility than non-gym goers. There isn't a large difference between the values for verbal aggression. It means that non-gym goers are more aggressive than gym goers. This supports the first hypothesis, "Gym goers score low on aggression as compared to non-gym goers".

Analysis produced a significant  $t$  value for internal locus of control and chance, and a non-significant  $t$  value for powerful others. An examination of mean values for internal locus of control shows that gym goers are higher internals. Therefore, supporting the second hypothesis, "Gym goers score high on internal locus of control as compared to non-gym goers". Gym goers and non-gym goers don't show a significant difference on mean values of powerful others, meaning, both groups perceive equal control of powerful others. Considering mean values for chance locus of control, we see that, gym goers have a lower mean value than non-gym goers which suggests that non-gym goers believe more in luck/chance or fate as determinants of their lives. Thus, the third hypothesis is partially supported, "Non-gym goers score high on external (powerful others and chance) locus of control".

### Gender Differences in Locus of Control and Aggression

To assess gender differences in aggression (anger, physical aggression, hostility, and verbal aggression) and locus of control (internal, powerful others, and chance), independent sample  $t$ -test was conducted. Analysis produced results that are described in the following table:

Table 6

*Comparison between men and women on aggression and locus of control (N=298).*

Variables	Total Sample (N=298)				$t$ (298)	$P$	95% CI		Cohen's $d$
	Men ( $n=149$ )		Women ( $n=149$ )				LL	UL	
	$M$	$SD$	$M$	$SD$					
Anger	20.95	5.33	21.42	5.31	-.77	.76	-1.6	.73	0.08
PhysicalAG G	24.47	6.49	23.53	6.96	1.72	.39	-.19	2.8	0.13
Hostility	24.06	5.69	25.49	6.02	-2.10	.28	-2.7	-.09	0.24
VerbalAGG	16.58	3.36	16.35	3.81	.54	.06	-.59	1.0	0.18
ILOC	33.20	6.16	32.22	6.33	1.3	.43	-.44	2.4	0.15
POLOC	20.65	7.94	20.78	7.72	-.14	.54	-1.9	1.6	0.01
CLOC	26.59	7.24	26.56	6.59	.03	.48	-1.5	1.6	0.00

Gym Goers ( <i>n</i> =150)									
Variables	Men ( <i>n</i> =75)		Women ( <i>n</i> =75)		<i>t</i> (148)	<i>P</i>	95% <i>CI</i>		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>	
Anger	20.73	5.57	20.20	5.52	.19	.89	-1.61	1.96	0.09
PhysicalAGG	24.33	6.72	21.45	6.11	2.7	.00	.80	4.95	0.44
Hostility	22.92	6.42	24.05	6.53	-1.07	.28	-3.22	.95	0.17
VerbalAGG	16.37	3.90	15.71	4.07	.91	.31	-.63	1.95	0.16
ILOC	34.32	5.96	33.37	6.63	.18	.36	-1.08	2.98	0.15
POLOC	19.05	8.17	21.36	8.67	.53	.09	-5.02	.41	0.27
CLOC	24.22	7.70	26.22	5.92	.02	.07	-4.21	.21	0.29

Non-gym Goers ( <i>n</i> =148)									
Variables	Men ( <i>n</i> =74)		Women ( <i>n</i> =74)		<i>t</i> (148)	<i>P</i>	95% <i>CI</i>		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>	
Anger	21.54	5.04	22.67	4.81	-1.39	.16	-2.73	.46	0.22
PhysicalAGG	25.43	6.25	25.64	7.17	-.19	.84	-2.40	1.97	0.03
Hostility	25.22	4.60	26.95	5.10	-2.16	.03	-3.31	-.14	0.15
VerbalAGG	16.79	2.73	17.00	3.45	-.39	.69	-1.21	.81	0.06
ILOC	32.08	6.19	31.06	5.82	1.02	.30	-.94	2.96	0.15
POLOC	22.27	7.42	20.20	6.65	1.78	.07	-.22	4.35	0.16
CLOC	28.98	5.87	26.90	7.22	1.92	.05	-.05	4.22	0.31

*Note.* ILOC=internal locus of control, PLOC=Powerful others, CLOC=chance, PhysicalAGG=physical aggression, VerbalAGG=verbal aggression. CI=Confidence Interval, LL=Lower limit, UL=Upper limit.

Table 6 displays mean, standard deviation, *t* and *p* values of men and women group on aggression (anger, physical aggression, hostility, and verbal aggression) and locus of control (internal, powerful others, and chance). Analysis produced a non-significant *t* value ( $t(298) = 1.3, p > 0.05$ ) for internal locus of control, powerful others ( $t(298) = -.14, p > 0.05$ ), and for chance locus of control ( $t(298) = .03, p > 0.05$ ). An examination of mean values reveals that men score higher on internal locus of control than women. It means that men consider having an internal control on the events of

life as compared to women. Due to the insignificance of these values, the sixth hypothesis is rejected, "Men (gym goers and non-gym goers) score high on internal locus of control as compared to women (gym goers and non-gym goers)". Women scored higher on external locus of control measures, namely, powerful others and chance. But, since the result is non-significant, thus the seventh hypothesis is rejected, "Women (gym goers and non-gym goers) score high on external locus of control (powerful others and chance) as compared to men (gym goers and non-gym goers)". This implies that there is no gender difference for the measure of locus of control.

Analysis produced a non-significant  $t$  value for aggression. Examination of mean values reveals that women score higher than men on the measure of anger, hostility, whereas, men scored higher on the measures of physical and verbal aggression, however, these values are non-significant, thus, rejecting the eighth hypothesis, "Men (gym goers and non-gym goers) score high on aggression as compared to women (gym goers and non-gym goers)".

Section two of the table shows the  $t$  test results for gym going men and women on the measures of aggression (anger, physical aggression, hostility, and verbal aggression), and locus of control (internal, powerful others, and chance). Analysis produced a significant  $t$  value for physical aggression. An examination of mean values reveals that gym going men score higher on physical aggression than gym going women. There is nonsignificant result for all other variables.

The last section of the table illustrates the  $t$  test results for non-gym going men and women on the measures of aggression (anger, physical aggression, hostility, and verbal aggression), and locus of control (internal, powerful others, and chance). Analysis produced a significant  $t$  value for hostility, and chance locus of control. An examination of mean values reveals that non-gym going women score higher on hostility than non-gym going men. On chance locus of control, non-gym going men have a higher mean value than non-gym going women, thus, implying that non-gym going men believe in chance, luck, or fate more than non-gym going women.

### **Differences on the basis of Family System**

There are two family systems: nuclear and joint for the current study sample. Independent sample  $t$ -test was used to analyze the mean differences on locus of

control (internal, powerful others, and chance) and aggression (anger, physical aggression, hostility, and verbal aggression) on the basis of family system in the sample.

Table 7

*Effect of family system on aggression and, locus of control (N=298).*

Variables	Nuclear (n = 236)		Joint (n = 62)		t (298)	P	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Anger	21.36	5.41	20.51	4.90	1.12	.29	-.64	.234	0.16
PhysicalAGG	24.30	6.76	23.82	6.76	.50	.76	-1.41	2.38	0.07
Hostility	24.66	5.96	25.24	5.63	-.69	.61	-2.23	1.07	0.10
VerbalAGG	16.32	3.70	17.04	3.09	-1.42	.12	-1.73	.28	0.21
ILOC	33.84	5.96	31.57	6.33	-.17	.89	-1.91	1.60	0.36
POLOC	20.20	8.17	21.23	7.72	-1.63	.80	-4.01	.36	0.12
CLOC	25.22	7.70	27.94	6.59	-.27	.06	-2.21	1.67	0.37

*Note.* ILOC= internal locus of control, PLOC=Powerful others, CLOC=chance, VerbalAGG=verbal aggression. CI=Confidence Interval, LL=Lower limit, UL=Upper limit.

Table 7 demonstrates the mean values for measures of locus of control (internal, powerful others, and chance) and aggression (anger, physical aggression, hostility, and verbal aggression) for two family systems: nuclear and joint. However, there is nonsignificant mean difference on any variable.

### **Differences on the basis of Grade Level**

Table 8 illustrates the mean differences are significant for two measures of aggression, namely, anger ( $F(2,298), 4.15, p < .05$ ) and physical aggression ( $F(2,298), 3.92, p < .05$ ). Students of MS/M.Phil. have relatively less anger as compared to the other two grade level groups. The mean difference has been observed and post hoc analysis was performed. For anger, post hoc results suggest that  $3 > 2$  &  $1$  which implies that students of MS/M.Phil. are less angry than students of B.A./B.Sc./BS and M.A/M.Sc. For physical aggression, post hoc results indicate that  $2 < 1$  &  $3$ , thus



suggesting that students of MS/M.Phil. are less physically aggressive than students of B.A./B.Sc./BS and MS/M.Phil.

Table 8

*Effect of grade level on aggression and locus of control (N=298).*

Variables	B.A/B.Sc./BS (n=57)		M.A/M.Sc. (n=119)		MS/M.Phil. (n=122)		F	p	i-j	D=i-j	95% CI	
	M	SD	M	SD	M	SD					LL	UL
Anger	20.58	4.46	22.26	5.31	20.45	5.55	4.15	.01	3<2	1.81*	20.58	21.79
PhysicalAGG	24.45	6.66	25.36	6.82	22.96	6.57	3.92	.02	2<3	2.39*	23.43	24.97
Hostility	23.71	5.45	25.47	5.64	24.60	6.28	1.80	.16	n.s	n.s		
VerbalAGG	16.42	3.01	16.82	3.82	16.15	3.61	1.05	.35	n.s	n.s		
ILOC	34.05	6.37	32.29	6.14	32.50	6.27	1.64	.19	n.s	n.s		
POLOC	19.59	8.45	20.50	7.38	21.45	7.93	1.16	.31	n.s	n.s		
CLOC	26.38	7.47	27.25	7.11	26.57	6.41	1.00	.36	n.s	n.s		

*Note.* ILOC= internal locus of control, PLOC=Powerful others, CLOC=chance, VerbalAGG=verbal aggression. CI=Confidence Interval, LL=Lower limit, UL=Upper limit

## **DISCUSSION**

## Chapter 4

### Discussion

The aim of the present study was to explore the relationship between locus of control and aggression between gym goers and non-gym goers. The concept of locus of control, although relatively new (as cited in Lefcourt, 2014), has received considerable attention in the study of psychological differences (Lefcourt, 2014; Phares, 1976). Locus of control is the extent to which people believe they have control over the outcome of events in their lives. Individuals who believe that their life events are a result of their own actions or decisions are known as internals, whereas, externals are those who are of the view that the events in their lives take place beyond their powers (Breet et al., 2010). Individuals belonging to either extreme category are rare and most fall in between the two. Locus of control is thought to be an inherent trait but it may be transformed through experience (as cited in Goyal, 2000). Aggression is a major problem in the world as it has become deeply engrained in today's society. Different individuals may express aggressive behavior in various ways. Locus of control has an inverse relationship with aggression. Earlier studies stipulate that externals may show increased aggression levels due to their tendency to feel powerless in a situation, which may lead to the development of feelings such as frustration, anger and ultimately aggression. In contrast, internals tend to handle stressful situations better than the externals by utilizing their analytical skills and therefore show less aggression (Grimes, Millea, & Woodruff, 2004; Miller, Fitch & Marshall, 2003; Marks, 1998; Shoal, Giancola & Kirillova, 2003; Storms & Spector, 1987).

There is a scarcity of literature on simultaneous relationship of these variables in Pakistan. This study would work to fill the existing gap and would add to the existing literature. Mental health professionals can utilize the findings from this study in designing treatment plans for people dealing with aggression related mental health problems, such as, mood disorders and schizophrenia. An understanding of the role of locus of control as it affects aggression can help address the cause more efficiently. Major literature reviews show that internals and externals differ in numerous ways, particularly in terms of their cognitive activity and environmental mastery. Because

they are more perceptive of their situations, internals seem to exert more control over their lives in part by their knowledge of their environments (Dollinger, 2000). Internals more readily acquire and utilize information that is relevant to their goal situation even when it seemingly is not relevant (Smith, 2003). Some anger management treatments employ exercise, which has been shown to reduce aggressive behaviors in intervention studies. Studies have also depicted an association between anger and the level of physical endurance. A study by Stewart et al. (2003) found a considerable correlation between physical fitness and anger in individuals. Thus, literature suggests that exercise can reduce anger and buffer its physical consequences. The present study also aimed to explore the role of demographics (gender, family system, and grade level) for the study variables. With the purpose of meeting the objectives, the data was collected from the gyms and universities located in Islamabad and comprised of adolescents and young adults (17-34) lying in any of the three grade level categories: B.A/B.Sc./BS, M.A./M.Sc., and M.Phil./MS (see Table 1).

The objectives of this research were accomplished through data collection from gym goers and non-gym goers using Levenson IPC Scale (1973), and Buss Perry Aggression Questionnaire (1992). Both these scales have good alpha reliability (refer to Table 2). Skewness and kurtosis values were measured to address the assumption of normal distribution of data. The values for skewness and kurtosis for current data lie between -1 to +1, thus supporting normality (Field, 2013) (see Table 2).

### **Relationship between Locus of Control and Aggression among Gym and Non-Gym Goers**

Bivariate correlation analysis was performed to explore the relationship between variables. Fourth hypothesis was that external locus of control (powerful others and chance) is positively related with aggression among gym goers and non-gym goers. Analysis shows that there is statistically significant relationship between aggression (anger, physical aggression, hostility, and verbal aggression) and powerful others locus of control measure. Aggression (anger, physical aggression, hostility, and verbal aggression) chance locus of control also have a positive and statistically significant correlation. People with an external locus of control might experience more aggression due to the fact that they believe that the circumstances and events

occurring in their lives are not in their control and there is nothing they can do change how things are progressing. People with powerful others locus of control feel that significant people of authority control their lives, such as, parents or elders in collectivistic cultures, or, perhaps, teachers, managers, thereby anyone who has the authority status has power to control the life of an individual who believes in powerful others. As for chance locus of control, people value and believe in fate, luck, or chance. They believe that success or failure relies on luck; therefore, they blame their luck or fate whenever they encounter a failure. Feeling helpless at the mercy of fate can lead to increased aggression in these individuals. The hypotheses are supported by results in the existing literature (Davis & Mettee, 1971; Hall, 2006; Osterman, et al., 1999; Ridling, 2010; Sadowski & Wenzel, 1982; Williams & Vantress, 1969). The literature suggests that external locus of control correlates significantly with all types of aggression, but significantly higher with physical aggression (Spector et al., 2002).

According to the analysis there is a statistically significant and negative correlation between internal locus of control and the two measures of aggression: physical aggression and hostility. Thereby, verifying the fifth hypothesis which states that 5. Internal locus of control is negatively related with aggression among gym goers and non-gym goers. Hall's study validates the findings, suggesting that internal locus of control and aggression is inversely related (as cited in Ridling, 2010).

**Group difference between gym goers and non-gym goers on locus of control and aggression.** Analysis produced a significant difference for aggression (anger, physical aggression, and hostility). An examination of mean values reveals that non-gym goers score higher on anger, physical aggression, and hostility than non-gym goers. There isn't a vast difference between the values for verbal aggression. It means that non-gym goers have more aggression than gym goers. This supports the first hypothesis which states that gym goers score low on aggression as compared to non-gym goers. In sight of the existing literature, exercise has been found to be lessen the level of aggression (Gordon-Larsen, Nelson, & Popkin, 2004; Fleming et al., 2008; Molnar et al., 2008). Children who participate in physical and extracurricular activities have been found to exhibit low levels of aggression (Fleming et al. 2008; Molnar et al. 2008; Nelson & Gordon-Larson, 2006).

Analysis produced a significant *t* value for internal locus of control, for chance *t* value and a non-significant *t* value for powerful others. An examination of mean values for internal locus of control shows that gym goers are higher internals, therefore, validating the second hypothesis that gym goers score high on internal locus of control as compared to non-gym goers. Gym goers and non-gym goers don't show a significant difference on mean values of powerful others, meaning, both groups perceive equal control of powerful others. Considering mean values for chance locus of control, we see that, gym goers have a lower mean value than non-gym goers which suggests that non-gym goers believe more in luck/chance or fate as determinants of their lives. This partially rejects the third hypothesis which states that non-gym goers score high on external (powerful others and chance) locus of control. Steptoe and Wardle (2001) suggest that regular physical exercise, sometimes, is positively related to having an internal locus of control and negatively associated with chance and powerful others locus of control. Previous literature suggests that locus of control influences exercise (Coleman & Deleire, 2003). Thus, one possibility is that individuals with internal locus of control invest more in their health simply because they are more likely than their external counterparts to believe those investments would result in better health in the future (Caliendo et al., 2010; McGee & McGee, 2016; McGee, 2015).

### **Predictability of Aggression among Gym and Non-Gym Goers**

Linear regression analysis was performed to examine the predicting role of demographic variables (gender, family system, and grade level) on locus of control in aggression. The results reveal that that internal locus of control is a significant negative predictor of aggression and chance locus of control is a significant positive predictor of aggression. Powerful others was a nonsignificant predictor of aggression. Internal locus of control accounts for 12% of variance in aggression whereas chance locus of control accounts for 24% of variance in aggression. These results are constant with the prior literature which suggests that internal locus of control is a significant negative predictor of aggression and external locus of control is a significant positive predictor of aggression. Individuals with internal locus of control are less aggressive whereas individuals with external locus of control (chance) are more aggressive (Breet, Myburgh, & Poggenpoel, 2010; Brytek-Matera, 2008; Davis & Mettee, 1971; Hall, 2006; Osterman et al., 1999; Ridling, 2010; Sadowski & Wenzel, 1982;

Williams & Vantress, 1969). When an individual believes that the outcome is dependent with his behavior or effort, he is more likely to take his actions into account which leads to reflection rather than aggression. While a person who is an external believes that powerful others and chance play a greater role in determining the outcome of his behavior which leads him to feel aggressive as he feels lack of control over these causal forces.

### **Gender Differences on Locus of Control and Aggression among Gym and Non-Gym Goers**

The *t* test analysis for gym going men and women on the measures of aggression (anger, physical aggression, hostility, and verbal aggression), and locus of control (internal, powerful others, and chance) produced a significant *t* value for physical aggression. Mean values indicate that gym going men score higher on physical aggression than gym going women. There result for all other variables was nonsignificant. Previous studies suggest that men who are regular gym goers have a comparatively high level of aggression than gym going women (Herrmann, 2012). This may be accounted for by the testosterone levels in the male gym goers (Hawkins et al., 2008).

The *t* test results for non-gym going men and women on the measures of aggression (anger, physical aggression, hostility, and verbal aggression), and locus of control (internal, powerful others, and chance) illustrate a significant *t* value for hostility, and chance locus of control. Mean values show that non-gym going women score higher on hostility than non-gym going men. Existing literature also suggests that women are more hostile than men (Sadeh, Javdani, Finy, & Verona, 2011). Non-gym going men have a higher mean value on chance locus of control than non-gym going women. It means that non-gym going men believe in chance more than non-gym going women. One reason for this might be that women believe their significant others to influence their lives more than chance (McPherson & Martin, 2017).

Sixth hypothesis states that men (gym goers and non-gym goers) score high on internal locus of control as compared to women (gym goers and non-gym goers). Analysis produced a non-significant *t* value for internal locus of control, powerful others, and for chance locus of control. An examination of mean values reveals that men score higher on internal locus of control than women (Table 6). Whereas women



scored higher on external locus of control measures, namely, powerful others and chance. It means that men consider having an internal control on the events of life as compared to women. But, since the result is non-significant, thus the sixth and seventh hypotheses are rejected. This implies that there is no gender difference for the measure of locus of control. Gender differences in relation to locus of control from past studies are ambiguous. In a research conducted by McPherson and Martin (2017), no statistically significant outcome was obtained regarding difference in locus of control in relation with gender. This may not be surprising since previous research showed that there were no consistent outcomes as far as the dependency between gender and locus of control is concerned (Almajali, 2012; Lester, 2002). The study by Gursoy and Bicakci (2007) also reveal no gender difference between men and women on the measures of locus of control.

Analysis produced a nonsignificant *t* value for aggression (anger, physical aggression, hostility, and verbal aggression). Examination of mean values reveals that women score higher than men on the measure of anger, hostility, whereas, men scored higher on the measures of physical and verbal aggression, however, these values are non-significant, thus, rejecting the eighth hypothesis which states that men (gym goers and non-gym goers) score high on aggression as compared to women (gym goers and non-gym goers). This is in accordance with some previous research outcomes (Rahimizadeh, Arabnarmi, Mizany, & Shahbazi, 2011). Eagly and Steffen (1986) reviewed sex differences in aggressive behavior found that although men were somewhat more aggressive than women on the average, sex differences were inconsistent across studies (as cited in Hyde, 2005). These results are consistent with the notion that gender differences in aggressive behavior are not large (as cited in Croson & Gneezy, 2009). Advocates of assertiveness have emphasized the lack of harmful intent underlying assertive behaviors versus the presence of such intent underlying aggressive behaviors. Nevertheless, the support for women's assertiveness in recent years suggests that the female gender role, like the male gender role, conveys complex messages about aggression and related behaviors. There is no reason to believe that females should be less hostile and less prone to get into conflicts than males (as cited in Moroschan, Hurd, & Nicoladis, 2009).

Less traditional forms of the female gender role include an emphasis on assertiveness, a quality advocated by feminists. Assertiveness, although popularly

regarded as synonymous with aggressiveness, has often been distinguished from it by proponents of assertiveness training (Fiske & Taylor, 2013). In a meta-analytic review by Archer (2004) anger showed no sex differences. The overall pattern indicated males' greater use of costly methods of aggression rather than a threshold difference in anger. Björkqvist (2018) in his study found that both genders use direct verbal aggression equally much.

### **Family System Related Differences on Locus of Control and Aggression among Gym and Non-Gym Goers**

To study the effect of family system on study variables, *t* test was used. The results of the *t* test show non-significant results for internal locus of control, powerful others, chance, anger, physical aggression, hostility, and verbal aggression (Table 8). It means that family system has no effect on locus of control and aggression.

### **Grade Level Differences on Locus of Control and Aggression among Gym and Non-Gym Goers**

To study the effect of grade level on study variables, ANOVA was used. The results of the analysis in table 6 show that mean differences are significant in the case of anger and physical aggression. Post hoc results indicate that the students of M.A. / M.Sc. are more aggressive than students of B.A./B.Sc./BS and MS/M.Phil. Previous studies have shown that increases in educational levels are generally related to a decrease in aggression levels in both genders. It is thought that aggressive behavior develops in stages throughout life: direct, physical aggression is more typical during elementary school whereas indirect aggression patterns develop during adolescence (Selah-Shayovits, 2004).

A number of studies have shown that educational level is inversely related to readiness to accept aggressive behavior. Educated people tend to view aggressive behavior less favorably and define these as more harmful, compared to people without higher academic education. Similar results have been obtained from a study comparing the concept of aggressive behavior in college males and high school male students. This study showed that college males defined more situations as violent compared to high school students Selah-Shayovits (2004).

## Conclusion

The aim of the present study was to explore the relationship between locus of control and aggression among gym goers and non-gym goers. The results suggest that there is a significant negative relationship between internal locus of control and aggression. There is a significant positive relationship between external locus of control (powerful others and chance) and aggression. For gender and family system the difference is nonsignificant. Internal locus of control is a significant negative predictor of aggression whereas chance locus of control is a significant positive predictor of aggression. As aggression is greatly influenced by locus of control, this knowledge can be utilized by clinicians when designing exercise programs for clinical population dealing with disorders that are marked by aggression. This information would help to understand and promote adherence to exercise regime for the clinical population. As for the general population, the research highlights the importance of exercise as it works to reduce aggression by providing an appropriate outlet for its manifestation and management.

## Limitations and Suggestions

Despite the comprehensive structure of the study, the present research has the following limitations: There is scarcity of literature on gym goers and non-gym goers in relation to locus of control and aggression in Pakistan that showed indigenous reality of the concept. It is thus, important for the future researchers to establish the cultural understanding of these constructs by following qualitative research method in Pakistan for better results.

Only the renowned gyms were taken into account during data collection of the gym goers. The data of the non-gym goers was mainly collected from university students; this affects the generalizability of the results. Future research should include a diverse sample.

Self-report measures were used to collect data which may have caused a bias in the responses obtained from the participants. Gym goers were not categorized on the basis of the type of exercise they perform. Future research should break down gym goers into categories according to the nature of their exercise routine.

## **Implications**

The study accounts for certain substantial features that can be implied in various settings. Self-help programs can be customized to assist individuals in obtaining a more internal locus of control. As we've come to understand the relationship between external locus of control and aggression, it is evident how internal locus of control would help people in minimizing aggression.

There should be promotion of exercise behavior through media which emphasizes its benefits in reducing aggression. Awareness in the general population would allow more people to view exercise as more than just a "health" behavior. The aim should be to educate people on how exercise works in dealing with aggression appropriately and thus leading to a healthier life.

It can help clinicians in understanding the challenges to exercise adherence as it relates to locus of control in clinical population. Thus, leading to personalized treatment plans while taking into account the current locus of control on the individual.

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## APPENDICES

Serial No. \_\_\_\_\_

### Informed Consent Form

I am Haadia Tariq doing MSC at The National Institute of Psychology (Quaid-i-Azam University, Islamabad). It is a research organization, conducting a number of researches of psychological nature in order to explore different aspects of human behavior. I am doing research for partial fulfillment of my degree.

My research explores the role of Locus of Control and its relationship with Aggression in two comparative groups: people who exercise regularly and people who have a sedentary lifestyle. It is requested to report your personal opinion **as honestly as possible**. This will help to get the authentic findings.

Your participation in the study is extremely important and valuable. Your anonymity will strictly be maintained. Nowhere, your name or identity will be disclosed/mentioned. If you observe we have not asked for your name anywhere in the protocol. The information which you will provide will be treated as confidential and will be used only for the research purpose. Your help support and honest participation is highly appreciated.

If you are willing to participate in this research, please sign below.

Signature \_\_\_\_\_

Date \_\_\_\_\_

Thank you for your participation.

Haadia Tariq

National Institute of Psychology, Quaid-i-Azam University, Islamabad.

For any query (hq4794@gmail.com)

DEMOGRAPHIC SHEET

Gender: Male  Female

Age (in years): \_\_\_\_\_

Education (in years): \_\_\_\_\_

Marital Status: Single  Married  Engaged

Family System: Nuclear  Joint

Do you exercise? Yes  No

If yes then, how many time a week? \_\_\_\_\_

Duration of exercise \_\_\_\_\_



### Internality, Powerful Others, and Chance Scales

**Instructions:** Using the 6 point scale shown below, indicate how characteristic or uncharacteristic each of the following statement is in describing you.

	<i>Strongly Disagree</i> -3	<i>Disagree</i> -2	<i>Slightly Disagree</i> -1	<i>Slightly Agree</i> +1	<i>Agree</i> +2	<i>Strongly Agree</i> +3
1. Whether or not I get to be a leader depends mostly on my ability.	-3	-2	-1	+1	+2	+3
2. To a great extent my life is controlled by accidental happenings.	-3	-2	-1	+1	+2	+3
3. I feel like what happens in my life is mostly determined by powerful people.	-3	-2	-1	+1	+2	+3
4. Whether or not I get into a car accident depends mostly on how good a driver I am.	-3	-2	-1	+1	+2	+3
5. When I make plans, I am almost certain to make them work.	-3	-2	-1	+1	+2	+3
6. Often there is no chance of protecting my personal interests from bad luck happenings.	-3	-2	-1	+1	+2	+3
7. When I get what I want, it's usually because I'm lucky.	-3	-2	-1	+1	+2	+3
8. Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.	-3	-2	-1	+1	+2	+3
9. How many friends I have depends on how nice a person I am.	-3	-2	-1	+1	+2	+3
10. I have often found that what is going to happen will happen.	-3	-2	-1	+1	+2	+3
11. My life is chiefly controlled by powerful others.	-3	-2	-1	+1	+2	+3
12. Whether or not I get into a car accident is mostly a matter of luck.	-3	-2	-1	+1	+2	+3
13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.	-3	-2	-1	+1	+2	+3
14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.	-3	-2	-1	+1	+2	+3

	<i>Strongly Disagree</i> -3	<i>Disagree</i> -2	<i>Slightly Disagree</i> -1	<i>Slightly Agree</i> +1	<i>Agree</i> +2	<i>Strongly Agree</i> +3
15. Getting what I want requires pleasing those people above me.	-3	-2	-1	+1	+2	+3
16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.	-3	-2	-1	+1	+2	+3
17. If important people were to decide they didn't like me, I probably wouldn't make many friends.	-3	-2	-1	+1	+2	+3
18. I can pretty much determine what will happen in my life.	-3	-2	-1	+1	+2	+3
19. I am usually able to protect my personal interests.	-3	-2	-1	+1	+2	+3
20. Whether or not I get into a car accident depends mostly on the other driver.	-3	-2	-1	+1	+2	+3
21. When I get what I want, it's usually because I worked hard for it.	-3	-2	-1	+1	+2	+3
22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.	-3	-2	-1	+1	+2	+3
23. My life is determined by my own actions.	-3	-2	-1	+1	+2	+3
24. It's chiefly a matter of fate whether or not I have a few friends or many friends.	-3	-2	-1	+1	+2	+3

## Buss Perry Aggression Questionnaire

## Instructions

Using the 5 point scale shown below, indicate how uncharacteristic or characteristic each of the following statements is in describing you. Place your rating in the box to the right of the statement.

- 1 = extremely uncharacteristic of me  
 2 = somewhat uncharacteristic of me  
 3 = neither uncharacteristic nor characteristic of me  
 4 = somewhat characteristic of me  
 5 = extremely characteristic of me

- |      |   |                          |
|------|---|--------------------------|
| 1.   | Some of my friends think I am a hothead (easily gets angry).              | <input type="checkbox"/> |
| 2.   | If I have to resort (use) to violence to protect my rights, I will.       | <input type="checkbox"/> |
| 3.   | When people are especially nice to me, I wonder what they want.           | <input type="checkbox"/> |
| 4.   | I tell my friends openly when I disagree with them.                       | <input type="checkbox"/> |
| 5.   | I have become so mad that I have broken things.                           | <input type="checkbox"/> |
| 6.   | I can't help getting into arguments when people disagree with me.         | <input type="checkbox"/> |
| 7.   | I wonder why sometimes I feel so bitter about things.                     | <input type="checkbox"/> |
| 8.   | Once in a while, I can't control the urge to strike (hit) another person. | <input type="checkbox"/> |
| 9.*  | I am an even-tempered person (not easily annoyed).                        | <input type="checkbox"/> |
| 10.  | I am suspicious of overly friendly strangers.                             | <input type="checkbox"/> |
| 11.  | I have threatened people I know.  | <input type="checkbox"/> |
| 12.  | I flare up (get violent) quickly but get over it quickly.                 | <input type="checkbox"/> |
| 13.  | Given enough provocation (urge), I may hit another person.                | <input type="checkbox"/> |
| 14.  | When people annoy me, I may tell them what I think of them.               | <input type="checkbox"/> |
| 15.  | I am sometimes eaten up with jealousy.                                    | <input type="checkbox"/> |
| 16.* | I can think of no good reason for ever hitting a person.                  | <input type="checkbox"/> |
| 17.  | At times I feel I have gotten a raw deal (unfair treatment) out of life.  | <input type="checkbox"/> |
| 18.  | I have trouble controlling my temper.                                     | <input type="checkbox"/> |
| 19.  | When frustrated, I let my irritation show.                                | <input type="checkbox"/> |
| 20.  | I sometimes feel that people are laughing at me behind my back.           | <input type="checkbox"/> |
| 21.  | I often find myself disagreeing with people.                              | <input type="checkbox"/> |
| 22.  | If somebody hits me, I hit back.  | <input type="checkbox"/> |
| 23.  | I sometimes feel like a powder keg (bomb) ready to explode.               | <input type="checkbox"/> |
| 24.  | Other people always seem to get the breaks (favorable opportunity).       | <input type="checkbox"/> |
| 25.  | There are people who pushed me so far that we came to blows (fights)      | <input type="checkbox"/> |