CHAPTER I

INTRODUCTION

1.1 INTRODUCTION TO VIOLENT MEDIA

Videogames/Computer games have become an ever-increasing part of many adolescents' day-to-day lives. Youth worldwide play violent video games many hours per week. Violent media are those that depict intentional attempts by individuals to inflict harm on others. An "individual" can be a nonhuman cartoon character, a real person, or anything in between.

The general public typically defines "violent media" as those television shows, films, and video games that include graphic images of blood and gore, but media violence researchers also include products without such images. Violent media are those that depict characters intentionally harming other characters. Thus, even children's video games that lack depictions of blood and gore can, and frequently do, include violence. Most researchers define media violence as visual portrayals of acts of physical aggression by one human or human-like character against another. "Aggression" also is defined differently by behavioural scientists than by the general public. Social and developmental psychologists typically define "aggression" as behaviour that is intended to harm another person who is motivated to avoid that harm. In other words, aggression is an act conducted by one person with the intent of hurting another person; it is not an emotion, thought, or intention. For most social and developmental scientists, "violence" is the most extreme form of physical aggression, specifically physical aggression that is likely to cause serious physical injury.

Adolescents are said to live in a "media saturated world," spending more time with the media than they do in school. Video games represent one type of media that is becoming increasingly popular among adolescents. A recent study by the Kaiser Family Foundation found that adolescents reported playing video games for about an hour each day, has nearly
tripled over the last decade. On the whole, boys are reported playing more video games than girls. The study also found that although many adolescents reported playing age-appropriate, relatively violent-free games, about half the sample (and 70% of boy gamers) reported playing violent and controversial games (e.g., Grand Theft Auto), at least occasionally. A growing body of research that shows that boys generally play age-inappropriate video games more often and more intensely than girls is confirmed.

The world that adolescents live in today is markedly different from the one that their parents experienced as adolescents, largely due to advancement in technology. A generation ago, the Internet, PlayStation, XBOX, Cell phones, Text messaging, Email, and IPODS were unheard of. Today, they are central components of the lives of adolescents. It is estimated that the average adolescent spends about 46 minutes a day using the Internet (Gross, et al., 2002) and 20–60 minutes a day playing video games (Marshall, et al., 2006).

Over the past half-century, the mass media, including video games, have become important socializers of children. Playing video games is now a major leisurely pursuit among children in many parts of the world. Over the past three decades, a number of studies have looked at the effects of video games on children and adolescents. These studies were conducted mostly in developed high income countries. Several of these studies have shown that violent video game exposure increases aggressive thoughts, angry feelings, physiological arousal, aggressive behaviours, and physiological desensitization to violence in the real world.

Research evidence has accumulated over the past half-century stating that exposure to violence on television, movies, and most recently in video games increased the risk of violent behaviour on the viewer’s part just as growing up in an environment filled with real violence.

The children in the United States spend an average of between three and four hours viewing television per day and the best studies have shown that over 60% of programmes contain
some violence and about 40% of them with heavy violence. Children are also spending an increasingly large amount of time playing video games, most of which contain violence. Video game units are now present in 83% of homes with children. In 2004, children spent 49 minutes per day playing video, and on any given day, 52% of children between 8–18 years play video games. Video game use peaks during middle childhood with an average of 65 minutes per day for 8–10 year olds, and declines to 33 minutes per day for 15–18 year-olds. And most of these games are violent; 94% of games rated (by the video game industry) as appropriate for teens are described as containing violence, and ratings by independent researchers suggest that the real percentage may be even higher. No published study has quantified the violence in games rated ‘M’ for mature—presumably, these are even more likely to be violent (Rideout, Foehr & Roberts, 2010).

The potential influence of violent video games on youth violence remains an issue of concern for psychologists, policymakers and the general public. The American Academy of Paediatrics recognizes that exposure to mass media (e.g., television, movies, video and computer games, the internet, music lyrics and videos, newspapers, magazines, books, advertising) presents health risks for children and adolescents but can provide benefits as well. Media education has the potential to reduce the harmful effects of media and accentuate the positive effects. By understanding and supporting media education, paediatricians can play an important role in reducing harmful effects of media on children and adolescents.

1.2. OPERATIONAL DEFINITION

1.2.1 Violent Video games

“Violent video games” is defined as those “in which the range of options available to a player includes killing, maiming, dismembering, or sexually assaulting an image of a human being, if those acts are depicted” in a manner that “[a] reasonable person, considering the game as a whole, would find appeals to a deviant or morbid interest of minors,” that is
“patently offensive to prevailing standards in the community as to what is suitable for minors,” and that “causes the game, as a whole, to lack serious literary, artistic, political, or scientific value for minors” (Downs, 2010).

It is the video games in which the main content or theme is the violence which shows blood and gore. It shows kicking, shooting, fighting, hitting and injuring others. In this study, it includes racing, fighting, shooting and satanic games.

1.2.2 Psycho-physiological effect

According to the American Heritage Medical Dictionary (medical-dictionary.thefreedictionary.com), psycho-physiology means the study of correlations between the mind, behaviour, and bodily mechanisms. This study includes the effect or the result (psycho-physiological) of playing violent video games on children on psychological variables such as aggression and stress and the physiological variables such as pulse, respiration, blood pressure, height and weight.

1.2.3 Aggression

According to the freedictionary.com, aggression refers to

1. The act of initiating hostilities or invasion.

2. The practice or habit of launching attacks.

3. Hostile or destructive behaviour or actions.

Aggression refers to behaviours intended to harm another person physically or psychologically or to damage, destroy or take that person’s property (Bartol, 1995). "Violence" is the most extreme form of physical aggression, specifically physical aggression that is likely to cause serious physical injury. In this study, aggression is an overall score measured with the help of aggression inventory.
1.2.4 Stress

Stress is a physical, mental, or emotional response to events that causes bodily or mental tension. Stress is any form of force from outside or an event that has an effect on our body or mind. (www.a-troubled-teen.com/teen-stress.html) Stress refers to the consequence of the failure of an organism to respond adequately to mental, emotional or physical demands whether actual or imagined.

In this study, stress is the response of the samples out of playing violent video games which is an overall score measured with the help of stress inventory.

1.2.5 Children

As per the child rights charter, a universal definition of "child" includes all persons under the age of 18. The plural for child is children.

In this study, the word children refers to them in the age group of 13 to 18 years and who have the habit of playing violent video games for not less than 6 months.

1.3 INTRODUCTION TO CHILDREN

“Children are the world's most valuable resource and its best hope for the future”

- John Fitzgerald Kennedy

In this study, children in the age group of 13 to 18 years were included as the samples. Children in the age group of 13 to 18 years are known as adolescents.

“Adolescents are not monsters. They are just people trying to learn how to make it among the adults in the world, who are probably not so sure themselves.”


The word adolescence derived from the Latin word “adolescere” means "to grow up". It is a transitional stage of physical and mental development from the onset of puberty to maturity. According to Erik Erikson’s stages of human development, adolescent is a person between the ages of 13 and 19.
According to 2001 census, in India, adolescents (10-19 years) form a large section of population – about 22.5 percent, that is, about 225 million. According to census of Tamil Nadu, the adolescent population constituted around 18.23 %. Adolescents are full of energy, have significant drive and new ideas. They are a positive force for a nation and are responsible for its future productivity provided they develop with healthy attitude. Since mortality in this age group is relatively low, the adolescents are considered to be healthy.

1.3.1 Adolescence as a Period of Multiple Transitions

Adolescence is clearly a time of transitions in contexts and in personality, physical, academic and social domains, transitions that are managed by most, albeit with considerable difficulty by some. Adolescence is the period of moving from the immaturity of childhood into the maturity of adulthood. There is no single event or boundary line that denotes the end of childhood or the beginning of adolescence. Rather, experts think of the passage from childhood into and through adolescence as composed of a set of transitions that unfold gradually and that touch upon many aspects of the individual's behaviour, development, and relationships. These transitions are biological, cognitive, social, and emotional. The study of adolescence as a stage in human development marked by pubertal changes at the beginning and assumption of adult legal status/completion of basic education at the end has paramount importance (Wong, D.L., 2003).

At this time of transition, an in-between weird age, teens stated that they tend to feel lost because they do not have their own place. One example of not having a place of their own is the lack of available recreational activities appropriate for teens. Recreational activities were seen as limited because they tend to focus on younger or older age groups. Activities targeted for teens were recognized as frequently being too expensive and this lack of a “set place” results in frustration and boredom and sets the stage for getting into trouble. Because of the overwhelming physical and emotional changes several teens tend to see this transition as a
time of feeling unsafe and vulnerable. Teens expressed disappointment as they transitioned from the safety of childhood to the vulnerability of adolescence. The protectedness and safety of childhood was gone, and in its place was the unprotectedness and vulnerability of being an adolescent (Wong, D.L., 2003).

1.3.2 Adolescents and their Biological development

The children in the age group of 13 to 18 experience a rapid physical development. Their physical development includes rapid gain in weight and height and the development of secondary sex characteristics. Weight gain results from increased muscle development in boys and body fat in girls. During puberty, changing hormonal levels play a role in activating the development of secondary sex characteristics. Adolescents need longer sleep. Research suggests that teens actually need more sleep to allow their bodies to conduct the internal work required for such rapid growth. On average, teens need about nine and a half hours of sleep per night (Strauch, 2003). They may be clumsier because of growth spurts. During this phase of development all body parts don’t grow at the same rate. This can lead to clumsiness as the teen tries to cope with limbs that seem to have grown over night. Teens can appear gangly and uncoordinated. Teens may be concerned because they are not physically developing at the same rate as their peers. Teens may be more developed than their peers (“early-maturers”) or less developed than their peers (“late-maturers”). Being out of developmental “step” with peers is a concern to adolescents because most just want to fit in. Early maturation affects boys and girls differently. Research suggests that early maturing boys tend to be more popular with peers and hold more leadership positions whereas girls tend to suffer more from depression, eating disorders and anxiety (Ge, et al., 2001). Physical activity is integral to children’s overall development and health and is considered essential for the prevention of early onset cardiovascular risk, obesity and type 2 diabetes.
1.3.3 Adolescents and Cognitive development

Adolescence is also a time for rapid cognitive development. Piaget describes adolescence as the stage of life in which the individual's thoughts start taking more of an abstract form and the egocentric thoughts decrease. This allows the individual to think and reason in a wider perspective. The thoughts, ideas and concepts developed at this period of life greatly influence one's future life, playing a major role in character and personality formation. Recent research suggests that teens’ brains are not completely developed until late in adolescence. Specially, studies suggest that the connections between neurons affecting emotional, physical and mental abilities are incomplete (Strauch, 2003). This could explain why some teens seem to be inconsistent in controlling their emotions, impulses and judgements.

1.3.4 Adolescents and Emotional development

Adolescence is also a period of emotional transition, marked by changes in the way individuals view themselves and in their capacity to function independently. As adolescents mature intellectually and undergo cognitive changes, they come to perceive themselves in more sophisticated and differentiated ways. Compared with children less than 13 years, who tend to describe themselves in relatively simple, concrete terms, adolescents are more likely to employ complex, abstract, and psychological self-characterizations. As individuals' self-conceptions become more abstract and as they are able to see themselves in psychological terms, they become more interested in understanding their own personalities and why they behave the way they do (Strauch, 2003).

1.3.5 Adolescents and the Sense of Autonomy/Independence

Adolescence is usually accompanied by an increased independence allowed by the parents or legal guardians and less supervision, contrary to the preadolescence stage. For most adolescents, establishing a sense of autonomy, or independence, is an important part of the
emotional transition out of childhood as he is establishing a sense of identity. Adolescence is characterized by a number of cognitive, emotional, physical and attitudinal changes, which can be a cause of conflict on one hand and positive personality development on the other. In conflict with their parents, adolescents are more flexible than younger children, but more hostile and rigid compared to adults. The topics of conflicts between adolescents and their parents are often about the extent to which parents can control and supervise the adolescent, for instance conflicts about chores and schoolwork curfew the adolescent's right to privacy (Wong, D.L., 2003).

1.3.6 Adolescents and Puberty

The biological transition of adolescence, or puberty, is perhaps the most observable sign that adolescence has begun. Technically, puberty refers to the period during which an individual becomes capable of sexual reproduction. More broadly speaking, however, puberty is used as a collective term to refer to all the physical changes that occur in the growing girl or boy as the individual passes from childhood into adulthood.

1.3.7 Adolescents and the Peer Group

One of the most noteworthy aspects of the social transition into adolescence is the increase in the amount of time individuals spend with their peers. Although relations with age-mates exist well before adolescence, during the teenage years they change in significance and structure. For example, there is a sharp increase during adolescence in the sheer amount of time individuals spend with their peers and in the relative time they spend in the company of peers versus adults. Second, during adolescence, peer groups function much more often without adult supervision than they do during childhood, and more often involve friends of the opposite sex.
For the first time in their lives adolescents may start to view their friends, their peer group, as more important and influential than their parents or guardians. Peer groups offer its members the opportunity to develop various social skills, such as empathy, sharing and leadership. Peer groups can have positive influences on an individual, for instance on academic motivation and performance, but they can also have negative influences and lead to an increase in experimentation with drugs, drinking, vandalism, and stealing. Susceptibility to peer pressure increases during early adolescence, peaks around age 14, and declines thereafter. In the search for a unique social identity for themselves, adolescents are frequently upset. G. Stanley Hall denoted this period as one of "Storm and Stress" and, according to him, conflict at this developmental stage is normal and not unusual.

Gale’s Encyclopaedia of Children’s Health states that the children’s susceptibility to the influence of parents and peers changes during adolescence. In general, during childhood, boys and girls are highly oriented toward their parents and less so toward their peers; peer pressure during the early elementary school years is not especially strong. As they approach adolescence, however, children become somewhat less oriented toward their parents and more oriented toward their peers, and peer pressure begins to escalate. During early adolescence, conformity to parents continues to decline and conformity to peers and peer pressure continues to rise.

1.3.8 Adolescents and the Out of School Activities

The out of school activities play a major role in the development of children. They determine the social activities, relationship with others, learning of useful and productive activities and their life style. The following diagram explains the key parameters in the ecologies of out of school activities of children.
1.3.9 Common Problems of Adolescents

In general, most young people are able to negotiate the biological, cognitive, emotional, and social transitions of adolescence successfully. Some adolescents, however, are at risk of developing certain problems, such as:

- eating disorders such as anorexia nervosa, bulimia, or obesity
- drug or alcohol use
- depression or suicidal ideation
- violent behaviour
- anxiety, stress, or sleep disorders
- unsafe sexual activities

Fig. 1.1: Key parameters in the ecologies of out of school activities of children. (Lerner & Steimberg, 2009)
Adolescence as a stage of human development has always been regarded as a time in which risk taking behaviours are common. The likelihood that an individual will engage in aggressive or violent behaviours during the middle school and high school years is evident from the data that has emerged about adolescent and violent behaviours over the past 15 years. Aggression in childhood has been shown not only to be a good predictor of late violent behaviour but research studies have found that it shaped the character of later violent behaviour as well. Aggression was more strongly associated with interpersonal forms of violence. In addition aggressiveness rated by teacher at age 13 for both males and females, related positively with both more serious and more frequent crime (Statin & Magnusson, 1989).

Addressing adolescents’ needs is crucial for global public health. Adolescents represent a fifth of the world’s population. Many adolescents are healthy, but a significant proportion of them face a range of problems that have implications for adolescents’ health now and in the future, for this generation and the next. e.g. HIV and too-early pregnancy; obesity; tobacco, alcohol and other substance use; injuries and violence; and mental health problems. Violent behaviour has been growing cause of concern worldwide in adolescents. It is important to identify the risk factors responsible for the development of this high risk behaviour in adolescents in the Indian scenario so as to provide timely and effective intervention.

In general, adolescents require complementary actions which promote healthy development in them; to prevent health problems or problem behaviours, and to respond to them if and when they arise. They need interventions to decrease and to mitigate their vulnerability. These include: information and skills; a safe and supportive environment; and appropriate and accessible health and counselling services. Furthermore, while adolescents share many common characteristics, it is important to appreciate that they are not all the same, and these
differences (for example age, sex and parental support) need to be taken into consideration when developing and implementing interventions. Health services for young people should be widely accessible, evidence-based, grounded in human rights, age-specific and gender-responsive. Adolescents should also be helped to develop the life skills that will enable them to reduce their vulnerability (Demon & Lerner, 2006).

1.4 INTRODUCTION TO VIOLENT VIDEO GAMES

A video game is an electronic game that involves interaction with a user interface to generate visual feedback on a video device. The word video in video game traditionally referred to a raster display device. However, with the popular use of the term "video game", it now implies any type of display device. The electronic systems used to play video games are known as platforms; examples of these are personal computers and videogame consoles. These platforms range from large mainframe computers to small handheld devices. The input device used to manipulate video games is called a game controller, and varies across platforms. Video games typically also use other ways of providing interaction and information to the player. Audio is almost universal, using sound reproduction devices, such as speakers and headphones. Other feedback may come via haptic peripherals, such as vibration or force feedback, with vibration sometimes used to simulate force feedback.

1.4.1 Video game Statistics

The U.S. population consumes much media violence. Youths between the ages of 8 and 18 spend more hours per week using some type of media, not counting school or homework assignments. Hope & Cummings, (2003) of the University of Michigan, Ann Arbor & Vandewater, (2003) of the University of Texas at Austin collected survey data from a nationally representative sample of 1,491 10- to 19-year olds during the 2002 to 2003 school year. Twenty-four-hour time use diaries were collected from the participants on one randomly chosen weekday and one randomly chosen weekend day. The teens recorded their
time spent playing video games, with parents and friends, reading and doing homework and in sports and active leisure. They reported that a total of 534 teens (36%) played video games. Most of these (425[80%]) were boys and 109 (20%) were girls. Female gamers spent an average of 44 minutes playing on the weekdays and one hour and four minutes playing on the weekends. Male gamers spent an average of 58 minutes playing on the weekdays and one hour and 37 minutes playing on the weekends.

Lenhart, et al., (2008) in Internet & American Life Project, reported that 99 percent of boys and 94 percent of girls aged 12 to 17 play computer, web, portable or console games. A research by Michigan State University (2005), concluded that 90 percent of all kids play video games, on average for about 30 minutes a day.

Although the first video games emerged in the late 1970s, violent video games came of age in the 1990s, with the killing games Mortal Kombat, Street Fighter, and Wolfenstein 3D. In all three games, the main task is to maim, wound, or kill opponents. The graphics (e.g., blood) and sounds (e.g., screams) of these games were cutting-edge at the time of their introduction. By the end of the 20th century, even more graphically violent games became available to players of all ages (Walsh, 1999). Research on violent video game playing among children in India and Tamil Nadu is scarce. There are studies available on the effect of television media among children.

1.4.2 Types of Violent Video games

Based on the game play, interaction and category, video games are classified into various types. They are:

**Action games**

It is the most basic form of video gaming and also the most popular form. An action game is the one in which the player needs to use weapons, reflexes and special moves available in the
game in order to beat the opponents so as to move ahead in the game. Action games are very popular as they are fun-packed and exciting. That being said, there are different types of action games. Fighting games, shooter games, maze games are some of the types of action games that are very popular among gamers.

**Fighting games**

The vast majority of these games are one fighter versus another fighter. The draw here is the brutality of the fighting, and the learning of fighting moves. These games often take a considerable amount of playing in order to master all of the moves of a given fighter. Yet again, an argument could be made for saying that it takes strategy and planning to know which moves to use – and when to use them.

**First Person Shooters**

Many of the world's most successful and renowned video games have been introduced to the market under this genre. In this type of game, players are engaged in a rapid paced and quick thinking gaming experience which also gives a close feeling of actually being in that situation. A shooter game is the one in which the player needs to use the weapons available in the game so as to kill the enemies. There are different types of shooter games. One of the most popular types of shooter game is the first-person shooter game. Third-person shooter, tactical shooter, light gun shooter are some of the other types of shooter games. In first-person shooter games like Doom, the player needs to kill the enemies with the help of the weapons that are available in the game. Also, different first-person shooter games offer different types of weapons and different types of enemies. Doom is a typical first-person shooter game as the difficulty of the game increases as one makes progress in the game. Different types of weapons and armoury are provided at different levels and one needs to choose weapons appropriately so as to kill the enemies easily as a single weapon is not very effective for all the enemies. These are games where the player is the hero, and they are all
about the guns. Throughout the games, the player gets bigger and better guns, and must kill bigger and "badder" enemies, adding an addicting macho (power) factor to the games. Recently, a lot of these games have taken historical spins, allowing the player to be a soldier in Vietnam or World War II. Examples of these games include Halo and Call of Duty.

**Action Adventure games**

Action Adventure games includes game play which make use of characteristics that are in commonplace with both the action genre and the adventure genre.

**Strategy Games**

Strategy games are aimed at bringing out a player's thinking and planning skills. In the strategy genre, there are two types, turn based strategy games and real-time strategy games.

**Real-Time Strategy (RTS)**

The more famous and popular sub genre of the two, RTS games deals with games where, the action is in a continuous mode and the decision and actions that the player makes has an impact then and there.

**Vehicle Simulation Games**

Vehicle simulation games allow the player to engage in play which provides the use of and control of a vehicle. The more popular vehicle simulation games includes racing.

**Racing**

These are simply games in which one player races one or more competitors. Racing games feature a variety of race types and courses. The attraction of these types of games is that every time one wins, one can make his vehicle better or unlock new cars and tracks. Examples of this type of game are Need for Speed and Mario Kart.

**Survival Horror games (Satanic games)**

Survival horror games focus on fear and attempt to scare the player via traditional horror fiction elements such as atmospherics, death, the undead, blood and gore. One crucial game
play element in many of these games is the low quantity of ammunition, or number of breakable melee weapons.

1.4.3 Effects of Playing Violent Video games

Although video games are designed to be entertaining, challenging, and sometimes educational most include violent content. Recent content analyses of video games show that as many as 89% of games contain some violent content (Children Now, 2001), and that about half of the games include serious violent content towards other game characters.

A meta-analysis by Anderson and Bushman (2001)

Playing violent games increases aggressive behaviours, increases aggressive cognitions, aggressive emotions, physiological arousal, and decreases pro-social behaviours. These effects are robust; they have been found in children and adults, in males and females, and in experimental and non-experimental studies. The physiological effects of playing violent video games may be even greater for children who already show more aggressive tendencies. Adolescents who scored in the top quintile for trait hostility showed greater increase in mean arterial pressure, epinephrine, and nor-epinephrine levels in the blood than those in the lower quintiles.

A theoretical model for the effects of violent video game content

Anderson and colleagues have developed the General Aggression Model (GAM) to explain theoretical links between violent video game exposure and aggressive cognitions, attitudes, and behaviours. This model describes a “multi-stage process by which personological (e.g. aggressive personality) and situational (e.g. video game play and provocation) input variables lead to aggressive behaviour by influencing several related internal states and the outcomes of automatic and controlled appraisal (or decision) processes” (Anderson & Dill, 2000). GAM differentiates between short- and long-term effects of video game violence on the game player. With regard to the short-term effects of violent video games, GAM predicts that both
kinds of input variables, person and situation, can influence the present internal state of the person. Summarizing GAM’s predictions for the effects of violent video games on behaviour, Anderson and Dill drew the following conclusions. “Short-term exposure to violent video game increases aggression by priming of aggressive thoughts whereby increases hostile feeling or increases arousal” (Anderson & Dill, 2000). This suggests that in the short term, trait hostility may be a moderator of the effects of violent content, because aggressive thoughts and feelings may be more easily accessible for more hostile individuals.

With respect to long-term exposure to violent content, GAM suggests that this may result in the development, over-learning, and reinforcement of aggression-related knowledge structures. These knowledge structures include vigilance for enemies (i.e. hostile attribution bias), aggressive action against others, expectations that others will behave aggressively, positive attitudes towards use of violence, and the belief that violent solutions are effective and appropriate. Repeated exposure to graphic scenes of violence is also postulated to be desensitizing. Furthermore, it is predicted that long-term game players become more aggressive in outlook, perceptual biases, attitudes, beliefs, and behaviour than they were before the repeated exposure. Therefore, trait hostility may play a different role in the long term. Over time, increased trait hostility may result from video game play, and therefore trait hostility may become a mediator of the effects of violent game content on aggressive behaviours (in contrast to being a moderator).

Kirsh (1998) found that exposure to a violent video game increases hostile attribution bias (defined below) in the short term, relative to exposure to a non-violent video game. The term hostile attribution bias has been used to describe the manner in which aggressive children perceive the actions of peers. Children who tend to interpret ambiguous social cues as being of hostile intent (i.e., have a hostile attribution bias) are more aggressive (e.g., Crick &
Dodge, 1994). Furthermore, there is a robust relationship between hostile attribution bias and children’s social maladjustment, such as depression, negative self-perceptions, and peer rejection (Crick, 1995). Gentile et al also found that children who play more violent games are more likely to have a hostile attribution bias.

According to Tompkins (2003), the long term exposure of children to violence in media may lead to problem in children. They are as follows:-

- Children may become less sensitive to the pain and suffering of others.
- Children may be more fearful of the world around them
- Children may be more likely to behave in aggressive or harmful ways toward others

**Theories explain the relationship between the exposure to violent media and the aggression.**

Anderson (2009) explained that immediately after exposure to media violence, there is an increase in aggressive behaviour tendencies because of several factors.

1. Aggressive thoughts increase, which in turn increase the likelihood that a mild or ambiguous provocation will be interpreted in a hostile fashion.
2. Aggressive affect increases.
3. General arousal (e.g., heart rate) increases, which tends to increase the dominant behavioural tendency.
4. Direct imitation of recently observed aggressive behaviours sometimes occurs.

Repeated media violence exposure increases aggression across the lifespan due to the following.

- It creates more positive attitudes, beliefs, and expectations regarding use of aggressive solutions.
- It creates aggressive behavioural scripts and makes them more cognitively accessible.
• It decreases the accessibility of nonviolent scripts.

• It decreases the normal negative emotional reactions to conflict, aggression, and violence.


**Short-term Effects**

Most theorists would now agree that the short term effects of exposure to media violence are mostly due to 1) priming processes, 2) arousal processes, and 3) the immediate mimicking of specific behaviours.

**Priming**—Priming is the process in which an external observed stimulus excites another brain node representing a cognition, emotion, or behaviour. The external stimulus can be inherently linked to cognition, e.g., the sight of a gun is inherently linked to the concept of aggression, or the external stimulus can be something inherently neutral that has become linked in the past to certain beliefs or behaviours (e.g., welfare). The primed concepts make behaviours linked to them more likely. When media violence primes aggressive concepts, aggression is more likely.

**Arousal**—To the extent that mass media presentations arouse the observer, aggressive behaviour may also become more likely in the short run for two possible reasons – excitation transfer and general arousal. First, a subsequent stimulus that arouses an emotion (e.g. a provocation arousing anger) may be perceived as more severe than it is because some of the emotional response stimulated by the media presentation is miss-attributed as due to the provocation transfer. For example, immediately following an exciting media presentation, such excitation transfer could cause more aggressive responses to provocation. Alternatively, the increased general arousal stimulated by the media presentation may simply reach such a peak that inhibition of inappropriate responses is diminished, and dominant learned responses are displayed in social problem solving, e.g. direct instrumental aggression.
Mimicry—The third short term process, imitation of specific behaviours, can be viewed as a special case of the more general long-term process of observational learning. In recent years, evidence has accumulated that human and primate young have an innate tendency to mimic whomever they observe. Observation of specific social behaviours around them increases the likelihood of children behaving exactly that way. Specifically, as children observe violent behaviour, they are prone to mimic it. The neurological process through which this happens is not completely understood, but it seems likely that “mirror neurons,” which fire when either a behaviour is observed or when the same behaviour is acted out, play an important role (Anderson, 2009).

Long-term Effects

Long term content effects, on the other hand, seem to be due to 1) more lasting observational learning of cognitions and behaviours (i.e., imitation of behaviours), and 2) activation and desensitization of emotional processes (Anderson, 2009).

Observational learning

According to widely accepted social cognitive models, a person’s social behaviour is controlled to a great extent by the interplay of the current situation with the person’s emotional state, their schemas about the world, their normative beliefs about what is appropriate, and the scripts for social behaviour that they have learned. During early, middle, and late childhood children encode in memory social scripts to guide behaviour through observation of family, peers, community, and mass media. Consequently observed behaviours are imitated long after they are observed. During this period, children’s social cognitive schemas about the world around them also are elaborated. For example, extensive observation of violence has been shown to bias children’s world schemas toward attributing hostility to others’ actions. Such attributions in turn increase the likelihood of children behaving aggressively. As children mature further, normative beliefs about what social
behaviours are appropriate become crystallized and begin to act as filters to limit inappropriate social behaviours. These normative beliefs are influenced in part by children’s observation of the behaviours of those around them including those observed in the mass media.

**Desensitization**

Repeated exposures to emotionally activating media or video games can lead to habituation of certain natural emotional reactions. This process is called “desensitization.” Negative emotions experienced automatically by viewers in response to a particular violent or gory scene decline in intensity after many exposures. For example, increased heart rates, perspiration, and self-reports of discomfort often accompany exposure to blood and gore. However, with repeated exposures, this negative emotional response habituates, and the child becomes “desensitized.” The child can then think about and plan proactive aggressive acts without experiencing negative affect (Anderson, 2009).

**Enactive learning**

Observational learning and desensitization do not occur independently of other learning processes. Children are constantly being conditioned and reinforced to behave in certain ways, and this learning may occur during media interactions. For example, because players of violent video games are not just observers but also “active” participants in violent actions, and are generally reinforced for using violence to gain desired goals, the effects on stimulating long-term increases in violent behaviour should be even greater for video games than for TV, movies, or internet displays of violence. At the same time, because some video games are played together by social groups (e.g., multi-person games) and because individual games may often be played together by peers, more complex social conditioning processes may be involved that has not yet been empirically examined. These effects, including effects of selection and involvement, need to be explored.
Four dimensions on which video game can have effects (Gentile & Stone, 2005)

There are at least four dimensions on which games can have effects:

- Amount
- Content
- Form and
- Mechanics.

Amount

The amount of time one spends with video games seems to be related to several effects, such as obesity, muscular and skeletal disorders, and school performance. There is evidence that amount alone has distinct effects independent of other types of effects. In path analyses conducted among 607, 8th and 9th grade students, total amount of time playing video games directly predicted poorer grades, but were not directly related to antisocial or aggressive behaviours. However, playing violent games directly predicted aggressive behaviours, but did not predict poorer school performance.

Content

Most of the research on video games has documented what are likely to be effects of the content of games. Research on violent video games, educational video games and the asthma and diabetes health promotion video games all document effects of game content. Educational video games enhance learning, teaching, reading or math skills. Some of the virtual reality programs help to reduce phobias. In the case of educational games, these are intentional content effects; in the case of violent games, these are unintentional content effects.

Form

Several of the studies on video games suggest patterns of effects that are not due to the content per se, but to the form in which it is presented. Skill in a game requiring 3D
navigation is related to 3D mental visualization skills. One study showed that demonstrated skill on video games and past experience with video games were the best predictors of surgeons' advanced laparoscopic surgical skills. Playing games that require the player to constantly scan the screen for information improves visual attention skills to computer screens.

**Mechanics**

The types of mechanical input/output devices used to play the games could also show effects. For example, playing a driving simulation game with a wheel and pedals should improve driving skill more than playing the same game with a mouse and a keyboard. To date, no studies have been conducted to test this hypothesis. This issue is further complicated because mechanics are not entirely independent from form.

Research suggests that realism is an important contextual feature of media violence. Studies have shown that more realistic portrayals of violence may heighten levels of involvement and aggression, immediate fright reactions, fear of the world as a scary place, and desensitization, particularly in older, school-aged children, who are able to distinguish the real from the unreal on television.

**1.4.4 Effect on School Performance**

Gentile, et al., (2004) in their study on the effects of violent video game habits on adolescent hostility, aggressive behaviours and school performance stated that playing violent video game results in poor school performance and explained about the displacement theory. This “displacement hypothesis” suggests that electronic media can influence learning and social behaviour by taking the place of activities such as reading, family interaction, and social play with peers. If the average child plays video games for 7 hours a week, those are 7 hours that the child is not engaged in reading, homework, or participating in creative activities.
Therefore, it is important to examine video game play in the context of other media habits, such as television viewing and reading for pleasure.

In a study by Anderson (2008) it was stated that about 90 percent of U.S. kids ages 8 to 16 play video games, and they spend about 13 hours a week doing so. Now a new study suggests virtual violence in these games may make kids more aggressive in real life. Kids in both the U.S. and Japan who reported playing lots of violent video games had more aggressive behaviour months later than their peers who did not. For too many kids, the only parts of their body that get consistent exercise are their thumbs. Kids today spend more time with the media as result the obesity pandemic is a problem today.

1.4.5 Effects on the Physiological parameters

Swedish Researchers have found that heart rate and sleep in boys are affected by violent video games. The research was conducted by researchers at Stockholm University; differences in heart rate variability were registered both while the boys were playing the games and when they were sleeping that night. The boys themselves did not feel that they had slept poorly after having played violent games.

The results show that the autonomous nerve system, and thereby central physiological systems in the body, can be affected when the children play violent games, without the children being aware of it. Based on this research, many social scientists have hypothesized that we should expect video games to have an even greater impact for the following four reasons. (Diziizle, 2008)

1. Children are more likely to imitate the actions of a character with whom they identify. In violent video games the player is often required to take the point of view of the shooter or perpetrator. Video games by their very nature require active participation rather than passive observation.
2. Repetition increases learning. Video games involve a great deal of repetition. If the games are violent, then the effect is a behavioural rehearsal for violent activity.

3. Rewards increase learning, and video games are based on a reward system.

Michele Borba (2011) reported the negative influence of violent video games. They are as follows:-

**Peer replacement**: Uses video games as a substitute for friends or being with kids.

**Addiction**: Replaces other entertainment forms; if restricted from playing behaviour flares up; goes through “video game withdrawals”. This is such a concern of the American Psychological Association that members are hotly-debating whether video game addiction should be labelled a mental health disorder.

**Aggressive**: Acts out, becomes more impulsive or aggressive after playing

**Less caring**: Displays less concern or empathy towards others

**Grades wane**: Homework battles increase, grades or test scores decrease

**Sleepless**: Trouble falling asleep or staying asleep (quick-fire screen images and aggressive content activates the brain and can keep kids awake)

**Couch potato**: Too sedentary a lifestyle, limiting exercise, gaining weight

**Credit card**: Online gaming networks charge to play; video games are easily purchased online using a parent’s credit card

### 1.4.6 Video game Ratings

**In Europe**

The Pan European Game Information (PEGI) systems provides parents and caregivers with detailed recommendations regarding the age suitability of game content in the form of age labels and content descriptors on game packages. The Netherlands Institute for the Classification of Audio-visual Media (NICAM) and the Video Standards Council (VSC) are the administrators of the PEGI system. As long established and highly regarded institute,
NICAM has many years of experience in rating audio visual material and has provided advice during the development of the PEGI scheme. NICAM reviews 3 and 7 games whilst the VSC reviews 12, 16 and 18 rated games. Consumers who disagree with a rating can contact the administrator and file a complaint. PEGI Online is an addition to the PEGI system. Upon joining PEGI Online, companies must sign up to a code of conduct, thus indicating that they manage the online gaming features of their products in a responsible manner. In return they receive a license to use a registered PEGI Online label as a “seal of quality”

The PEGI age rating system issues licenses to use a specific age class label and descriptor for a specific product on a specific platform. The PEGI Online label, however, underlines the dedication to the protection of minors in a company’s policy regarding online gaming. It indicates membership of a network of companies that comply with the requirements of the PEGI Online Safety Code. The PEGI system is created and owned by the Interactive Software Federation of Europe which is based in Belgium. According to the Pan European Gaming Information (www.pegi.info)The PEGI OK label looks like this:

![PEGI OK label](https://www.pegi.info)

A PEGI OK label indicates that the strict PEGI rating criteria have been applied and it has been ascertained that there is nothing in the game that would lead to a higher rating than the standard 3+ category.

The operator of a website or games portal is permitted to use the PEGI OK label based upon a declaration made to PEGI that the game does not contain any material that requires a formal rating.
To qualify for the PEGI OK label a game CANNOT contain any of the following elements:

- violence
- sexual activity or sexual innuendo
- nudity
- bad language
- gambling
- promotion or use of drugs
- promotion of alcohol or tobacco
- scary scenes

In United States

The Entertainment Software Rating Board (ESRB) ratings are designed to provide concise and impartial information about the content in computer and video games so consumers, especially parents, can make an informed purchase decision. It is the system followed in the United States (www.esrb.org).

The video games are rated as follows:-

EC - Early Childhood
E - Everyone
E10+ - Everyone 10 and older
T - Teen
M - Mature
AO - Adults Only
RP - Rating Pending
**Video game rating in Singapore**

The Board of Film Censors (BFC) under the Media Development Authority (MDA) announced the rating of video games in line with the new guidelines, consumer advisories will be introduced to allow consumers, especially parents, to make informed choices about the video games available in the market. With effect from 28 April 2008, the new video games ratings are:

1. **Mature 18 (M18)** – For persons 18 years old and above. M18 is a restricted category and retailers will need to conduct age checks at the point of sale.

2. **Age Advisory** – Suitable for persons 16 years old and above. This is an advisory category to assist consumers in making informed choices. While retailers need not conduct age checks at the point of sale, they are encouraged to exercise responsibility by not selling these games to those below 16 years of age.

Both categories will carry rating stickers. Games that do not fall into the above two categories but are approved for general consumption are not required to carry any rating stickers.

Under the content guidelines, games with content which contains moderate level of violence, portrayal of implied sexual activity, nudity without details, coarse language and depiction of illegal drug use may be required to carry an Age Advisory label. Games with mature themes, or which contain realistic depictions of violence and drug use, nudity and frequent use of strong coarse language will be classified as M18.

**Videogames-Censorship in India**

According to Indian news outlet (Daily news and Analysis), Ministry of Information and Broadcasting may likely to adopt a bill so that the Indian government will have the power to censor and rate videogames. The ministry is considering an amendment in the Cinematography Act, 1952, to give the Censor Board mandatory powers to check videogames entering the market.
1.5 INTRODUCTION TO AGGRESSION

Aggression is a complex phenomenon that is composed of a number of more specific types of behaviour. Aggression is a behaviour intended to harm another individual who is motivated to avoid that harm. A psychological dictionary defines aggression as “behaviour…… That results in harm to or destruction or defeat of others…” (Vebdon Bos, 2007). The definition of violence is “the expression of hostility and rage with the intent to injure or damage people or property through physical force…. Passion or intensity of emotions…. (Vendon Bos, 2007).

Aggression refers to behaviours intended to harm another person physically or psychologically or to damage, destroy or take that person’s property (Bartol, 1995). This definition has number of implications. They are as follows:-

- Aggression is behaviour, by which we mean that it consists of overt action that can be observed by others.
- Aggression involves a hostile intent. Non aggressive acts might also inflict damage but they lack such intent.
- Aggression can be intended to do psychological as well as physical harm.
- Aggression can be directed at either a person or at an object (including an animal).

In Psychology, as well as other social and behavioural sciences, aggression refers to behaviour between members of the same species that is intended to cause pain or harm. Predatory or defensive behaviour between members of different species is not normally considered "aggression." Aggression takes a variety of forms among humans.

1.5.1 Types of Aggression

Historically psychologists have delineated two major types of aggression, physical and verbal aggression. Physical aggression includes activities in which actual physical harm is intentionally done to a person, animal or object. Examples of physical aggression include hitting, kicking, stabbing, shooting, pushing, throwing object, breaking windows, defacing
property and setting fires to name a few. Verbal aggression on the other hand involves use of words to harm another. Verbal aggression can involve behaviour such as making threats, spreading gossip and teasing. More recently, researchers have begun to examine a third type of aggression called relational aggression defined as behaviours that harm others through damage (or the threat of damage) to relationships or feelings of acceptance, friendship or group inclusion (Crick, et al., 1997). This type of aggression is similar to but distinct from both indirect aggression (in which the target is not confronted directly) but social aggression (in which the target is another’s self esteem or social status; but not necessarily another’s social relationships (Crick, et al., 1999).

There are two broad categories of aggression. These include hostile, affective, or retaliatory aggression and instrumental, predatory, or goal-oriented aggression. Hostile aggression has the primary goal of doing harm to the victim or of making the victim suffer, whereas the instrumental aggression involves the use of force in order to obtain some non aggressive goal (such as when one child beats up another child in order to take some money). Reactive aggression refers to an angry aggressive act in response to some precipitating environmental event or behaviour. Instrumental aggression is sometimes referred to as unprovoked aggression whereas reactive aggression is also called provoked aggression (Lerner & Steinberg, 2009).

**Moyer Classification**

Moyer (1968) presented an early and influential classification of seven different forms of aggression, from a biological and evolutionary point of view.

1. Predatory aggression: attack on prey by a predator.
2. Inter-male aggression: competition between males of the same species over access to resources such as females, dominance, status, etc.
3. Fear-induced aggression: aggression associated with attempts to flee from a threat.
4. Irritable aggression: aggression induced by frustration and directed against an available target.

5. Territorial aggression: defence of a fixed area against intruders.

6. Maternal aggression: a female's aggression to protect her offspring from a threat. Paternal aggression also exists.

7. Instrumental aggression: aggression directed towards obtaining some goal, considered to be a learned response to a situation.

**Violence**

Violence refers to extreme forms of aggression, such as physical assault and murder. All violence is aggression, but not all aggression is violence.

The greater intensity of emotional arousal in the case of violence is consistent with dictionary adjectives such as “extreme”, severe” or “harsh” (Webster). Aggression and violence therefore, appear to lie on a continuum of severity or intensity, both with the goal of harm to another.

**1.5.2 Theories of Aggression**

Many theorists have explained about the aggression in human beings. They are as follows:-

**Instinct Theory:** Through evolution, humans have inherited a fighting instinct similar to that found in many species of animals. The leading proponent, Konrad Lorenz (ethology) said that we have a biological need for aggression. It gets stronger as time passes since the last aggressive act (like hunger increases hours after a meal). This causes our energy level (drive level) to rise and this energy must somehow be released (“catharsis”). Instinct Theory says that humans learn their own individual ways of expressing aggressive motivation. Non human species behave in ways that are genetically programmed and characteristic of all members of the species.
Social Learning Theory: This theory was proposed by Albert Bandura. According to him, human aggression is largely learned by watching other people behave aggressively, either in person or in films. It is also learned when we are rewarded for aggression. There are two important principles underlying this theory. In this hypothesis, aggression is initially learnt from social behaviour and it is maintained by other conditions. There are a variety of proposed methods through which aggression is learnt and maintained. One method of learning aggressive behaviour is through simple operant conditioning. If after performing an aggressive act an animal or human receives a positive reinforcement (such as food or a toy), they are likely to repeat the behaviour in order to gain more rewards.

In this way, the aggressive act becomes positively associated with the reward, which encourages the further display of aggression. Aggressive responses can also be acquired through social modelling or social referencing. Small children are likely to look to a familiar face to see how to react to a particular person or situation. By demonstrating aggression, one can unknowingly encourage aggression in suggestible children. By modelling the behaviours of TV, movie or video game characters, acts of aggression become increasingly more frequent and violent. Researchers suggest that after aggressive behaviours are acquired, other factors serve to maintain their presence including self-reinforcement, in which the aggressive individual is proud of his or her harmful action. Other maintaining conditions are tangible and intangible rewards. Whether a person receives money or a medal for injuring or harming another, that person is more likely to commit aggressive acts in the future due to the reinforcement received. Studies have shown that many aspects of the social learning theory of aggression are highly demonstrable in and out of the laboratory and by both humans and animals. Currently one of the most popular theories of aggression, it seems as though the social learning theory competently describes the acquisition and maintenance of aggression and violence in a variety of subjects.
**Negative Affect Theory:** Proposed by Leonard Berkowitz, it states that negative feelings and experiences are the main cause of anger and angry aggression. Sources of anger include: pain, frustration, loud noise, foul odours, crowding, sadness, and depression. The likelihood that an angry person will act aggressively depends on his or her interpretation of the motives of the people involved.

**Freud’s Psychoanalytic Theory**

Sigmund Freud is well known as the father of psychoanalysis. In his early theory, Freud asserts that human behaviours are motivated by sexual and instinctive drives known as the libido, which is energy derived from the Eros, or life instinct. Thus, the repression of such libidinal urges is displayed as aggression. Freud's psychoanalytic theory demonstrates the idea that aggression is an innate personality characteristic common to all humans and that behaviour is motivated by sexual drives. Freud states that in individuals where the childhood conflicts have been successfully resolved, all aggression has been removed by adulthood in the pattern of development. Later, Freud added the concept of Thanatos, or death force, to his Eros theory of human behaviour. Contrary to the libido energy emitted from the Eros, Thanatos energy encourages destruction and death. In this conflict between Eros and Thanatos, some of the negative energy of the Thanatos is directed toward others, to prevent the self-destruction of the individual. Thus, Freud claimed that the displacement of negative energy of the Thanatos onto others is the basis of aggression (Steinberg, 2007).

**Evolutionary Theory of Aggression**

Lorenz combined Freud's theory of aggression with Charles Darwin's natural selection theory. In this interpretation, aggressiveness is beneficial and allows for the survival and success of populations of aggressive species since the strongest animals would eliminate weaker ones and over the course of evolution, the result would be an ultimate stronger, healthier population.
Common to some of the other biological theories is the proposition that aggression is the manifestation of a genetic or chemical influence. Empirical evidence shows that cerebral electrical stimulation of certain locations can induce or inhibit aggression. Other biological theorists propose that genetics may be a component of aggression. Studies that are more complete have shown that the presence or absence of particular chemicals and hormones affects aggression. For example, high levels of the hormone testosterone and neurotransmitters such as serotonin, dopamine and noradrenalin produce higher levels of aggression in animals. In addition, serotonin has been used pharmacologically as an effective treatment in combating erratic aggression.

**Drive Theories of Aggression**

The other category of aggression is the drive theories, which attribute aggression to an impulse created by an innate need. The most well known drive theory of aggression is the frustration-aggression hypothesis proposed by a group of researchers at Yale led by John Dollard. One’s motivation for aggression increases when one’s ongoing behaviour is interrupted or prevented from reaching a goal. In this theory, frustration and aggression are linked in a cause and effect relationship. Frustration is the cause of aggression and aggression is the result of frustration. Other researchers who have examined the frustration-aggression hypothesis have determined that frustration is only one source of aggression and that other contributing factors exist. A study done by Green and Berkowitz in 1967 showed that frustration is merely a "weak instigator of aggression," and that the presence of other cues can elicit more aggressive behaviour. Therefore, while frustration and aggression seem to be closely linked, the mere presence of frustration does not seem to suggest aggression. The frustration-aggression theory has therefore been modified to include other instigating factors of aggression including tension (Steinberg, 2007).
Revision of Frustration-Aggression hypothesis by Leonard Berkowitz

According to Berkowitz’s revision, overt aggressive behaviour involves an interaction between environmental frustration, certain psychological characteristics of the individual and specific cues for aggression that occurs in the environment. For Berkowitz, frustration directly produces the emotional response of anger. Anger in turn combines with the child’s existing aggressive habits to generate a motivational readiness for aggressive acts. If this readiness to aggress is extremely high (above a certain threshold), then overt aggression will occur. However, if the readiness to aggress is below the cut off threshold, then aggression will occur only if the immediate situation includes specific cues for aggression.

Fig.1.2: Berkowitz’s theory relating frustration and anger to aggression as adapted from Berkowitz (1994).

1.5.3 Situational Risk factors for Aggression and Violence

The General Aggression Model (GAM) (Anderson & Bushman, 2002) proposes taxonomy of psychologically salient situational factors with both subjective and objective features that research has found to trigger aggressive behaviour. In this model, individual factors that are relatively ending such as male gender, trait anger, values, beliefs, goals and cognitive scripts are supplemented by factors operating within a given situation, so as to cue, provoke, frustrate or provide relative cost/benefit information and thereby trigger or sustain aggression between people. The GAM proposed a provisional taxonomy of situational influences over
aggression that may serve as a model for situational effects regarding adolescence aggression and violence.

The first of the six situational domains is provocation refers to triggers such as insults physical aggression or interference in one’s goals. The second situational influence was frustration defined as the blocking of goal attainment and one’s determination that the antagonist was responsible for the failure to attain the goal. The third was pain and discomfort which includes anything sight, sound, temperature extreme that would be experienced as aversive, painful or discomforting. The fourth situational influence was drugs and alcohol. Drugs and alcohol are believed to enhance the effects of frustration and provocation. The fifth of situational influence was incentive which meant anything that would increase the relative benefit to cost ratio of aggression. The sixth area was aggressive cues which included the presence of weapons or exposure to violent video games or movies. Earlier review of the effects of media violence on aggression showed moderate to large effect sizes in field studies and large effect sizes in laboratory studies (Anderson & Bushman, 1997).

**Frustration**

Factors likely to increase frustration from which aggression can arise are as follows:

1. A repeated inability to attain one’s goals or obtain rewards that are expected.
2. Perceiving the agent of frustration as unfair or arbitrary.
3. Personalizing the agents’ actions and
4. Having few resources (personal, cognitive, social) with which to cope with stressors-all likely to increase both anger/fear and aggression.

**Incentives**

An incentive refers to a potential reward delivered before a behaviour is expected that is clearly understood and sustains or energizes (i.e. motivates) the behaviour toward a goal.
Although incentives are quite varied from person to person, three types of motivations for aggression have been identified as the following

a. Controlling the behaviour of the target person

b. Gaining retribution or justice and

c. Promoting or defending one’s self-image

**Aggressive cues**

Behavioural approaches in psychology have long held that sights, sounds and more complex sequences and patterns of stimuli can come to remind people to behave in certain ways. Aggression and violence also may be cued by particular sights and sounds such as seeing a real life or play fight between other individuals, a cue for highly aggressive youth to join in or performance of some novel form of violence one have never before personally witnessed (as in a book televised violence, video game violence) the cue may be as simple as the sight of a weapon or as complex as a lengthy confrontation between two or more individuals. Two cues have been studied more extensively in relation to aggression and violence, violent media and exposure to weapons, both of which set off aggressive responses.

Early research on the impact of televised violence related on theories of observational learning such as that proposed by Dr. Albert Bandura. The story stated simply that the observation of sequences of real life or televised aggressive behaviour could lead to imitation. Recent cognitive approaches have suggested that violent objects or actions might prompt the recall of aggression related concepts in memory, thereby facilitating an increase in aggressive behaviour (Anderson & Bushman, 2002).

Regardless of which theoretical explanations are utilized to explain why certain violent images relate to aggressive behaviour, the research evidence itself has been conclusive. The greater exposure to media violence stimulates increase in aggression is supported by media
analysis of 217 studies, yielding an average correlation size of \( r = .31 \) (Park & Comstock, 1994) the \( r = .32 \) correlation between media violence and aggression found by Paik & Comstock was comparable to the relation between smoking and lung cancer shown by Wynder and Graham (1950), as reanalyzed by Bushman and Anderson (2001). To put into a nutshell, there are four main concepts regarding motivation for aggression. They are aggression is based on biological instinct that generates hostile impulses demanding release; Aggression is a drive elicited by frustration; Aggressive behaviour is a response to aversive emotional arousal, such as anger and Aggression is a learned behaviour motivated by rewards.

1.5.4 Aggression and Pro-social behaviours

Pro-social behaviours can be defined as those behaviours intended to help others. The effect of media models on children's pro-social behaviour was initially studied with television and has received some support. However, most research on media and pro-social behaviour has focused on the opposite side - how playing violent games lowers pro-social behaviours. Although several studies have documented reduced pro-social behaviour in response to violent game play (e.g., Anderson & Bushman, 2001; Anderson, et al., 2007), pro-social and antisocial behaviours are not simply opposite sides of the same coin. People can be both high in aggressive and pro-social behaviours (for example, hostile toward enemies and helpful toward friends). Although pro-social and aggressive constructs are not necessarily reciprocally related, they also do not tend to be entirely independent. Theoretically, it is expected that pro-social video games will facilitate several different types of learning (Gentile & Gentile, 2007; Swing et al., 2009). In a short-term context, games can provide models, give direction, require practice, and provide immediate reinforcement or feedback. These pedagogical tools are likely to produce several types of effects that could be measured in a short-term context, such as learning particular game skills and details of specific game
content features. These learned aspects, however, do not explain why game content might influence subsequent behaviours outside of the game, such as aggressive or pro-social behaviours.

Fig. 1.3: Short term process in the General Learning Model (Lemmens, Valkenburg & Peter, 2010)

The General Learning Model suggests that in the short term, any learning encounter can have affective, arousal, and/or cognitive effects (Fig. 1.3). Most germane to the present research is the cognitive effect of priming scripts. If the game includes pro-social content, then pro-social scripts would be likely to be primed and rehearsed - script priming has already been demonstrated with aggressive game content and aggressive scripts. In addition to priming, however, games provide several opportunities for operant reinforcement or punishment. As shown in Fig. 1.3, both the person and the situation bring several features to any social or learning encounter. Playing a video game can influence cognitions, feelings, and physiological arousal. These can interact with each other, and can also mutually reinforce
each other through classical and operant mechanisms. For example, the increase in arousal that games can provide in response to specific game features (such as violence) may itself be reinforcing (people often play video games when they are bored). When provided with a game encounter that requires a decision (e.g., help or harm), the outcome of the decision (reinforcement, punishment, or no effect) feeds back into the situation and affects future cognitions, feelings, and arousal. It is therefore a continuous cycle of learning and reinforcement. In the short-term, if given an opportunity to help or harm another person after playing a game, the likelihood of which behaviour the player chooses is influenced by what scripts have been primed by the game and what game behaviours have been reinforced. Therefore, if the game requires pro-social behaviours to succeed, then pro-social behaviours should be increased immediately following the game (and aggressive behaviours should increase after violent games).

If these short-term effects are practiced repeatedly, then several long-term effects could result, including changes to (1) pre-cognitive and cognitive constructs, such as perception and expectation schemata, beliefs, scripts, (2) cognitive-emotional constructs, such as attitudes and stereotypes, and (3) affective traits, such as conditioned emotional responses (e.g., equating playing violent games with “fun”) and affective traits like empathy or trait hostility. These potential long-term effects are shown in Fig. 1.4. Some of these changes are likely to result simply from repeated exposure (such as cultivating stereotypes), some are likely to result from selective reinforcement (such as beliefs about the acceptability of aggression from playing games where violence is rewarded), and others are likely to result from playing multiple games with similar content. Specifically, one of the best ways to teach for transfer to the “real world” is to provide multiple contexts with similar solutions (Gentile & Gentile, 2007). For example, most modern video games include multiple levels with novel content and variations of prior content, yet in many cases the “solution” (shoot the enemies) remains the same.
Furthermore, most players play more than one game, and if these games provide different contexts but the same solutions, this should lead to greater learning and transfer. This hypothesis has been tested and supported with violent games (Gentile & Gentile, 2007). Regardless of the specific learning mechanisms, these changes to cognitive and emotional structures result in personality changes, which then feed back into each specific social/learning encounter as part of the person factors.

1.6 INTRODUCTION TO STRESS

"Nothing gives one person so much advantage over another as to remain always cool and unruffled under all circumstances." —Thomas Jefferson

The adolescent period is considered to be difficult and critical. It is so because of the numerous qualitative shifts that takes place at this time. Moreover, the changes that take place are often accompanied, on the other hand, by the manifestation in the adolescent him/herself...
of significantly subjective difficulties of various orders. Stress is a term in psychology and biology, first coined in the biological context in the 1930s. It refers to the consequence of the failure of an organism –human or animal – to respond appropriately to emotional or physical threats, whether actual or imagined. Physiologists define stress as how the body reacts to a stressor, real or imagined a stimulus that causes stress. Acute stressors affect an organism in the short term; chronic stressors over the longer term.

The word ‘stress’ is defined by the Oxford Dictionary as "a state of affair involving demand on physical or mental energy". A condition or circumstance (not always adverse), which can disturb the normal physiological and psychological functioning of an individual. In medical parlance ‘stress’ is defined as a perturbation of the body’s homeostasis. This demand on mind-body occurs when it tries to cope with incessant changes in life. Extreme stress conditions, psychologists say, are detrimental to human health but in moderation stress is normal and, in many cases, proves useful. Stress is simply a fact of nature, forces from the inside or outside world affecting the individual. The individual responds to stress in ways that affect the individual as well as their environment. Stress can be a neutral, negative, or positive experience.

1.6.1 Types and Signs of Stress

Stress can be short-term (acute) or long-term (chronic). Acute stress is the reaction to an immediate threat. This is commonly known as the fight-or-flight response. The threat can be any situation that is perceived, even subconsciously, as a danger. Under stress, the heart rate and breathing increase. The muscles become tense. Multiple sources of stress worsen the stress level. The body needs relief from stress to regain balance. Signs of stress may be cognitive, emotional, physical or behavioural. Signs include poor judgment, a general negative outlook, excessive worrying, moodiness, irritability, agitation, inability to relax, feeling lonely, isolated or depressed, aches and pains, diarrhoea or constipation, nausea,
dizziness, chest pain, rapid heartbeat, eating too much or not enough, sleeping too much or not enough, social withdrawal, procrastination or neglect of responsibilities, increased alcohol, nicotine or drug consumption, and nervous habits such as pacing about, nail-biting and neck pains (Steinberg, 2007).

1.6.2 Effects of Stress
Selye researched the effects of stress.

**Alarm** is the first stage. When the threat or stressor is identified or realized, the body's stress response is a state of alarm. During this stage adrenaline will be produced in order to bring about the fight-or-flight response

**Resistance** is the second stage. If the stressor persists, it becomes necessary to attempt some means of coping with the stress. Although the body begins to try to adapt to the strains or demands of the environment, the body cannot keep this up indefinitely, so its resources are gradually depleted.

**Exhaustion** is the third and final stage in the GAS model. At this point, all of the body's resources are eventually depleted and the body is unable to maintain normal function. The initial autonomic nervous system symptoms may reappear (sweating, raised heart rate etc.). If stage three is extended, long term damage may result as the body, and the immune system is exhausted and function is impaired resulting in de-compensation (Steinberg, 2007).

1.6.3 Stress and the Adolescents
The adolescent years are among the most stressful times in a person's life. Adolescence is the time of life when children change into adults. They are going through puberty, meeting the changing expectations of others, and coping with feelings that may be new to them. Adolescents are between stages. They have more responsibility and freedom than they did as children. But they have less responsibility and freedom than adults do. Their thoughts,
behaviour, and social relations are all changing radically. The rate of change varies from person to person.

There are a number of reasons for an adolescent to feel stress. These include problems with peers, family issues or problems with parents, school-related problems or pressures, family or community violence, natural disaster etc. Reactions to stress vary with the adolescent's ability to cope, how long the stress continues, and the intensity of the stress. Some adolescents withdraw from others, some lash out at others, and some actively seek the comfort of others. Signs of stress in an adolescent may include withdrawal; antisocial behaviour, such as stealing and aggression; rebellion in the home, such as refusal to do chores; physical complaints, such as headache and stomach ache; missed school or poor school performance; changes in eating and sleeping habits; loss of interest in activities that were previously enjoyed; difficulty concentrating; lying and thoughts of death or suicide.

Fig. 1.5: Model of stress, coping and outcome in adolescence (Lerner & Steinberg, 2009)
Helping adolescents realize that they are important members of society can ease a great deal of their stress. Ways that adults can help adolescents cope with stress include:

- encouraging them to talk about what they are going through, without being judgmental
- offering reassurance, encouragement, and support
- continuing to provide structure, stability, and predictability
- encouraging participation in activities they normally enjoy
- trying to build a relationship so they feel comfortable asking for help when they need it
- modelling effective coping skills, by talking about how to deal with problems and cope with difficult situations
- teaching them safe ways to blow off steam and relax, including relaxation techniques

Helping adolescents cope with stress is an important task. It helps to prepare them to face the challenges that lie ahead as they move into the adult world (Steinberg, 2007).

1.7 NEED FOR THE STUDY

Adolescents are young people between the ages of 10 and 19 years – are often thought of as a healthy group. Adolescence is a period of major physical and psychological change, as well as great changes in social interactions and relationships. Adolescents (aged 10 to 19 years) have specific health and development needs, and many face challenges that hinder their well being, including poverty, a lack of access to health information and services, and unsafe environments. Interventions that address their needs can save lives and foster a new generation of productive adults who can help their community’s progress.

One in every five people in the world is an adolescent, and 85% of them live in developing countries. According to World Health Organization report, nearly two thirds of premature deaths and one third of the total disease burden in adults are associated with conditions or behaviours that began in youth, including tobacco use, a lack of physical activity, unprotected sex or exposure to violence. Promoting healthy practices during adolescence and efforts that
better protect this age group from risks will ensure longer, more productive lives for many. At least 20% of young people will experience some form of mental illness - such as depression, mood disturbances, substance abuse, suicidal behaviours or eating disorders. Promoting mental health and responding to problems if they arise requires a range of adolescent-friendly health care and counselling services in communities. Among 15-19 year olds, suicide is the second leading cause of death, followed by violence in the community and family.

The effect of video games on adolescents is not well characterized despite a growing body of evidence demonstrating their addictive nature and popularity. Indeed, video game use may exceed that of television use in children. In pre-adolescent teenagers, obesity has been linked to increasing time spent on video games, the saturation of our culture and daily lives by the mass media. In this new environment radio, television, movies, videos, video games, cell phones, and computer networks have assumed central roles in our children’s daily lives. For better or worse the mass media are having an enormous impact on our children’s values, beliefs, and behaviours. Promoting nurturing relations between parents and children early in life, training in life skills can help prevent violence.

Allahverdipour, Bazargan, Farhadinasab & Moeini (2010) examined the relationship between video game playing and psychological well-being, aggressive behaviours, and adolescents' perceived threat of video-computer game playing. The results revealed that the participants spent an average of 6.3 hours per week playing video games. Moreover, 47% of participants reported that they had played one or more intensely violent games. Excessive gamers reported suffering poorer mental health compared to low or moderate players. Participants who initiated gaming at younger ages were more likely to score poorer in mental health measures. Participants' self-reported aggressive behaviours were associated with length of gaming. Boys, but not girls, who reported playing video games excessively showed more
aggressive behaviours. A multiple binary logistic regression shows that when controlling for
other variables, older students, those who perceived less serious side effects of video gaming,
and those who have personal computers, were more likely to report that they had played
video games excessively. The study concludes that there is a curvilinear relationship between
video game playing and mental health outcomes, with "moderate" gamers faring best and
"excessive" gamers showing mild increases in problematic behaviours. They have concluded
that educational interventions should also be designed to educate adolescents and their
parents of the possible harmful impact of excessive video game playing on their health and
psychosocial functioning.

Video game regulation is intended to lessen the potentially negative effects of games by
limiting children's access to age-inappropriate games. Evidence suggests that the prevalence
of video games, especially violent video games, among adolescents from low- and middle-
income countries is increasing dramatically and requires additional investigation to evaluate
the connection between violent video games and aggressive behaviours. Lack or insufficient
reinforcement of copyright protections and the selling of rated video games to children in
these countries have intensified public concerns on the possible negative impact of violent
video games on aggressive cognitions, attitudes, behaviours, academic performance, and the
psychological well-being of children. Research studies proved that videogame playing
significantly affected their school performance and also researchers concluded that violent
media make people numb to the pain and suffering of others.

Chennai is a rapidly developing area with its outskirts consisted of mixed group of
population. Children in Chennai had the advantage of becoming familiar with the newer
techniques and technology because of its fast development. During summer, especially in the
month of April and May more children spend time in playing video games and it is one of the
main entertainment. In India, awareness regarding effect of playing violent video game and videogame rating is very less. Parents and children often they do not choose age appropriate videogames. Some encourage their children to play games thinking that it helps them to learn computer. Though the advantage of playing non violent video game is significant one can’t ignore or underestimate the effect of playing violent video games.

Many children are attracted towards videogame playing since in schools they were introduced computer games in educational context. Perhaps the children are curious they explore the other ways and means and the peer pressure makes them to get involved in and exposed to violent video games. There is an active involvement while video game playing and they identify themselves in those characters. They become more personalized with game playing which motivates them for continuous playing.

Every child has the right to health and life free from violence and abuse. While we recognize a child as an individual possessing right, it is imperative to emerge with strategies and procedures that operate in the best interest of the child and that protects every child from violations of their rights thereby helping them become responsible citizens. It requires in-depth knowledge and research activities pertaining to the issues to plan and build upon.

Though many research conducted in other countries in relation to playing violent video game and the mass media scientifically explained that the effects are bad, still one can’t generalize for the whole lot of children. The results are context specific. In India, studies related to this are very scarce. It needs scientific investigation. With this background information, the need is identified by the researcher to undertake a study on the effect (psycho-physiological) of playing violent video games among children.

1.8 STATEMENT OF THE PROBLEM

A study to assess the effect (Psycho-Physiological) of playing violent video games among children in Chennai.
1.9 OBJECTIVES OF THE STUDY

1. To assess the prevalence of violent video game playing among children

2. To assess the psychological effect of playing violent video games among children

3. To assess the physiological effect of playing violent videogames among children

4. To correlate the violent video game playing and aggression.

5. To correlate the selected physiological variables of children and aggression.

6. To correlate the violent video game playing and stress.

7. To correlate the selected physiological variables of children and stress.

8. To correlate the violent videogame playing and the selected physiological variables.

9. To assess the regression effect of significantly correlated variables of violent video game playing on aggression.

10. To assess the regression effect of significantly correlated variables of violent video game playing on stress.

11. To associate the duration of playing violent video game playing with the favourite video game.

12. To associate the place of playing violent videogame with the most favourite game.

13. To associate the hours of playing violent video game with the most favourite game.

14. To associate the time of playing violent video game with the most favourite game.

15. To associate the psychological effect (level of aggression) with the demographic variables.

16. To associate the psychological effect (level of aggression) with the violent video game playing.

17. To associate the psychological effect (level of stress) with the demographic variables.

18. To associate the psychological effect (level of stress) with the violent video game playing.