CHAPTER VI

SUMMARY AND CONCLUSION

6.1 INTRODUCTION

A summary is a brief account that contains the main points of some content. A summary or recap is a shorter version of the original. Such a simplification highlights the major points from the much longer subject, such as a text or project. The purpose is to help the reader get the gist in a short period of time. This section deals with the summary of the study on the effects of playing violent video game among children.

6.2 SUMMARY OF THE STUDY

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. Most researchers defined media violence as visual portrayals of acts of physical aggression by one human or human-like character against another.

Adolescents are said to live in a “media saturated world,” spending more time with the media than they do in school. Over the past half-century the mass media, including video games, have become important socializers of children. Over the past three decades, a number of studies have looked at the effects of violent 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.

6.2.1 OPERATIONAL DEFINITION

Violent videogames
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.

Psycho-physiological effect
It includes the effect or result of playing violent video games on psychological variables such as aggression and stress and the physiological variables such as pulse, respiration, blood pressure, height and weight.

Aggression
Aggression is an overall score measured with the help of aggression inventory. 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 that is likely to cause serious physical injury.

Stress
Stress is an overall score measured with the help of stress inventory. Stress refers to the consequence of the failure of an organism to respond adequately to mental, emotional or physical demands whether actual or imagined.

Children
It is children in the age group of 13 to 18 years and who has the habit of playing violent video games for not less than 6 months.
6.2.2 CHILDREN

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. 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 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 constitute 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. Adolescence as a stage of human development has always been regarded as a time in which risk taking behaviours are common. 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)

6.2.3 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 electronic systems used to play video games are known as platforms; examples of these are personal computers and videogame consoles. There are various types of violent video games such as action games, shooting games, racing games, survival horror games, strategy games, vehicle simulation games etc.
Effects of playing violent video game

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, 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 increases in mean arterial pressure, epinephrine, and nor-epinephrine levels in the blood than those in the lower quintiles.

Kirsh (1998) found that exposure to a violent video game increases hostile attribution bias 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.

The long term exposure of children to violence in media may leads to problem in children.

- 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

Playing violent video game results in poor school performance which is explained by 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 (Huston, et al., 1992). Swedish Researchers have found that heart rate and sleep in boys are affected by violent video games. 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. Based on this research, many social scientists have hypothesized that one should expect video games to have an even greater impact for the following four reasons.

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.  
2. Video games by their very nature require active participation rather than passive observation.  
3. 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.  
4. Rewards increase learning, and video games are based on a reward system.

Videogame rating

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 in Europe. 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.
6.2.4 AGGRESSION

Aggression is a behaviour intended to harm another individual who is motivated to avoid that harm. Aggression is a behaviour, which 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 intends to do psychological as well as physical harm. Aggression can be directed at either a person or at an object (including an animal). Violence refers to extreme forms of aggression, such as physical assault. All violence is aggression, but not all aggression is violence. Instinct theory, social learning theory, negative affect theory, Freud’s psycho analytic theory, drive theory and evolutionary theory explains the mechanism of development of aggression in an individual. There are four main concepts regarding motivation for aggression. 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. Aggression is a learnt behaviour motivated by rewards.

6.2.5 STRESS

It refers to the consequence of the failure of an organism 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 adolescent years are among the most stressful times in a person's life. They are going through puberty, meeting the changing expectations of others, and coping with feelings that may be new to them. 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.
6.2.6 NEED FOR THE STUDY

The effect of video games on adolescents is not well characterized despite a growing body of evidence demonstrating their addictive nature and popularity. In pre-adolescent teenagers, obesity has been linked to increasing time spent on video 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. 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. 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 whole 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.

6.2.7 STATEMENT OF THE PROBLEM

A study to assess the effect (Psycho- Physiological) of playing violent video games among children in Chennai.
6.2.8 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 videogame playing and aggression.
5. To correlate the selected physiological variables of children and aggression.
6. To correlate the violent videogame 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 most favourite video game.
12. To associate the preferred 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 preferred time of playing violent video game with the most favourite game
15. To associate the psychological effect (level of aggression) of playing violent video games with the demographic variables.
16. To associate the psychological effect (level of aggression) of playing violent video games with the violent video game playing.
17. To associate the psychological effect (level of stress) of playing violent video games with the demographic variables.

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

6.2.9 PROFILE OF THE RESEARCH AREA

TAMIL NADU

Tamil Nadu is one of the 28 states of India. Its capital is Chennai which is one of the largest city. Tamil Nadu is the seventh most populous state in India with a population of 72,138,958 as of the census of 2011. 44% of the state's population lives in urban areas. According to 2001 census, in Tamil Nadu, the total population in the age group of 10 to 19 years was 12,172,113 in which the male population was 6,216,117 and the female population was 5,955,996. Tamil Nadu is the one of the most literate states in India. The total number of government schools in Tamil Nadu was 5631 and the Corporation and the Municipal schools were 1552. Schools run by the private management were almost equal in numbers to that of the Government.

CHENNAI

Chennai is the capital city of the State, besides being an important district. The district city is one of the metropolis of India and serves as the gateway of the culture of South India. Chennai was formerly known as Madras or Madarasapatinam. Chennai being the forth most populous metropolitan area and the fifth most populous city in India, it is also the world's 36th largest metropolitan area. The total population of Chennai according to 2011 census is 46,81,087.

According to 2001 census, in Chennai, the total number of children in the age group of 10 to 19 years was 791,860 in which the male children were 404,780 in numbers and the female
children were 387,080. The children in the age group of 10 to 19 years accounts for 18.23% of the total population of Chennai. According to the 2001 census, Hindus constitute about 81.3% of the city's population, and Muslim (9.4%), Christians (7.6%) and Jains (1.1%) are other major religious groups.

Chennai city is governed by the Corporation of Chennai. The Commissioner of the Corporation is the Chief Executive. For the sake of administrative convenience the Corporation area is divided into 10 Zones and each Zone is headed by a Zonal Officer. It is divided into 10 Zones. Also for administrative purpose, it is divided into East, West, North, South and Central Chennai.

**Chennai South**

The localities that fall in Chennai South include Adyar, Kotturpuram, Mylapore, Tambaram, Tiruvanmiyur, Velachery, K.K.Nagar, Meenambakkam, Saidapet, Teynampet and Thyagaraya Nagar. The samples for the present research were selected from the video game parlours/shops located in South Chennai.

**6.2.10 RESEARCH DESIGN**

A descriptive co relational research design was adopted. This study aimed to assess the effect of playing violent video game and to correlate the variables of violent video game playing such as duration, place, frequency, favourite game, hours and time of playing violent videogame with the psychological variables aggression and stress and with the physiological variables such as pulse, respiration, blood pressure, height and weight.

**RESEARCH QUESTIONS**

The research questions in this study were as follows:-

- What is the frequency of playing violent video games?
- What are the psychological effects of playing violent video games?
- What are the physiological effects of playing violent video games?
• Is there any relationship between violent video game playing (duration, frequency, type, time and place of playing) and the aggression?

• Is there any relationship between violent video game playing (duration, frequency, type, time and place of playing) and the stress?

• What is the effect of playing violent video game (duration, frequency, type, time and place of playing) on the physiological variables (pulse, respiration, blood pressure, weight and height)?

• What is the effect of physiological variables (pulse, respiration, blood pressure, weight and height) on the psychological variables (aggression and stress)?

• Is there any association between the psychological effects of playing violent video games with the demographic variables?

• Is there any association between the psychological effects (aggression and stress) with the violent video games playing?

**NULL HYPOTHESIS**

The null hypotheses formulated in this study were as follows:-

1. **Null hypotheses related to violent video game playing and aggression (1a – 1h)**

   • 1a. There is no significant relationship between the duration of playing violent video game and aggression in children.

   • 1b. There is no significant relationship between the place of playing violent video game and aggression in children.

   • 1c. There is no significant relationship between the frequency of playing violent video game and aggression in children.

   • 1d. There is no significant relationship between the time of playing violent video game and aggression in children.
1e. There is no significant relationship between the hours of playing violent video game and aggression in children.

1f. There is no significant relationship between the favourite violent video game and aggression in children.

1g. There is no significant relationship between the reason for playing violent video game and aggression in children.

1h. There is no significant relationship between the feeling upon losing game and aggression in children.

2. Null hypotheses related to physiological variables and aggression (2a – 2d)

2a. There is no significant relationship between the pulse and aggression in children.

2b. There is no significant relationship between the respiration and aggression in children.

2c. There is no significant relationship between the blood pressure and aggression in children.

2d. There is no significant relationship between the weight and aggression in children.

3. Null hypotheses related to violent video game playing and stress (3a – 3e)

3a. There is no significant relationship between the duration of playing violent videogame and stress in children.

3b. There is no significant relationship between the frequency of playing violent videogame and stress in children.

3c. There is no significant relationship between the time of playing violent videogame and stress in children.

3d. There is no significant relationship between the hours of playing violent videogame and stress in children.
3e. There is no significant relationship between the favourite game violent video game and stress in children.

4. Null hypotheses related to physiological variables and stress (4a & 4b)
   - 4a. There is no significant relationship between the blood pressure and stress in children.
   - 4b. There is no significant relationship between the weight and stress in children.

5. Null Hypothesis related to violent video game playing and physiological variables (5a)
   - 5a. There is no significant relationship between the violent video game playing and the physiological variables such as pulse, blood pressure and weight.

6. Null hypotheses related to violent video game playing and favourite video game (6a – 6d)
   - 6a. There is no association between the duration of playing violent video game and the favourite game.
   - 6b. There is no association between the preferred place of playing violent video games and the favourite game.
   - 6c. There is no association between the hours of playing violent video game and the favourite game.
   - 6d. There is no association between the preferred time of playing violent video games and the favourite game.

7. Null hypotheses related to level of aggression and selected demographic variables (7a)
   - 7a. There is no association between the level of aggression and the selected demographic variables.

8. Null hypotheses related to level of aggression and violent video game playing (8a)
   - 8a. There is no association between the level of aggression and the violent video game playing.
9. Null hypotheses related to level of stress and selected demographic variables (9a)

- 9a. There is no association between the level of stress and the selected demographic variables.

10. Null hypotheses related to level of stress and violent video game playing (10a)

- 10.a. There is no association between the level of stress and the violent video game playing

POPULATION AND SAMPLES

The population for this research includes all adolescent boys and girls in the age group of 13 to 18 years who are residing in south Chennai. They also must have the habit of playing violent videogames for not less than six months. From the universe, 350 samples were selected. The samples were in the age group of 13 to 18 years and who also had played violent videogames such as racing games, fighting games, shooting games and satanic games for not less than six months. Samples were selected using purposive sampling technique.

VARIABLES

The major variables in this research are as follows:-

Independent variable

Demographic variables include age, sex, parental income, parental occupation and religion. Variables of violent video game playing include duration of playing, place of playing, frequency of playing, time of playing, hours of playing, favourite game, introduction of video games, reason for playing, feeling upon losing games, playing games helping studies, parental awareness, parental encouragement and parental reaction.

Dependent Variable

Physiological variables include pulse, respiration, blood pressure, height and weight. Psychological variables include aggression and stress.
PILOT STUDY

For the purpose of establishing reliability of the prepared tools a pilot study was conducted on a sample of 30 children in the age group of 13 to 18 years in Thiruvanmiyur in Chennai. The tool was administered in Tamil. The investigator has used Test – Retest method for finding reliability of the tools. The reliability scores were as follows;

- Aggression scale 0.74
- Stress scale 0.78

DESCRIPTION OF THE TOOL

The data collection tool used in this research is a structured one. The tool consisted of Part 1-Demographic data; Part 2- Questions to assess the violent video game playing in Children; Part 3- Physiological data; Part 4- Aggression Inventory and Part 5- Stress Inventory.

PROCEDURE FOR DATA COLLECTION

Samples were selected using purposive sampling technique. After obtaining permission from the shop owners, the samples were identified. These children were explained about the study and permission was obtained. Then their parents were informed about the participation of their children in this study and permission was obtained from them. After they played the video game for minimum half an hour, the questionnaire was administered to the children. The questionnaire was prepared in Tamil and English and these were used according to their convenience and their language preference. Older children were given the questionnaire to fill the data and for the younger children, interview was conducted using the same tool. Their physiological data was measured by the researcher. Their doubts were clarified by the researcher. It took around 40 to 50 minutes for each sample to complete the data collection. Descriptive and inferential statistics were used to analyze the data.
6.2.11 MAJOR FINDINGS OF THE STUDY

In this study, children in the age group of 13 to 18 years were included. Among whom, 13 years were 26.3% and 18 years were 24.9%. Male children were 89.1% and the female children were 10.1%. 31.1% of the children’s father and 26.3% of the children’s mothers were graduates. 35.7% of the children’s fathers were doing business and 40.3% of the children’s mothers were going for daily wages. 47.1% of the children’s family, the monthly income was less than Rs. 10,000/-. Majority of the children were Hindu (79.4%).

Regarding violent video game playing, 44.3% of the children were playing for not less than 6 months and not more than one year. 54.9% of the children were playing for 1 to 3 days in a week. 38.3% of the children had played for 1 to 3 hours at a stretch. Majority of them had played in video game centre (55.4%). 52.9% of the children had played in the evening. 37.7% and 27.7% of the children had played shooting games and fighting games respectively. For 63.4% of the children, the friends had introduced the games. Majority of the children had reported that they had played for fun (35.1%) and time pass (32.3%). 33.1% reported that they were unhappy upon losing games and 80% of the children reported that playing video game did not help their studies.

83.4% of the children said that their parents were aware of their playing habits and 40.9% of the children’s parents were unhappy about their children’s violent video game play habits.

Regarding level of aggression, 50% had low aggression and 44% had moderate aggression.

Regarding stress, 60.9% had low stress and 30.9% had moderate stress. Regarding the physiological effect, the physiological variables of the children such as pulse, respiration, blood pressure, height and weight were measured and analyzed. The pulse rate varied from 80-85 for children in the age group of 13 to 18 years which showed that the pulse rate has increased i.e., in the upper normal range. The respiratory rate varied from 20 to 23 which was also increased. The systolic blood pressure for the children ranged from 102 to 122mmhg and
diastolic pressure ranged from 70 to 80 mmhg. These values were within the normal ranges.

In this study, the mean weight for the ages 13 to 15 was comparatively lesser. The mean weight for the ages 16 to 18 years was normal when compared to the 50th percentile of that age group. Regarding height, the mean height of the samples was lesser when compared with the 50th percentile of the Indian affluent statistics.

There is a statistically significant correlation was found between the independent variables (violent video game) such as duration of playing, frequency of playing, time of playing, hours of playing, favourite video game, and feeling upon losing games with the dependent variable aggression. There is a statistically significant correlation found between the independent variables (physiological variables) such as respiration, systolic blood pressure, diastolic blood pressure and weight with the dependent variable aggression.

There is a statistically significant correlation found between the independent variables (violent video game) such as duration of playing, frequency of playing, hours of playing, most favourite game and preferred time of playing with the stress. There is a statistically significant correlation found between the independent variables (physiological variables) such as systolic blood pressure, diastolic blood pressure and weight with the dependent variable stress.

Regarding frequency of playing there was a statistically significant correlation found with the pulse. As regards to hours of playing, there was a statistically significant correlation found with the systolic BP, diastolic BP and the weight. As regards to time of play, there was a statistically significant correlation found with the pulse, systolic BP, diastolic BP and the weight. Regarding the feeling upon losing games, there was a statistically significant correlation found with the systolic BP, diastolic BP and the weight.
There is a statistically significant association found between the place of playing, hours of playing, time of playing violent video game and the favourite video game. There is a statistically significant association found between the variables such as father education, mother education and the level of aggression. There is a statistically significant association found between the family income and the level of aggression. There is a statistically significant association found between the duration of playing, frequency of playing, hours of playing and time of playing with level of aggression. There is a statistically significant association found between the favourite game, introduction of video games and reason for playing with the level of aggression. There is a statistically significant association found between parental awareness with level of aggression.

There is a statistically significant association found between the father’s occupation, mother’s occupation and family income with level of stress. There is a statistically significant association found between the duration, frequency, hours and time of play with level of stress. There is a statistically significant association found between the favourite game, introduction of video games, and reason for playing video games with the level of stress. There is a statistically significant association found between the parental reaction with level of stress in children.

**Testing of Hypothesis**

- The null hypothesis 1a that there is no significant relationship between the duration of playing violent video game and aggression in children was rejected.
- The null hypothesis 1b that there is no significant relationship between the place of playing violent video game and aggression in children was accepted.
- The null hypothesis 1c that there is no significant relationship between the frequency of playing violent video game and aggression in children was rejected.
• The null hypothesis 1d that there is no significant relationship between the time of playing violent video game and aggression in children was rejected.
• The null hypothesis 1e that there is no significant relationship between the hours of playing violent video game and aggression in children was rejected.
• The null hypothesis 1f that there is no significant relationship between the favourite violent video game and aggression in children was rejected.
• The null hypothesis 1g that there is no significant relationship between the reason for playing violent video game and aggression in children was rejected.
• The null hypothesis 1h that there is no significant relationship between the feeling upon losing game and aggression in children was rejected.
• The null hypothesis 2a that there is no significant relationship between the pulse and aggression in children was accepted.
• The null hypothesis 2b that there is no significant relationship between the respiration and aggression in children was rejected.
• The null hypothesis 2c that there is no significant relationship between the blood pressure and aggression in children was rejected.
• The null hypothesis 2d that there is no significant relationship between the weight and aggression in children was rejected.
• The null hypothesis 3a that there is no significant relationship between the duration of playing violent videogame and stress in children was rejected.
• The null hypothesis 3b that there is no significant relationship between the frequency of playing violent videogame and stress in children was rejected.
• The null hypothesis 3c that there is no significant relationship between the time of playing violent videogame and stress in children was rejected.
• The null hypothesis 3d that there is no significant relationship between the hours of playing violent videogame and stress in children was rejected.
• The null hypothesis 3e that there is no significant relationship between the favourite violent video game and stress in children was rejected.

• The null hypothesis 4a that there is no significant relationship between the blood pressure and stress in children was rejected.

• The null hypothesis 4b that there is no significant relationship between the weight and stress in children was rejected.

• The null hypothesis 5a that there is no significant relationship between the violent video game playing and the physiological variables such as pulse, blood pressure and weight was rejected.

• The null hypothesis 6a that there is no association between the duration of playing violent video game and the favourite game was accepted.

• The null hypothesis 6b that there is no association between the place of playing violent video games and the favourite game was rejected.

• The null hypothesis 6c that there is no association between the hours of playing violent video game and the favourite game was rejected.

• The null hypothesis 6d that there is no association between the time of playing violent video games and the favourite game was rejected.

• The null hypothesis 7a that there is no association between the level of aggression and the selected demographic variables such as education of the father and the mother was rejected.

• The null hypothesis 7a that there is no association between the level of aggression and the family income and was rejected.

• The null hypothesis 8a that there is no association between the level of aggression and the violent video game playing such as duration, frequency, hours and time of playing was rejected.
• The null hypothesis 8a that there is no association between the level of aggression and violent video game playing such as favourite game, introduction of video games and the reason for playing was rejected.

• The null hypothesis 8a that there is no association between the level of aggression and the parental reaction was rejected.

• The null hypothesis 9a that there is no association between the level of stress and the demographic variables such as age, sex, father education and mother education was accepted.

• The null hypothesis 9a that there is no association between the level of stress and the demographic variables such as father occupation, mother occupation and family income was rejected.

• The null hypothesis 10a that there is no association between the level of stress and the violent video game playing such as duration, frequency, hours and time of playing was rejected.

• The null hypothesis 10a that there is no association between the level of stress and the violent video game playing such as favourite video game, introduction of video games and reason for playing was rejected.

• The null hypothesis 10a that there is no association between the level of stress and the violent video game playing such as parent’s reaction was rejected.

6.3 LIMITATIONS OF THE STUDY

• Convincing and obtaining permission from the shopkeepers was very difficult since they thought that conducting a study will affect their business. Since many of the shopkeepers did not have proper license, they were unwilling for the conduction of the study.
- Obtaining permission from the parents were little difficult since they do not have idea about research
- One time measurement of pulse, respiration and blood pressure was only possible. Shop keepers did not accept for multiple measurements.
- Physiological measurements of children could not have been compared with the base line data.
- Young children showed much interest in playing and they did not want to spare their timing for answering the questions.
- Random sampling technique could not be used to select samples.
- Equal number of samples could not be selected for each age group. Also equal number of samples could not be selected based on gender.
- The findings are based on the data collected from the children.
- There are no studies in the Indian context related to the present study and the results could not be discussed in the Indian context.
- The findings of the study cannot be generalized.

6.4 SUGGESTIONS AND RECOMMENDATIONS

6.4.1 TO THE PARENTS

- Parents should help children to choose videogames for them. They should look for games that do not contain any violence and stereotyping.
- It is always good to check the rating and content of the games before buying or renting.
- Parents must know the preference of their children regarding game playing.
- They can talk to other parents for advice and suggestions for good games.
- Parents can choose the games that are challenging, exciting and without violence. They can find games with thrills and the chance to experience control in a non-violent
way for their kids.

- They should find games that require strategy and problem solving skills. If they have an educational component, that’s a bonus.

- When choosing games for girls, it is desirable to look for ones that have strong, non stereotypical female characters.

- Videogames are expensive. So before buying it, the responsibility of the parents is to make sure that the game has good play value.

- It is good that the parents sit down and play with their child when a new game is purchased.

- It is advisable to have the computer or videogame consoles in a public area of the house so that everyone can observe what one is playing.

- It is good to buy games that can be played by more than one person so that other family members also can enjoy.

- Parents should explain to children why certain games are objectionable and also inform them the effects of playing violent video games.

- They must establish the rule for the duration and the frequency of playing videogames and strictly adhere to it.

- The child must be encouraged to be involved in other interesting activities.

- Families should limit and monitor media consumption. Adults should monitor the various media to which their children are exposed, including TV, films, video games, music videos, and the Internet.

- Parents must refrain from using TV or computer time to reward or punish children. When TV or computer access is used to reward or punish, children become increasingly attracted to it.
• Parents should be a Model for good TV and computer practices. They must avoid excess television viewing and computer use and exposure to violent media content themselves. Parental viewing patterns influence children’s viewing patterns.

6.4.2 TO THE CHILDREN

• Children should understand that videogames are rated for their benefit and the society.

• They should be familiar with the ratings of videogames and have to check before purchasing it. They should take the advice from the parents in choosing videogames to purchase and play.

• They must realize that like any other play activity, it is a kind of activity to be involved for a restricted period of time. In the growing age, any activity which needs sitting and playing for a long duration will affect their motor development.

• Children must play video games of educational value.

6.4.3 TO THE TEACHERS

• Teachers have the opportunity to observe the students in close proximity. The reasons are many for a student with behaviour problems and poor school performance. A student who appears dull, lethargic and sleeps excessively in the class room are the clues. One of the reasons might be spending late night hours in media utilization including videogames.

• The teachers can identify the students with problems and inform their parents. Teachers must be aware of the ill effects of playing violent videogames. They must inform the same to school children and their parents. They must stress the importance of playing age appropriate video games. They should encourage the parents to monitor their children’s media habits and utilization.
• Teachers should teach children and their parents about the rating of video games and its meaning and choosing of age appropriate video games.

• Teachers should inform parents that many games popular among youth are either played online or downloaded from various sites. The ESRB rating system does not cover such games.

• Teachers should inform children that the male and female characters are negatively portrayed in video games and they should not be influenced by this.

• Teachers must understand how to maximize the benefits of playing video games while minimizing potential harms.

6.4.4 TO THE HEALTH CARE PROFESSIONALS

• Health care professionals include Paediatricians, Psychiatrists, Nurses, Psychologists and School counsellors. They have splendid opportunity to inform parents and children about the physiological and psychological effect of playing violent videogames.

• Physicians and nurses should become involved in media education by learning about the potential health risks of media consumption and questioning children about excessive exposure to media violence and incorporating warnings about the health risks of violent media consumption into their preventative services.

• First, families and schools should be informed about the potential negative effects of playing violent video game. Paediatricians and nurses could advise parents and educators to teach children regarding the effects of playing violent video game.

• They should tell the parents how playing violent video games affect their children’s mental and emotional development. Parents must also be informed that obesity,
insomnia, hostility, lack of trust, negativism, indulging in physical and verbal abuse and suspicion are some of the effects of playing violent video games.

- Paediatricians and nurses working with children could promote research in the harmful effects of violent video game playing. The researcher can pay attention towards some important issues such as 1) children’s admiration for weapons and violence, 2) their ideas about violence as a justified means to resolve conflict, 3) their estimates of the amount of violence in real life and estimates of their chance of becoming a victim, 4) their habituation and desensitization toward violence, or 5) their coping with fears and worries induced by violent content in video games. These issues warrant interdisciplinary attention of media researchers, developmental psychologists, and health care specialists.

- Paediatricians and nurses are in a good position to inform parents, educators, policy makers, and broadcasters of the potential harmful effects of playing violent video games and to suggest ways to enhance children’s understanding of the negative effects. They should utilize mass media in spreading information regarding short and long term effects of playing violent videogames

- Paediatricians and nurses could take action within their own practice, for example by including the assessment of children’s media histories and devise appropriate strategies to reduce the game playing.

### 6.4.5 TO THE SHOPKEEPERS

- They must permit the children to play only age appropriate video game.

- They should monitor the children’s behaviour while playing. They should provide conducive environment.

- They must limit the number of hours of playing video game by a child.
They should permit the children to play only with parental permission.

Shop keepers must have proper license to run the centre.

6.4.6 TO THE MEDIA EDUCATION PROGRAMMES

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.

- Media education and media literacy programmes should be encouraged. Whenever possible, adults should watch programmes with their children and help them process media violence. Media education programmes that focus on demystifying and processing media violence should be developed and implemented. Emphasis should be placed on the inappropriate, unrealistic nature of violence on violent video game, and the consequences, responsibility, and complexity involved with true violence.

- American Academy of Family Physicians recommended that policy changes should accompany our newfound understanding of the impact of media violence on public health. Central, state, and local restrictions on media violence should be increased. Health care professionals and community members should partner with media producers to limit the amount and type of violence produced.

- Schools need to begin implementing media education in their curricula. The simplest way to do this would be to incorporate principles of media education into existing
programs on drug prevention and sex education (American Academy of Paediatrics, 2010).

6.4.7 TO THE LAW MAKERS

- Government should strictly monitor the sale of ‘M’ rated video games to children by enacting laws and policies.
- There should be a sufficient mechanism to regulate the shops or videogame parlours. The government should ensure for the conducive physical atmosphere for the children in these play areas. There should be adequate space, lighting and ventilation and it should not be overcrowded.
- There should be a proper licensing mechanism to run the shop and to ensure for the same.
- All videogames should be re-rated irrespective of by whom they are manufactured and it should be culture specific.

6.4.8 TO THE OTHER RESEARCHERS

- The other effects of playing violent video game can be studied. Especially its effect on school performance can be studied.
- An experimental study can be conducted on the effect of playing violent and nonviolent video games.
- A longitudinal study can be conducted to assess its long term effects of playing violent video games.
- Laboratory investigations in a controlled atmosphere can be done to assess the effects of playing violent video games.
- It can be done on larger sample size to generalize the findings.
• Same study can be conducted with before and after measurement of variables in children playing violent video games.

• Same study can be conducted in various settings.

• Data from parents can be collected to compare and verify the findings.

6.5 IMPLICATIONS FOR CHILD HEALTH NURSING

Child health nursing is a branch of nursing which includes complete study of children. Its focus is prevention of illness, promotion of health and rehabilitation of children. Also it includes community paediatrics and social paediatrics. Childhood is the period of rapid changes in their growth and development which is a complex process. A child who spends much time in playing videogame is at risk since its physical activity is reduced. It will affect their physical development.

Younger adolescents (ages 12 to 16) were less stable, often varying from cheerful to sad and back again. These mood swings were strongly related to situational changes. Yet another contributor to adolescent moodiness is change in sleep schedules. Although teenagers need almost as much sleep as they did in middle childhood (about 9 hours), they go to bed much later than they did as children. Biological changes may underlie this sleep “phase delay” because it strengthens with pubertal maturation. But today’s teenagers – with more evening social activities, part-time jobs, and bedrooms equipped with televisions, telephones, computers – are more sleep – deprived than those of previous generations. Because insufficient sleep impairs regulation of attention, emotion, and behaviour, sleep-deprived adolescents are more likely to suffer from depressed mood, achieve poorly in school, and engage in high-risk behaviours. Nurses must understand this and must inform parents and children regarding the general effect of excessive media use.
Playing violent videogame increases aggression and stress which masks their ability to react and behave normally. They learn abnormal values and coping mechanism. This will affect their mental and emotional development. The fact that heavy users of violent games show less empathy and higher aggressiveness suggests the possibility of desensitization. Other studies have shown that playing violent games increases aggressiveness and decreases empathy. These results combined suggest the possibility of a violence cycle. Aggressive individuals are attracted to violent games. Playing violent games increases aggressiveness and decreases empathy, which in turn leads to increased appreciation and use of violent games.

Results of the study by Grusser, Thalemann & Griffiths (2007) contributed to the assumption that playing games without monetary reward meets criteria of addiction. Hence, an addictive potential of gaming should be taken into consideration regarding prevention and intervention.

Gentile, et al., (2009) concluded that video games are not inherently good or bad, just as any tool is not inherently good or bad. Video games can have both positive and negative effects. Content matters, and games are excellent teachers. Violent content in video games can lead people to behave more aggressively. Pro-social content, in contrast, can lead people to behave in a more cooperative and helpful manner.

Children when they play alone, their interaction with other children and the society is restricted or limited. It will affect their social development. Research concludes that exposure to violent videogame makes children to be insensitive of pain and suffering of others and they become numb. This affects their moral development. Their school performance can be poor and their learning is affected which will lead to poor cognitive development.

Children are the future of the nation. Healthy childhood is important for healthy development. School health nurse has to play a major role in this area. She needs to identify
the children with the problems and give counselling. She must inform and alert teachers and parents about the ill effects of playing violent video games.

Paediatric nurses must contribute to the health and development of adolescents, firstly, as service providers - they help adolescents stay well, and help those who are ill get back to good health. They do this through:

- the provision of information, advice, counselling and clinical services aimed at promoting health and preventing health problems and problem behaviours;
- the diagnosis/detection and management of health problems and problem behaviours; and referral to other health and social service providers, when necessary.
- Nurses can play an important role as agents of change in helping educators, religious leaders, political leaders and other influential community members understand the needs of adolescents, and the importance of working together to meet these needs.
- Complementary actions are needed to promote healthy development in adolescents; 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, marital status 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.
**6.6 IMPLICATIONS FOR CRIMINOLOGY AND CRIMINAL JUSTICE**

- Criminology is the scientific study of crime, criminals, criminal behaviour and corrections. It is the study of process of law making, law breaking and reactions to law breaking. The scope of criminology is to study the nature and extent of crime, causes, patterns, characteristics of criminals, development of criminal law and administration of criminal justice, handling of criminals and the impact of crime on the individual and the society.

- This study can contribute to understand the impact of playing violent videogame on the individual and the society. Aggression in childhood, its later effect on adulthood
and related behaviour and the mental mechanism can be analyzed to study and understand the nature of the problem. Its correlation with physical and verbal abuse and any other criminal behaviour could be understood by conducting longitudinal study.

- Since its effects are robust, criminologists can recommend the government for regulation and rating of video game.
- Further empirical study with varied samples may lead to theoretical findings that crime caused due to aggression and stress can have underlying roots of early childhood exposure to violent video games.
- The study findings may help us to generate new criminology theory and also help us to test the existing theories.
- The large amount of violence in the mass media is often justified by the concept of catharsis. The word catharsis comes from the Greek word katharsis, which literally translated means "a cleansing or purging." The results from hundreds of studies have converged on the conclusion that viewing violence increases aggression. In fact, the U.S. Surgeon General came to this conclusion as early as 1972. The scientific evidence is overwhelming on this point. Viewing violence is definitely not cathartic—it increases rather than decreases anger and subsequent aggression. So criminologists and health care professionals should not ignore the impact of playing violent video game and not be justified with the cathartic effect.
- Criminologists can emphasize appropriate online behavior and point out risks of internet communication, including bullying, harassment, and exploitation.
- They should study on the effect of game addiction on anti social behaviours. Compared with infrequent users, “passionate” game players tend to be withdrawn
young people who use games to escape from unpleasant family and school experiences. And a few, who spend several hours a day playing, are addicted; they constantly think about playing when they are not, believe they play too much, but cannot cut back or stop (Salguero & Moran, 2002). Excessive playing of simulation games risks blurring of the distinction between virtual and real life (Turkle, 1995). When such games are violent, they may contribute – along with disengaged parents, anti-social peers, and alienation from school – to commission of heinous acts by at-risk young people. Columbine High School teenage murderers Eric Harris and Dylan Klebold were obsessed with a game called Doom, in which players try to rack up the most kills (Subrahmanyam et al., 2001)

- Furthermore, insight can be created to media violence effect on young children’s emotion and behavior since media including television violence “hardens” children to aggression. After just a few exposures, viewers habituate, responding with reduced arousal to real-world instances and tolerating more aggression in others (Anderson et al., 2003). Heavy viewers believe that there is much more violence in society than is actually the case—an effect that is especially strong for children who perceive televised aggression to be relevant to their own lives (Donnerstein, Slaby, & Eron, 1994). As these responses indicate, violent television modifies children’s attitudes toward social reality so that they increasingly match what is seen on TV.

- In recent years, researchers have made considerable progress in identifying personal and environmental factors that sustain aggression. Although some children—especially those who are impulsive and overactive—are at risk for aggression, whether or not they become aggressive depends on child-rearing conditions. Strife-ridden families, poor parenting practices, aggressive peers, and televised violence are strongly linked to antisocial acts.