CHAPTER V
SUMMARY AND CONCLUSION

5.1. INTRODUCTION

This chapter is dedicated to the summarization of the result presented in the previous chapter, in addition to the conclusions that can be extracted from the collected data. Recommendations for actions and suggestions for further research also included in this chapter. Current research has administrated entitled “Comparative study of abnormal behavior of Indian and Iranian adolescents due to video and computer game”. The study was undertaken in two cities of Pune (India) and Tehran (Iran) during October 2008 to January 2012. The main aim of study was to discovering probable influences of video and computer games on adolescent behavior due to their content and time amount of consuming. For the purpose of the study, a sample of students from 8th, 9th and 10th grades, aged 14 to 16 was drawn randomly from English medium, co-educational schools of Pune and private boy high schools of Tehran (a total of 1140 participants from 8 schools). The primary data were derived from the answers the participants gave during the survey process. A questionnaire survey had administrated to examine basic demographic character of the participants, assessing weekly time spent on the video and computer games and find out participants’ opinion regarding their favorite games to categorize them according to the ESRB content descriptors. As well as Symptom Checklist -90-R by Derogatis (1994) was conducted to study the behavioral problem status of students due to use of video and computer games in 9 dimensions (i.e., Somatization, Obsessive –Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, Psychoticism). Secondary data were obtained from conceptual and research literature relevant to video and computer games and behavior problems. Frequency and percentages were computed in order to assess the demographic characteristics of student’s favorite games ‘content and rating age. Mean Variance and Standard Deviation were used to determine the extent of spread data. The t-test for independent sample was administrated to see whether the difference between the means of two groups (i.e., higher and lesser than mean time groups; and user of M-rating
and under M-rating groups) is statistically significant. And finally a factorial MANOVA was conducted to evaluate differences in dimensions scores on the symptom checklist self-report (SCL-90-R) scale across nationality and time gaming video and computer games groups.

Table 5.1

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5.2. STATEMENT OF THE PROBLEM

• “Comparative Study of Abnormal Behavior of Indian and Iranian Adolescents Due To Video and Computer Games”.

5.3. OBJECTIVES OF THE STUDY

1) To identify adolescents boys’ abnormal behavior due to content of computer and video games.
2) To assess the level of abnormal behavior among Indian adolescent boys.
3) To assess the level of abnormal behavior among Iranian adolescent boys.
4) To compare the level of abnormal behavior across the nationality and time using video and computer game.

5.4. DELIMITATIONS OF THE STUDY

⏰ The study is delimited to the school going adolescent boys between 14 to 16 years age.
⏰ The study is delimited to boys’ student study in English medium schools of Pune (India) and private high schools of Tehran (Iran).
⏰ The study is delimited to boy adolescents’ user of video and computer games.
⏰ The study is delimited to video and computer games that can be played on pc. Portable hand –hold device, separate joystick, console and mobile phones.

5.5. LIMITATION OF THE STUDY

▪ There was few conceptual and research literature pertaining to current research domain which have done in Iran and India.
▪ as the present study used the self-reports data collection tools the level of honesty and collaboration of respondent was out of researchers’ hand
▪ Difference feature of social and cultural issues between India and Iran.
Results of the study depend on the responded assumption of the study.

5.6. ASSUMPTION OF THE STUDY

- Students have knowledge to operate computer and video games.
- Parents allow students to play the computer and video games freely.
- Most students are interested to play video and computer games.
- The computer and video games have an effect on students’ individual behavior.
- Males are more competitive than females in the computer gaming.

5.7. SIGNIFICANCE OF THE STUDY

The research per se contributes to knowledge production in a general manner. The intention of scholastic research is to achieve better comprehension of/or perspective on specific subject. This study is particularly relevant in the field of the social science in general and specifically in the discipline of education and psychology. However, a study about video and computer games effects on behavioral problem realm is still essential. This section will provide brief description on the various significances of the study given the three categories Education, psychology, and social science.

The Researchers. The result of the study will benefit and help the future researcher particularly education and psychology field as their guide. They would be able to use these data for them to get the ideas and references if they are planning to conduct the similar study. Through this study, the researchers will get better understanding about the potential problem and unusual symptoms of adolescent behavior (i.e. Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism dimensions) due to exposure of video and computer games. The importance of negative effect of video and computer games with M rating which may contain intense violence, blood, and gore (i.e., the unsuitable content for children and adolescent consumers).
Teachers and parents. The current study will help teachers and parents to have a deeper understanding about potential negative effects of video and computer games as a one of the most appealing leisure activity for children and adolescent with inappropriate contents mostly violent component or spending highly amount of time with those games without monitoring that especially led to hostility symptoms and aggressive behavior in consumers.

User of video and computer games. The youngsters are the main consumers of this kind of entertainment. They are the main target and subject of this study for answering whether this games influences on their behavior negatively. Through this study, they would be able to have better understanding about content of games they use and importance of awareness about meaning of rating symbols noted on game cover that give them impartial information about games which helps consumer in a manner of giving clear sight and made guideline for purchasing and consuming appropriate games to prevent of probable negative effects. Follow some disciplines about time using these entertainment materials to prevent any probable problems.

The Readers. The readers would be able to understand some of predictable negative reaction after playing video games with M- rating content or applying excessively.

Policy maker and authorities: They would be able to use this data for future policy makings to control and monitor content of video and computer games produced or available in market.

5.8. RESEARCH HYPOTHESES

Hypothesis 1 “There is significant difference between adolescent boys’ abnormal behavior due to content of video and computer games”.

Hypothesis 2 “There is significant difference in abnormal behavior level between higher and lesser than mean time Indian adolescent boy user of video and computer game”.

Hypothesis 3 “There is significant difference in abnormal behavior level between higher and lesser than mean time Iranian adolescent boy user of video and computer game”,

Hypothesis 4 “There is significant difference between adolescent boys’ abnormal behavior due to time of playing video and computer games”

Hypothesis 5 “There is significant difference in adolescent boys ’abnormal behavior due to nationality”.

Hypothesis 6 “There is significant interaction effect of video and computer games and nationality” on abnormal behavior”.

5.9. NULL HYPOTHESES

Null Hypothesis 1 “There is no significant difference between adolescent boys’ abnormal behavior due to content of video and computer games”.

Null Hypothesis 2 “There is no significant difference in abnormal behavior level between higher and lesser than mean time Indian adolescent boy user of video and computer game”.

Null Hypothesis 3 “There is no significant difference in abnormal behavior level between higher and lesser than mean time Iranian adolescent boy user of video and computer game”,

Null Hypothesis 4 “There is no significant difference between adolescent boys’ abnormal behavior due to time of playing video and computer games”

Null Hypothesis 5 “There is no significant difference in adolescent boys ’abnormal behavior due to nationality”.

Null Hypothesis 6 “There is no significant interaction effect of video and computer games and nationality” on abnormal behavior”.

5.10. PLAN AND PROCEDURE FOR OBJECTIVES

After finalization the problem of the study, hypothesis and decided about research design, the tools of study have prepared .The data collection procedure administrated
between June 2010 to May 2011. Data collection had conducted in classroom and participants were told that this was a research to compare Iranian and Indian students on certain aspects of some problems that may they have faced to sometimes. Their cooperation was solicited and confidentiality was assured that their responses were to be used for research purposes only. The classroom teachers were trained to cooperating for conducting survey. The questionnaire were administrated in conformity with the instructions set in the manual. the test were administrated to all participants under the direct supervision of the researcher. first of all Demographic Proforma was administered instruction questionnaire was paper and pencil format which gathered descriptive demographic data about respondent’s age, favorite video and computer games, time spending for playing these games per week, preference of playing alone or with friends in home or game parlor (game net). Secondly Each participant completed an survey pathological questionnaire (The SCL-90-R test) a 90-item self-report symptom inventory designed to reflect the psychological symptom patterns included Somatization(SOM), obsessive-compulsive (O-C), interpersonal sensitivity (I-S), Depression(DEP), Anxiety(ANX), Hostility(HOS), Phobic Anxiety (PHOB), Paranoid Ideation(PAR), Psychoticism (PSY) of community, medical, and psychiatric problems. each item is rated on a five point scale of distress (0-4) ranging from “not at all” to “extremely.” The test has administrated in paper and pencil format. The Indian sample completed the questionnaires optional in the English, Marathi and Hindi version. The Iranian sample completed the questionnaires in the Persian version.

5.11. STATISTICAL TOOLS USED IN THIS STUDY

After gathering all the completed questionnaires from the respondents, total responses for each dimension were obtained and tabulated. Subsequent to data cleaning and screening was analyzing the descriptive of the data sets. The quantitative Data involving closed-ended questions was analyzed using the Statistical Package for Social Sciences (SPSS). Responses were analyzed using the 5-point Likert scale. The t-test method was used to determine any differences that existed between participant user of m-rating and under M-rating as well as between higher and lesser than mean user of video and computer games. Furthermore, an estimation of the standard error of the difference
between the two national’s samples was tested by using Levene’s method of two –way analysis of variance on absolute deviation of scores. The significance or probability value was set at less than or equal to 0.05.

To test the various hypotheses according to objectives following statistical tools were employed in the present study briefly following method have administrated: Frequency, Percentage; Mean; $t$-test and Multivariate Analysis Of Variance (MANOVA).

5.12. OBJECTIVES AND DISCUSSION

Results pertaining to objective NO 1 “identify adolescent’s boys’ abnormal behavior due to content of computer and video games”.

- The result indicated that participants who played M rating video and computer games reported marginally significantly higher hostility status. These findings support that consuming video and computer games with intense violence, should lead to more hostility behavior in gamers.
- The result have shown no significant difference between adolescent user of M rating and under M rating video and computer games in somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, phobic anxiety, paranoid ideation and psychoticism states, however due to descriptive statistics the user of M rating VCG on average had a higher score in all aforementioned dimensions.
- According to SCL -90-R profile interpretation there is evidence which suggests that the M rating user expose a pattern of distress as difficulties in somatization, depression and anxiety complains which obviously are higher than average. As well as both group experienced remarkable phobic anxiety symptoms, however it is not indicative of a clinical picture.
- Demographic data according self-report of participants have shown only 6 percent of Iranian and 8 percent of Indian participant in this study didn’t play video and computer games in the previous 6 months. only 4.6 percent of participants playing
more than 18 hours weekly which among Iranian (i.e., 6.1 percent) this amount is obviously higher than Indian (i.e., 3.4 percent) participants. About half of participants playing less than 10 hours a week. About 39 percent of participants favorite games according ESRB ranking were belong to M-rating games which have content that may be suitable for persons ages 17 and older. Contain intense violence, blood and gore, sexual content and/or strong language.

- The result relating to favorite games categorized them in ten genre, 23 percent were belongs to Action genre (i.e., quick reflexes and fast-paced action); 12 percent Adventure genre (i.e., interactive story driven by exploration and puzzle-solving instead of physical challenge); 16.4 percent First Person Shooter genre (i.e., centers the game play on gun and projectile weapon-based combat through first-person perspective); 5.2 percent MMORPG genre (i.e., massively multiplayer online role-playing games in which players inhabit the same game world as a great number of other human players); 8.2 Other Shooters genre (i.e., a sub-genre of action game, which often test the player's speed and reaction time); 3.7 percent Puzzle genre (i.e., usually involve solving a puzzle in order to advance); 14.2 percent Racing genre (i.e., either in the first-person or third-person perspective, in which the player partakes in a racing competition with any type of land, air, or sea vehicles); 1.5 percent Social genre (e.g., Farmville); 11.2 percent Sport Games (i.e., simulates the practice of traditional sports. Most sports have been recreated with a game, including team sports, athletics and extreme sports) and 3.7 percent Strategy genre (i.e., consist of a variety of puzzles and obstacles that must be solved with intellectual reasoning).

- Results pertaining to objective NO 2 “assess the level of abnormal behavior among Indian adolescent boys”.

- The result indicates that there is a significant difference between higher than mean time and lesser than mean time Indian user of video and computer games in hostility state. According to the finding spending long time by video and computer games derive hostility behavior in users.
• The result have shown no significant difference between level of higher than mean and lesser than mean time Indian user of video and computer games in somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, phobic anxiety, paranoid ideation and psychoticism states, however due to descriptive statistics the higher than mean time user on average had a higher score in all dimensions except depression.

• According to SCL-90-R profile interpretation, the higher than mean time Indian user expose a pattern of distress as higher difficulties with hostility and in lesser amount with somatization, obsessive compulsive, and paranoid ideation complains compare to lesser than mean time as well as both group experienced remarkable phobic anxiety symptoms involving enhanced distress associated with irrational fear response.

Results pertaining to objective NO 3 “assess the level of abnormal behavior among Iranian adolescent boys”.

• Result have shown there is a significant difference between higher than mean time and lesser than mean time Iranian user of video and computer games group in hostility state. According to the aforementioned result, spending more time by video and computer game derive hostility behavior in users.

• There is no significant difference between higher than mean time and lesser than mean time Iranian user of video and computer games in somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, phobic anxiety, paranoid ideation and psychoticism states, however due to descriptive statistics the higher than mean time group on average had a higher score in all dimensions except phobic anxiety dimension.

• According to SCL-90-R profile interpretation, the higher than mean time Iranian user expose a pattern of distress as difficulties with hostility and in lesser amount with somatization, obsessive compulsive and paranoid ideation complains obviously in higher than average compare to lesser than mean time user. As well as both group experienced remarkable somatization and phobic anxiety.
Results pertaining to objective NO 4 “compare the level of abnormal behavior across the nationality and time using video and computer game”.

- There is a significant difference between higher than mean time and lesser than mean time Iranian and Indian participant user of video and computer games in hostility dimension. Therefore spending more time by video and computer game derive hostility behavior in users.

- Result have shown there is a significant difference between Iranian and Indian participants in interpersonal sensitivity state. Iranian participants experience higher level of I-S distress in compare to Indian group.

- There is a significant difference between Indian and Iranian adolescent participants in phobic anxiety distress. The level of this difficulty is higher in Indian participants compare to Iranian group.

- Result has shown significant difference between Iranian and Indian participant in paranoid ideation state. The level of this distress is higher in Iranian compare to Indian group.

- There is no significant difference between higher than mean and lesser than mean time user of video and computer games in somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, phobic anxiety, paranoid ideation and psychoticism states; however due to descriptive statistics higher user games on average had a higher score in all dimensions except depression and additional items dimension.

- There is no significant difference between Indian and Iranian participants in (somatization, obsessive-compulsive, depression, anxiety, hostility and psychoticism), however due to descriptive statistics the Iranian participants on average had a higher score in somatization and obsessive-compulsive and Indian have a higher score in depression, anxiety and psychoticism dimensions.

- According to SCL-90-R profile interpretation, the higher than mean time user expose a pattern of distress difficulties in hostility, somatization and obsessive-compulsive above average compare to lesser than mean time. As well as both group experienced remarkable, phobic anxiety.
According to SCL-90-R profile interpretation, the Iranian participants expose a pattern of distress as difficulties with interpersonal sensitivity and paranoid ideation complains in higher than average compare to Indian, and Indian participants have a higher experience in phobic anxiety than Iranian group.

This Result is similar to the findings of following research

Playing violent video games can lead to the automatic learning of aggressive self-view (Uhlmann and Swanson, 2004; Dill, 2000); playing a violent video game should lead to more aggression than watching television violence (Polman et al., 2008); identifying with violent video game characters makes players more aggressive (Konijn et al., 2007); violent game reported significantly higher state hostility, and support the assumption that an aggressive personality moderates the effect of playing a violent game on state hostility (Arriaga et al., 2006; Calvert and Tan, 1994; Irwin and Gross, 1995; Lynch et al., 2009; Boxer et al., 2009) The evidence strongly suggests that exposure to violent video games is a causal risk factor for increased aggressive behavior, aggressive cognition, and aggressive affect (Anderson et al., 2010; Carnagey & Anderson, 2005; Panee & Ballard, 2002; Anderson et al., 2008) Time spent playing violent games specifically, and not just games per se, increased physical aggression (Lemmens et al., 2011; Farrar et al., 2006) playing the violent game would result in more aggression than playing the nonviolent game (Bartholow & Anderson, 2002; Deselms & Altman, 2003).

Students who play violent video games more frequently across time should be more likely to learn aggressive cognitions and behaviors than those who play the same types of games for equivalent amounts of time but less frequently (Gentile and Gentile, 2008); Adolescents who expose themselves to greater amounts of video game violence were more hostile, Gentile et al. (2004); students who played more than others for several years had more often been involved in physical fights (Lynch et al., 2001); heavy game use was significantly associated with psychosocial problems (De Leeuw et al., 2010); In comparison with other video game players those with problem video game use had significantly elevated scores on all SCL-90 subscales (Starcevic et al., 2011); whereas
depression, anxiety, social phobias, and lower school performance seemed to act as outcomes of pathological gaming (Gentile et al., 2011); addiction to computer games affects various dimensions of health and increases physical problems, anxiety and depression (Zamani et al., 2009).

The researches which related to demographic information of gamers and video and computer games content: the most cited games were first-person shooters, action-adventures, role-playing games (Elliott et al., 2011); 94 percent of participant reported playing video games, most young adolescent boys and many girls routinely play M-rated games (Olson et al., 2007); Only eight percent of gamers played more than 16 hours per week, while 76 percent indicated that they played less than five hours a week. Participants spent an average of 6.3 hours per week playing video games (Allahverdipour et al., 2010); Male gamers spent an average of 7 hours 36 minutes playing per week (Brahmand et al., 2008); about 7 percent qualified as being pathological video gamers who playing more than 20 hours (Assocham's Social Development Foundation (2011) content descriptors assigned to the 396 T-rated video game titles showed (94 percent) received content descriptors for violence, (26 percent) for blood, (15 percent) for sexual themes (Haninger & Thompson, 2004, Funk, 1993).

5.13. MAIN CONCLUSIONS

- The result of the study showed that M-rated video and computer games involving violent content lead to increasing of hostility state in adolescent user.
- The result indicates that adolescent who exposes themselves in greater amount of gaming, reported more hostility distress.
- The effect of amount of time passing with video and computer games is higher than the content of games although both lead to obviously higher state of hostility, it can interpret as most of favorite games reported by participants in this study was belongs to M-rated with violent content, exposure of this games in highly amount of time has a greater adverse effects on consumers.
- The amount time of gaming and content of video and computer game leads to experience higher state of distresses (i.e., somatization, obsessive-compulsive,
interpersonal sensitivity, depression, anxiety, phobic anxiety, paranoid ideation and psychoticism), but this difference of amount not statistically significant.

- Result has shown Indian participants experience significantly higher amount of phobic anxiety compare to Iranian group.
- Result indicated that the Iranian participant in interpersonal sensitivity and paranoid ideation had significantly greater amount of distress than Indian group.
- Computer and video games has applied by more than 92 percent of Indian and 94 percent Iranian adolescent who participated in this study with difference amount of time only, 7.5 hours in average per week for Iranian and 7 hours for Indian participants.
- According to result 39 percent of the participants’ favorite games were belongs to MATURE rating that involved the content of violence, blood and gore, sexual content and/or strong language than not suitable for user ages. The most favorite games according to participants self-report belongs to 4 genres of action 23 percent, first person-shooter 17 percent, racing 14 percent and adventure 12 percent in contrast to six other genres 35 percent.
- Result has shown that in the average 57 percent of participants preferred to play alone means to decrees of time to passing in interaction with peers or siblings.
- There is evidence according to SCL-90-R which suggests that the M rating user expose a pattern of distress as difficulties in somatization, depression and anxiety complains. As well as both group (M-rating and under M-rating VCG user) experienced remarkable phobic anxiety symptoms; however it is not indicative of a clinical picture.
- According to SCL -90-R profile interpretation, the higher than mean time user expose a pattern of distress difficulties in hostility, somatization and obsessive-compulsive above average compare to lesser than mean time. As well as both group experienced remarkable somatization and phobic anxiety.
5.14. SUGGESTIONS BASED ON THE RESULTS OF THE STUDY

Following suggestion provided for parents and teachers and policy makers based on the aforementioned result of the study.

The result of current study have shown adolescent who expose themselves under greater amount of time gaming and/or playing video and computer games with the violence content experience higher amount of hostility state besides somatization, obsessive compulsive, anxiety and depression, due to prevent of these adverse effect on their behavior. Parents should monitor the video and computer game the same way that they execute on television and other media by discipline their children leisure time well and considering limiting children's game-playing time. Playing with your children, it is one of the best ways to spending time with them as well as monitoring time and content of games (refer results from tables 4.17, 4.19, 4.20 and 4.25).

to prevent of them addiction to only unique way of passing time by excessively use of computer and video game Encourage them to read book, play sports and be more social able and interaction with other peers. simply using this game in moderate amount of time (refer result from table 4.1).

Purchase games including multiple players to encourage group play and interaction with friends and sibling to decrease withdrawal behavior. Teacher could make a open discussion in class about the video games student are playing and guidance and encourage them to apply games with content of using strategy, make decision and puzzle kind with a complex environment to decrease violent content games as anaggressive conflict, stealing or killing (refer result from table 4.2).

The policy makers and authorities may to legislate a law to prevent the sale of M-rating video and computer games to people less than 17 years old similar the one about tobacco or alcohol (refer result from table 4.17).
5.15. CONTRIBUTIONS TO THE KNOWLEDGE

The knowledge evolve from this study seems to be new in the literature of Iranian and Indian psychology. Identifying the probable influences of video and computer games on adolescent behavior due to their content and time amount of consuming contributes to developing psychology in general and growth of the following points in specific:

- The results of the study contribute to growth of knowledge in various fields of Psychology Science such as General Psychology, Children Psychology, Counseling and Social Psychology.
- It can be helpful to cope with video and games side effects on adolescent behavior.
- It is evident that side effects (i.e., Hostility, Somatization and Obsessive-Compulsive) of consuming video and computer games with the mature rating content involves strong violence or playing in highly amount of time video and computer games especially among vulnerable young consumer children and adolescent, therefore, considering the expansion and popularity of computer and video games among adolescent all over the world, the findings of the current study helps authorities to tackle with these side effects and growing violence.
- Moreover, this study might have great relevance to the development of criteria required for the classification, diagnosis and illustration of distress prevalence which people in adolescence stage of human development might have experienced in third millennium.
- It will contribute to provide useful information to parents in order to prepare them for better understanding of side effects of consuming video and computer games which may lead to change of behavior among their children.
- The current study is considered as the baseline information and the documentary evidence regarding the effect of computer and video games on adolescents, which may help policymakers to legislate acts for preventing product of more violence content in video and computer games and prohibiting distribution or selling of such materials in market.
5.16. SUGGESTIONS FOR FURTHER RESEARCH

1) Future research should focus on Mature –rating game and whether content of this genre could make any changes on development of moral judgment among children and adolescent user.

2) Similar studies can be done to investigate the adolescent girls’ abnormal behavior due to content of video and computer games.

3) It is also suggested that future research should focus on desensitization toward violent behavior due to consuming M-rating game in non–virtual situation.

4) The current study was carried out based on effect of video and computer games with mature rating content. Further study should be conducted according to other genres and content of games.

5) It is also suggested that future research should focus on compare other countries and user with different age and gender to generalize the results of such studies as same approach regarding effect of video and computer games.

6) The other study should be done to investigate the impact of online computer games on behavioral problem among internet addicted adolescent user.