CHAPTER II

REVIEW OF RELATED LITERATURE

2.1. INTRODUCTION

This chapter presents a summary of the literature in the field of psychology, education and sociology pertaining to variables administrated in this study according to objectives by extraction of conceptual, theoretical and empirical review of them. A summary of … previous research provides evidence that the researcher is familiar with what is already known and what is still unknown and untested (Best, 2001). Review of the literature accomplished for better understanding about the process of dealing with the variables in the current study which helps to fasten the research procedure and provides the conceptual framework for the study. To present the current knowledge pertaining to domain of research problem and to comprehend the research methodology design, the investigator reviewed the related literature, which coming in two major portions as follow:

Part one: Conceptual Literature contains foreign and local literature sources extracted from books, journalism, and other forms of material, focusing or relevant to the research, Which in this study pertaining to Adolescent Period Abnormal Behavior, Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, Psychoticism, Play, Game, Video And Computer Game conceptual definition and theories.

Part two: Research Literature contains local and foreign empirically research extracted from published and unpublished scientific articles, theses and dissertations. This included: studies pertaining to aggression/hostility due to violent video and computer games/studies pertaining to prosocial behavior/desensitization due to video and computer games/studies pertaining to behavioral problem due to video and computer games/studies pertaining to addiction to video and computer games, pathological gaming/studies pertaining to genre and content of video and computer
games / studies pertaining to demographic information and gender difference of video and computer games user / studies pertaining to Iranian research / studies pertaining to Indian research / studies pertaining to effect of media (television, movie, internet) / studies pertaining to video and computer games without negative result.

2.2. CONCEPTUAL LITERATURE

A summary of the literature in the field of Psychology, sociology and Education relevant to variables administrated in this study is presented in this passage by extraction of conceptual, theoretical and empirical of the variables and their assessment.

Table 2.1
Review Matrix of Conceptual Literature

<table>
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<tr>
<th>Variables</th>
<th>Sources</th>
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2.2.1. ADOLESCENCE

2.2.1.1. Explanation of the Concept of Adolescence

According to chauhan (1999) the word of adolescence comes from a Greek word ‘adolescere’ that means to grow to maturity. It is developmental stage between childhood and adulthood during which many physical, cognitive, social and emotional changes take place (Feldman, 2002). The adolescent years extend form the onset of puberty, between the ages of 11-13 in the average child, to the age of maturity 19-21 years (Mangal, 2007).

Kundu & Tutoo (1988) consider this part of development as a most crucial period in the life of human beings. Adolescence is the time when the surge of life reaches its highest peak. The adolescent life is, or might be full of hopes. The adolescent is eager to interact with new experiences, to find out new relationships to examine resources of inner strength of inner ability . the adolescent tries to have freedom and set his goals and discover meant to achieve them.

Reber and Reber (2001) described adolescence as a period of development marked at the beginning by onset of puberty and at the end by the attainment of psychological or physiological maturity. The term is much less precise that it appears since both the onset puberty and the attainment of maturity are effectively impossible to define or specify.

Sadock and Kaplan (2007) explained adolescence as a period of maturation between childhood and adulthood which considered as a transitional period in which peer relationships deepen autonomy in decision –making grows, and intellectual pursuits and social belonging are sought . adolescence is largely a time of exploration and making choices, a gradual process of working toward integrated concepts of self. Adolescents can best be described as ‘works in process’, characterized by increasing ability for mastery over complex challenges of academic , interpersonal , and emotional tasks , while searching for new interests , talents, and social identities.
According to Sharma and Sharma (2002) adolescence appears at the age of 11 and 12 in girls and at 12 and 13 in boys. Commonly, boys are taller and heavier than girls, but in adolescence between 12 and 14 it is the female whom is both taller and heavier as she develops earlier than male child.

However Berk (2010) stated that adolescence is greatly extended so that researchers commonly divide it into three phases:

1. *Early adolescence* (11–12 to 14 years): This is a period of rapid pubertal change.
2. *Middle adolescence* (14 to 16 years): Pubertal changes are now nearly complete.
3. *Late adolescence* (16 to 18 years): The young person achieves full adult appearance and anticipates assumption of adult roles.

### 2.2.1.2. Character of Adolescent Period

The cognitive development stages by Piaget described in four major stages leading to capacity for adult thought, each stages is necessary for the following one, but the rate at which different children move through different stages varies with their native endowment and environmental circumstances. Piaget’s four stages are (1) sensorimotor (2) preoperational thought (3) concrete operations, and (4) formal operations. The Stage of formal operations (11 through the end of adolescence): the stage of formal operations is so named because young persons’ thinking operates in a formal, highly logical, systematic, and symbolic manner. This stage characterized by the ability to think abstractly, to reason deductively, and to define concepts and also by the emergence of skills for dealing with permutations and combinations; young person can grasp the concept of probabilities. Adolescents attempts to deal with all possible relations and hypotheses to explain data and events during this stage. Language is complex; it follows formal rules of logic and is grammatically correct. A abstract thinking is shown by adolescents’ interest in variety of issues—philosophy, religion, ethnics, and politic (Sadock & Kaplan, 2007).

According to Erikson's Theory of Psychosocial Development, stage 5 has called *identity versus role confusion* (about 13 year to 21 years) which characterized with the onset of puberty and myriad social and physiological changes, the adolescent become
preoccupied with the question of identity … Childhood roles and fantasies are no longer appropriate, yet the adolescent is far from equipped to become an adult. Integration that occurs in the formation of ego identity encompasses far more than the summation of childhood identifications. “It is the accrued experience of the ego’ ability to integrate these identifications with the vicissitudes of the libido, with the aptitudes developed out of endowment and with the opportunities offered in social roles”. The formation of cliques and an identity crisis occur at the end of adolescence. Erickson calls the crisis normative because is a normal event. Failure to negotiate this stage leaves adolescents without a solid identity; they suffer from identity diffusion or role confusion. Characterized by not having a sense of self and by confusion about their place in the world. Role confusion can manifest in such behavioral abnormalities as running away, criminality, and overt psychosis. Problems in gender identity and sexual role may manifest at this time. (as cited in Sadock & Kaplan, 2007).

According to Markus and Nurius (1986) adolescents adopt many different strategies to help them resolve their own personal identity crises by: Trying out many different roles –the good girl/boy, the rebel, the dutiful daughter /son, the athlete, the super cool operator – and join many different social groups. They consider many possible social selves –different kinds of persons they might potentially become. out of these experiences they gradually piece together a cognitive framework for understanding themselves –a self-schema .once formed , this framework remains fairly constant and serves as a guide for adolescents in many contexts( as cited in Baron ,1995).

Middle adolescence defined by Kaplan and Sadock (2007) as a phase of adolescence (roughly between the age of 14 and 16) which: Adolescence lifestyle may reflect their efforts to pursue their own stated goals of being independent. their abilities to combine abstract reasoning with realistic decisions-making and the application of social judgment is put to the test in this phase of adolescent development .in this phase ,sexual behavior intensifies ,making romantic relationships more complicated ,and self-esteem becomes a pivotal influence on positive and negative risk-taking behaviors .in this phase of development ,adolescents tend to identify with a groups of peers who becomes pivotal highly influential in their choices of activities .styles ,music ,idols ,and role
models. Adolescents underestimated the risks associated with a variety of recreational behaviors and their sense of omnipotence, mixed with their drive to be autonomous. Frequently cause some conflict with paternal requests and expectations for most teens, the process of defining themselves unique and different from their families can be achieved while still maintaining alliances with family members.

2.2.2. ABNORMAL BEHAVIOR

2.2.2.1. Definition of Abnormal Behavior

Abnormal defined by Reber & Reber (2001) as a departure from norm of the normal. The term is used variously to denote such things as purely quantitative deviations in statistical analyses and deviant behavior patterns of individuals. Behavior disorder is a very general term used for any aberrant or maladaptive pattern of behavior that is sufficiently severe to warrant the attention of counselors or therapists. The term is preferred over any number of others previously used in this fashion, e.g., neurosis. As well as Behavior disorder of childhood is a general psychiatric label for a number of disturbed behavior patterns found in children and adolescents. Syndromes in this group are less severe than psychoses but considered to be serious enough to warrant therapy. Behaviors commonly cited here are delinquency, over aggressiveness, frequent running away from home, stealing, etc.

Carson et al. (2008) defined abnormal behavior as “maladaptive behavior detrimental to an individual or a group.

Feldman (2002) presented abnormal behavior definition according to six contemporary approaches:

- **The medical model.** Suggests that when an individual display symptoms of abnormal behavior, the root cause will be found in a physical examination of the individual, be it a hormonal imbalance, a chemical deficiency, or a brain injury. Indeed when, when we speak of mental illness the symptom of abnormal behavior and mental hospitals we are using terminology associated with the medical model.

- **Psychoanalytic model,** the abnormality holds that abnormal behavior stems from childhood conflicts over opposing wishes regarding sex and aggression. Freud
believes that children pass through a series of stages in which sexual and aggressive impulses take different forms and stimulate conflicts that require resolution. If these childhood conflicts are not dealt with successfully, they remain unresolved in unconscious and eventually bring about abnormal behavior during adulthood. Moreover psychoanalytic theory paints a picture of people as having little control over their behavior since it is guided by unconscious impulses.

*The behavioral model:* this model looks at the behavior itself as the problem. Behavioral theorists see both normal and abnormal behaviors as responses to a set of stimuli, responses that have been learned through past experience and that are guided in the present by the stimuli one finds in one’s environment. The explain why abnormal behavior occurs one must analyze how an abnormal behavior has been learned and observe the circumstances in which it is displayed.

*The cognitive model:* rather than considering only external behavior, as in traditional behavioral approaches, the cognitive approach assumes that cognitions (people’s thoughts and beliefs) are central to a person’s abnormal behavior. A primarily goal of treatment using cognitive model is to explicitly teach new, more adaptive ways of thinking.

*The humanistic model:* this model emphasize the control and responsibility that people have for their own behavior, even when such behavior is abnormal and concentrates on what is uniquely human, viewing people as a basically rational, oriented toward a social world, and motivated to get along with others. Humanistic approaches focus on the relationship of the individual to society, considering the ways in which people view themselves in relation to others and see their place in the world.

*The sociocultural model:* makes the assumption that people’s behavior both normal and abnormal is shaped by the kind of family group, society and culture in which they live. According to this view, the kind of relationship that evolve with others may support abnormal behaviors and even cause them to occur. Consequently the kinds of stresses and conflict people experience as part of their daily interactions with others in their environment can promote and maintain abnormal behavior.
2.2.2.2. Categorization of Abnormal Behavior

Maher (1985) categorized abnormal behavior in four basic categories:

1) Behavior that is harmful to the self or that is harmful to others without serving the interests of the self.
2) Poor reality contact—for example, beliefs that most people do not hold or sensory perceptions of things that most people do not perceive.
3) Emotional reactions inappropriate to the person’s situation.
4) Erratic behavior—that is, behavior that shifts unpredictably (as cited in Hergenhahn).

Feldman (2002) has explained abnormality as following definition:

- Deviation from average; views abnormality as deviation from the average—a statistical definition.
- Deviation from the ideal; abnormality as one that measures behavior against the standard toward which most people are striving—the ideal.
- Abnormality as a sense of subjective discomfort; behavior considered abnormal if it produces a sense of distress, anxiety, or guilt in an individual—or if it is harmful to others in some way.
- Abnormality as the inability to function effectively; people who are unable to function effectively and adapt to the demands of society are considered abnormal.
- Legal definitions of abnormality; according to the law, the distinction between normal and abnormal behaviors rests on the definition of insanity which is a legal, but not a psychological term.

2.2.3. SOMATIZATION DISORDER

2.2.3.1. Definition of Somatization

Lipkowski (1988) defined somatization as “a tendency to experience and communicate somatic distress and symptoms unaccounted for by pathological findings,
to attribute them to physical illness, and to seek medical help for them” (as cited in Merskey).

According to Frost et al. (1986) somatic condition is the pattern of predominately somatic rather than cognitive response to stress and related emotional arousal that is the common feature of somatic patients. Such a highly somatic responders display a wide diversity of physical symptoms and psychological characteristics and have been shown to make greater use of health care services than do low somatic responder (as cited in Norton and smith, 1994). It is a converting psychic derivative into bodily symptoms and tending to reach with somatic manifestation, rather than psychic manifestations. In desomatization, infantile somatic responses are replaced by thought and affect; in resomatization, the person regresses to earlier somatic forms in the face of unresolved conflicts(Kaplan and sadock ,2007).

Reber and Reber (2001) described Somatization disorder as a somatoform disorder characterized by a history of recurrent and multiple physical causes. The disorder virtually always begins in the teens or twenties and has a chronic but fluctuating course involving a wide variety of complaints about organic dysfunctions. Common complaints are vague pains, allergies, gastrointestinal problems, psychosexual symptoms, palpitations and conversions symptoms.

2.2.3.2. Diagnostic Criteria for Somatization Disorder

A history of many physical complaints beginning before age 30 years that occur over a period of several years and result in treatment being sought or significant impairment in social, occupational, or other important areas of functioning. Each of the following criteria must have been met, with individual symptoms occurring at any time during the course of the disturbance:

- Four pain symptoms: a history of pain related to at least four different sites or functions (e.g., head, abdomen, back, joints, extremities, chest, rectum, during menstruation, during sexual intercourse, or during urination).
- Two gastrointestinal symptoms: a history of at least two gastrointestinal symptoms other than pain (e.g., nausea, bloating, vomiting other than during pregnancy, diarrhea, or intolerance of several different foods).

- One sexual symptom: a history of at least one sexual or reproductive symptom other than pain (e.g., sexual indifference, erectile or ejaculatory dysfunction, irregular menses, excessive menstrual bleeding, vomiting throughout pregnancy).

- One pseudoneurological symptom: a history of at least one symptom or deficit suggesting a neurological condition not limited to pain (conversion symptoms such as impaired coordination or balance, paralysis or localized weakness, difficulty swallowing or lump in throat, urinary retention, hallucinations, loss of touch or pain sensation, double vision, blindness, deafness, seizures; dissociative symptoms such as amnesia; or loss of consciousness other than fainting).

Either (1) or (2):

1. After appropriate investigation, each of the symptoms in Criterion_B cannot be fully explained by a known general medical condition or the direct effects of a substance (e.g., a drug of abuse, a medication).

2. When there is a related general medical condition, the physical complaints or resulting social or occupational impairment are in excess of what would be expected from the history, physical examination, or laboratory findings.

The symptoms are not intentionally feigned or produced (as in Factitious Disorder or Malingering) (American Psychiatric Association, 2000).

2.2.4. OBSESSIVE-COMPULSIVE DISORDER

2.2.4.1. Definition of Obsessive-Compulsive

Reber and Reber (2001) defined obsessive compulsive disorder (OCD) as a subclass of anxiety disorder with two essential Characteristics, recurrent and persistent Thoughts, ideas and Feeling: and repetitive, ritualized behaviors. attempts to resist a compulsion produces mounting tension and anxiety, which are relieved immediately by
giving it to it. the term is not properly used for behaviors like excessive drinking, gambling, eating, etc. on the grounds that the “compulsive gambler” for example, actually derives considerable pleasure from gambling (it’s the loosing that hurts); one burdened with true obsessive–compulsive disorder drives no pleasure from it other than the release of tension. recent evidence indicates that the disorder is associated with damage to or dysfunctions of the basal ganglia, cingulate gyrus, and the prefrontal cortex. the disorder does not respond well to standard therapies but often does to antiobsessional drugs. According to Carson (2008) occurrence of unwanted and intrusive obsessive thought or disturbing images; these are usually accompanied by compulsive behaviors performed to naturalize the obsessive thoughts or imaged or to prevent some dreaded event or situation. Childhood or early adolescent onset of obsessive–compulsive is more common in boys than in girls and is often associated with greater severity. In most cases the disorder has a gradual onset, but once it becomes a serious condition, it tends to be chronic, although the severity of symptoms usually waxes and wanes over time (e.g. Rauch et al., 2002; Stewart et al., 2004 as cited in Carson, 2008).

2.2.4.2. Diagnostic Criteria for Obsessive-Compulsive Disorder

Diagnostic criteria for obsessive-compulsive:

A. Either obsessions or compulsions: Obsessions as defined by (1), (2), (3), and (4):

(1) Recurrent and persistent thoughts, impulses, or images that are experienced, at sometime during the disturbance, as intrusive and inappropriate and that cause marked anxiety.

(2) The thoughts, impulses, or images are not simply excessive worries about real problems.

(3) The person attempts to ignore or suppress such thoughts, impulses, or images, or to neutralize them with some other thought or action.

(4) The person recognizes that the obsessional thoughts, impulses, or images are a product of his or her own mind (not imposed from without as in thought insertion).
Compulsions as defined by (1) and (2):

(1) Repetitive behaviors (e.g., hand washing, ordering, checking) or mental acts (e.g., praying, counting, repeating words silently) that the person feels driven to perform in response to an obsession, or according to rules.

(2) The behaviors or mental acts are aimed at preventing or reducing distress or preventing some dreaded event or situation; however, these behaviors or mental acts either are not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive.

B. At some point during the course of the disorder, the person has recognized that the obsessions or compulsions are excessive or unreasonable. Note: This does not apply to children. C. The obsessions or compulsions cause marked distress, are time consuming (take more than 1 hour a day), or significantly interfere with the person's normal routine, occupational (or academic) functioning, or usual social activities or relationships.

D. If another Axis I disorder is present, the content of the obsessions or compulsions is not restricted to it (e.g., preoccupation with food in the presence of an Eating Disorders; hair pulling in the presence of Trichotillomania; concern with appearance in the presence of Body Dysmorphic Disorder; preoccupation with drugs in the presence of a Substance Use Disorder; preoccupation with having a serious illness in the presence of Hypochondriasis; preoccupation with sexual urges or fantasies in the presence of a Paraphilia; or guilty ruminations in the presence of Major Depressive Disorder).

E. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

2.2.5 AVOIDANT PERSONALITY DISORDER

2.2.5.1 Definition Of Avoidant Personality

Avoidant personality disorder is operationally broad, and 'avoidant' as a specifier of a personality type is insufficiently precise. APD captures avoidant traits -which appear secondary to a core dimension such as interpersonal sensitivity (Perugi et al., 1999).
According to **Millon (1996)**, avoidant personality disorder is essentially a problem of relating to persons, in contrast to social phobia, which is largely a problem of performing situations. Others have suggested that the one defining trait in avoidant personality disorder might be interpersonal sensitivity, whereas in social anxiety disorder, it is avoidance of social situations (as cited in Crozier, 2001).

According to **World Health Organization (1992)** Anxious (Avoidant)Personality Disorder defined as a Personality disorder characterized by at least 3 of the following:

- persistent and pervasive feelings of tension and apprehension;
- belief that one is socially inept, personally unappealing, or inferior to others;
- excessive preoccupation with being criticized or rejected in social situations;
- unwillingness to become involved with people unless certain of being liked;
- restrictions in lifestyle because of need to have physical security;
- Avoidance of social or occupational activities that involve significant interpersonal contact because of fear of criticism, disapproval, or rejection.

**Reber and Reber (1999)** defined the Interpersonal as a condition that 1. generally, characterizing relations between two or more persons, with the connection that the interaction is mutual and reciprocal. 2. Relating to phenomena, properties, effects, etc. that result from such interactions. 3. Broadly, that which is social. Definition of sensitivity by Reber is a condition that: 1. generally, susceptibility to stimulation. 2. More specifically, responsiveness to weak stimuli, having a low threshold 3. Cognizance of the feeling of another, particularly awareness based on relatively minor cues 4. A personal vulnerability whereby one is easily hurt or offended…. Person with avoidant personality disorder show extreme sensitivity to rejection and may lead to socially withdrawn life although shy, they are not asocial and show a great desire for companionship, but they need unusually strong guarantees of uncritical acceptance such persons are commonly described as having an inferiority complex **(Kaplan and Sadock, 2007)**.
2.2.5.2. Essential Feature of Avoidant Personality Disorder

According to DSM-IV (2000) the essential feature of Avoidant Personality Disorder is: A pervasive pattern of social inhibition, feeling of inadequacy, and hypersensitivity to negative evaluation that begins by early adulthood and is present in variety of contexts. …by avoiding of work or school activities that involve significant interpersonal contact because of fears of criticism, disapproval, or rejection (Criterion 1). Offers of job promotions may be declined because the new responsibilities might result in criticism from co-workers. …avoiding of making new friends unless they are certain they will be liked and accepted without criticism (Criterion 2)…they will not join in group activities unless there are repeated and generous offers of support and nurturance …they may act with restraint, have a difficulty talking about themselves, and withhold intimate feeling for fear of being exposed, ridiculed, or shamed. (Criterion 3). Because individuals with this disorder are preoccupied with being criticized or rejected in social situations, they may have a markedly low threshold for detecting such reactions (Criterion 4)… They react strongly to subtle cues that are suggestive of mockery or derision. Despite their longing to active participants in social life, they fear placing their welfare in the hands of others. Individuals with Avoidant Personality Disorder are inhibited in new interpersonal situations because they feel inadequate and have low self-esteem. (Criterion 5). Personally unappealing, or inferior to others. (Criterion 6). They are unusually reluctant to take personal risks or to engage in any new activities because these may prove embarrassing (Criterion 7). They are prone to exaggerate the potential dangers of ordinary situations, and a restricted lifestyle may result from their need for certainly and security. Someone with this disorder may cancel job interview for fear of being embarrassed by not dressing appropriately. Marginal somatic symptoms or other problems may become the reason for avoiding new activities.

2.2.5.3. Diagnostic Criteria for Avoidant Personality Disorder

A pervasive pattern of social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation, beginning by early adulthood and present in a variety of contexts, as indicated by four (or more) of the following:
1) Avoids occupational activities that involve significant interpersonal contact, because of fears of criticism, disapproval, or rejection.
2) Is unwilling to get involved with people unless certain of being liked.
3) Shows restraint within intimate relationships because of the fear of being shamed or ridiculed.
4) Is preoccupied with being criticized or rejected in social situations.
5) Is inhibited in new interpersonal situations because of feelings of inadequacy.
6) Views self as socially inept, personally unappealing, or inferior to others.
7) Is unusually reluctant to take personal risks or to engage in any new activities because they may prove embarrassing (American Psychiatric Association, 2000).

2.2.6. DEPRESSION

2.2.6.1. Definition of Depression Concept

According to Reber (2001) generally depression is a mood state characterized by a sense of inadequacy, a feeling of dependency, a decrease in activity or reactivity, pessimism, sadness and related symptoms. In this sense depressions are quite normal, relatively short lived and (damnably) frequent. In psychiatry, any of number of mood disorder in which the above characteristics are extreme and intense. Depression in this sense may be a symptom of some other psychological disorder, a part or syndrome of related symptoms that appears as secondary to another disorder, or a specific disorder itself. (general lack of interest in the pleasure of life) as a defining characteristic of depression even to the point of regarding it as sufficient for a diagnosis independent of being depressed. The following entries describe many of the major variations of depressive disorders. Others are found elsewhere under modifying term.

Kaplan and Sadock (2007) defined depression as a mental state characterized by feeling of sadness loneliness, despair, low self-esteem, and self-reproach. Accompanying signs include psychomotor retardation or, at times agitation, withdrawal from interpersonal contact, and vegetative symptoms, such as insomnia and anorexia. The term refers to a mood that is so characterize or to a mood disorder.
2.2.6.2. Criteria for Major Depressive Episode and Prevalence

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure. Note: Do note, include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.

1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). Note: In children and adolescents, can be irritable mood. 2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others). 3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5 percent of body weight in a month), or decrease or increase in appetite nearly every day. 4. Insomnia or hypersomnia nearly every day. 5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down). 6. Fatigue or loss of energy nearly every day. 7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick). 8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others). 9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

B. The symptoms do not meet criteria for a Mixed Episode.  C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism). E. The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with
worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation. (American Psychiatric Association, 2000).

According to Birmaher, et al., (1996) Depression in children and adolescents occurs with high frequency. The point prevalence (the rate at the time of the assessment of major depressive disorder has been estimated to be between 0.4 and 2.5 percent for children and between 4.0 and 8.3 percent for adolescents) one review of the epidemiology of depression in children and adolescents concluded the major depression is relatively rare in young adolescents, with up to 25 percent lifetime prevalence (Kessler, Avenevoli, & Merikangs, 2001). A survey of 1,710 high school students found that point prevalence was 2.9 percent, that lifetime prevalence was 20.4 percent, and that suicidal ideation at some time in life was high -19 percent – in this sample (lewinsohn et al., 1996) before adolescence, rates of depression occurs at about twice the rate for adolescent girls as for adolescent boys (Hankin et al., 1998) (as cited in Carson, 2008).

2.2.7. ANXIETY

2.2.7.1. Definition of Anxiety Concept

According Sadock and Kaplan (2007) normal anxiety experiences with everyone. It is characterized most commonly as a diffuse, unpleasant, vague sense of apprehension, often accompanied by autonomic symptoms such as headache, perspiration, palpitation, tightness in chest, mild stomach discomfort, and restless, indicated by and inability to sit or stand for long. The particular constellation of symptoms present during anxiety tends to vary among persons.

Reber and Reber (1999) defined anxiety according to following approaches:

1) Most generally, a vague, unpleasant emotional state with qualities of apprehension, dread, distress and uneasiness. Anxiety is often distinguished from → fear in that an anxiety state is often (usually say some, always insist others) objectless, whereas fear assume a specific feared object, person or event.
2) In learning theory, the term used to connote a secondary (or conditional) drive which functions to motivate avoidance responding. Thus an avoidance response is assumed to be reinforced by a reduction in anxiety.

3) In Freudian theory, anxiety is treated as 1, with additional assumption that is acts as a signal that psychic danger would result were an unconscious wish to be realized or acted upon.

4) In existential theory, the emotional accompaniment of immediate awareness of the meaninglessness, incompleteness and chaotic nature of the world in which we live. There is an interesting temporal issue involves in these several uses. In the first two, anxiety is treated as consequent emotion, a learned reaction which results from a particular state of affairs, in 3, it is regarded as an anticipatory reaction whose origins lie at the level of unconscious conflict. In 4, it has neither of these elements, being treated instead as a pure immediate outcome of being—in-the-world. There are many compound terms that are built on this one. Some follow, others are found under the alphabetic listing of the modifying term.

Freud initially conceptualized anxiety as “dammed up libido.” Essentially, physiological increase in libido, the mental representation of the physiological event. The actual neuroses are caused by this buildup. Later with the development of the structural model, Freud developed a new theory of a second type of anxiety that he referred to as signal anxiety. In this model, anxiety operates at an unconscious level and serves to mobilize the ego’s recourses to avert danger. Either external or internal sources of danger can produce signal that leads the ego to marshal specific defense mechanism to guard against, or reduce, instinctual excitation. Freud’s later theory of anxiety explains neurotic symptoms as the ego’s partial failure to cope with distressing with distressing stimuli. The drive derivatives associated with danger may not have been adequately contained by defense mechanism used by the ego. In phobias, for example, Freud explained that fear external threat (e.g., dogs or snakes) is an externalization of an internal danger.

In other hand the behavioral or learning theories of anxiety postulate that anxiety is a conditioned response to a specific environmental stimulus. In a model of classic conditioning, a girl raised by an abusive father, for example, may become anxious
as soon as she sees the abusive father. Through generalization, she may come to distrust all men. In the social learning model, a child may develop an anxiety response by imitating the anxiety in the environment, such as in anxious parents. And existential theories of anxiety provide models for generalized anxiety, in which no specifically identifiable stimulus exists for a chronically anxious feeling. The central concept of existential theory is that persons experience feeling of living in a purposeless universe. Anxiety is their response to the perceived void in existence and meaning. Such existential concerns may have increased since the development of nuclear weapon and bioterrorism (as cited in Sadock & Kaplan, 2007).

2.2.7.2. Diagnostic Features for Generalized Anxiety Disorder (Include Overanxious Disorder of Childhood)

Generalized anxiety disorder characterized as an essential feature include excessive anxiety and worry (apprehensive expectation), occurring more days that not for a period of at least 6 months, about a number of events or activities (criterion A).

The individual finds it difficult to control the worry (criterion B) the anxiety and worry accompanied by at least three additional symptoms from a list that includes restlessness, being easily fatigued, difficulty concentrating, irritability, muscle tension, and disturbed sleep (criterion C). The focus of the anxiety and worry is not confined to features of another axis I disorder as having a panic attack (as in Panic Disorder), being embarrassed in public (as in school phobia), being contaminated (as Obsessive-Compulsive Disorder), being away from home or close relatives (as in Separation Anxiety Disorder), gaining weight (as in Anorexia Nervosa), having multiple physical complaints (as Somatization Disorder), or having serious illness (as Hypochondriasis), and the anxiety and worry do not occur exclusively with generalized anxiety disorder (criterion D).

Although individual with anxiety disorder may not always identify the worries as “excessive” they report subjective distress due to constant worry, have difficulty controlling the worry, or experience related impairment in social. The disturbance is not due to the direct physiological effects of a substance (i.e., a drug of abuse, a medication
, or toxin exposure) or a general medical condition and does not occur exclusively during a Mood Disorder, a psychotic disorder, or a pervasive developmental disorder (criterion F). The intensity, duration, or frequency of the anxiety and worry is far out of proportion to the actual likelihood or impact of feared event. The person find it difficult to keep worrisome thoughts from interfering with attention to tasks at hand and has difficulty stopping the worry (American Psychiatric Association, 2000).

Epidemiology: The anxiety disorders make up one of the most common groups of psychiatric disorders. The National Co morbidity Study reported that one of four persons that met the diagnostic criteria for at least one anxiety disorder and that there is a 12-month prevalence rate of 17.7 percent. Women (30.5 percent lifetime prevalence) are more likely to have an anxiety disorder than are men (19.2 percent lifetime prevalence) the prevalence of anxiety disorders increases with higher socioeconomic status. (Sadock & Kaplan, 2007).

The associated features and disorders with generalized anxiety: It is associated with muscle tension; there may be trembling, twitching, feeling shaky, and muscle aches or soreness. In children and adolescents, the anxieties and worries often concern the quality of their performance or competence at school or in sporting events, even when their performance is not being evaluated by others. There may be excessive concerns about punctuality. they may also worry about catastrophic events such as earthquakes or nuclear war. Children with the disorder may be overly conforming, perfectionist, and unsure of themselves and tend to redo tasks because of excessive dissatisfaction with less-than-perfect performance. they are typically overzealous in seeking approval and require excessive reassurance their performance and their other worries (American Psychiatric Association, 2000).

2.2.8. HOSTILITY

2.2.8.1. Definition of Hostility and Aggression Concepts

According to Reber (2001) Hostility is a long lasting emotional state characterized by enmity toward others and manifested by a desire to harm or inflict pain
upon those at whom it is directed, often distinguished from anger on the grounds that anger is a more intense and memoriatory reaction. Animus (1).animosity and hatred.

According to Kelly (1991) From point of view of the psychology of personal constructs hostility has four important features:

- First, the situation in which the person finds himself intolerable. It is chaotic. It is fraught with anxiety.
- Second, it is perceived by the person as an outcome of his own social experimentation.
- Third, the person perseveres by seeking to have his original anticipations confirmed by some means short of a genuine reexamination of his basic premises. The hostile person seeks appeasement rather than understanding.
- Fourth, hostility sometimes be alleviated by aggressive exploration. In the case persons who are expected to confirm may the whiplash of hostility and the hostile person may feel some measure for relief.

Aggression is intentional injury of or harms to another person (Berkowits, 1993, Carlson, Marcus-Newhall & Miller, 1989). Under this definition it is clear that the rapist in our example is acting aggressively, whereas the physician causing pain during medical procedure is not (as cited in Feldman, 2002).

Aggression is not primarily a learned form of social behavior – one that is acquired and maintained in much the same manner as other forms of activity. According to Albert Bandura, innate urges toward violence nor is aggressive drives aroused by frustration the root of human aggression.

Rather, persons acquire aggression, much like other forms of social behavior, through either personal experience or by observation of others. These learned behaviors vary between culture, depending on experience. At the same time people also learn through experience which persons or groups, behaviors, and situation warrant aggression. In contrast to instinct and drive theories (the psychological representation of a need that impels and organism to seek goal) the social learning perspective does not attribute aggression to one or a few potential causes but suggests that the roots of such behavior
varied and involve an aggressor’s previous experience, learning, and a wide range of external situation factors. For example, soldiers receive medals for killing enemy troops during times of war, and professional athletes can widespread admiration and large financial rewards by competing aggressively (as cited in Sadock & Kaplan).

2.2.8.2 Aggression Categorization Based on Theories

Feldman (2002) categorized the aggression approaches in 3 categories:

- **Instinct approaches: aggression as release, instinct theories**, noting the prevalence of aggression not only in human but in animals as well, propose that aggression is primarily the outcome of innate or inborn urges. The major proponent of the instinct approach is Konrad Lorenz, an ethologist who suggests that humans, along with members of other species, have fighting instinct, which in earlier times ensured protection of food supplies and weeded out the weaker of the species (Lorenz, 1966, 1974). He suggested aggressive energy is constantly being build up within an individual until it is finally discharged in a process called catharsis.

- **Frustration—aggression approaches: aggression as a reaction to frustration**, where the frustration is defined as the thwarting or blocking of some ongoing, goal-directed behavior (Dollard et al., 1939). More recent formulations, however, have modified the original one, suggesting instead that frustration produces anger, leading to readiness to act aggressively. Whether or not actual aggression occurs depends on the presence of aggressive cues, stimuli that have been associated in the past with actual aggression or violence and that will trigger aggression again (Berkowitz, 1984).

- **Observational learning approaches: learning to hurt others**, taking an almost opposite view from instinct theories, which focus on innate explanations of aggression, observational learning theory emphasize that social and environmental conditions can teach individuals to be aggressive. Aggression is seen not as inevitable, but rather as a learned response that can be understood in terms of rewards and punishment (Bandra, 1973; Zillman, 1978). Observational learning theory pays particular attention not only to direct rewards and punishment that individuals themselves receive, but to the rewards and punishment models—individuals who provide a guide to
appropriate behavior – receive for their aggressive behavior. Means people who observe the behavior of models and the subsequent consequences of the behavior. If consequences are positive, the behavior is likely to be limited when the observer find himself or herself in a similar situation.

Unlike earlier views modern theories of aggression (e.g., Anderson & Bushman, 2002b; Berkowits, 1993; Zillmann, 1994) do not focus on a single factor (instincts, drives, or frustration) as the primary cause of aggression. Rather, they draw on advances in many areas of psychology to gain added insight into the factors that play a role in the occurrence of such behavior. Our such theory, known as the social learning perspective (e.g., Bandura, 1997) begins with reasonable idea; human beings are not born with a large array of aggressive responses at their disposal. Rather, they must acquire these in the much the same way that they acquire other complex forms of social behavior through direct experience or by observing the behavior of others (i.e., social models—live people or characters on television in movies, or even in video games who behave aggressively (Anderson, 2004; Anderson & Bushman, 2001; Bushman & Anderson, 2002) thus depending on their past experience and the cultures in which they live, individual learn

(1) Various way of seeking to harm others.

(2) Which people or groups are appropriate targets for aggression.

(3) What actions by others justify retaliation or vengeance on their part, and

(4) what situations or contexts are ones in which aggression is permitted or even approved.

In short, the social learning perspective suggests that whether a specific person will aggress in given situation depends on many factors, including this person’s past experience, the current rewards associated with past or present aggression, and attitudes and values that shape this person’s thoughts concerning the appropriateness and potential effects of such behavior (as cited in Baron, 2003).

Anderson and Bushman (2002b) Building on the social learning perspective, a newer framework known as the General Aggression Model (GAM) provides an even more complete account of the foundations of human aggression. According to this theory
a chain of events that may ultimately lead to overt aggression can be initiated by two major types of input variables:

(1) factors relating to the current situation (situational factors) and (2) factors relating to the people involved (person factors). Variables falling into the first category include frustration, some kind of provocation from another person (e.g., an insult), exposure to other people behaving aggressively (aggressive models, real or in the media), and virtually anything that causes individuals to experience discomfort everything from uncomfortably high temperatures to a dentist’s drill or even an extremely dull lecture. Variables in the second category (individual differences across people), include traits that predispose some individuals toward aggression (e.g., believing that it is acceptable and appropriate), aggression (e.g., knowing how to fight or how to use various weapons).

According to the GAM, these situational and individual (personal) variables lead to overt aggression through their impact on three basic processes: arousal—they may increase physiological arousal or excitement; affective states—they can arouse hostile feeling and outward signs of these (e.g., angry facial expressions); and cognitions—they can induce individuals to think hostile thoughts or can bring beliefs and attitudes about aggression to mind. Depending on individuals’ interpretations (appraisals) of the current situation and restraining factors (e.g., the presence of police or threatening nature of the intended target person), they then engage either in thoughtful action, which might involve restraining their anger, or impulsive action, which can lead to overt aggressive actions occur (as cited in Baron, 2007).

The catharsis hypothesis is the belief that the participation in activities, such as running or kickboxing, allows persons to vent their anger and hostility and therefore reduces aggressive behavior. Although Freud accepted the existence of such catharsis, he was relatively pessimistic about its usefulness in preventing overt aggression. At present, catharsis is thought to help persons discharge aggression. Other persons, however, may become more aggressive as a result of the expressive behaviors. Catharsis, therefore, may not be effective for long term reduction of aggression (Sadock & Kaplan, 2007).
Figure 2.2. The General Aggression Model: Distal Development and Personality Processes. From Anderson and Carnagey, 2004.)
2.2.9. PHOBIC ANXIETY

Phobic anxiety is the fears experienced by ones with a phobia when presented with the phobic object or circumstances (Reber, 2001).

Phobic Anxiety is defined as a persistent fear response—to a specific person, place, object or situation—that is irrational and disproportionate to the stimulus and leads to avoidance or escape behavior. The items of this dimension focus on the more pathognomonic and disruptive manifestations of phobic behavior. Phobic Anxiety is very similar in definition to “agoraphobia” (Marks, 1969), also called "phobic anxiety-depersonalization syndrome" by Roth, 1959 (as cited in Derogatis, 1994).

As noted by Marks 1970, the syndrome has had many other labels, including “phobic-anxiety –depersonalization syndrome”. “Phobic Anxiety State”, “locomotors anxiety,” “topophobia (fear of particular spaces”’. Keno phobia “(fear of empty spaces), and platzangst (place anxiety), though none of these have outlasted “agoraphobia” (Stein & Steckler, 2010).

Patients with agoraphobia rigidly avoid situations in which it would be difficult to obtain help. they prefer to be accompanied by a friend or a family member in busy streets, crowded stores, closed-in spaces (e.g., tunnels, bridges and elevators), and closed in vehicles (e.g., subways, buses, and airplanes). Patients may be insisting that they be accompanied every time they leave the house (Sadock & Kaplan, 2007).

According to DSM-IV (2000) The essential feature of Agoraphobia is anxiety about being in places or situations from which escape might be difficult (or embarrassing) or in which help may not be available in the event of having a Panic Attack or panic-like symptoms (e.g., fear of having a sudden attack of dizziness or a sudden attack of diarrhea) (Criterion A). The anxiety typically leads to a pervasive avoidance of a variety of situations that may include being alone outside the home or being home alone; being in a crowd of people; traveling in an automobile, bus, or airplane; or being on a bridge or in an elevator. Some individuals are able to expose themselves to the feared situations but endure these experiences with considerable dread. Often an individual is better able to confront a feared situation when accompanied by a
companion (Criterion B). Individuals’ avoidance of situations may impair their ability to travel to work or to carry out homemaking responsibilities (e.g., grocery shopping, taking children to the doctor). The anxiety or phobic avoidance is not better accounted for by another mental disorder (Criterion C). The differential diagnosis to distinguish Agoraphobia from Social and Specific Phobia and from severe Separation Anxiety Disorder can be difficult because all of these conditions are characterized by avoidance of specific situations. The diagnostic issues for boundary cases are discussed in the “Differential Diagnosis” sections of the texts for the disorders in which avoidant behavior is an essential or associated feature.

2.2.10. PARANOID IDEATION

Reber (2001) described Paranoid ideation condition as a typical pattern of thinking displayed in cases of paranoia; it is characterized by suspiciousness and beliefs that one is being followed, plotted against, persecuted, etc.

Colby (1981) defined paranoid cognitions as “persecutory delusions and false beliefs whose propositional content cluster around ideas of being harassed, threatened, harmed, subjugated, persecuted, accused, mistreated, wronged, tormented, disparaged, vilified, and so on, by malevolent others, either specific individuals or groups” (as cited in Hardin, 2004).

Persons with paranoid personality disorder are characterized by long-standing suspiciousness and mistrust of persons in general. They refuse responsibility for their own feelings and assign responsibility for others. They are often hostile, irritable, and angry (Sadock & Kaplan, 2007).

Individual with paranoid personality disorder have a pervasive suspiciousness and distrust of others, leading to numerous interpersonal difficulties. They tend to see themselves as blameless, instead blaming others for their own mistakes and failures even to the point of ascribing evil motives to others. They are often preoccupied with doubts about loyalty of the friends and hence are reluctant to confide in others. They commonly bear grudges, refuse to forgive perceived assaults and slights, and quick to react with
anger (Bernstein, Useda & Siever 1995; Miller et al., 2001, as cited in Carson et al., 2008).

According to DSM-IV (2000) the essential feature of Paranoid Personality Disorder is a pattern of pervasive distrust and suspiciousness of others such that their motives are interpreted as malevolent. This pattern begins by early adulthood and is present in a variety of context. Individuals with this disorder assume that other people will exploit, harm, or deceive them even if no evidence exist to support his expectation (Criterion A1). They suspect on the basis of little or evidence that others are plotting against them and may attack them suddenly, at any time and without reason. They often feel that they have been deeply and irreversibly injured by another person or persons even when there is no objective evidence for this. They are preoccupied with unjustified doubts about the loyalty or trustworthiness or loyalty severs to support their friends and associated, whose actions are minutely scrutinized for evidence of hostile intentions (Criteria A2). Any perceived deviation from trustworthiness or loyalty serves to support their underlying assumptions. They are so amazed when a friend or associate shows loyalty that they cannot trust or believe it. If they get into trouble, they expect that friends and associates will either attack or ignore them. Individuals with this disorder are reluctant to confine in or become close to others because they fear that the information they share will against them (Criterion A3). They may refuse to answer personal questions, saying that the information is “nobody’s business”. They read hidden meaning that are demeaning and threatening into benign remarks or events (Criterion A4). For example, an individual with this disorder may misinterpret an honest mistake by a clerk as a deliberate attempt to shortchange or may view a causal humorous remark by a co-worker as a serious character attack. Compliments often misinterpreted (e.g., a compliment on a new acquisition is misinterpreted as criticism for selfishness; a compliment on an accomplishment is misinterpreted as an attempt to coerce more and better performance). They may view an offer of help as a criticism that they are not doing well enough on their own.

Individuals with this disorder persistently bear grudges and are unwilling to forgive the insults, injures, or slights that they think they have received (Criterion
A5). minor slights arouse major hostility, and the hostile feeling persist for a long time. Because they are constantly vigilant to the harmful intentions of others, they have been slighted in some other way. They are quick to counterattack and react with anger to perceive insults (Criteria A6). Individuals with this disorder may be pathologically jealous, often suspecting that their spouse or sexual partner is unfaithful without any adequate justification (Criteria A7). They may gather trivial and circumstantial “evidence” to support their beliefs. They want to maintain complete control of intimate relationship to avoid being betrayed and may constantly question and challenge the whereabouts, actions, intentions, and fidelity of their spouse or partner. Paranoid Personality Disorder should not be diagnosed if the pattern of behavior occurs exclusively during the course of schizophrenia, a mood disorder with psychotic features, or another psychotic disorder or if it is due to the direct physiological effects of a neurological (e.g., temporal lobe epilepsy) or other general medical condition (Criterion B).

According to American Psychiatric Association (2000) diagnostic criteria for paranoid personality have a two part: A) A pervasive distrust and suspicion of others such that their motives are interpreted as malevolent, beginning by early adulthood and present in a variety of contexts, as indicated by four (or more) of the following:

1. Suspects, without sufficient basis, those others are exploiting, harming, or deceiving him or her.
2. Is preoccupied with unjustified doubts about the loyalty or trustworthiness of friends or associates.
3. Is reluctant to confide in others because of unwarranted fear that the information will be used maliciously against him or her.
4. Reads benign remarks or events as threatening or demeaning.
5. Persistently bears grudges, i.e., is unforgiving of insults, injuries, or slights.
6. Perceives attacks on his or her character or reputation that are not apparent to others and is quick to react angrily or to counterattack.
7. Have recurrent suspicions, without justification, regarding fidelity of spouse or sexual partner. Could have some cases of hypochondria.
B) Does not occur exclusively during the course of, schizophrenia, a mood disorder with psychotic features or another psychotic disorder and is not due to the direct physiological effects of a general medical condition.

Note: If criteria are met prior to the onset of Schizophrenia, add “pre morbid” e.g., “Paranoid Personality Disorder (pre morbid).

2.2.11. PSYCHOTICISM

In SCL-90-R symptom inventory the Psychoticism dimension was designed to represent the construct as a continuous dimension of human experience. Items indicative of a withdrawn, isolated, schizoid lifestyle were included as were first-rank symptom of schizophrenia such as hallucination and thought control. The Psychoticism dimension provides for a graduated continuum from mild interpersonal alienation to dramatic psychosis. In this respect, the present definition owes much to the work of Eysenck and Eysenck, 1968 (Derogatis, 1994).

According to Eysenck and Eysenck (1976), psychoticism conceptualized as a continuum of liability to psychosis (principally schizophrenia and bipolar affective disorder) with "psychopathy" (i.e., anti-social behavior) defined as "a halfway stage towards psychosis.

Schizophrenia occurs in people from all cultures and from all walks of life, and its characteristic symptoms have long been recognized. The disorder is characterized by an array of diverse symptoms, including extreme oddities in perception, thinking, action, sense of self and manner of relating to others. However, the hallmark of schizophrenia is a significant loss of contact with reality, referred to as psychosis (Carson et al. 2008).

According to Sadock and Kaplan (2007) schizophrenia is a clinical syndrome of variable, but profoundly disruptive, psychopathology that involves cognition, emotion, perception and other aspects of behavior. The expression of these manifestations varies across patients and over time but the effect of the illness is always severe and is usually long lasting. The disorder usually begins before age 25, persists throughout life, and
affect persons of all social classes. Both patients and their family often suffer from poor care and social ostracism because of widespread ignorance about the disorder.

Schizophrenia criteria as noticed in DSM-IV (2001) included of: A. Characteristic symptoms: Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated):

1) Delusions
2) Hallucinations
3) Disorganized speech (e.g., frequent derailment, incoherence)
4) Grossly disorganized or catatonic behavior
5) Negative symptoms (e.g., affective flattening, alogia)

Note: Only one Criterion A symptom is required if delusions are bizarre or hallucinations consist of a voice keeping up a running commentary on the person's behavior or thoughts, or two or more voices conversing with each other.

B. Social/occupational dysfunction: For a significant portion of the time since the onset of the disturbance, one or more major areas of functioning such as work, interpersonal relations, or self-care are markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, failure to achieve expected level of interpersonal, academic, or occupational achievement).

C. Duration: Continuous signs of the disturbance persist for at least 6 months. This 6-month period must include at least 1 month of symptoms (or less if successfully treated) that meet Criterion A (i.e., active-phase symptoms) and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or two or more symptoms listed in Criterion A present in an attenuated form (e.g., odd beliefs, unusual perceptual experiences).
D. Schizoaffective and Mood Disorder exclusion: Schizoaffective Disorder and Mood Disorder With Psychotic Features have been ruled out because either (1) no Major Depressive, Manic, or Mixed Episodes have occurred concurrently with the active-phase symptoms; or (2) if mood episodes have occurred during active-phase symptoms, their total duration has been brief, relative to the duration of the active and residual periods.

2.2.12. GAME AND PLAY

2.2.12.1. Definition of Game and Play Concepts

According to Reber (2001) “Game is a generic term referring to any pattern of social interaction or organized play with well-defined rules” ….Play involves diversion or recreation, an activity not necessarily to be taken seriously. For psychologists, the study of play is almost entirely within the realm of childhood, and while diversion and reaction seem to be strong elements, it would be a mistake to conclude that such a things are not taken seriously by the participants. Although many kinds of play have been studied and authors frequently create specialized terms for them. Piaget’s three classes serve well as a general framework within which to view current research: (a) games of mastery (building, copying, designing); (b) game with rules (marbles, war game, hide-and-seek, etc.); and (c) games of make-believe and fantasy.

Prenskey (2001) suggested six key structural elements for games:

1) Rules
2) Goals and Objectives
3) Outcomes & Feedback
4) Conflict/Competition/Challenge/Opposition
5) Interaction, and
6) Representation or Story.

Garvey (1990) defined "Play" as a term employed in psychology and ethology to describe a range of voluntary, intrinsically motivated activities normally associated with pleasure and enjoyment.

The Encyclopedia Britannica issued the following Figure 2.3 (as cited in Prenskey, 2001) of the relation between play and games:

![Figure 2.3. Relation Between Play and Game](reprinted with permission from Britanica.com © 1999-2000 Encyclopedia Britannica Inc.as cited in Prenskey 2001,p.11)

2.2.12.2. Classification of Games

Karl gross classified games in the following ways: 1) experimental play: children are seen examined and breaking up the subjects that are within their reach. It is their method of examining and become acquainted with things. 2) movement play: this classification include movements of the hand and feet, running about, jumping etc., that at characteristics of infancy and childhood. It is a natural stage in the development of the child. Any interruption in which can have only the worst effect on his development. 3) constructive play: in playing objects, the child can either destroy them or construct other things. His earlier efforts are marked by destruction and his wake he leaves a long trail of smashed things but later on he breaks things only to make others. 4) fighting play.
Games of fighting are decide by winning or losing. the object is gaining ascendancy over the opponents. Hockey, cricket and table tennis are example of individual examples of individual games. boxing and wrestling are games of apparent hostility and fighting. Intellectual play. In modern civilized societies people also play such games as chess and cards that depend mainly on the use of brain. Word building and puzzle solving belong to the same category (as cited in Nath & Rachana, 2004).

Querat classified games based on origins of game. He distinguished games in three categories: hereditary games (fighting, hunting, chasing); imitative games, which he subdivides into games of social survival (games with bow and arrow, in imitation of a weapon no longer use) and games of direct imitation; and finally imaginative games, subdivided into metamorphoses of things, animation of toys, creation of imaginary toys, transformation of people, and dramatization of tales (as noticed in Piaget, 1962).

Piaget (1962) suggested the main organizing element in game play consists of explicit rules that guide children’s group behavior. Game play is very organized in comparison to socio-dramatic play. Game usually involve two or more sides, competition, and agreed-open criteria for determining a winner. Children use games flexibility to meet social and intellectual needs (as cited in Annetta, 2010).

Stern divided games into two large classes: individual and social. In the first, he distinguishes several categories of increasing complexity: mastery of the body (motor games using the body as instrument), mastery of things (destructive and constructive games), and impersonation (transformation of people and things). In the social group are games of pure imitation, games with more than one participant (teacher and pupils, etc.), and fighting games (as cited in Piaget, 1962).

Charlotte Buhler classified game based on structure in five groups: I) functional games (or sensory-motor), II) games of make-believer or illusion, III) passive game (looking at picture, listening to stories, etc.), IV) constructional games, and V) collective games (as cited in Piaget, 1962).
2.2.12.3. Theories of Play

**Surplus-energy**: the theory maintains that play is a vent for superfluous vitality. This theory is associated with the names of Schiller in Germany and Spencer in England. This theory does not maintain the full truth, for children and animals and men play when they have no superfluous energy, as in some of the rhythmic games of children. And why should different kinds of animals have instinctively different plays? And we should expect, further, that so widespread a phenomenon as play had some deeper significant in the process of evolution than this negative function of an exhaust drain (as cited in Horne, 2004).

**Anticipatory or practice or rehearsal theory.** Karl Gross is the exponent of this theory. He holds that play is a preparation for the business of life. Play is theological, always anticipating the future needs of the animal. The kitten is its play chases any moving objects, so learning the art of catching mice.

The puppy plays at fighting, so practicing an art that will stand him in good stead in later life. The constructive play of the infant in which he builds houses, forts, carriages, etc., the combat play of the boys wrestling tugging and group games indicate a preparation for the life they are to lead in future life. This theory, though readily accepted, has its defects. 1) it ignores the past altogether. 2) it does not explain how children ignorant of adulthood needs nevertheless prepare for them (as cited in Mahmud, 2009).

**Stanley Hall** was disagreed with the view of Karl Gross, whom said saw play simply as practice and in its place he proposed the recapitulation theory of play. Standly hall argued that through play the Child’s acts out all the human being’s primitive behaviors of our evolutionary past. For example, rough and tumble play is reminiscent of the wrestling and fighting of the past (as cited in O’Hagan, 2003).

**Erikson** also refers to the importance of play, calling his third stage of development, from four to six years, the ‘play age’. During this period children need to engage in both solitary and co-operative play as it helps them to develop their initiative and deal with their disappointments and failures. Susan Issacs advocated the importance of play in both the emotional and cognitive growth of children… Jerome
bruner sees play as beneficial to cognitive development as for him it is a preparation for the technical life that constitutes human culture. He argues play serves both as practice for mastery in skills and as an opportunity to try out new combination of behavior in a safe setting (as cited in O’ Hagan, 2003).

2.2.13. VIDEO AND COMPUTER GAMES

2.2.13.1. Definitions of Video and Computer Games Concepts

According to Entertainment Software Association (2004), 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. A PC game, also known as a computer game, is a video game played on a personal computer, rather than on a video game console or arcade machine.

According to Encyclopedia of PC Magazine (2011), a video game console is: A specialized desktop computer used to play video games. Three popular game consoles are Sony's PlayStation 3 (PS3), Nintendo's Wii and Microsoft's Xbox. Game software is available on CDs or DVDs, although earlier game machines used cartridges containing read only memory (ROM) chips.

Handheld Games: Handheld video games are miniature versions of game consoles and less elaborate. They are entirely portable, self-contained, battery-operated devices with their own small screens. Examples are the PlayStation Portable, Nintendo Game Boy and earlier Sega Game Gear and Atari Lynx machines. See gaming, video game controller, wireless game adapter, PlayStation, Xbox and Wii.

2.2.13.2 Characteristics Features of Video and Computer Games

According to Prenskey (2001), due to combination of twelve elements video and computer games are potentially the most engaging pastime in the history of mankind.

1) Games are a form of fun. That gives us enjoyment and pleasure.
2) Games are form of play. That gives us intense and passionate involvement.
3) Games have **rules**. That gives us structure.

4) Games have **goals**. That gives us motivation.

5) Games are **interactive**. That gives us doing.

6) Games are **adaptive**. That gives us flow.

7) Games have outcomes and **feedback**. That gives us learning.

8) Games have win **states**. That gives us ego gratification.

9) Games have **conflict/competition/challenge/opposition**.

10) Games have **problem solving**. That sparks our creativity.

11) Games have **interaction**. That gives us social groups.

12) Games have **representation and story**. That gives us emotion.

According to **Craw and Cost** there are two key elements which distinguish video games (although this distinction is not exclusive). Playing a Videogame is more than a ludic activity engaged in for its own sake. In videogames players always face a challenge and have a specific goal, for the accomplishment of which they must struggle with some kind of opposition. Additionally, videogames provide not only the means (i.e., the toys) and the rules to play, but also an interactive gaming environment, as opposed to many other games, and, additionally, the gaming environment is always virtual (to understand this characteristic, suffice it to think about football: in the real world, you can have the equipment, the teams and know the rule, but if you do not have the field you cannot play the game; in a computer game, the videogame itself provides the player with contenders, teammates and playing field, all of which constitute a complete playing environment). Furthermore, the environment is always interactive, capable of responding to the gamers’ choices and actions (as cited in Fabricatore, 2000).

**Circa (2000)** computer games are generally recognized as falling into one of 8 “genres,” which often overlap. They are, in alphabetical order, Action, Adventure, Fighting, Puzzle, Role Playing, Simulations, Sports, and Strategy.

i. **Action Games** began with the classic “twitch” games of the arcades and home video consoles: *Super Mario, Sonic the Hedgehog* et al. The category includes the old “side scroller” games, maze games (*PacMan*), platform jumping games (e.g. *Gekko*), falling things you have to shoot (*Missile Command*), car races and
chases. Obviously this is the category of the shoot-em-ups like *Doom, Quake, Duke Nukem, Half-Life and Unreal Tournament.*

ii. **Adventure Games** are the “find your way around the unknown world, pick up objects and solve puzzles” games. These are among the earliest of computer games; *Adventure* was played on mainframes. *Zork* is a classic of the genre. Present day adventure games include *Myst* and *Riven* on the PC and *Zelda, the Ocarina of Time* on Nintendo

iii. **Fighting Games** are a lot of what you see in the lobbies of movie theaters. Two characters, drawn from a stable of hundreds, battle each other till one is wiped out. All these games are really doing is matching up two “moves” at the same time, to see which wins. But the speed is intense, and the moves are athletic, balletic and fantastical. They are typically captured by motion capture sensors on dancers and real martial arts fighters, and the goal appears to be to combine outlandish fantasy in the characters with realism of the computer graphics. The classic example: *Mortal Kombat*. Modern example: *Virtua Fighter MMMCIII.*

iv. **Puzzle games** are just that. Problems to be solved, typically visual, stripped of all story pretense. The classic example: *Tetris*. Modern example: *Devil Dice*

v. **Role Playing Games** (RPG’s) are generally some form of “Dungeons and Dragons” brought to the computer screen. They are mostly mediaeval in their imagery and involve quests usually to rescue someone or something. You play a character, which has a “type” (human, orc, elf, wizard, etc) and a set of individual characteristics you assign it. You acquire equipment and experience via action and fighting. Things like spells are a big deal. The classic example: the *Ultima* series. Modern example: *EverQuest*. RPGs are most often played online with others.

vi. **Simulation Games** are about flying or driving things (often military) or building worlds like *Sim City* and *The Sims*, or, increasingly, running companies (*Start-up*)

vii. **Sports Games** are the one category where the content, rather than the game play is the determining factor. Most are action games where you can control one or more players at a time. Sports games are getting so photorealistic that on the latest consoles you’d almost swear you were watching real players on television. There
also exist less action- and more statistics-oriented sports games like fantasy (as noticed in Prenskey, 2001).

**Griffits (2005)** suggested six criteria below can operationally defined as an addiction features to online gaming.

1. **Salience** – this occurs when video game play becomes the most important activity in the person’s life and dominates this thinking (pre-occupations and cognitive distortions), feelings (cravings) and behavior (deterioration of socialized behavior). For instance, even if the person is not actually playing on a video game they will be thinking about the next time that they will be.

2. **Mood modification** – this refers to the subjective experiences that people report as a consequence of engaging in video game play and can be seen as a coping strategy (i.e., the y experience an arousing “buzz” or a “high” or paradoxically, a tranquilizing feel of escape or numbing).

3. **Tolerance** – this is the process whereby increasing amounts of video game play are required to achieve the former mood modifying effects. This basically means that for someone engaged in video game playing, they gradually build up the amount of time they spend online engaged in the behavior.

4. **Withdrawal symptoms** – these are the unpleasant feeling states and/or physical effects that occur when video game play is discontinued or suddenly reduced, for example, the shakes, moodiness and irritability.

5. **Conflict** – this refers to the conflicts between the video game player and whose around them (interpersonal conflict), conflicts with other activities (job, school, work, social life, hobbies and interests), or from within the individual themselves (intra psychic conflict and/or subjective feelings of loss of control) which are concerned with spending too much time engaged in video game play.

6. **Relapse** – this is the tendency for repeated reversions to earlier patterns of video game play to recur and for even the most extreme patterns typical at the height of excessive video game play to be quickly restored after periods of abstinence or control.
There are at least six reasons why we should expect violent video games to have an even greater impact than violent television.

1. **Identification with an aggressor increases imitation of the aggressor.** It is known from research on violent television that children will imitate aggressive actions more readily if they identify with an aggressive character in some way. On television, it is hard to predict with which characters, if any, a person will identify.

2. **Active participation increases learning.** Viewers of violent content on television are passive observers of the aggressive acts. In contrast, violent video games by their very nature require active participation in the violent acts.

3. **Practicing an entire behavioral sequence is more effective than practicing only a part.** If one wanted to learn how to kill someone, one would quickly realize that there are many steps involved. At a minimum, one need to decide whom to kill, get a weapon, get ammunition, load the weapon, stalk the victim, aim the weapon, and pull the trigger. It is rare for television shows or movies to display all of these steps. Yet, violent video games regularly require players to practice each of these steps repeatedly. This helps teach the necessary steps to commit a successful act of aggression. In fact, some video games are so successful at training whole sequences of aggressive behaviors that the U.S. Army has licensed them to train their forces.

4. **Violence is continuous**. In both television programs and movies, violent content is rarely sustained for more than a few minutes before changing pace, changing scenes, or going to commercials. In contrast, the violence in violent video games is often continuous. Players must constantly be alert for hostile enemies, and must constantly choose and enact aggressive behaviors.

5. **Repetition increases learning.** Children rarely see the same television shows over and over. In a violent video game, however, players often spend a great deal of time doing the same aggressive actions (e.g., shooting things) over and over. Furthermore, the games are usually played repeatedly, thus giving a great deal of practice repeating the violent game actions. This increases the odds that not only will children learn from them, but they will make these actions habitual to the point of automaticity.

6. **Rewards increase imitation.** There are at least three different processes involved. First, rewarding aggressive behavior in a video game (e.g., winning extra points and
lives) increases the frequency of behaving aggressively in that game (see number 5, above). Second, rewarding aggressive behavior in a video game teaches more positive attitudes toward the use of force as a means of solving conflicts. Television programs rarely provide a reward structure for the viewer, and it would be rarer still to have those rewards dependent on violent acts. In contrast, video games often reward players for participating. Third, the reward patterns involved in video games increase the player’s motivation to persist at the game. Interestingly, all three of these processes help educational games be more effective (Anderson & Dill 2000; Gentile & Walsh 2002, as noticed in Gentile, 2003).

According to the Entertainment Software Rating Board (2010), (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. ESRB ratings have two equal parts: rating symbols suggest age appropriateness for the game and content descriptors indicate elements in a game that may have triggered a particular rating and/or may be of interest or concern.

A: ESRB Rating Symbols:

- **EARLYCHILDHOOD**: Titles rated *EC* (*Early Childhood*) have content that may be suitable for ages 3 and older. Contains no material that parents would find inappropriate.

- **EVERYONE**: Titles rated *E* (*Everyone*) have content that may be suitable for ages 6 and older. Titles in this category may contain minimal cartoon, fantasy or mild violence and/or infrequent use of mild language.

- **EVERYONE10+**: Titles rated *E10+* (*Everyone 10 and older*) have content that may be suitable for ages 10 and older. Titles in this category may contain more cartoon, fantasy or mild violence, mild language and/or minimal suggestive themes.

- **TEEN**: Titles rated *T* (*Teen*) have content that may be suitable for ages 13 and older. Titles in this category may contain violence, suggestive themes, crude
humor, minimal blood, simulated gambling, and/or infrequent use of strong language.

- **MATURE**: Titles rated *M (Mature)* have content that may be suitable for persons ages 17 and older. Titles in this category may contain intense violence, blood and gore, sexual content and/or strong language.

- **ADULTS ONLY**: Titles rated *AO (Adults Only)* have content that should only be played by persons 18 years and older. Titles in this category may include prolonged scenes of intense violence and/or graphic sexual content and nudity.

- **RATING PENDING**: Titles listed as *RP (Rating Pending)* have been submitted to the ESRB and are awaiting final rating. (This symbol appears only in advertising prior to a game's release).

**B: ESRB Content Descriptors:**

- **Alcohol Reference** - Reference to and/or images of alcoholic beverages
- **Animated Blood** - Discolored and/or unrealistic depictions of blood
- **Blood** - Depictions of blood
- **Blood and Gore** - Depictions of blood or the mutilation of body parts
- **Cartoon Violence** - Violent actions involving cartoon-like situations and characters. May include violence where a character is unharmed after the action has been inflicted.
- **Comic Mischief** - Depictions or dialogue involving slapstick or suggestive humor
- **Crude Humor** - Depictions or dialogue involving vulgar antics, including “bathroom” humor.
- **Drug Reference** - Reference to and/or images of illegal drugs
- **Fantasy Violence** - Violent actions of a fantasy nature, involving human or non-human characters in situations easily distinguishable from real life
- **Intense Violence** - Graphic and realistic-looking depictions of physical conflict. May involve extreme and/or realistic blood, gore, weapons and depictions of human injury and death
- **Language** - Mild to moderate use of profanity
- **Lyrics** - Mild references to profanity, sexuality, violence, alcohol or drug use in music
- **Mature Humor** - Depictions or dialogue involving "adult" humor, including sexual references
- **Nudity** - Graphic or prolonged depictions of nudity
- **Partial Nudity** - Brief and/or mild depictions of nudity
- **Real Gambling** - Player can gamble, including betting or wagering real cash or currency
- **Sexual Content** - Non-explicit depictions of
sexual behavior, possibly including partial nudity. **Sexual Themes** - References to sex or sexuality.

**Sexual Violence** - Depictions of rape or other violent sexual acts. **Simulated Gambling** - Player can gamble without betting or wagering real cash or currency. **Strong Language** - Explicit and/or frequent use of profanity. **Strong Lyrics** - Explicit and/or frequent references to profanity, sex, violence, alcohol or drug use in music. **Strong Sexual Content** - Explicit and/or frequent depictions of sexual behavior, possibly including nudity. **Suggestive Themes** - Mild provocative references or materials. **Tobacco Reference** - Reference to and/or images of tobacco products. **Use of Drugs** - The consumption or use of illegal drugs. **Use of Alcohol** - The consumption of alcoholic beverages. **Use of Tobacco** - The consumption of tobacco products. **Violence** - Scenes involving aggressive conflict. May contain bloodless dismemberment.

According to **Pan European Game Information (2010)**, the **PEGI labels** appear on front and back of the packaging indicating one of the following age levels: 3, 7, 12, 16 and 18, which provide a reliable indication of the suitability of the game content in terms of protection of minors. The age rating does not take into account the difficulty level or skills required to play a game.

**PEGI.3**: The content of games given this rating is considered suitable for all age groups. Some violence in a comical context (Tom & Jerry cartoon-like forms of violence) is acceptable. The child should not be able to associate the character on the screen with real life characters, they should be totally fantasy. The game should not contain any sounds or pictures that are likely to scare or frighten young children. No bad language should be heard.

**PEGI.7**: Any game that would normally be rated at 3 but contains some possibly frightening scenes or sounds may be considered suitable in this category.

**PEGI.12**: Videogames that show violence of a slightly more graphic nature towards fantasy character and/or non graphic violence towards human-looking characters or recognizable animals, as well as videogames that show nudity of a slightly more
graphic nature would fall in this age category. Any bad language in this category must be mild and fall short of sexual expletives.

PEGI.16: This rating is applied once the depiction of violence (or sexual activity) reaches a stage that looks the same as would be expected in real life. More extreme bad language, the concept of the use of tobacco and drugs and the depiction of criminal activities can be content of games that are rated 16.

PEGI.18: The adult classification is applied when the level of violence reaches a stage where it becomes a depiction of gross violence and/or includes elements of specific types of violence. Gross violence is the most difficult to define since it can be very subjective in many cases, but in general terms it can be classed as the depictions of violence that would make the viewer feel a sense of revulsion.

Descriptors shown on the back of the packaging indicate the main reasons why a game has received a particular age rating. There are eight such descriptors: violence, bad language, fear, drugs, sexual, discrimination, gambling and online gameplay with other people.

Bad Language: Game contains bad language
Discrimination: Game contains depictions of, or material which may encourage, discrimination
Drugs: Game refers to or depicts the use of drugs
Fear: Game may be frightening or scary for young children
Gambling: Games that encourage or teach gambling
Sex: Game depicts nudity and/or sexual behaviour or sexual references
Violence: Game contains depictions of violence
Online gameplay: Game can be played online

2.2.13.3. Video and Computer Game: Violent Content, Aggressive Effects

Meta-analyses (studies that measure the effects across many studies) have shown four main effects of watching a lot of violent entertainment as well as video and computer games. These effects have been called the aggressor effect, the victim effect, the bystander effect, and the appetite effect (Donnerstein, Slaby, & Eron, 1994). To summarize each:

The aggressor effect states that people (both children and adults) exposed to a lot of violent entertainment tend to become meaner, more aggressive, and more violent.
The **victim effect** states that people (both children and adults) exposed to a lot of violent entertainment tend to see the world as a scarier place, become more scared, and initiate more self-protective behaviors (such as carrying guns to school, which, ironically, *increases* one’s odds of getting shot).

The **bystander effect** states that people (both children and adults) exposed to a lot of violent entertainment tend to become more desensitized to violence (both in the media and in real life), more callous, and less sympathetic to victims of violence.

The **appetite effect** states that people (both children and adults) exposed to a lot of violent entertainment tend to get an increased appetite for seeing more violent entertainment. Simply put, the more one watches, the more one wants to watch (as cited in, Gentile, 2003).

Mechanism underlying the effects of televised and filmed violence on the behavior of viewer outlined by Baron (1979). **Observational learning**: Viewers acquire new means of harming others not previously present in their behavior repertoires. **Disinhibition**: Viewer “restrain or inhabitations against performing aggressive actions are weakened as a result of others engaging in such behavior. **Desensitization**: Viewer “emotional responsively to aggressive actions and their consequences –signs of suffering on the past victims –is related as a result ,they show little ,if any ,emotional arousal in response to such stimuli.( as cited in Sadock & Kaplan 2007).

According to Gentile (2003) there are *six reasons* that video and computer games cause even a greater impact on adolescents compare to the violent programs on televisions. These are as below:

1. Identification with an aggressor increases limitation of the aggressor ;
2. Active participation increases learning ;
3. Practicing an entire behavioral sequence is more effective than practicing only a part ;
4. Violence is continues
5. Repetition increases learning ;
6. Rewards.
On April 20, 1999, two teenage boys, ages 17 and 18 years, went on a shooting rampage through Columbine High School of Littleton, Colorado. Armed with shotguns, a semiautomatic rifle, and a pistol, they laughed and hollered as they shot classmates and teachers at point-blank range while hurling homemade explosive. Fifteen were killed, including two gunmen, and twenty-five were injured in the deadliest school shooting in U.S. history. The gunmen were numbers of ‘trench coat mafia’ at the high school, a clique of social misfits who stood out at the school for their gothic style of dress and nihilistic attitude. The two gun men were obsessed with violent video game and intrigued with Nazi culture, even though one was part Jewish. The date of the attack was picked because it was Adolf Hitler’s birthday (Sadock & Kaplan, 2007).

The effect of media on provoking aggression defined by Sadock and Kaplan (2007): Aggression by social factors divided to frustration, direct provocation and media violence. Media violence: media may influence behavior through modeling, desensitization, the arousal aggressive feelings, and the encouragement of risk taking. Exposure to violent material reportedly increases violent fantasies, especially in men; youth are very vulnerable to such exposure. Whereas young children may persist in acting aggressively despite a victim’s pain and young bused children seem to have special difficulties empathizing, older children and adults are usually more inhibited by the victim’s suffering. In extensive view of violence and television reported a concomitant rise in violence and in television viewing in the United States and noted that American children spend more time watching television than they spend in school. The influence of television violence on societal violence is reportedly less in countries in which societies are more “rigid” (e.g., Japan, Singapore). Television violence is thought to contribute to violence in children and adults in the following ways:

- It has a short term stimulating effect on aggressive behaviors in all ages.
- It portrays the world as a more hostile place than it is.
- It justifies violence (e.g., 40 percent of violent television acts are performed by heroes).
- It cues aggressive ideas in children.
2.3. REVIEW OF RELATED RESEARCH STUDIES

As the present study sought to compare abnormal behavior of Indian and Iranian adolescent due to exposure of video and computer games, the investigator has gone through a number of available research studies relevant to the research problem which are in support of and in anticipation of the methodology and analyses presented in this study. All the studies reviewed are presented under the following sections:

Table 2.2

Review Matrix of Research Literature

<table>
<thead>
<tr>
<th>Sources</th>
<th>Research reports</th>
<th>Research/experimental</th>
<th>Research analysis</th>
<th>Meta analysis</th>
<th>Online journals</th>
<th>Encyclopedia</th>
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2.3.1. STUDIES PERTAINING TO VIOLENT VIDEO AND COMPUTER GAMES

Uhlmann and Swanson (2004) have conducted an experimental study entitled “Exposure to violent video games increases automatic aggressiveness”. The effects of exposure to violent video games on automatic associations with the self were investigated in a sample of 121 students. Playing the violent video game Doom led participants to associate themselves with aggressive traits and actions on the Implicit Association Test. In addition, self-reported prior exposure to violent video games predicted automatic aggressive self-concept, above and beyond self-reported aggression. Results suggest that playing violent video games can lead to the automatic learning of aggressive self-view.

Gentile and Gentile (2008) have conducted a survey study entitled “Violent Video Games as Exemplary Teachers”. Samples were 430 elementary school children (mean age 10 years), 607 young adolescents (mean age 14 years), and 1,441 older adolescents (mean age 19 years). Participants were surveyed about their video game habits and their aggressive cognitions and behaviors. The first hypothesis is based on the principle that curricula that teach the same underlying concepts across contexts should have the highest transfer. Therefore, students who play multiple violent video games should be more likely to learn aggressive cognitions and behaviors than those who play fewer. The second hypothesis is based on the principle that long-term learning is improved the more practice is distributed across time. Therefore, 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. Both hypotheses were supported.

Gentile et al. (2004) have conducted a survey study entitled “The effects of violent video game habits on adolescent hostility, aggressive behaviors, and school performance”. The first goal of this study was to document the video games habits of adolescents and the level of parental monitoring of adolescent video game use. The second goal was to examine associations among violent video game exposure, hostility, arguments with teachers, school grades, and physical fights. In addition, path analyses
were conducted to test mediational pathways from video game habits to outcomes. Six hundred and seven 8th- and 9th-grade students from four schools participated. Adolescents who expose themselves to greater amounts of video game violence were more hostile, reported getting into arguments with teachers more frequently, were more likely to be involved in physical fights, and performed more poorly in school. Mediational pathways were found such that hostility mediated the relationship between violent video game exposure and outcomes. Results are interpreted within and support the framework of the General Aggression Model.

Kutner et al. (2008) have conducted a experimental study entitled “Parents' and sons' perspectives on video game play: A qualitative study”. Public policy efforts to restrict children's access to electronic games with violent or sexual content are often predicated on assumptions about parental concerns. As an initial step in determining whether those assumptions are accurate, the authors conduct focus groups of 21 adolescent boys and 21 of their parents or guardians to explore parents' concerns, compare parents' and children's perceptions, and see whether these are consistent with the focus of proposed legislation and other public policy efforts. Parents' primary concern is that games not interfere with their children's schoolwork, social skills, and exercise. They worry about exposure to violent content, but definitions of and opinions about what is harmful vary and may not match proposed public policies.

Anderson and Dill (2000) have conducted two different experimental studies entitled “Video Games and Aggressive Thoughts, Feelings, and Behavior in the Laboratory and in Life”. They used different methods to illustrate the question of aggression and violent computer games. Study 1 had 227 participants, all psychology students, with a clear preponderance of women and an average age of 19. They took part to gain course credits and were given the choice of participating in the study or writing an essay for a corresponding number of credits. The participants completed questionnaires about aggressive behavior, crime and their grades. Use of computer games was quantified by participants describing their favorite games, how long they played them and how long they generally played computer games. Overall, Study 1 concluded that use of lifelike, violent computer games was closely correlated with aggressive behavior and crime. The
correlation was especially strong for men and individuals with aggressive personalities. Academic performance was also adversely affected by general playing time. Study 2, had 210 participants, all psychology students with the same motivation to take part as those in the first study. The aim was to look at the correlation between violent computer games and aggressive thoughts, emotions, behavior and perceptions, by exposing the participants to two different games: Myst and Wolfenstein 3D. The strength of a sound that participants emitted towards their opponents was also measured. The study found that violent games underpin aggressive thoughts and that men are most aggressive. Those who played Wolfenstein 3D emitted a significantly longer sound after losing than did those who played the non-violent game, Myst. According to the study, this supports the conclusion that players of violent computer games exhibit more violent behavior in the real world.

Moller and Krahe (2009) have conducted an experimental study entitled “Exposure to violent video games and aggression in German adolescents: a longitudinal analysis”. In this study the relationship between exposure to violent electronic games and aggressive cognitions and behavior was examined in a longitudinal method. A total of 295 German adolescents completed the measures of violent video game usage, endorsement of aggressive norms, hostile attribution bias, and physical as well as indirect/relational aggression cross-sectionally, and a subsample of N=143 was measured again 30 months later. Cross-sectional results showed Exposure to violent games at T1 influenced physical (but not indirect/relational) aggression at T2 via an increase of aggressive norms and hostile attribution bias. The findings are discussed in relation to social-cognitive explanations of long-term effects of media violence on aggression.

Polman et al. (2008) have conducted an experimental study entitled “experimental study of the differential effects of playing versus watching violent video games on children's aggressive behavior”. This experimental study was aimed at investigating the differential effects of actively playing vs. passively watching the same violent video game on subsequent aggressive behavior. Fifty-seven children aged 10-13 either played a violent video game (active violent condition), watched the same violent
video game (passive violent condition), or played a non-violent video game (active non-violent condition). Aggression was measured through peer nominations of real-life aggressive incidents during a free play session at school. After the active participation of actually playing the violent video game, boys behaved more aggressively than did the boys in the passive game condition. For girls, game condition was not related to aggression. These findings indicate that, specifically for boys, playing a violent video game should lead to more aggression than watching television violence.

**Muller et al. (2008)** have conducted an experimental study entitled **“Hostile and hardened? An experimental study on (De-) Sensitization to violence and suffering through playing video games”**. This study tests whether playing violent video games leads to desensitization and increased cardiovascular responding. In a laboratory experiment, 42 men spent 20 min playing either a high- or low-violence version of a "first-person shooter" game. Arousal (heart rate, respiration rate) was measured continuously. After playing the game, emotional responses to aversive and aggressive stimuli—pictures from Lang, Bradley, and Cuthbert's (1999) International Affective Picture System—were assessed with self-ratings and physiological measurement (skin conductance). Results showed no differences in the judgments of emotional responses to the stimuli. However, different effects of game violence emerged in the physiological reactions to the different types of stimulus material. Participants in the high-violence condition showed significantly weaker reactions (desensitization) to aversive stimuli and reacted significantly more strongly (sensitization) to aggressive cues. No support was found for the arousal hypothesis.

**Giumetti and Markey (2007)** have conducted an experimental study entitled **“Violent video games and anger as predictors of aggression”**. A total of 167 undergraduate students (79 females, 88 males) first completed a measure of anger and were then randomly assigned to play either a non-violent or violent game. After the video game play period, participants completed ambiguous story storms in order to assess aggression. Consistent with predictions of the GAM; anger significantly moderated the effect of video game violence on aggression. Specifically, participants who were angry were more affected by violent video games those participants who were not angry.
Konijn et al. (2007) have conducted an experimental study entitled “I wish I were a warrior: The role of wishful identification in the effects of violent video games on aggression in adolescent boys”. This study tested the hypothesis that violent video games are especially likely to increase aggression when players identify with violent game characters. Dutch adolescent boys with low education ability (N=112) were randomly assigned to play a realistic or fantasy violent or nonviolent video game. Next, they competed with an ostensible partner on a reaction time task in which the winner could blast the loser with loud noise through headphones (the aggression measure). Participants were told that high noise levels could cause permanent hearing damage. Habitual video game exposure, trait aggressiveness, and sensation seeking were controlled for. As expected, the most aggressive participants were those who played a violent game and wished they were like a violent character in the game. These participants used noise levels loud enough to cause permanent hearing damage to their partners, even though their partners had not provoked them. These results show that identifying with violent video game characters makes players more aggressive. Players were especially likely to identify with violent characters in realistic games and with games they felt immersed in.

Arriaga et al. (2006) have conducted an experimental study entitled “Violent computer games and their effects on state hostility and physiological arousal”. This study was conducted to investigate the impact of violent computer games on state hostility, state anxiety and arousal. Participants were undergraduate students, aged from 18 to 25 years. Before the experimental sessions, participants filled in self-report measures concerning their video game habits and were also pre-tested for aggressiveness and trait anxiety. Physiological responses (heart rate and skin conductance) were measured during the experiment. After playing, information about state hostility and state anxiety was collected. The results showed that participants who played the 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 (pp.146–158).

Przybylski et al. (2009) have conducted multiple experimental /survey study entitled “The motivating role of violence in video games”. Six studies, two surveys
based and four experimental, explored the relations between violent content and people's motivation and enjoyment of video game play. Based on self-determination theory, the authors hypothesized that violence adds little to enjoyment or motivation for typical players once autonomy and competence need satisfactions are considered. As predicted, results from all studies showed that enjoyment, value, and desire for future play were robustly associated with the experience of autonomy and competence in gameplay. Violent content added little unique variance in accounting for these outcomes and was also largely unrelated to need satisfactions. The studies also showed that players high in trait aggression were more likely to prefer or value games with violent contents, even though violent contents did not reliably enhance their game enjoyment or immersion. Discussion focuses on the significance of the current findings for individuals and the understanding of motivation in virtual environments.

Calvert and Tan (1994) have conducted an experimental study entitled “Impact of Virtual Reality on Young Adults' Physiological Arousal and Aggressive Thoughts: Interaction versus Observation”. Compared to college students who only watched a violent virtual reality game, those who played the game exhibited a higher heart rate after the game, reported more dizziness and nausea during the game, and exhibited more aggressive thoughts on a posttest questionnaire. Results suggest support for arousal and cognitive, but not psychoanalytic, models of aggression.

Irwin and Gross (1995) have conducted an experimental study entitled “Cognitive Tempo, Violent Video Games, and Aggressive Behavior in Young Boys”. In a factorial design, impulsive and reflective children played video games with aggressive or nonaggressive themes. Interpersonal aggression and aggression toward inanimate objects were assessed in a free-play setting and interpersonal aggression was assessed during a frustrating situation. Results indicated that subjects who played the video game with aggressive content exhibited significantly more object aggression during free-play and more interpersonal aggression during the frustrating situation than youngsters who played nonaggressive video games. Aggressive behavior was unaffected by cognitive tempo.
Lynch et al. (2001) have conducted a survey study entitled “effects of violent video game habits on adolescent aggressive attitudes and behaviors”. The study included 607 pupils with an average age of 14. Participants were given three questionnaires: a computer-game habits survey, a hostile attribution survey and a hostility survey. The computer-game habits survey covered what was played, for how long, etc. Hostility was quantified by the participants choosing between two possible ends to a story. Hostility as a personality variable forms part of the so-called ‘MMPI tests’ adapted to 14-year-olds. The study ascertained that the boys played more than the girls and preferred more violent content. It also showed that the participants reported an increased interest in violent content in computer games. In addition, the study measured other media use and ascertained that there was an overall correlation between the use of computer media and hostility to the outside world. The study also found that students who played more than others for several years, or who bought computer games, had more often been involved in physical fights. Finally, it was ascertained that those who played or preferred computer games with violent content had a more hostile perception of their surroundings than others. Those young people who played to purge themselves of anger saw the world as a more hostile place, argued more often with their teachers, were more hostile, were more often involved in physical fights and coped less well at school. Those young people whose parents either checked age limits before buying games or set limits for playing time were less involved in physical fights. Young people who tried to limit their own playing time were less likely to be involved in arguments with teachers, were less hostile, and were less often involved in physical fights.

Guo et al. (2007) have conducted a survey study entitled “Review of the effect of violent video games on children and adolescents”. According to result the take a conclusion that Exposure to violent video games increases aggressive behavior, emotional & physiological arousal, and decreases helping behavior. A positive intervention from parents can decrease negative effects of violent video games.

Boxer et al. (2009) have conducted a survey study entitled “The role of violent media preference in cumulative developmental risk for violence and general
aggression”. In this study, they analyzed data on 820 youth, including 390 juvenile delinquents and 430 high school students, to examine the relation of violent media use to involvement in violence and general aggression. Using criterion scores developed through cross-informant modeling of data from self, parent/guardian, and teacher/staff reports, they observed that childhood and adolescent violent media preferences contributed significantly to the prediction of violence and general aggression from cumulative risk totals. Findings represent a new and important direction for research on the role of violent media use in the broader matrix of risk factors for youth violence.

Anderson and Bushman (2001) have conducted a meta –analytic study entitled “Effects of Violent Video Games on Aggressive Behavior, Aggressive Cognition, Aggressive Affect, Physiological Arousal, and Pro social Behavior” to investigate whether playing violent video games will increase aggressive behavior. A meta-analytic review of the video game research literature reveals that violent video games increase aggressive behavior in children and young adults. Experimental and non experimental studies with males and females in laboratory and field settings support this conclusion. Analyses also reveal that exposure to violent video games increases physiological arousal and aggression-related thoughts and feelings. Playing violent video games also decreases pro social behavior.

Anderson et al. (2010) have conducted a Meta analytic study entitled “Violent video game effects on aggression, empathy, and prosocial behavior in eastern and western countries”. Meta-analytic procedures were used to test the effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, empathy/desensitization, and prosocial behavior. Social-cognitive models and cultural differences between Japan and Western countries were used to generate theory-based predictions. Meta-analyses yielded significant effects for all 6 outcome variables. The pattern of results for different outcomes and research designs (experimental, cross-sectional, longitudinal) fit theoretical predictions well. The evidence strongly suggests that exposure to violent video games is a causal risk factor for increased aggressive behavior, aggressive cognition, and aggressive affect and for decreased empathy and pro social behavior. Moderator analyses revealed significant research design
effects, weak evidence of cultural differences in susceptibility and type of measurement effects, and no evidence of sex differences in susceptibility. Results of various sensitivity analyses revealed these effects to be robust, with little evidence of selection (publication) bias.

Carnagey and Anderson (2005) have conducted an experimental study entitled “The effects of reward and punishment in violent video games on aggressive affect, cognition, and behavior”. Three experiments examined the effects of rewarding and punishing violent actions in video games on later aggression-related variables. Participants played one of three versions of the same race-car video game: (a) a version in which all violence was rewarded, (b) a version in which all violence was punished, and (c) a nonviolent version. Participants were then measured for aggressive affect (Experiment 1), aggressive cognition (Experiment 2), and aggressive behavior (Experiment 3). Rewarding violent game actions increased hostile emotion, aggressive thinking, and aggressive behavior. Punishing violent actions increased hostile emotion, but did not increase aggressive thinking or aggressive behavior. Results suggest that games that reward violent actions can increase aggressive behavior by increasing aggressive thinking.

Panee and Ballard (2002) have conducted an experimental study entitled “High versus low aggressive priming during video-game training: Effects on violent action during game play, hostility, heart rate, and blood pressure”. Playing violent video games is related to increased negative affect and cardiovascular reactivity. They examined the influence of high and low aggressive priming during video-game training on violence during game play (e.g., shooting, choking), hostility, frustration with game play, blood pressure, and heart rate. Male undergraduates (N= 36) were assigned to a high aggressive or low aggressive video-game priming condition. After training, they played Metal Gear Solid, which allows players to advance by using stealth, violence, or both. Participants in the high aggressive priming condition used significantly more violent action during game play and reported more hostility than those in the low aggressive priming condition. Heart rate was correlated with feelings of hostility. These
findings indicate that both aggressive priming and use of game violence influence arousal and negative affect and might increase behavioral aggression.

Anderson et al. (2008) have conducted a survey study entitled “longitudinal effects of violent video games on aggression in Japan and the United States”. They have tested whether high exposure to violent video games increases physical aggression over time in both high- (United States) and low- (Japan) violence cultures. They hypothesized that the amount of exposure to violent video games early in a school year would predict changes in physical aggressiveness assessed later in the school year, even after statistically controlling for gender and previous physical aggressiveness. In 3 independent samples, participants’ video game habits and physically aggressive behavior tendencies were assessed at 2 points in time, separated by 3 to 6 months. One sample consisted of 181 Japanese junior high students ranging in age from 12 to 15 years. A second Japanese sample consisted of 1050 students ranging in age from 13 to 18 years. The third sample consisted of 364 United States 3rd-, 4th-, and 5th-graders ranging in age from 9 to 12 years. Result have shown habitual violent video game play early in the school year predicted later aggression, even after controlling for gender and previous aggressiveness in each sample. Those who played a lot of violent video games became relatively more physically aggressive. Multi sample structure equation modeling revealed that this longitudinal effect was of a similar magnitude in the United States and Japan for similar-aged youth and was smaller (but still significant) in the sample that included older youth. Finally they concluded that these longitudinal results confirm earlier experimental and cross-sectional studies that had suggested that playing violent video games is a significant risk factor for later physically aggressive behavior and that this violent video game effect on youth generalizes across very different cultures. As a whole, the research strongly suggests reducing the exposure of youth to this risk factor.

2.3.2. STUDIES PERTAINING TO PROSOCIAL BEHAVIOR /DESENSITIZATION DUE TO VIDEO AND COMPUTER GAMES

Bartholow et al. (2005) have conducted an experimental study entitled “Correlates and Consequences of Exposure to Video Game Violence: Hostile Personality, Empathy, and Aggressive Behavior”. This correlational study shows that
video game violence exposure (VVE) is positively correlated with self-reports of aggressive behavior and that this relation is robust to controlling for multiple aspects of personality. A lab experiment showed that individuals low in VVE behave more aggressively after playing a violent video game than after a nonviolent game but that those high in VVE display relatively high levels of aggression regardless of game content. Medial analyses show that trait hostility, empathy, and hostile perceptions partially account for the VVE effect on aggression. These findings suggest that repeated exposure to video game violence increases aggressive behavior in part via changes in cognitive and personality factors associated with desensitization.

Lemmens et al. (2006) have conducted a survey study entitled “The appeal of violent video games to lower educated aggressive adolescent boys from two countries. The objective of this study was to test the effect of individual differences on appeal and use of video games. Participants were 299 adolescent boys from lower and higher secondary schools in the Netherlands and Belgium. Boys that scored higher in trait aggressiveness and lower in empathy were especially attracted to violent games and spent more time playing video games than did boys lower in trait aggressiveness. Lower educated boys showed more appreciation for both violent and nonviolent games and spent more time playing them than did higher educated boys. The present study showed that aggressive and less empathic boys were most attracted to violent games. The fact that heavy users of violent games show less empathy and higher aggressiveness suggests the possibility of desensitization.

Funk et al. (2004) have conducted a survey study entitled “Violence Exposure in Real-Life, Video Games, Television, Movies, and the Internet: Is There Desensitization?” The goal of the present study was to determine if there are relationships between real-life and media violence exposure and desensitization as reflected in related characteristics. One hundred fifty fourth and fifth graders completed measures of real-life violence exposure, media violence exposure, empathy, and attitudes towards violence. Regression analyses indicated that only exposure to video game violence was associated with (lower) empathy. Both video game and movie violence exposure were associated with stronger proviolence attitudes. The active nature of
playing video games, intense engagement, and the tendency to be translated into fantasy play may explain negative impact, though causality was not investigated in the present design. The samples’ relatively low exposure to real-life violence may have limited the identification of relationships.

**Carnagey et al. (2007)** have conducted an experimental study entitled “The effect of video game violence on physiological desensitization to real-life violence”.

This experimental study attempts to examine violent video game effects on physiological desensitization. Participants reported their media habits and then played one of eight violent or nonviolent video games for 20 min. Next, participants watched a 10-min videotape containing scenes of real-life violence while heart rate (HR) and galvanic skin response (GSR) were monitored. Participants who previously played a violent video game had lower HR and GSR while viewing filmed real violence, demonstrating a physiological desensitization to violence. Results are interpreted using an expanded version of the General Aggression Model. Links between desensitization, antisocial, and prosocial behavior are discussed.

**Sheese and Graziano (2005)** have conducted an experimental study entitled “Research reports: deciding to defect the effects of video-game violence on cooperative behavior”. This experiment examined the effect of video-game violence on cooperative decision making. Participants (N= 48) were randomly assigned to play either a violent or a nonviolent version of the video game Doom in dyads. Following the video-game task, participants were separated and given an opportunity to choose to cooperate with their partner for mutual gain, withdraw from the interaction, or exploit their partner for their own benefit. Participants in the violent condition were significantly more likely to choose to exploit their partners than participants in the nonviolent condition. These findings suggest that playing violent video games may undermine prosocial motivation and promote exploitive behavior in social interactions.

**Guo et al. (2008)** have conducted an experimental study entitled “Short-Term Desensitizing Effects of Violent Video Games: Comparison between Two Exposure Ways”. This study examined the desensitizing effect of active or passive exposures to
violent video games on male college students’ physiological arousal when viewing a violent film. The result showed that participants who previously played or viewed a violent video game had lower GSR while viewing the violent film than those who previously played or watched a nonviolent video game. This result demonstrated a physiological desensitization effect of exposure to violent video games on physiological arousal toward violence. However, the way of exposure, active or passive, to violent video games failed to show any influence on the degree of desensitization, although actively-playing group reported more enjoyment and less frustration than did passively-viewing group. Results were interpreted and discussed using the General Aggression model.

Funk et al. (2003) have conducted a survey study entitled “Playing violent video games, desensitization, and moral evaluation in children”. Children between the ages of 5 and 12 answered questionnaires about their experiences with and preferences for video games and about their attitudes toward violence. Next, one group of children played a nonviolent video game, and one group played a violent video game. All children responded to short stories about everyday occurrences, and their responses were coded for empathy and aggression. Although playing the violent versus nonviolent video game before responding did not seem to affect children's empathy, those who had long-term experience with video games were less empathetic than those who did not have much experience with video games before the study.

2.3.3. STUDIES PERTAINING TO BEHAVIORAL PROBLEM DUE TO VIDEO AND COMPUTER GAMES

Rehbein et al. (2010) have conducted a survey study entitled “Prevalence and risk factors of video game dependency in adolescence: Results of a German nationwide survey”. In this article, results of a German nationwide survey (KFN schools survey 2007/2008) are presented. The controlled sample of 44,610 male and female ninth-graders was carried out in 2007 and 2008 by the Criminological Research Institute
of Lower Saxony (KFN). According to a newly developed screening instrument (KFN-CSAS-II), which was presented to every third juvenile participant (N = 15,168), 3 percent of the male and 0.3 percent of the female students are diagnosed as dependent on video games. The data indicate a clear dividing line between extensive gaming and video game dependency (VGD) as a clinically relevant phenomenon. VGD is accompanied by increased levels of psychological and social stress in the form of lower school achievement, increased truancy, reduced sleep time, limited leisure activities, and increased thoughts of committing suicide. In addition, it becomes evident that personal risk factors are crucial for VGD. The findings indicate the necessity of additional research as well as the respective measures in the field of health care policies.

Freeman et al. (2008) have conducted an experimental study entitled “Virtual reality study of paranoid thinking in the general population”. To demonstrate that individuals without severe mental illness in the general population experience unfounded paranoid thoughts and to determine factors predictive of paranoia using the first laboratory method of capturing the experience. Two hundred members of the general public were comprehensively assessed, and then entered a virtual reality train ride populated by neutral characters. Ordinal logistic regressions (controlling for age, gender, ethnicity, education, intellectual functioning, socio-economic status, train use, playing of computer games) were used to determine predictors of paranoia. Result has shown that the majority agreed that the characters were neutral, or even thought they were friendly. However, a substantial minority reported paranoid concerns. Paranoia was strongly predicted by anxiety; worry, perceptual anomalies and cognitive inflexibility .they conclude that this is the most unambiguous demonstration of paranoid ideation in the general public so far. Paranoia can be understood in terms of cognitive factors. The use of virtual reality should lead to rapid advances in the understanding of paranoia.

Markey and Scherer (2009) have conducted an experimental study entitled “An examination of psychoticism and motion capture controls as moderators of the effects of violent video games”. They examined the potential moderating effects of motion capture technology and participants’ own level of psychoticism on their hostility and aggressive thoughts after playing violent video games. A total of 118 participants (68
females, 50 males) first completed a measure of psychoticism and then played either a violent video game or a non-violent video game using either a traditional controller or motion capture controls. Immediately after the video game play period, participants’ current level of hostility and aggressive cognitions were assessed using self-report questionnaires. Results indicated that the use of motion capture controls did not increase the negative effects of violent video games. However, participants with elevated levels of psychoticism were much more affected by violent video games than other participants. Such findings suggest that only some individuals are adversely affected by violent video games and that those who are affected have preexisting dispositions which make them susceptible to such violent media.

De Leeuw et al. (2010) have conducted a survey study entitled “Internet and game behavior at a secondary school and a newly developed health promotion programme: a prospective study”. This study investigated the Internet and game use of secondary school children, the compulsiveness of their use and the relationship with other health behaviors. It also evaluated the preliminary results of a recently developed school health promotion programme, implemented at a secondary school in the Netherlands in January 2008. A total of 475 secondary school children completed an extensive questionnaire before and a year after starting the programme. Of these children, 367 were in first, second and third grade; the grades in which the lessons about internet and game behavior were implemented. Questionnaires contained questions about personal information, Internet and game use (Compulsive Internet Use Scale), and other health behaviors (alcohol use, physical activity, psychosocial wellbeing and body mass index). Heavy Internet use was significantly associated with psychosocial problems, and heavy game use was significantly associated with psychosocial problems and less physical activity. No relationship was found with alcohol use or body mass index. The time spent on Internet (hours/day) and the number of pathological Internet users increased during the study. The number of game users decreased but heavy game use increased. The association between heavy Internet use and psychosocial problems and between game use and psychosocial problems and less physical activity emphasizes the need to target different health behaviors in one health education programme. A case-
control study is needed to further assess the programme-induced changes in Internet and game behavior of school children.

Starcevic et al. (2011) have conducted a survey study entitled “Problem Video Game Use and Dimensions of Psychopathology”. The objective of this study was to examine associations between problem video game use and psychopathology. The Video Game Use Questionnaire (VGUQ) and the Symptom Checklist 90 (SCL-90) were administered in an international anonymous online survey. The VGUQ was used to identify problem video game users and SCL-90 assessed dimensions of psychopathology. In comparison with other video game players (n= 1789) those with problem video game use (n=156) had significantly elevated scores on all SCL-90 subscales. When compared to the U.S. male nonpatients, a significantly greater proportion of male video game players exhibited higher levels of all psychopathology. These findings suggest that there is a non-specific relationship between various domains of psychopathology and video game use in general and problem video game use in particular.

Jensen et al. (2011) have conducted a survey study entitled “Developing a brief sensation seeking scale for children: Establishing concurrent validity with video game use and rule-breaking behavior”. To facilitate research with child populations, a brief sensation seeking scale for children (BSSS-C) is developed and validated with a sample of fourth, fifth, and sixth graders (N = 136). The BSSS-C is found to be internally reliable (α = .82) as well as a strong predictor of several risky child behaviors. Higher sensation seeking children were more likely to play video games, including violent subgenres (e.g., shooters), and to enjoy playing video games that contained specific acts of violence (e.g., weapon use). Higher sensation seekers were also more likely to engage in rule-breaking behavior, such as bringing prohibited cell phones to school. The results suggest that sensation seeking may be related to risky behavior at a very young age.

Kim et al. (2008) have conducted a survey study entitled “The relationship between online game addiction and aggression, self-control and narcissistic personality traits”. This study aimed to explore the relationship between online game addiction and aggression, self-control, and narcissistic personality traits, which are
known as the psychological characteristics linked to "at-risk" populations for online game addiction. A total of 1471 online game users (males 82.7 percent, females 17.3 percent, mean age 21.30 +/- 4.96) participated in this study and were asked to complete several self-report measures using an online response method. Questionnaires included demographic information and game use-related characteristics of the samples, the online game addiction scale (modified from Young's Internet addiction scale), the Buss-Perry aggression questionnaire, a self-control scale, and the narcissistic personality disorder scale. The results indicated that aggression and narcissistic personality traits are positively correlated with online game addiction, whereas self-control is negatively correlated with online game addiction (p<0.001). In addition, a multiple regression analysis revealed that the extent of online game addiction could be predicted based on the person's narcissistic personality traits, aggression, self-control, interpersonal relationship, and occupation. However, only 20 percent of the variance in behavioral consequences was explained with the model.

Gentile et al. (2011) have conducted a survey study “Pathological video game use among youths: A two-year longitudinal study”. They aimed to measure the prevalence and length of the problem of pathological video gaming or Internet use, to identify risk and protective factors, to determine whether pathological gaming is a primary or secondary problem, and to identify outcomes for individuals who become or stop being pathological gamers. A 2-year, longitudinal, panel study was performed with a general elementary and secondary school population in Singapore, including 3034 children in grades 3 (N = 743), 4 (N = 711), 7 (N = 916), and 8 (N = 664). Several hypothesized risk and protective factors for developing or overcoming pathological gaming were measured, including weekly amount of game play, impulsivity, social competence, depression, social phobia, anxiety, and school performance. Result has shown that .The prevalence of pathological gaming was similar to that in other countries (9 percent). Greater amounts of gaming, lower social competence, and greater impulsivity seemed to act as risk factors for becoming pathological gamers, whereas depression, anxiety, social phobias, and lower school performance seemed to act as outcomes of pathological gaming.
Starcevic et al. (2010) have conducted a survey study entitled “Recognizing problem video game use”. The main objectives of this study were to identify individuals with problem video game use and compare them with those without problem video game use on several variables. An international, anonymous online survey was conducted, using a questionnaire with provisional criteria for problem video game use, which the authors have developed. These criteria reflect the crucial features of problem video game use: preoccupation with and loss of control over playing video games and multiple adverse consequences of this activity. A total of 1945 survey participants completed the survey. Respondents who were identified as problem video game users (n = 156, 8.0 percent) differed significantly from others (n = 1789) on variables that provided independent, preliminary validation of the provisional criteria for problem video game use. They played longer than planned and with greater frequency, and more often played even though they did not want to and despite believing that they should not do it. Problem video game users were more likely to play certain online role-playing games, found it easier to meet people online, had fewer friends in real life, and more often reported excessive caffeine consumption.

Chory and Goodboy (2011) have conducted a survey study entitled “Is Basic Personality Related to Violent and Non-Violent Video Game Play and Preferences?” Based on the uses and gratifications perspective, personality was expected to relate to violent video game play frequency and game preferences. Participants completed measures of personality and frequency of violent video game play, and identified their most frequently played video games. Results indicate that individuals higher in openness but lower in agreeableness played violent video games more frequently. In addition, more open and extroverted but less agreeable and neurotic individuals generally preferred to play video games that are more violent. Results suggest personality may be more predictive of violent video game use than traditional media use, though the predictive personality dimensions may be consistent across media types.
2.3.4. STUDIES PERTAINING TO ADDICTION TO VIDEO AND COMPUTER GAMES, PATHOLOGICAL GAMING

Chiu et al. (2004) have conducted a survey study entitled “Video Game Addiction in Children and Teenagers in Taiwan”. Video game addiction in children and teenagers in Taiwan is associated with levels of animosity, social skills, and academic achievement. This study suggests that video game addiction can be statistically predicted on measures of hostility, and a group with high video game addiction has more hostility than others. Both gender and video game addiction are negatively associated with academic achievement. Family function, sensation seeking, gender, and boredom have statistically positive relationships with levels of social skills. Current models of video game addiction do not seem to fit the findings of this study.

Skoric et al. (January 01, 2009) have conducted a survey study entitled “Children and Video Games: Addiction, Engagement, and Scholastic Achievement”. The aim of this study was to assess the relationship between video gaming habits and elementary school students' academic performance. More specifically, they seek to examine the usefulness of a distinction between addiction and high engagement and assess the predictive validity of these concepts in the context of scholastic achievement. Three hundred thirty-three children ages 8 to 12 years from two primary schools in Singapore were selected to participate in this study. A survey utilizing Danforth's Engagement-Addiction (II) scale and questions from DSM-IV was used to collect information from the schoolchildren, while their grades were obtained directly from their teachers. The findings indicate that addiction tendencies are consistently negatively related to scholastic performance, while no such relationship is found for either time spent playing games or for video game engagement. The implications of these findings are discussed.

Griffiths and Wood (2000) have conducted a survey study entitled “Risk Factors in Adolescence: The Case of Gambling, Videogame Playing, and the Internet”. This paper examines risk factors not only in adolescent gambling but also in videogame playing (which shares many similarities with gambling). There appear to be
three main forms of adolescent gambling that have been widely researched. Adolescent gambling activities and general risk factors in adolescent gambling are provided. As well, the influence of technology on adolescents in the form of both videogames and the Internet are examined. It is argued that technologically advanced forms of gambling may be highly appealing to adolescents.

Grusser et al. (2007) have conducted a survey study entitled “Excessive Computer Game Playing: Evidence for Addiction and Aggression?”. The aim of this study was the investigation of the addictive potential of gaming as well as the relationship between excessive gaming and aggressive attitudes and behavior. A sample comprising of 7069 gamers answered two questionnaires online. Data revealed that 11.9 percent of participants (840 gamers) fulfilled diagnostic criteria of addiction concerning their gaming behavior, while there is only weak evidence for the assumption that aggressive behavior is interrelated with excessive gaming in general. Results of this study contribute to the assumption that also playing games without monetary reward meets criteria of addiction. Hence, an addictive potential of gaming should be taken into consideration regarding prevention and intervention.

Johansson and Gotestam (2004) have conducted a survey study entitled “Problems with computer games without monetary reward: similarity to pathological gambling”. An epidemiological study was performed on a representative sample of the Norwegian youth population (12 to 18 years old, N=3,237; response rate 45.2 percent). The percentage who was frequent players (weekly) of different computer games was 63.3 percent, and the percentage of infrequent users was 36.7 percent. A mean of 2.7 percent (4.2 percent of the boys, 1.1 percent of the girls) could be described as exhibiting "pathological playing" according to the criteria in the 1998 Diagnostic Questionnaire for Internet Addiction of Young, and an additional 9.82 percent (14.5 percent of the boys, 5.0 percent of the girls) were considered to be engaging in "at-risk playing." Of the weekly gamblers, 4.2 percent fulfilled 5 criteria for pathological playing, and an additional 15.5 percent 3 to 4 criteria, i.e., at-risk playing. This indicated that frequent gaming on computer games without money rewards may be related to problematic playing even though no monetary reward is involved.
Gentile (2009) has conducted a survey study entitled “Research Article: Pathological Video-Game Use among Youth Ages 8 to 18: A National Study”. This study gathered information about video-gaming habits and parental involvement in gaming, to determine the percentage of youth who meet clinical-style criteria for pathological gaming. A Harris poll surveyed a randomly selected sample of 1,178 American youth ages 8 to 18. About 8 percent of video-game players in this sample exhibited pathological patterns of play. Several indicators documented convergent and divergent validity of the results: Pathological gamers spent twice as much time playing as nonpathological gamers and received poorer grades in school; pathological gaming also showed comorbidity with attention problems. Pathological status significantly predicted poorer school performance even after controlling for sex, age, and weekly amount of video-game play. These results confirm that pathological gaming can be measured reliably, that the construct demonstrates validity, and that it is not simply isomorphic with a high amount of play.

Lemmens et al. (2011) have conducted a survey study entitled “The effects of pathological gaming on aggressive behavior”. Studies have shown that pathological involvement with computer or video games is related to excessive gaming binges and aggressive behavior. Aims for this study were to longitudinally examine if pathological gaming leads to increasingly excessive gaming habits, and how pathological gaming may cause an increase in physical aggression. For this purpose, we conducted a two-wave panel study among 851 Dutch adolescents (49 survey female) of which 540 played games (30 survey female). Analyses indicated that higher levels of pathological gaming predicted an increase in time spent playing games 6 months later. Time spent playing violent games specifically, and not just games per se, increased physical aggression. Furthermore, higher levels of pathological gaming, regardless of violent content, predicted an increase in physical aggression among boys. That this effect only applies to boys does not diminish its importance, because adolescent boys are generally the heaviest players of violent games and most susceptible to pathological involvement.

Anand (2007) has conducted a survey research entitled “A Study of Time Management: The Correlation between Video Game Usage and Academic
Performance Markers”. This study analyzes the correlation between video game usage and academic performance. Scholastic Aptitude Test (SAT) and grade-point average (GPA) scores were used to gauge academic performance. The amount of time a student spends playing video games has a negative correlation with students' GPA and SAT scores. As video game usage increases, GPA and SAT scores decrease. This research suggests that video games may have a detrimental effect on an individual's GPA and possibly on SAT scores. Although these results show statistical dependence, proving cause and effect remains difficult, since SAT scores represent a single test on a given day. The effects of video games maybe cumulative; however, drawing a conclusion is difficult because SAT scores represent a measure of general knowledge. GPA versus video games is more reliable because both involve a continuous measurement of engaged activity and performance. The connection remains difficult because of the complex nature of student life and academic performance. Also, video game usage may simply be a function of specific personality types and characteristics.

Weis and Cerankosky (2010) have conducted an experimental study entitled “effects of video game ownership on young boys, academic and behavioral functioning”. Young boys who did not own video games were promised a video-game system and child-appropriate games in exchange for participating in an “ongoing study of child development.” After baseline assessment of boys’ academic achievement and parent- and teacher-reported behavior, boys were randomly assigned to receive the video-game system immediately or to receive the video-game system after follow-up assessment, 4 months later. Boys who received the system immediately spent more time playing video games and less time engaged in after-school academic activities than comparison children. Boys who received the system immediately also had lower reading and writing scores and greater teacher-reported academic problems at follow-up than comparison children. Amount of video-game play mediated the relationship between video-game ownership and academic outcomes. Results provide experimental evidence that video games may displace after-school activities that have educational value and may interfere with the development of reading and writing skills in some children.
2.3.5. STUDIES PERTAINING TO GENRE AND CONTENT OF VIDEO AND COMPUTER GAMES

Olson et al. (2007) have conducted a survey study entitled “Factors Correlated with Violent Video Game Use by Adolescent Boys and Girls”. Aim of this study was to compare the video and computer game play patterns of young adolescent boys and girls, including factors correlated with playing violent games. Data collected in November/December, 2004 from children in grades 7 and 8 at two demographically diverse schools in Pennsylvania and South Carolina, using a detailed written self-reported survey. Of 1254 participants (53 percent female, 47 percent male), only 80 reported playing no electronic games in the previous 6 months. Of 1126 children who listed frequently played game titles, almost half (48.8 percent) played at least one violent (mature-rated) game regularly (67.9 percent of boys and 29.2 percent of girls). One third of boys and 10.7 percent of girls play games nearly every day; only 1 in 20 plays often or always with a parent. Playing M-rated games is positively correlated (p < .001) with being male, frequent game play, playing with strangers over the Internet, having a game system and computer in one's bedroom, and using games to manage anger. They conclude that most young adolescent boys and many girls routinely play M-rated games. Implications for identifying atypical and potentially harmful patterns of electronic game use are discussed, as well as the need for greater media literacy among parents.

Farrar et al. (2006) have conducted an experimental study entitled “Contextual Features of Violent Video Games, Mental Models, and Aggression”. This experiment employed a 2 (third vs. first person) × 2 (blood on/off) × 2 (sex) design in order to examine the effects of two internal video game manipulations: the presence of blood and point of view on participants’ perceptions of the game. Overall, when the blood manipulation was on, participants perceived greater gore. Players were significantly more focused when they played in the third-person point of view than when they played in first person. Males were more involved in the game overall regardless of point of view, but females were more focused and involved when they played in third, not first, person. In addition, they wanted to see if game manipulations and perceptions of the game affected
aggressive outcomes. Those who played the game in the blood-on condition had more physically aggressive intentions, and when players were more involved and immersed in the game, they reported greater hostility and physically aggressive intentions. Findings are discussed as they relate to mental models of media violence.

Olson et al. (2009) have conducted a survey study entitled “M-rated video games and aggressive or problem behavior among young adolescents”. This research examined the potential relationship between adolescent problem behaviors and amount of time spent with violent electronic games. Survey data were collected from 1,254 7th and 8th grade students in two states. A “dose” of exposure to Mature-rated games was calculated using Entertainment Software Rating Board ratings of titles children reported playing “a lot in the past six months,” and average days per week of video game play. Analyses were conducted using simultaneous logistic regression for binary outcome variables, and simultaneous multiple linear regression for continuous outcome variables, controlling for a series of potential confounders. M-rated game dose predicted greater risk for bullying (p < .01) and physical fights (p < .001), but not for delinquent behaviors or being a victim of bullies. When analyzed separately, these associations became weaker for boys and stronger for girls.

Griffiths et al. (2004) have conducted a survey study entitled “Online computer gaming: a comparison of adolescent and adult gamers”. Therefore, an online questionnaire survey was used to examine various factors of online computer game players (n = 540) who played the most popular online game Everquest. The survey examined basic demographic information, playing frequency (i.e. amount of time spent playing the game a week), playing history (i.e. how long they had been playing the game, who they played the game with, whether they had ever gender swapped their game character, the favourite and least favourite aspects of playing the game, and what they sacrifice (if anything) to play the game. Results showed that adolescent gamers were significantly more likely to be male, significantly less likely to gender swap their characters, and significantly more likely to sacrifice their education or work. In relation to favourite aspects of game play, the biggest difference between the groups was that significantly more adolescents than adults claimed their favorite aspect of playing was
violence. Results also showed that in general, the younger the player, the longer they spent each week playing.

Haninger and Thompson (2004) have surveyed and conducted a study entitled “Content and ratings of teen-rated video games”. **Results** Analysis of all content descriptors assigned to the 396 T-rated video game titles showed 373 (94 percent) received content descriptors for violence, 102 (26 percent) for blood, 60 (15 percent) for sexual themes, 57 (14 percent) for profanity, 26 (7 percent) for comic mischief, 6 (2 percent) for substances, and none for gambling. In the random sample of 81 games we played, we found that 79 (98 percent) involved intentional violence for an average of 36 percent of game play, 73 (90 percent) rewarded or required the player to injure characters, 56 (69 percent) rewarded or required the player to kill, 34 (42 percent) depicted blood, 22 (27 percent) depicted sexual themes, 22 (27 percent) contained profanity, 12 (15 percent) depicted substances, and 1 (1 percent) involved gambling. Our observations of 81 games match the ESRB content descriptors for violence in 77 games (95 percent), for blood in 22 (27 percent), for sexual themes in 16 (20 percent), for profanity in 14 (17 percent), and for substances in 1 (1 percent). Games were significantly more likely to depict females partially nude or engaged in sexual behaviors than males. Overall, they identified 51 observations of content that could warrant a content descriptor in 39 games (48 percent) in which the ESRB had not assigned a content descriptor. They found that the ESRB assigned 7 content descriptors for 7 games (9 percent) in which we did not observe the content indicated within 1 hour of game play. In conclusion Content analysis suggests a significant amount of content in T-rated video games that might surprise adolescent players and their parents given the presence of this content in games without ESRB content descriptors.

Elliott et al. (2011) have conducted a survey study entitled “Cyber psychology, Behavior, and Social Networking”. The study surveyed 3380 adult participants 18-years-old or older who identified themselves as having played one or more hours of gaming in the "last week." The survey gathered information the amount of time played, games participants played in the past year, and any problems associated with playing. The research team used Gamefaqs.com to sort 2652 titles identified by participants into
15 mutually exclusive genres: "MMORPG, other role-playing, action-adventure, first-person shooter, other shooter, sports general, sports other, rhythm, driving, platformer, real-time strategy, other strategy, puzzle, board and card games, gambling, and other." Survey results showed that 5 percent of respondents reported "moderate to extreme problem game playing." Of those who admitted "problem gaming habits," the most cited games were first-person shooters, action-adventures, role-playing games, and gambling games during the past year. The most commonly cited games in the problem category included Call of Duty, Grand Theft Auto, World of War craft, and various poker titles.

**Funk (1993)** has conducted a survey study entitled “**Reevaluating the impact of video games**”. A survey assessing frequency and location of play and game preference was completed by 357 seventh- and eighth-grade students. In this middle-class sample, about two thirds of girls played video games at least one to two hours per week at home, but only 20 percent played in arcades. About 90 percent of boys played in the home and about 50 percent in arcades. Approximately half of preferred games were from one of two categories of violent games, while 2 percent of preferred games were educational. Parent education about the influence of the media should include recommendations to monitor game playing and influence game selection.

**Wood et al. (2004)** have conducted a survey study entitled “**The Structural Characteristics of Video Games: A Psycho-Structural Analysis**”. This online study was going to assess what structural characteristics (if any) are important to a group of self-selected video game players (n = 382). The main variables examined were sound, graphics, background and setting, duration of game, rate of play, advancement rate, use of humor, control options, game dynamics, winning and losing features, character development, brand assurance, and multi-player features. Although there were many major gender differences, one of the main overall findings was the importance of a high degree of realism (i.e., realistic sound, graphics, and setting). Other important characteristics included a rapid absorption rate, character development, the ability to customize the game, and multiplayer features. Suggestions for future research are outlined.
Inal and Cagiltay (2007) have conducted an experimental study entitled “Flow experiences of children in an interactive social game environment”. This study examines children's flow experiences in an interactive social game environment. A total of 33 children aged from 7 to 9 years participated in the study for 6 weeks. Data were collected through observations and interviews. In order to measure the flow experiences of the children, items of a flow scale were administered to the children through interviews. Results revealed that flow experiences occur more among boys than girls during game play. While ludology had more effect on the flow experiences of boys when compared with the narratology of computer games, narratology had more effect among girls. Challenge and complexity elements of games had more effect on the flow experiences of the children than clear feedback.

Malliet (2006) has conducted a survey study entitled “An exploration of adolescents' perceptions of videogame realism”. An attempt is made to translate the concept of perceived realism from the domain of general media studies to the domain of videogame studies. In order to make such a translation, a thorough knowledge and integration is required of the simulation aspects that distinguish videogames from older media such as film or television. The different meanings adolescents attribute to videogame realism were assessed by means of a series of semi-structured in-depth interviews. Thirty-two moderate to heavy videogame players were interviewed, whose age ranged between 16 and 19 years. Five dimensions of observed videogame realism were identified: factuality, authenticity, character involvement, virtual experience and perceptual pervasiveness.

Eden et al. (2010) have conducted two experimental studies entitled “Gender attribution in online video games”. This research identifies two determinants of perceived gender of online video game players, player skill and game genre, through the results of two separate experiments. Experiment 1 demonstrates that both game genre and player skill have a significant effect on perception of player maleness, such that skilled players of typically masculine game genres (i.e., shooting games) are considered more male than unskilled players of less traditionally male games (i.e. puzzle games). Experiment 2 partially replicates these results, demonstrating a significant effect for game
genre on perceptions of player maleness, and a rank-order of the interaction between genre and player skill in determining player gender. Results from both experiments suggest the presence of a perceptual bias in online games, in that all players are assumed to be more male than female. These findings are discussed in terms of relevant gaming literature as well as computer-mediated communication (CMC) research on online gender perception.

Ivory (2006) has conducted a survey study entitled “Still a Man's Game: Gender Representation in Online Reviews of Video Games”. Despite the rising popularity of video games, the majority of the medium's audience continues to be male. One reason may be that character representations in video games are geared toward male players. This content analysis used video game reviews from a heavily trafficked Internet site to investigate the prevalence and portrayal of male and female video game characters. Consistent with the findings of previous studies, female characters were found to be underrepresented and proportionally more often sexualized in comparison to their male counterparts. In addition to these findings, the study's innovative method—the use of online video game reviews as an indirect measure of video game content-shows promise as a tool for future content analyses of video games.

2.3.6. STUDIES PERTAINING TO DEMOGRAPHIC INFORMATION AND GENDER DIFFERENCE OF VIDEO AND COMPUTER GAMES USER

Ko et al. (2005) have conducted a survey study entitled “Gender differences and related factors affecting online gaming addiction among Taiwanese adolescents”. The aim of this study was to evaluate the extent to which gender and other factors predict the severity of online gaming addiction among Taiwanese adolescents. A total of 395 junior high school students were recruited for evaluation of their experiences playing online games. Severity of addiction, behavioral characteristics, number of stressors, and level of satisfaction with daily life were compared between males and females who had previously played online games. Multiple regression analysis was used to explore gender differences in the relationships between severity of online gaming addiction and a
number of variables. This study found that subjects who had previously played online games were predominantly male. Gender differences were also found in the severity of online gaming addiction and motives for playing. Older age, lower self-esteem, and lower satisfaction with daily life were associated with more severe addiction among males, but not among females. Special strategies accounting for gender differences must be implemented to prevent adolescents with risk factors from becoming addicted to online gaming.

Yee (2006) has conducted a survey study entitled “The Demographics, Motivations, and Derived Experiences of Users of Massively Multi-User Online Graphical Environments”. Online survey data were collected from 30,000 users of Massively Multi-User Online Role-Playing Games (MMORPGs) over a three year period to explore users' demographics, motivations, and derived experiences. Not only do MMORPGs appeal to a broad age range ($M_{age} = 26.57$, range = 11–68), but the appeal is strong (on average 22 hours of usage per week) across users of all ages ($r = -.04$). An exploratory factor analysis revealed a five factor model of user motivations—Achievement, Relationship, Immersion, Escapism, and Manipulation—illustrating the multifaceted appeal of these online environments. Male players were significantly more likely to be driven by the Achievement and Manipulation factors, while female players were significantly more likely to be driven by the Relationship factor. Also, the data indicated that users derived meaningful relationships and salient emotional experiences, as well as real-life leadership skills from these virtual environments. MMORPGs are not simply a pastime for teenagers, but a valuable research venue and platform where millions of users interact and collaborate using real-time 3D avatars on a daily basis.

Lucas and Sherry (2004) have conducted a survey study entitled “Sex Differences in Video Game Play: A Communication-Based Explanation”. In this study, they examined gender differences in video game use by focusing on interpersonal needs for inclusion, affection, and control, as well as socially constructed perceptions of gendered game play. Results of a large-scale survey ($n = 534$) of young adults’ reasons for video game use, preferred game genres, and amount of game play are reported.
Female respondents report less frequent play, less motivation to play in social situations, and less orientation to game genres featuring competition and three-dimensional rotation. Implications for game design are discussed.

**Bartholow and Anderson (2002)** have conducted an experimental study entitled “Effects of violent video games on aggressive behavior: Potential sex differences”. Evidence of the effects of playing violent video games on subsequent aggression has been mixed. This study examined how playing a violent video game affected levels of aggression displayed in a laboratory. Forty-three undergraduate students (22 men, 21 women) were randomly assigned to play either a violent (‘Mortal Kombat’) or nonviolent (‘PGA Tournament Golf’) video game for 10 minutes. Then they competed with a confederate in a reaction time task that allowed for provocation and retaliation. Punishment levels set by participants for their opponents served as the measure of aggression. The results confirmed our hypothesis that playing the violent game would result in more aggression than playing the nonviolent game. In addition, a Game x Sex interaction showed that this effect was larger for men than for women. Findings are discussed in light of potential differences in aggressive style between men and women.

**Desai et al. (2010)** have conducted a survey study entitled “Video-gaming among high school students: Health correlates, gender differences, and problematic gaming”. This study anonymously surveyed 4028 adolescents about gaming and reported problems with gaming and other health behaviors. A total of 51.2 percent of the sample reported gaming (76.3 percent of boys and 29.2 percent of girls). Results have shown no negative health correlates of gaming in boys and lower odds of smoking regularly; however, girls who reported gaming were less likely to report depression and more likely to report getting into serious fights and carrying a weapon to school. Among gamers, 4.9 percent reported problematic gaming, defined as reporting trying to cut back, experiencing an irresistible urge to play, and experiencing a growing tension that could only be relieved by playing. Boys were more likely to report these problems (5.8 percent) than girls (3.0 percent). Correlates of problematic gaming included regular cigarette smoking, drug use, depression, and serious fights. Results suggest that gaming is largely normative in boys and not associated with many health factors. In girls, however, gaming
seems to be associated with more externalizing behaviors and fewer internalizing symptoms.

Deselms and Altman (2003) have conducted an experimental study entitled “Immediate and Prolonged Effects of Videogame Violence”. This study examined the relationship between playing violent videogames and sensitivity to aggressive acts. In 2 experiments, college students were randomly assigned to play violent or less violent videogames. They then read a series of criminal vignettes and assigned prison sentences to violent criminals. In the second experiment, participants returned 1 hr later and completed a second series of vignettes. A significant interaction between gender and videogame was found in both experiments. Men who played the violent game gave more lenient sentences to criminals than did those who played the less violent game. In the second experiment, women, unlike men, assigned harsher sentences after playing the violent game. The effects were found to persist for at least 1 hour.

Williams et al. (2009) have conducted a study survey entitled “Looking for gender: Gender roles and behaviors among online gamers”. Several hypotheses regarding the importance of gender and relationships were tested by combining a large survey dataset with unobtrusive behavioral data from 1 year of play. Consistent with expectations, males played for achievement-oriented reasons and were more aggressive, especially within romantic relationships where both partners played. Female players in such relationships had higher general happiness than their male counterparts. Contrary to stereotypes and current hypotheses, it was the female players who played the most. Female players were also healthier than male players or females in the general population. The findings have implications for gender theory and communication-oriented methods in games and online research—most notably for the use of self-reported time spent, which was systematically incorrect and different by gender.

Ogletree and Drake (2007) have conducted a survey study entitled “College Students' Video Game Participation and Perceptions: Gender Differences and Implications”. As growing numbers of youth in the United States play video games, potential effects of game playing are being considered. We focused on gender-related
aspects of gaming in a study of 206 college students. Men were significantly more likely than women to play video games two or more hours a week and to indicate that video game playing interfered with sleeping and with class preparation. A greater proportion of women than men complained about the amount of time their significant other played video games. Participants rated female video game characters as significantly more helpless and sexually provocative than male characters and as less likely to be strong and aggressive. Gender differences in participation and character portrayals potentially impact the lives of youth in a variety of ways.

The Entertainment and Leisure Software Publishers Association (ELSPA) and the Interactive Software Federation of Europe (ISFE) (2010) have conducted a survey study Which found that 60 percent of all UK gamers use online gaming sites, with 37 per cent using social networking or other non-gaming sites, leading the backers of the study to state, “…gaming is becoming more accessible to the traditional ‘non-gamer’.” 74 percent of 16-19 year olds called themselves gamers, versus 60 percent of 20-24 year olds. Broken down by gender, 34 percent of males called themselves gamers, while 31 percent of females did as well. Additionally, it was reported that “this new gamer is steering away from the traditional shoot-up genre, preferring to challenge their cerebral cortex rather than their hand-eye co-ordination,” a number reflected in 65 percent of gamers indicating that they played puzzle games online. The online/social game contingent also helped to make the PC the most popular gaming platform, with 33 percent using it the most, versus a combined figure of 36 percent for the Wii and Xbox 360. 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. On the parenting side, 71 percent of gaming parents (and 61 percent of non-gaming parents) said that they monitor what their kids are playing most (or all) of the time. 58 percent of gaming parents stated that they played games with their children.

Cummings and Vandewater (2007) have conducted a survey study entitled “Relation of adolescent video game play to time spent in other activities”. Twenty-four–hour time use diaries were collected on weekday and weekend day, both randomly chosen. Time-use diaries were used to determine adolescents’ time spent playing video
games, with parents and friends, reading and doing homework, and in sports and active leisure. Result have shown Differences in time spent between game players and non-players as well as the magnitude of the relationships among game time and activity time among adolescent game players were assessed. Thirty-six percent of adolescents (80% of boys and 20% of girls) played videogames. On average, gamers played for an hour on the weekdays and an hour and a half on the weekends. Compared with non-gamers, adolescent gamers spent 30% less time reading and 34% less time doing homework. Among gamers (both genders), time spent playing video games without parents or friends was negatively related to time spent with parents and friends in other activities. They conclude that Although gamers and non-gamers did not differ in the amount of time they spent interacting with family and friends, concerns regarding gamers’ neglect of school responsibilities (reading and homework) are warranted. Although only a small percentage of girls played video games, our findings suggest that playing video games may have.

Griffiths et al. (2004) have conducted an online survey entitled “Demographic Factors and Playing Variables in Online Computer Gaming”. An online questionnaire survey was used to examine basic demographic factors of online computer game players who played the popular online game Everquest (i.e., gender, age, marital status, nationality, education level, occupation). The survey also examined playing frequency (i.e., amount of time spent playing the game a week), playing history (i.e., how long they had been playing the game, who they played the game with, whether they had ever gender swapped their game character), the favorite and least favorite aspects of playing the game, and what they sacrifice (if anything) to play the game. Results showed that 81% of online game players were male, and that the mean age of players was 27.9 years of age. For many players, the social aspects of the game were the most important factor in playing. A small minority of players appear to play excessively (over 80 h a week), and results suggest that a small minority sacrifice important activities in order to play (e.g., sleep, time with family and/or partner, work, or schooling).
2.3.7. STUDIES PERTAINING TO IRANIAN RESEARCH

Allahverdipour et al. (2010) have conducted a survey study entitled “Correlates of video games playing among adolescents in an Islamic country”. The cross-sectional study was performed with a random sample of 444 adolescents recruited from eight middle schools. A self-administered, anonymous questionnaire covered socio-demographics, video gaming behaviors, mental health status, self-reported aggressive behaviors, and perceived side effects of video game playing. Overall, participants spent an average of 6.3 hours per week playing video games. Moreover, 47 percent of participants reported that they had played one or more intensely violent games. Non-gamers reported suffering poorer mental health compared to excessive gamers. Both non-gamers and excessive gamers overall 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 behaviors were associated with length of gaming. Boys, but not girls, who reported playing video games excessively showed more aggressive behaviors. 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. Result have shown a curvilinear relationship between video game playing and mental health outcomes, with "moderate" gamers faring best and "excessive" gamers showing mild increases in problematic behaviors. Interestingly, "non-gamers" clearly show the worst outcomes.

Barahmand (2008) has conducted a survey study entitled “Psychological Profile of Adolescent Computer Game Players and Perceived Need Satisfaction and Associated Social Outcomes”. The aim of the present study was to identify individual and gender differences in motives for engaging in various kinds of computer games among adolescents and to assess the ways in which computer game play is related to academic and social outcomes among Iranian youth. Participants were selected through snowball sampling from 236 14- to 19-year olds. Data was collected using a structured questionnaire. Results: Findings revealed that most of the players were boys
(69.68 percent). Male gamers spent an average of 7 hours 36 minutes playing per week, while female gamers spent an average of 3 hours 42 minutes playing per week. Boys tended to prefer ‘action’, ‘strategy’ and ‘sports’ games while girls engaged more in games involving ‘role playing’ and ‘puzzles’. Gender differences also emerged with regard to the reasons why adolescents play computer games: boys endorsed the need to acquire skill, need to display mastery, need to win and need for excitement, but girls indicated need for mood change, need for novel experiences and escape into fantasy. Computer game playing did appear to be associated with adverse effects on relations with parents and sleep disturbances in a sizeable proportion of the sample.

Emami et al. (2007) have conducted a survey study entitled “Mental Health of Adolescents”. To investigate mental health in Iranian adolescents, particularly in high school students from urban areas. A sample of 4599 girls and boys was selected from third year classes from high schools in Tehran by a stratified cluster random sampling method. They were investigated by means of the 12-item General Health Questionnaire (GHQ-12) in a cross-sectional study. Following the recommendations of Goldberg et al, the chosen cut-off point for the differentiation between individuals with and without psychiatric morbidity was a score of 7 because of the high mean score within the population. Of the students, 1270 (19.5 percent) achieved a GHQ-12 score above the threshold. Significantly more girls (34.1 percent) than boys (23.7 percent) had GHQ-12 scores indicating some psychiatric morbidity. On average, the 18-year-old adolescents reported a higher level of mental health problems compared with 17-year-old adolescents in the same school year. They concluded that a considerable proportion of adolescent high school students experience mental disorders, with girls experiencing such disorders more frequently than boys. Periodic mental health surveys in high schools are proposed to identify students in need of counseling or treatment to improve their coping skills and problem-solving abilities.

Zamani et al. (2009) have conducted a survey study entitled “Effect of Addiction to Computer Games on Physical and Mental Health of Female and Male Students of Guidance School in City of Isfahan”. This study aimed to investigate the effects of addiction to computer games on physical and mental health of students. The study population includes all students in the second year of public guidance schools in the city
of Isfahan in the educational year of 2009-2010. The sample size includes 564 students selected by multiple steps stratified sampling. Dependent variables include general health in dimensions of physical health, anxiety and sleeplessness and impaired social functioning. Data were collected using General Health Questionnaire (GHQ-28) scale and a questionnaire on addiction to computer games. Pearson's correlation coefficient and structural model were used for data analysis. There was a significant positive correlation between students' computer games addiction and their physical and mental health in dimensions of physical health, anxiety and sleeplessness. There was a significant negative relationship between addictions to computer games and impaired social functioning. As the results show, addiction to computer games affects various dimensions of health and increases physical problems, anxiety and depression, while decreases social functioning disorder.

Alavi et al. (2012) have conducted a survey study entitled “Impact of addiction to internet on a number of psychiatric symptoms in students of Isfahan Universities”. This study aimed to investigate the impact of internet addiction on some psychiatric symptoms among university students. Cross-sectional study was conducted among 250 students selected via quota sampling from universities in Isfahan, Iran. Participants completed demographic questionnaire, Young Diagnostic Questionnaire, Internet Addiction Test and Symptom Checklist-90-Revision (SCL-90-R). Finally, the means of psychiatric symptoms of internet addicted and non-addicted subjects were compared. Also, t-test and multivariate analysis of covariance were used through SPSS(16) software for data analysis. There were significant differences between the means of psychiatric symptoms in all SCL-90-R subscales and Global Severity Index, Positive Symptom Distress Index, Positive Symptom Total in the addicted and non-addicted individuals (P<0.05). Also, internet addiction (with controlling sex variable) seemed to affect psychiatric symptoms.

Alavi et al (2010) have conducted a survey study entitled “A survey Relationship between Psychiatric symptoms and Internet addiction disorder in students of Isfahan universities”. In a cross-sectional study, a total number of 250 students from Isfahan's universities were randomly selected. Subjects completed the
demographic questionnaire, the Young Diagnostic Questionnaire (YDQ) and the Symptom Checklist-90-Revision (SCL-90-R). Data was analyzed using the multiple logistic regression method. There was an association between psychiatric symptoms such as somatization, sensitivity, depression, anxiety, aggression, phobias, and psychosis with exception of paranoia; and diagnosis of Internet addiction controlling for age, sex, education level, marital status, and type of universities. A great percentage of youths in the population suffer from the adverse effects of Internet addiction. It is necessary for psychiatrists and psychologists to be aware of the mental problems caused by Internet addiction.

Sajjadian and Nadi (2006) have conducted a survey study entitled “Depression & social isolation in adolescent and young adult internet users, correlation with time duration of internet use”. This was a descriptive correlation study. The sample consisted of 118 adolescent and young adult internet users randomly selected from the usual clients of approved coffee-nets of Isfahan city at 2006. Beck Depression Inventory and a researcher made questionnaire were respectively used to assess depression and social isolation. Demographic data were also collected. Data were analyzed using SPSS-software and Spearman-Pearson correlation coefficient and independent groups T tests. The result have shown .Significant relationships were found between both depression and social isolation and the mean routine time duration of internet use (P< 0.05). They conclude that Excessive internet use may cause hazards to adolescents' and young adults' mental health and social development.

Shams et al. (2011) have conducted a survey study entitled “Prevalence Rates of Obsessive-Compulsive Symptoms and Psychiatric Comorbidity among Adolescents in Iran”. The primary aim of the current study is to investigate the point-prevalence rate of obsessive compulsive symptoms in a sample of adolescent high school student in Iran. A two-stage epidemiological study was carried out through a clustered random sampling method. All participants went through a two-stage assessment procedure, in the first screening phase, the Maudsley Obsessive-Compulsive Inventory (MOCI) was administered to 909 randomly selected students (in the age range 14-18 years). Participants were considered possible sub-clinical or clinical OCD cases, if they obtained
a score of MOCI ≥15. In the second stage, the Symptoms Checklist -90-revised (SCL-90-R) was administered to students who fulfilled the screening criteria. The prevalence of OC symptoms was found to be 11.2 percent for the total sample. The most prevalent comorbid conditions were depression and anxiety with prevalence rates of 91.2 and 78.4 percent respectively. Gender, age, birth-order, parent's education and family income had no statistically significant association with OC symptoms.

2.3.8. STUDIES PERTAINING to INDIAN RESEARCH

Srinath et al. (2005) have conducted a survey study entitled “Epidemiological study of child & adolescent psychiatric disorders in urban & rural areas of Bangalore, India”. The aim of this study was an epidemiological study to determine the prevalence rates of child and adolescent psychiatric disorders. 2064 children aged 0-16 yr, were selected by stratified random sampling from urban middle-class, urban slum and rural areas. The screening stage was followed by a detailed evaluation stage. The ICD-10 DCR criteria were used to reach a penta-axial diagnosis. The results indicated a prevalence rate of 12.5 per cent among children aged 0-16 yr. There were no significant differences among prevalence rates in urban middle-class, slum and rural areas. The psychiatric morbidity among 0-3 yr old children was 13.8 per cent with the most common diagnoses being breath holding spells, pica, behaviour disorder NOS, expressive language disorder and mental retardation. The prevalence rate in the 4-16 yr old children was 12.0 per cent. Enuresis, specific phobia, hyperkinetic disorders, stuttering and oppositional defiant disorder were the most frequent diagnoses. When impairment associated with the disorder was assessed, significant disability was found in 5.3 per cent of the 4-16 yr group. Assessment of felt treatment needs indicated that only 37.5 per cent of the families perceived that their children had any problem. Physical abuse and parental mental disorder were significantly associated with psychiatric disorders.

Muzammil et al. (2009) have conducted a survey study entitled “Prevalence of Psychosocial Problems among Adolescents in District Dehradun, Uttarakhand”. Aim of this study was find out the prevalence of psychosocial problems among adolescents. A cross sectional study was conducted at Doiwa block, Dehradun during
2006-2007 among 840 adolescents, selected by multistage random sampling. Data was collected on a structured and pre-tested questionnaire by interviewing the adolescents and conducting their thorough clinical examination. Epi Info statistical software package version 3.4.3 was used for analysis. Result has shown the overall prevalence of psychosocial problems among the adolescents was found to be 31.2 percent. The psychosocial problems were more in males 34.77 percent as compared to females 27.6 percent.

Munni and Malhi (2006) have conducted a survey study entitled “Adolescent violence exposure, gender issues and impact”. Fifteen hundred high school students were investigated to study the prevalence and demographic characteristics of witnesses, victims and perpetrators of violence and to see the impact of violence exposure on their psychosocial adjustments. Sixty nine percent of students had witnessed violence in real life and 28 percent were of serious nature. Media violence exposure was universal. The prevalence of victims and perpetrators was 27 percent and 13 percent respectively. Bullying was prevalent. Male sex was the most important predictive risk factor for witnessing and perpetrating violence (\( P < or = 0.001 \)). Victims were predominantly females. Those having exposure to violence had poorer school performance and adjustment scores (\( P < or = 0.05 \)). Thus violence exposure is prevalent even in the lives of Indian adolescents and gender differences exist. Its impact on their psychosocial adjustments is detrimental. Early identification and corrective interventions of these adolescents is vital.

Pillai et al. (2008) have conducted a survey study entitled “Nontraditional lifestyles and prevalence of mental disorders in adolescents in Goa, India”. Aim of this study was estimate the prevalence and correlates of mental disorders in adolescents aged between 12 to 16 year. Population-based survey of all eligible adolescents from six urban wards and four rural communities which were randomly selected. By Konkani translation of the Development and Well-Being Assessment to diagnose current DSM-IV emotional and behavioral disorders. All adolescents were also interviewed on socio-economic factors, education, neighborhood, parental relations, peer and sexual relationships, violence and substance use. Result has shown Out of 2,684 eligible
adolescents, 2,048 completed the study. The current prevalence of any DSM-IV diagnosis was 1.81 percent; 95 percent CI 1.27-2.48. The most common diagnoses were anxiety disorders (1.0 percent), depressive disorder (0.5 percent), behavioral disorder (0.4 percent) and attention-deficit hyperactivity disorder (0.2 percent). Adolescents from urban areas and girls who faced gender discrimination had higher prevalence.

Gupta et al. (2001) have conducted a survey study entitled “Prevalence of behavioral problems in school going children”. The study was conducted on 957 school children using Rutter B scale which was to be completed by the class teachers in Ludhiana, India. One hundred and forty-one children (14.6 percent) scored more than 9 points and were included in the second part of the study. Only 117 and 124 children turned up and were included in the analysis. Based on the screening instrument results and parental interview, 45.6 percent of the children were estimated to have behavioral problems, of which 36.5 percent had significant problems. It was noticed that neither the screening instrument nor the interview was able to detect all the problems. Scholastic under-achievement was found to be associated with maximum problems. Scholastic under-achievement can be a useful starting point of identifying children with behavioral problems. Close cooperation between school teachers, parents, and health care providers is essential to ensure healthy development of children.

Deb et al. (2010) have conducted a survey study entitled “Anxiety among High School Students in India: Comparisons across Gender, School Type, Social Strata and Perceptions of Quality Time with Parents”. Objective of the study was to understand better anxiety among adolescents in Kolkata city, India. Specifically, the study compared anxiety across gender, school type, socio-economic background and mothers’ employment status. The study also examined adolescents’ perceptions of quality time with their parents. A group of 460 adolescents (220 boys and 240 girls), aged 13-17 years were recruited to participate in the study via a multi-stage sampling technique. The data were collected using a self-report semi-structured questionnaire and a standardized psychological test, the State-Trait Anxiety Inventory. Results show that anxiety was prevalent in the sample with 20.1 percent of boys and 17.9 percent of girls found to be
suffering from high anxiety. More boys were anxious than girls (p<0.01). Adolescents from Bengali medium schools were more anxious than adolescents from English medium schools (p<0.01). Adolescents belonging to the middle class (middle socio-economic group) suffered more anxiety than those from both high and low socio-economic groups (p<0.01). Adolescents with working mothers were found to be more anxious (p<0.01). Results also show that a substantial proportion of the adolescents perceived they did not receive quality time from fathers (32.1 percent) and mothers (21.3 percent). A large number of them also did not feel comfortable to share their personal issues with their parents (60.0 percent for fathers and 40.0 percent for mothers).

**Assocam's social development foundation (2011)** have conducted a survey study entitled “too much gaming makes kids obese, aggressive, violent: survey”. in a survey more than 2,000 teenagers and 1,000 parents’ were conducted in the major cities of Delhi-Ncr, Mumbai, Chandigarh, Lucknow, Ahmedabad, Patna, Kolkata, Chennai, Bengaluru and Jaipur. The sample included almost an equal number of males and females in the age group of 8-18 years. Result has shown over 82 percent playing video games around 14-16 hours a week. In about 7 percent qualified as being pathological video games, those playing more than 20 hours a week. About 84 percent (ages 8 to 18) of children said that they play violence games when they're alone than with their parents. 76 percent prefer to play action game. 45 percent of gamers who shows signs similar to addiction are also more likely to have a video game system in their bedroom. A total of 1200 teens (76 percent) played video games. Most of these (800 [80 percent]) are boys and 400 (20 percent) are girls. Male gamers spend an average of 50 minutes playing on the weekdays and two-three hours playing on the weekends. The survey also disclosed that more than 90 percent of kids between 8-14 years old are getting online to game, facebook as one of their favorite websites. The social networking games are probably a big part of their gaming habits.

**Sharma et al. (2006)** have conducted a survey study entitled “assessment of computer game as a psychological stressor”. To simulate the effects of acute
psychological stress, the effects of stressful computer game in young adult subjects were assessed by various physiological, psychological and biochemical parameters. The results showed a significant increase in the physiological and psychological markers of stress. It is concluded from these results that computer game can be used as an acute laboratory psychological stressor for future studies on physiological effects of stress.

2.3.9. STUDIES PERTAINING TO EFFECT OF MEDIA (TELEVISION /MOVIE/ INTERNET)

Eyal et al. (2006) have conducted a survey study entitled “Aggressive political opinions and exposure to violent media”. This study examines the relationship between young people’s exposure to media violence and their aggressive political opinions (APO), which were defined as support for positions that involve forceful resolution to social or political issues. Students from 2 U.S. universities completed surveys assessing their APO, exposure to violent media, authoritarianism, trait aggressiveness, political leaning, personal experience with crime, and demographics. Results revealed that violent television exposure significantly predicted several forms of APO above and beyond the control variables. Playing violent video games, however, predicted only a few aggressive political opinions. The results of this study support the reliability and validity of the APO measure, shed light on the relationship between exposure to violent media content and political opinions, and suggest some important differences between television and video game content in the effects process.

Robinson et al. (2001) have conducted a survey study entitled “Effects of reducing children’s television and video game use on aggressive behavior: A randomized controlled trial”. A 60 percent random sample of children was observed for physical and verbal aggression on the playground. Parents were interviewed by telephone and reported aggressive and delinquent behaviors on the child behavior checklist. The primary outcome measure was peer ratings of aggressive behavior. Result have shown compared with controls, children in the intervention group had statistically significant decreases in peer ratings of aggression (adjusted mean difference, -2.4 percent; 95 percent confidence interval [CI], -4.6 to -0.2; P = .03) and observed verbal aggression (adjusted mean
Differences in observed physical aggression, parent reports of aggressive behavior, and perceptions of a mean and scary world were not statistically significant but favored the intervention group. They conclude that an intervention to reduce television, videotape, and video game use decreases aggressive behavior in elementary schoolchildren.

Krahe and Moller (2011) have conducted a survey study entitled “Links between self-reported media violence exposure and teacher ratings of aggression and prosocial behavior among German adolescents”. The relations between adolescents' habitual usage of media violence and their tendency to engage in aggressive and prosocial behavior in a school setting were examined in a cross-sectional study with 1688 7th and 8th graders in Germany who completed measures of violent media exposure and normative acceptance of aggression. For each participant, ratings of prosocial and aggressive behavior were obtained from their class teacher. Media violence exposure was a unique predictor of teacher-rated aggression even when relevant covariates were considered, and it predicted prosocial behavior over and above gender. Path analyses confirmed a direct positive link from media violence usage to teacher-rated aggression for girls and boys, but no direct negative link to prosocial behavior was found. Indirect pathways were identified to higher aggressive and lower prosocial behavior via the acceptance of aggression as normative. Although there were significant gender differences in media violence exposure, aggression, and prosocial behavior, similar path models were identified for boys and girls.

Bushman (1998) has conducted two experimental studies entitled “Priming Effects of Media Violence on the Accessibility of Aggressive Constructs in Memory”. Two experiments tested the hypothesis that violent media make aggressive constructs more accessible to viewers. In Experiment 1, participants made free associations to homonyms, with one meaning more aggressive than the other; and to nonaggressive words after viewing a violent or nonviolent video. Participants who saw the violent video listed more aggressive associations to both types of words. In Experiment 2, participants completed a lexical-decision task after viewing a violent or nonviolent video. Participants pressed one key if a string of letters was an English word or another key if it was a non-
word. Half of the words were aggressive and half were nonaggressive. Participants who saw the violent video had faster reaction times to aggressive words. Videotape content did not influence reaction times to nonaggressive words. These results suggest that violent media prime cognitive-associative networks related to aggression.

Fenigstein (1979) has conducted two experimental studies entitled “Does aggression cause a preference for viewing media violence?” The present research experimentally tested the hypotheses that physical aggression and fantasy aggression would lead to a preference for viewing violence. In Experiment 1, undergraduate men and women were induced to express aggressive, nonaggressive, or no fantasies and were then given an opportunity to select film clips for viewing. The films chosen by men contained more violence than those chosen by women. In addition, aggressive fantasies in males, compared to nonaggressive fantasies, increased the preference for viewing violence. Experiment 2, using only males, replicated the results of the first study and also found that men who were given an opportunity to aggress physically, compared to those who had no such opportunity, were more likely to choose to view films containing violent content. These results provide an additional perspective on the relationship between the observation of violence and the expression of aggression by suggesting that the causal effects are bidirectional: Just as the viewing of violence may increase aggression, so, too, aggressive behavior may increase the preference for viewing violence.

Hapkiewicz and Stone (1974) have conducted an experimental study entitled “The Effect of Realistic versus Imaginary Aggressive Models of Children's Interpersonal Play”. One hundred eighty elementary school children were randomly assigned to same sex pairs and randomly assigned to one of three treatment groups: real-life aggressive film, aggressive cartoon, or nonaggressive film. Results reveal that boys who viewed the realistic aggressive film were significantly more aggressive in play than boys who viewed the other films.

Paik and Comstock (1994) have conducted a Meta analytic study entitled “The Effects of Television Violence on Antisocial Behavior: A Meta-Analysis”. A meta-
analysis is performed on studies pertaining to the effect of television violence on aggressive behavior. Partitioning by research design, viewer attributes, treatment and exposure variables, and type of antisocial behavior, allows one to interpret computed effect sizes for each of the variables in the partitions. They find a positive and significant correlation between television violence and aggressive behavior, albeit to varying degrees depending on the particular research question. The effect of television violence on the antisocial behavior of boys and girls is found to be marginally equal in surveys. A host of tests are performed to solidify these, and further results. Substantive interpretation is provided as well.

Primack et al. (2009) have conducted a survey study entitled “Association between media use in adolescence and depression in young adulthood: A longitudinal study”. Main aim of this study was to assess the longitudinal association between media exposure in adolescence and depression in young adulthood in a nationally representative sample. By using the National Longitudinal Survey of Adolescent Health (Add Health) to investigate the relationship between electronic media exposure in 4142 adolescents who were not depressed at baseline and subsequent development of depression after 7 years of follow-up. Depression at follow-up assessed using the 9-item Center for Epidemiologic Studies–Depression Scale. Results have shown Of the 4142 participants (47.5 percent female and 67.0 percent white) who were not depressed at baseline and who underwent follow-up assessment, 308 (7.4 percent) reported symptoms consistent with depression at follow-up. Controlling for all covariates including baseline Center for Epidemiologic Studies–Depression Scale score, those reporting more television use had significantly greater odds of developing depression (odds ratio [95 percent confidence interval], 1.08 [1.01-1.16]) for each additional hour of daily television use. In addition, those reporting more total media exposure had significantly greater odds of developing depression (1.05 [1.0004-1.10]) for each additional hour of daily use. They did not find a consistent relationship between development of depressive symptoms and exposure to videocassettes, computer games, or radio. Compared with young men, young women were less likely to develop depression given the same total media exposure. They conclude that Television exposure
and total media exposure in adolescence are associated with increased odds of depressive symptoms in young adulthood, especially in young men.

Jang et al. (2008) have conducted a survey study entitled “Internet Addiction and Psychiatric Symptoms among Korean Adolescents”. The aims of this study were to identify the independent factors associated with intermittent addiction and addiction to the Internet and to examine the psychiatric symptoms in Korean adolescents when the demographic and Internet-related factors were controlled. Male and female students (N = 912) in the 7th-12th grades were recruited from 2 junior high schools and 2 academic senior high schools located in Seoul, South Korea. Data were collected from November to December 2004 using the Internet-Related Addiction Scale and the Symptom Checklist-90-Revision. A total of 851 subjects were analyzed after excluding the subjects who provided incomplete data. Approximately 30 percent (n = 258) and 4.3 percent (n = 37) of subjects showed intermittent Internet addiction and Internet addiction, respectively. Multivariate logistic regression analysis showed that junior high school students and students having a longer period of Internet use were significantly associated with intermittent addiction. In addition, male gender, chatting, and longer Internet use per day were significantly associated with Internet addiction. When the demographic and Internet-related factors were controlled, obsessive-compulsive and depressive symptoms were found to be independently associated factors for intermittent addiction and addiction to the Internet, respectively.

Ha et al. (2007) have conducted a survey study entitled “Depression and Internet addiction in adolescents”. The aim of the study was to evaluate the relationship between depression and Internet addiction among adolescents. A total of 452 Korean adolescents were studied. Result have shown Internet addiction was significantly associated with depressive symptoms and obsessive-compulsive symptoms. Regarding biogenetic temperament and character patterns, high harm avoidance, low self-directedness, low cooperativeness and high self-transcendence were correlated with Internet addiction. In multivariate analysis, among clinical symptoms depression was most closely related to Internet addiction, even after controlling for differences in biogenetic temperament. It was conclude that there is a significant association between
Internet addiction and depressive symptoms in adolescents. This association is supported by temperament profiles of the Internet addiction group. The data suggest the necessity of the evaluation of the potential underlying depression in the treatment of Internet-addicted adolescents.

Yen et al. (2007) have conducted a survey study entitled “The Comorbid Psychiatric Symptoms of Internet Addiction: Attention Deficit and Hyperactivity Disorder (ADHD), Depression, Social Phobia, and Hostility”. Purpose of this study was to: (1) determine the association between Internet addiction and depression, self-reported symptoms of attention deficit and hyperactivity disorder (ADHD), social phobia, and hostility for adolescents; and (2) evaluate the sex differences of association between Internet addiction and the above-mentioned psychiatric symptoms among adolescents. A total of 2114 students (1204 male and 910 female) were recruited for the study. Internet addiction, symptoms of ADHD, depression, social phobia, and hostility were evaluated by the self-report questionnaire. The results demonstrated that adolescents with Internet addiction had higher ADHD symptoms, depression, social phobia, and hostility. Higher ADHD symptoms, depression, and hostility are associated with Internet addiction in male adolescents, and only higher ADHD symptoms and depression are associated with Internet addiction in female students.

Anderson (1997) has conducted two experimental studies entitled “Effects of violent movies and trait irritability on hostile feelings and aggressive thoughts”. Experiment 1 explored the effects of viewing violent movie clips on affect and cognition. Participants who viewed a violent movie clip later reported higher levels of state hostility than did those who viewed a nonviolent clip. Experiment 2 added trait hostility to the design as a potentially important individual difference variable. The state hostility results of Experiment 1 were replicated. In addition, the relative accessibility of aggressive thoughts was increased by the violent clip, but only for low irritable participants. Discussion focused on the relevance to aggressive behavior design as a potentially important individual difference variable.
2.3.10. STUDIES PERTAINING TO VIDEO AND COMPUTER GAMES WITHOUT NEGATIVE RESULT

Chuang and Chen (2009) have conducted an experimental study entitled “Effect of Computer-Based Video Games on Children”. This experimental study investigated whether computer-based video games facilitate children’s cognitive learning. In comparison to traditional computer-assisted instruction (CAI), this study explored the impact of the varied types of instructional delivery strategies on children’s learning achievement. One major research null hypothesis was tested: there are no statistically significant differences in students’ achievement when they receive two different instructional treatments: (1) traditional CAI; and (2) a computer-based video game. One hundred and eight third-graders from a middle/high socio-economic standard school district in Taiwan participated in the study. Results indicate that computer-based video game playing not only improves participants’ fact/recall processes ($F = 5.288$, $p < .05$), but also promotes problem-solving skills by recognizing multiple solutions for problems ($F = 5.656$, $p < .05$).

Egli and Meyers (1984) have conducted a survey study entitled “The role of video game playing in adolescent life: is there reason to be concerned?” . result have shown little support that playing video games interfered with adolescents’ involvement in family life, reduced participation in active sports, or was related to poor school performance.

Dixon et al. (2010) have conducted an experimental study entitled “Parents’ and children's perceptions of active video games: a focus group study)”. These studies have shown that playing Active Video Games (AVGs) is positively associated with increases in heart rate and oxygen consumption. It is proposed that playing AVGs may be a useful means of addressing inactivity and obesity in children. This study explored children’s and parents’ perceptions of AVGs and the likely facilitators and barriers to sustained use of AVGs. Data were gathered using focus group interviews: seven with children, four with adults. Both children and parents reported that AVGs offered a way to increase activity and improve fitness. Barriers to sustained engagement,
according to parents, were the cost of AVGs and lack of space in the home to play the games. According to children, the likelihood of long-term engagement with AVGs depended on game content and child age, with AVGs being seen as more appropriate for younger children than teenagers. It would appear that there is potential for AVGs to reduce inactivity in young people. However, barriers to widespread, sustainable adoption would need to be addressed if this potential is to be realized.

Ferguson et al. (2008) have conducted an experimental study entitled “Violent video games and aggression: Causal Relationship or Byproduct of Family Violence and Intrinsic Violence Motivation?” Two studies examined the relationship between exposure to violent video games and aggression or violence in the laboratory and in real life. Study 1 participants were either randomized or allowed to choose to play a violent or nonviolent game. Although males were more aggressive than females, neither randomized exposure to violent-video-game conditions nor previous real-life exposure to violent video games caused any differences in aggression. Study 2 examined correlations between trait aggression, violent criminal acts, and exposure to both violent games and family violence. Results indicated that trait aggression, family violence, and male gender were predictive of violent crime, but exposure to violent games was not. Structural equation modeling suggested that family violence and innate aggression as predictors of violent crime were a better fit to the data than was exposure to video game violence. These results question the common belief that violent-video-game exposure causes violent acts.

Ferguson et al. (2008) have conducted an experimental study entitled “Gender, video game playing habits and visual memory tasks”. This research examined whether visuo-spatial recall of both abstract and common objects was related to gender or object familiarity. Seventy two undergraduates from a university in the Southern U.S. were asked to draw the Rey Complex Figure and a series of common objects from memory. A pilot sample of seventy three undergraduates had previously identified common objects as male female and neutral exemplars. Males were significantly better at drawing male and neutral exemplars whereas females were better at drawing female exemplars. Neither gender was significantly better at the Rey task. These results question whether males
have an inherent advantage in visual memory. Results also found that experience with playing violent video games was associated with higher visual memory recall.

Boot et al. (2008) have conducted an experimental study entitled “The effects of video game playing on attention, memory, and executive control”. This research sought to replicate and extend these results by examining both expert/non-gamer differences and the effects of video game playing on tasks tapping a wider range of cognitive abilities, including attention, memory, and executive control. Non-gamers played 20+ h of an action video game, a puzzle game, or a real-time strategy game. Expert gamers and non-gamers differed on a number of basic cognitive skills: experts could track objects moving at greater speeds, better detected changes to objects stored in visual short-term memory, switched more quickly from one task to another, and mentally rotated objects more efficiently. Strikingly, extensive video game practice did not substantially enhance performance for non-gamers on most cognitive tasks, although they did improve somewhat in mental rotation performance. Their results suggest that at least some differences between video game experts and non-gamers in basic cognitive performance result either from far more extensive video game experience or from pre-existing group differences in abilities that result in a self-selection effect.

Ferguson (2007) has conducted a survey study entitled “The good, the bad and the ugly: A meta-analytic review of positive and negative effects of violent video games”. It was concluded once corrected for publication bias; studies of video game violence provide no support for the hypothesis that playing violent video games is associated with higher aggression. Playing violent video games is associated with higher visuospatial cognition. Violent video games do not seem to actually cause violence in players.

Gabrielle et al. (2007) have conducted an experimental study entitled “The effect of playing violent video games on adolescents: Should parents be quaking in their boots?”. In this research they demonstrate that these different conclusions are not mutually exclusive and can be explained by the method of assessment and analytic techniques utilized. They had adolescents play a violent video game (Quake II) and took
measurements of anger before, during and after game play. The results demonstrated that some people increase, some decrease and the majority show no change in anger ratings. Unlike past research, we also demonstrate that these changes are mediated by the player's feelings immediately prior to game play and a labile temperament - one predisposed to aggression - and that these variables predict people's reactions with an average 73 percent concordance rate.

Williams and Skoric (2005) have conducted an experimental study entitled “Internet Fantasy Violence: A Test of Aggression in an Online Game”. Research on violent video games suggests that play leads to aggressive behavior. A longitudinal study of an online violent video game with a control group tested for changes in aggressive cognitions and behaviors. The findings did not support the assertion that a violent game will cause substantial increases in real-world aggression. The findings are presented and discussed, along with their implications for research and policy.

Fleming and Rickwood (2001) have conducted an experimental study entitled “Effects of violent versus nonviolent video games on children's arousal, aggressive mood, and positive mood”. This study investigated the relationship between violent video games and children's mood. A total of 71 children aged 8 to 12 years played a paper-and-pencil game, a nonviolent video game, and a violent video game. Results indicate that arousal, as measured by heart rate and self-reported arousal, increased significantly after playing the violent video game, as compared with the other two game conditions, with girls reporting more arousal than did boys. There was no significant increase in aggressive mood scores for either boys or girls after playing the violent game. Positive mood as measured by positive effect, showed no significant increases or decreases after playing either video game. However, positive mood, as measured by general mood, showed a significant increase after playing the violent game for both boys and girls, but only as compared with the paper-and-pencil game. Results are interpreted in terms of social learning and cognitive information processing theories of aggression.

Ihori et al (2007) have conducted a survey study entitled “Effect of video games on children’s aggressive behavior and pro-social behavior: a panel study with
elementary school students.” They conducted a panel study with elementary school students in order to examine the effect of video games on children. Two surveys have conducted, and measured the amount of use of video games, exposure to certain types of scenes, and preference for types of games as "video game variables," and also measured the level of aggressive behavior and pro-social behavior as "dependent variables." The result of cross-lagged effect model analysis suggested that for boys pro-social behavior was suppressed more as they used video games more. Also, for all participants and for boys, their pro-social behavior was promoted more as they were exposed to more pro-social scenes, or they indicated stronger preference for non-violent games, while their pro-social behavior was suppressed more as they indicated stronger preference for violent games.

Ferguson et al. (2010) have conducted a survey study entitled “Violent Video Games, Catharsis Seeking, Bullying, and Delinquency: A Multivariate Analysis of Effects”. This study examines the influence of violent video game exposure on delinquency and bullying behavior in 1,254 seventh- and eighth-grade students. Variables such as parental involvement, trait aggression, stress, participation in extracurricular activities, and family/peer support were also considered. Results indicated that delinquent and bullying behavior were predicted by the child’s trait aggression and stress level. Violent video game exposure was not found to be predictive of delinquency or bullying, nor was level of parental involvement. These results question the commonly held belief that violent video games are related to youth delinquency and bullying.

Ferguson and Kilburn (2009) have conducted a Meta analytic study entitled “The public health risks of media violence: a meta-analytic review”. To conduct a meta-analytic review of studies that examine the impact of violent media on aggressive behavior and to determine whether this effect could be explained through methodological problems inherent in this research field. A detailed literature search identified peer-reviewed articles addressing media violence effects. Result have shown that Publication bias was a problem for studies of aggressive behavior, and methodological problems such as the use of poor aggression measures inflated effect size. Once corrected for publication bias, studies of media violence effects provided little support for the hypothesis that
media violence is associated with higher aggression. The corrected overall effect size for all studies was $r = .08$. They concluded according to results from the current analysis do not support the conclusion that media violence leads to aggressive behavior. It cannot be concluded at this time that media violence presents a significant public health risk.

**Browne and Hamilton-Giachritsis (2005)** have conducted a meta analytic study entitled “The influence of violent media on children and adolescents: a public-health approach”. There is continuing debate on the extent of the effects of media violence on children and young people, and how to investigate these effects. The aim of this review is to consider the research evidence from a public-health perspective. A search of published work revealed five meta-analytic reviews and one quasi-systematic review, all of which were from North America. There is consistent evidence that violent imagery in television, film and video, and computer games has substantial short-term effects on arousal, thoughts, and emotions, increasing the likelihood of aggressive or fearful behavior in younger children, especially in boys. The evidence becomes inconsistent when considering older children and teenagers, and long-term outcomes for all ages. The multifactorial nature of aggression is emphasized, together with the methodological difficulties of showing causation. Nevertheless, a small but significant association is shown in the research, with an effect size that has a substantial effect on public health. By contrast, only weak evidence from correlation studies links media violence directly to crime.

**Whitaker and Bushman (2012)** have conducted an experimental study entitled “effects of relaxing video games on aggressive and pro social behavior”. Research shows that violent video games increase aggressive behavior and decrease pro social behavior, but could relaxing video games have the opposite effects? In two experiments, participants were randomly assigned to play a relaxing, neutral, or pro social video game for 20 min. In Experiment 1, participants competed with an ostensible partner on a competitive reaction time task in which they could behave in an aggressive manner (by blasting their partner with loud noise), or in a pro social manner (by giving their partner money). In Experiment 2, participants reported their mood after playing the video game. After the study was over, they could help the experimenter by sharpening pencils. Compared to those who played violent or neutral video games, those who played relaxing
video games were less aggressive and more helpful. Playing a relaxing video game put people in a good mood, and those in a good mood were more helpful.

Durkin and Barber (2002) have conducted a survey study entitled “Not so doomed: computer game play and positive adolescent development”. This study examined the relationship between game play and several measures of adjustment or risk taking in a sample of 16-year-old high school students. No evidence was obtained of negative outcomes among game players. On several measures—including family closeness, activity involvement, positive school engagement, positive mental health, substance use, self-concept, friendship network, and disobedience to parents—game players scored more favorably than did peers who never played computer games. It is concluded that computer games can be a positive feature of a healthy adolescence.

Greitemeyer and Osswald (2011) have conducted a survey study “Playing pro social video games increases the accessibility of pro social thoughts”. Past research has provided abundant evidence that playing violent video games increases aggressive tendencies. In contrast, evidence on possible positive effects of video game exposure on prosocial tendencies has been relatively sparse. The present research tested and found support for the hypothesis that exposure to prosocial video games increases the accessibility of prosocial thoughts. These results provide support to the predictive validity of the General Learning Model (Buckley & Anderson, 2006) for the effects of exposure to prosocial media on social tendencies. Thus, depending on the content of the video game, playing video games can harm but may also benefit social relations.

Gentile et al. (2009) have conducted an experimental study entitled “The effects of pro social video games on prosocial behaviors: International evidence from correlational, longitudinal, and experimental studies”. Theoretically, games in which game characters help and support each other in nonviolent ways should increase both short-term and long-term pro social behaviors. Three studies conducted in three countries with three age groups to test this hypothesis. In the correlational study, Singaporean middle-school students who played more pro social games behaved more pro socially. In the two longitudinal samples of Japanese children and adolescents, pro social game play
predicted later increases in pro social behavior. In the experimental study, U.S. undergraduates randomly assigned to play pro social games behaved more pro socially toward another student. These similar results across different methodologies, ages, and cultures provide robust evidence of a pro social game content effect, and they provide support for the General Learning Mode.

**Durkin and Barber (2002)** have conducted a survey research entitled “correlations between use of computer games and general social adaptability in young people” . The study includes responses from 1,304 people with an average age of 16. The data were collected in 1998 with the help of questionnaires, psychological tests and data on the school performance of the individual participants. A number of correlations between use of computer games and general social adaptability in young people were studied: psychological adjustment, school results, friendships, Participation in sports, school attendance and commitment, and the level of education of participants’ mothers . The participants were divided into three groups on the basis of the amount of time they spent playing games: none, low and high. It was ascertained that in several spheres the two groups of participants who played games coped better than the group that did not play. Depressed moods were less frequent in the ‘low’ group, while the other two groups suffered the same degree of depression. Self-esteem was higher in the ‘low’ group, while participants’ opinions of their own intelligence, mechanical abilities and computer skills were highest in the two players groups, especially in the ‘high’ group. The ‘none’ group reported more disobedience and truancy than the two groups of players. Both groups of players reported less risky friendships and their attendance at and commitment to the school was higher. There is an indication of more aggressive behavior in the ‘high’ group, but the difference is insignificant. They conclude that computer games are a natural part of young people’s lives.

**Markey and Markey (2010)** have conducted an experimental study entitled “Vulnerability to Violent Video Games: A Review and Integration of Personality Research”. In this study, past research is reviewed, which suggests that the personality traits of psychoticism and aggressiveness likely moderate the negative effects of violent video games (VVGs). The Five-Factor Model (FFM) of personality is then used as
taxonomy to integrate these findings and examine why these traits are important moderator variables. Analysts suggest that these traits likely moderate the effects of VVGs because they contain the FFM traits neuroticism (+), agreeableness (−), and conscientiousness (−). A spherical model of personality, derived from these three FFM traits, is presented as a method of predicting aggression and hostility after playing VVGs; archival data confirms the predictions derived from this spherical model. Findings from the current research demonstrate the utility of a three-trait spherical model to examine the moderating effects of VVGs and suggest that only some individuals are adversely affected by VVGs and that those who are affected have preexisting dispositions, which make them susceptible to such violent media.

**Ohannessian (2009) has conducted a survey study entitled “Media Use and Adolescent Psychological Adjustment: An Examination of Gender Differences”**. This study examined media use and psychological adjustment (as indicated by depression and anxiety symptomatology) in a sample of 328 14- to 16-year-old adolescents. Primary goals of the study were to explore whether media use differs by gender, whether media use is related to adolescent psychological problems, and whether media use moderates the relationship between parental alcoholism and adolescent psychological adjustment. Adolescents were surveyed in the spring of 2006, and again one year later. Gender differences in media use were observed with boys spending more time playing video games than girls and girls spending more time talking on the phone than boys. Strikingly, none of the types of media examined was associated with depression or anxiety. Moreover, media use acted as a protective factor for boys. Boys who spent relatively more time playing video games and watching television had the lowest levels of anxiety, especially those from alcoholic homes. The opposite pattern emerged for girls.

**Robillard et al. (2003) have conducted an experimental study entitled “Anxiety and Presence during VR Immersion: A Comparative Study of the Reactions of Phobic and Non-phobic Participants in Therapeutic Virtual Environments Derived from Computer Games”**. In this study, inexpensive and readily adaptable PC computer games were used to provide exposure therapy to 13 phobic participants and 13 non-phobic control participants. It was found that anxiety could be induced in phobic
participants by exposing them to phobogenic stimuli in therapeutic virtual environments derived from computer games (TVEDG). Assessments were made of the impact of simulator sickness and of sense of presence on the phobogenic effectiveness of TVEDGs. Participants reported low levels of simulator sickness, and the results indicate that simulator sickness had no significant impact on either anxiety or sense of presence. Group differences, correlations, and regression analyses indicate a synergistic relationship between presence and anxiety. These results do not support Slater's contention that presence and emotion are orthogonal.

2.4. OUTLINE FOR REVIEW OF RELATED LITERATURE

In this chapter, the concepts of (adolescence, abnormal behavior, somatization, obsessive-compulsive, avoidant personality disorder, depression, anxiety, hostility, aggression, phobic anxiety, agora phobia, paranoid ideation, psychoticism) were described and their relevance to the study explained as well as previous studies information have presented in support of and in anticipation of the methodology and analyses presented in current study which summarized as follow:

2.4.1. OVERVIEW OF CONCEPTUAL DEFINITION PERTAINING TO VARIABLES OF THE STUDY

Adolescence Period and Adolescent

The word of adolescence comes from a Greek word ‘adolescere’ that means to grow to maturity (chauhan, 1999), the developmental stage between childhood and adulthood which many physical, cognitive, social and emotional changes take place (Feldman, 2002), between the ages of 11-13 in the average child, to the age of maturity 19-21 years” (Mangal, 2007). Considered as a transitional period in which peer relationships deepen autonomy in decision-making grows, and intellectual pursuits and social belonging are sought (Sadock & Kaplan, 2007) it was consider as a most crucial period in the life of human beings, when the surge of life reaches its highest peak (Kundu & Tutoo, 1988) marked at the beginning by onset of puberty and at the end by the attainment of psychological or physiological maturity (Reber, 2001). Researchers commonly divide it into three phases: 1. Early adolescence characterized with rapid
pubertal changes (11–12 to 14 years) 2. Middle adolescence characterized with completion of pubertal changes (14 to 16 years) 3. Late adolescence characterized with full adult appearance and anticipation of adult roles (16 to 18 years)(Berk, 2010), Adolescence lifestyle may reflect their efforts to pursue their own stated goals of being independent. Their ability to combine abstract reasoning with realistic decisions-making and the application of social judgment is put to the test in this phase of adolescent development (Sadock & Kaplan, 2007).

**Abnormal Behavior**

The concept of abnormal considered as a departure from norm of the normal. The term is used variously to denote such things as purely quantitative deviations in statistical analyses and deviant behavior patterns of individuals (Reber, 2001), and abnormal behavior is a maladaptive behavior detrimental to an individual or a group (Carson et al., 2008). Feldman (2002) categorized the abnormal behavior definitions according to six contemporary approaches: 1) The medical model suggests the root of abnormal behavior symptoms will be found in a physical examination of the individual, be it a hormonal imbalance, a chemical deficiency, or a brain injury. 2) The psychoanalytic model, the abnormality holds that abnormal behavior stems from childhood conflicts over opposing wishes regarding sex and aggression. 3) The behavioral model: this model looks at the behavior itself as the problem, abnormal behaviors considered as responses to a set of stimuli, responses that have been learned through past experiences. 4) The cognitive model: cognitions (people’s thoughts and beliefs) are central to a person’s abnormal behavior. 5) The humanistic model which emphasizes the control and responsibility that people have for their own behavior, even when such behavior is abnormal. 6) The sociocultural model assumed the kind of relationship that evolves with others may support abnormal behaviors and even cause them to occur.

**Somatization**

Somatization is a tendency to experience and communicate somatic distress and symptoms unaccounted for by pathological findings, to attribute them to physical illness, and to seek medical help for them (Lipkowski, 1988), with the pattern of predominately somatic rather than cognitive response to stress and related emotional arousal that is the
common feature of somatic patients (Frost et al., 1986), and converting psychic derivative into bodily symptoms and tending to reach with somatic manifestation, rather than psychic manifestations (Sadock & Kaplan, 2007), common complaints are vague pains, allergies, gastrointestinal problems, psychosexual symptoms, palpitations and conversions symptoms (Reber, 2001).

### Obsessive–Compulsive

Obsessive compulsive disorder (OCD) is a subclass of anxiety disorder with two essential characteristics, recurrent and persistent Thoughts, ideas and Feeling: and repetitive, ritualized behaviors. Reber (2001) characterized with occurrence of unwanted and intrusive obsessive thought or disturbing images; these are usually accompanied by compulsive behaviors performed to naturalize the obsessive thoughts or imaged or to prevent some dreaded event or situation Carson (2008). According to American Psychiatric Association (2000) following Diagnostic criteria pointed out for obsessive-compulsive: (1) Recurrent and persistent thoughts, impulses, or images that are experienced, at Some time during the disturbance, as intrusive and inappropriate and that cause marked anxiety. (2) The thoughts, impulses, or images are not simply excessive worries about real problems. (3) The person attempts to ignore or suppress such thoughts, impulses, or images, or to neutralize them with some other thought or action. (4) The person recognizes that the obsessional thoughts, impulses, or images are a product of his or her own mind (not imposed from without as in thought insertion). Researches about Prevalence of distress have shown childhood or early adolescent onset of obsessive – compulsive is more common in boys than in girls and is often associated with greater severity (Rauch et al., 2002).

### Interpersonal Sensitivity

Avoidant personality disorder is essentially a problem of relating to persons, in contrast to social phobia, which is largely a problem of performing situations (Millon, 1996). Person with avoidant personality disorder show extreme sensitivity to rejection and may lead to socially withdrawn life. (Kaplan and Sadock, 2007). The Diagnostic Criteria for Avoidant Personality Disorder according to (American Psychiatric Association, 2000) are 1. Avoids occupational activities that involve significant
interpersonal contact, because of fears of criticism, disapproval, or rejection. 2. Is unwilling to get involved with people unless certain of being liked. 3. Shows restraint within intimate relationships because of the fear of being shamed or ridiculed. 4. Is preoccupied with being criticized or rejected in social situations. 5. Is inhibited in new interpersonal situations because of feelings of inadequacy. 6. Views self as socially inept, personally unappealing, or inferior to others. 7. Is unusually reluctant to take personal risks or to engage in any new activities because they may prove embarrassing.

**Depression**

Generally depression is a mood defined by a sense of inadequacy, a feeling of dependency, a decrease in activity or reactivity, pessimism, sadness and related symptoms (Reber, 2001) and characterized by feeling of sadness, loneliness, despair, low self-esteem, and self-reproach. Accompanying signs include psychomotor retardation or, at times, agitation, withdrawal from interpersonal contact, and vegetative symptoms, such as insomnia and anorexia. The term refers to a mood that is so characterized or to a mood disorder. With the following criteria according to (American Psychiatric Association, 2000) for major depression episode which occur nearly every day:

1. Depressed mood (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). Note: In children and adolescents, can be irritable mood. 2. Markedly diminished interest or pleasure 3. Significant weight loss when not dieting or weight gain 4. Insomnia or hypersomnia 5. Psychomotor agitation or retardation 6. Fatigue or loss of energy nearly every day. 7. Feelings of worthlessness or excessive or inappropriate guilt. 8. Diminished ability to think or concentrate, or indecisiveness 9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

**Anxiety**

Normal anxiety experiences with everyone. It is characterized most commonly as a diffuse, unpleasant, vague sense of apprehension, often accompanied by autonomic symptoms such as headache, perspiration, palpitation, tightness in chest, mild stomach discomfort, and restless, indicated by and inability to sit or stand for long. The particular constellation of symptoms present during anxiety tends to vary among persons (Sadock &
Kaplan, 2007). The associated features and disorders with generalized anxiety: It is associated with muscle tension; there may be trembling, twitching, feeling shaky, and muscle aches or soreness. In children and adolescents, the anxieties and worries often concern the quality of their performance or competence at school or in sporting events, even when their performance is not being evaluated by others.

Hostility

Hostility is a long lasting emotional state characterized by enmity toward others (Reber, 2000), or in other word it is aggression by intentional injury of or harms to another person (Berkowitz, 1993, Carlson, Marcus-Newhall & Miller, 1989). Feldman (2002) categorized the aggression approaches in 3 categories: Instinct approaches: aggression as release .instinct theories, noting the prevalence of aggression not only in human but in animals as well, propose that aggression is primarily the outcome of innate or inborn urges. Frustration –aggression approaches: aggression as a reaction to frustration. Where the frustration is defined as the thwarting or blocking of some ongoing, goal –directed behavior. Observational learning approaches: learning to hurt others. Social and environmental conditions can teach individuals to be aggressive. Aggression is seen not as inevitable, but rather as a learned response that can be understood in terms of rewards and punishment. According to Sadock and Kaplan (2007) the catharsis hypothesis is the belief that the participation in activities, such as running or kickboxing, allows persons to vent their anger and hostility and therefore reduces aggressive behavior.

Phobic Anxiety

Phobic anxiety is the fear experienced by one with a phobia when presented with the phobic object or circumstances (Reber, 2001) which fear is response to a specific person, place, object or situation—that is irrational and disproportionate to the stimulus and leads to avoidance or escape behavior (Derogatis, 1994).the syndrome has had many other labels, including “phobic-anxiety –depresonalization syndrome”. “Phobic Anxiety State”, “locomotors anxiety,” “topophobia (fear of particular spaces)”. Keno phobia “(fear of empty spaces), and platangst (place anxiety), though none of these have outlasted “agoraphobia” (Stein&Steckler, 2010). It is equivalence with agoraphobia that Patients
rigidly avoid situations in which it would be difficult to obtain help. They prefer to be accompanied by a friend or a family member in busy streets, crowded stores, closed-in spaces (e.g., tunnels, bridges and elevators), and closed in vehicles (e.g., subways, buses, and airplanes). Patients may be insisting that they be accompanied every time they leave the house (Sadock & Kaplan, 2007).

**Paranoid Ideation**

The condition as a typical pattern of thinking displayed in cases of paranoia; it is characterized by suspiciousness and beliefs that one is being followed, plotted against, persecuted, etc (Reber, 2001). Ideas of being harassed, threatened, harmed, subjugated, persecuted, accused, mistreated, wronged, tormented, disparaged, vilified, and so on, by malevolent others, either specific individuals or groups” (Hardin, 2004). Persons with paranoid personality disorder are characterized by long-standing suspiciousness and mistrust of persons in general. They refuse responsibility for their own feelings and assign responsibility for others. They are often hostile, irritable, and angry (Sadock & Kaplan, 2007). They are often preoccupied with doubts about loyalty of the friends and hence are reluctant to confide in others. They commonly bear grudges; refuse to forgive perceived assaults and slights, and quick to react with anger (Bernstein, Useda & Siever, 1995; Miller et al., 2001, as cited in Carson et al., 2008).

**Psychoticism**

The Psychoticism indicative of a withdrawn, isolated, schizoid lifestyle were included as were first-rank symptom of schizophrenia such as hallucination and thought control. (Derogatis, 1994). According to Eysenck and Eysenck (1976), psychoticism conceptualized as a continuum of liability to psychosis (principally schizophrenia and bipolar affective disorder) with "psychopathy" (i.e., anti-social behavior) defined as "a halfway stage towards psychosis. Schizophrenia occurs in people from all cultures and from all walks of life which characterized by an array of diverse symptoms, including extreme oddities in perception, thinking, action, sense of self and manner of relating to others. However, the hallmark of schizophrenia is a significant loss of contact with reality, referred to as psychosis (Carson et al., 2008). Schizophrenia criteria as noticed in DSM-IV (2001) include delusions, hallucinations, disorganized speech (e.g., frequent
derailment, incoherence), grossly disorganized or catatonic behavior, negative symptoms (e.g., affective flattening, alogia).

**Game and Play**

Game is a generic term referring to any pattern of social interaction or organized play with well-defined rules (Reber, 2001). Prenskey (2001) suggested six key structural elements for games: rules, goals and objectives, outcomes & feedback, conflict/competition/challenges/opposition, interaction and representation or story. Garvey (1990) defined "Play" as a term employed in psychology and ethology to describe a range of voluntary, intrinsically motivated activities normally associated with pleasure and enjoyment. Karl gross classified games in 1) experimental play, 2) movement play, 3) constructive play, 4) fighting play, 5) intellectual play category (as cited in Nath & Rachana, 2004). Charlotte Buhler classified game based on structure in five groups “I) functional games (or sensory –motor), II) games of make-believer or illusion, III) passive game (looking at picture, listening to stories, etc.), IV) constructional games, and V) collective games (as cited in Piaget, 1962).

**Video and Computer Games**

According to Entertainment Software Association (2004) Video game is an electronic game that involves interaction with a user interface to generate visual feedback on a video device. According to Encyclopedia of Pc Magazine (2011) video game console is a specialized desktop computer used to play video games. Three popular game consoles are Sony's PlayStation 3 (PS3), Nintendo's Wii and Microsoft's Xbox. Game software is available on CDs or DVDs, although earlier game machines used cartridges containing read only memory (ROM) chips. According to Prenskey (2001), due to combination of twelve elements (i.e. fun, play, rules, goals, interactive, adaptive, feedback, states, conflict/competition/challenge/opposition, problem solving, interaction, representation and story) video and computer games are potentially the most engaging pastime in the history of mankind. Circa (2000) computer games are generally recognized as falling into one of 8 “genres,” which often overlap. They are, in alphabetical order, Action, Adventure, Fighting, Puzzle, Role Playing, Simulations, Sports, and Strategy. Griffits (2005) suggested six criteria below can operationally defined as an addiction features to
online gaming (i.e., salience, mood modification, tolerance, withdrawal symptom, conflict, relapse), and there are at least six reasons why we should expect violent video games to have an even greater impact than violent television. 1. Identification with an aggressor increases imitation of the aggressor. 2. Active participation increases learning. 3. Practicing an entire behavioral sequence is more effective than practicing only a part. 4. Violence is continuous. 5. Repetition increases learning. 6. Rewards increase imitation (Anderson & Dill 2000; Gentile & Walsh 2002, as noticed in Gentile, 2003). According to the Entertainment Software Rating Board (2010), (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. ESRB ratings have two equal parts: rating symbols suggest age appropriateness for the game and content descriptors indicate elements in a game that may have triggered a particular rating and/or may be of interest or concern. Rating symbols are Every Childhood, Every One, Every One +10, Teen, Mature, Adult Only and Rating Pending. the content descriptors Alcohol Reference, Animated Blood, Blood, Blood and Gore, Cartoon Violence, Comic Mischief, Crude Humor, Drug Reference, Fantasy Violence, Intense Violence, Language, Lyrics, Mature Humor, nudity, Partial Nudity, Real Gambling, Sexual Content, Sexual Themes, Sexual Violence. Simulated Gambling, Strong Language, Strong Lyrics Strong Sexual Content, Suggestive Themes, Tobacco Reference, Use of Drugs, Use of Alcohol, Use of Tobacco, Violence.

2.4.2. OVERVIEW OF CONCEPTUAL DEFINITION PERTAINING TO VARIABLES OF THE STUDY

Overview of studies pertaining to aggression due to violent video and computer games: Results suggest that playing violent video games can lead to the automatic learning of aggressive self-view (Uhlmann & Swanson, 2004) Adolescents who expose themselves to greater amounts of video game violence were more hostile, arguments with teachers more frequently, involved in physical fights, and performed more poorly in school (Irwin and Gross, 1995; Anderson & Bushman, 2001; Gentile, Lynch & Walsh, 2004; Arriaga, Esteves, Carneiro & Monteiro, 2006; Guo, Xiao-Li, 2007; Anderson, 2008) increasing anger, irritability, or aggression in user (Kutner, Olson, Warner & Hertzog, 2008) players of violent computer games exhibit more violent behavior in the real world (Anderson & Dill, 2000)
increase of aggressive norms and hostile attribution (Moller & Krahe, 2009) for boys, playing a violent video game should lead to more aggression than watching television violence (Polman, De & Van, 2008). Participants in the high-violence condition showed significantly weaker reactions (desensitization) to aversive stimuli and reacted significantly more strongly (sensitization) to aggressive cues (Muller, Bliesener, & Luthman, 2008). People who are angry are more affected by violent video games than who are not (Giumetti & Markey, 2007). Identifying with violent video game characters makes players more aggressive (Konijn, Bijvank, Bushman & American Psychological Association, 2007). Players high in trait aggression were more likely to prefer or value games with violent contents (Przybylski, Ryan, & Rigby, 2009). More dizziness and nausea during the game (Calvert & Tan, 1994). Childhood and adolescent violent media preferences contributed significantly to the prediction of violence and general aggression from cumulative risk totals (Boxer, Rowell, Bushman & Moceri, 2009). Rewarding violent game actions increased hostile emotion, aggressive thinking, and aggressive behavior (Carnagey & Anderson, 2005). Both aggressive priming and use of game violence influence arousal and negative affect and might increase behavioral aggression (Panee & Ballard, 2002).

**Overview of studies pertaining to prosocial behavior/ desensitization due to video and computer games**: Repeated exposure to video game violence increases aggressive behavior in part via changes in cognitive and personality factors associated with desensitization (Bartholow, Sestir & Davis, 2005). The fact that heavy users of violent games show less empathy and higher aggressiveness suggests the possibility of desensitization (Lemmens, Bushman & Konijn, 2006). Exposure to video game violence was associated with lower empathy (Funk, Baldacci, Pasold & Baumgardner, 2004). Participants who previously played a violent video game had lower heart rate and galvanic skin response while viewing filmed real violence, demonstrating a physiological desensitization to violence (Carnagey, Anderson, & Bushman, 2007; Guo Xiao-Lil, 2008). Playing violent video games may undermine prosocial motivation and promote exploitive behavior in social interactions (Sheese & Graziano, 2005). Those who had long-term experience with video games were less empathetic than those who did not (Funk, Buchman, Jenks & Bechtoldt, 2003).
Overview of studies pertaining to behavioral problem due to video and computer games: The use of virtual reality should lead to rapid advances in the understanding of paranoia (Freeman, Pugh, Antley and Bebbington, 2008). Participants with elevated levels of psychoticism were much more affected by violent video games than others (Markey and Scherer, 2009). Heavy game use was significantly associated with psychosocial problems and less physical activity (De Leeuw, & Schrijvers, 2010). Significantly greater proportion of male video game players exhibited higher levels of all psychopathology (Starcevic, Berle & Fenech, 2011). Higher sensation seeking children were more likely to play video games, including violent subgenres or contained specific acts of violence also more likely to engage in rule-breaking behavior (Jensen, Weaver, Ivic, & Imboden, 2011). Aggression and narcissistic personality traits are positively correlated with online game addiction, whereas self-control is negatively correlated with online game addiction (Kim, Namkoong, & Ku, 2008). Greater amounts of gaming, lower social competence, and greater impulsivity act as risk factors for becoming pathological gamers, whereas depression, anxiety, social phobias, and lower school performance seemed to act as outcomes of pathological gaming (Gentile, Choo, Liau, Khoo, & Fung, 2011). Individuals higher in openness but lower in agreeableness played violent video games more frequently. In addition, more open and extroverted but less agreeable and neurotic individuals generally preferred to play video games that are more violent (Chory and Goodboy, 2011). VGD is accompanied by increased levels of psychological and social stress in the form of lower school achievement, increased truancy, reduced sleep time, limited leisure activities, and increased thoughts of committing suicide (Rehbein, Psych, Kleimann, Mediasci, & Mossle, 2010).

Overview of studies pertaining to addiction to video and computer games, pathological gaming: Video game addiction in children and teenagers is associated with levels of animosity, social skills, and academic achievement and they have more hostility (Chiu, Lee & Huang, 2004; Skoric, Teo & Neo, 2009). Technologically advanced forms of gambling is highly appealing for adolescents (Griffiths and Wood, 2000). Frequent gaming on computer games without money rewards may be related to problematic
playing even though no monetary reward is involved (Grusser, Thalemann & Griffith, 2007; Johansson & Gotestam, 2004). Pathological gamers spent twice as much time playing as nonpathological gamers, received poorer grades in school with comorbidity with attention problems (Gentile, 2009). Scholastic Aptitude and grade-point average scores. The amount of time a student spends playing video games has a negative correlation with students' Scholastic Aptitude and grade-point average scores (Anand, 2007; Weis & Cerankosky, 2010).

**Overview of studies pertaining to genre and content of video and computer games:** playing m-rated games is positively correlated with being male, frequent game plays, playing with strangers over the internet, having a game system and computer in one's bedroom (Olson, Kutner, Nicholi & Beresin, 2007); those who played the game in the blood-on condition had more physically aggressive intentions, they reported greater hostility and physically aggressive intentions (Farrar, Krcmar & Nowak, 2006); m-rated game dose predicted greater risk for bullying and physical fights but not for delinquent behaviors or being a victim of bullies (Olson, Kutner, Baer, & Warner, 2009); significantly more adolescents than adults claimed their favourite aspect of playing is violence (Griffiths, Davies & Chappell, 2004); results analysis of all 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 percent of gamer reported "moderate to extreme problem game playing, the most cited games by them were first-person shooters, action-adventures, role-playing games, and gambling games (Elliott, Golub, Ream, & Dunlap, 2011).

**Overview of studies pertaining to demographic information and gender difference of video and computer games user:** online games are predominantly male (Ko, Yen, Chen & Yen, 2005; Lucas & Sherry, 2004, Griffiths, 2004). Male players were significantly more likely to be driven by the Achievement and Manipulation factors, while female players were significantly more likely to be driven by the Relationship factor (Yee, 2006). Boys use games to experience fantasies of power and fame, to explore and master what they perceive as exciting and realistic environments (Olson, Kutner & Warner, 2008). Gaming is largely normative in boys and not associated with many health
factors. In girls, however, gaming seems to be associated with more externalizing behaviors and fewer internalizing symptoms (Desai, Krishnan, Cavallo & Potenza, 2010).

**Overview of studies pertaining to Iranian research:** Boys who playing video games excessively showed more aggressive behaviors (Allahverdipour, Bazargan, Farhadinasab & Moeini, 2010) playing Computer game associated with adverse effects on relations with parents and sleep disturbances (Allahverdipour et al., 2010) addiction to VCG lead to physical problems, anxiety and depression, while decreases social functioning disorder (Zamani, Chashmi & Hedayati, 2009) psychiatric symptoms have found among addicted video game player highly comparison to non-addict group (Alavi et al., 2012).

**Overview of studies pertaining to Indian research:** Over 82 percent playing video games around 14-16 hours a week. In about 7 percent qualified as being pathological video gamers (Assocham's Social Development Foundation, 2011) a significant increase in the physiological and psychological markers of stress due to exposure of video and computer games (Sharma, Khera, Mohan, Gupta & Ray, 2006).

**Overview of studies pertaining to effect of media (television/movie/internet):** violent television exposure significantly predicted several forms of aggressive political opinions (Eyal, Metzger & Lingsweiler, 2006) reduce television, videotape, and video game use decreases aggressive behavior in elementary schoolchildren (Robinson, Wilde & Navracruz, 2001) positive link from media violence usage to teacher-rated aggression for adolescent (Krahe & Moller, 2011) violent media prime cognitive-associative networks related to aggression (Bushman, 1998; Fenigstein, 1979; Hapkiewicz & Stone, 1974; Paik & Comstock, 1994) media exposure in adolescence are associated with increased odds of depressive symptoms in young adulthood, especially in young men (Primack, Fine, Swaner & Georgiopoulos, 2009; Ha et al., 2007) male gender, chatting, and longer Internet use per day were significantly associated with Internet addiction (Jang, 2008).

**Overview of studies pertaining to video and computer games without negative result:** Computer-based video game playing improves fact/recall processes and promotes
problem-solving skills by recognizing multiple solutions for problems (Chuang & Chen, 2009) active video games increasing activity and improve fitness (Dixon, Maddison, & Jull D., 2010) trait aggression, family violence, and male gender were predictive of violent crime, but exposure to violent games was not (Ferguson, Rueda, Cruz, Ferguson, 2008b) experience with playing violent video games was associated with higher visual memory recall and higher visuospatial cognition. (Ferguson, 2007; Ferguson, Cruz, Rueda, 2008a) player's feelings immediately prior to game play and a labile temperament - one predisposed to aggression (Gabrielle et al., 2007) there is no support for assertion that a violent game will cause substantial increases in real-world aggression (Williams & Skoric, 2005; Ferguson & Kilburn, 2009) boy who playing video game with pro social content, their pro-social behavior was promoted they indicated stronger preference for non-violent games (Ihori, Sakamoto, Shibuya & Yukawa, 2007; Greitemeyer & Osswald, 2011; Gentile et al., 2009) Violent video game exposure was not found to be predictive of delinquency or bullying (Ferguson et al., 2010, Browne & Hamilton-Giachritis, 2005) Playing a relaxing video game put people in a good mood, and those in a good mood were more helpful (Whitaker & Bushman, 2012) Boys who spent relatively more time playing video games and watching television had the lowest levels of anxiety (Ohannessian, 2009).

2.5. CONCLUSION

After reviewing several literature and researches relevant to current study it is found that:

- The studies were conducted in the field of psychology, psychiatry, education, medicine and sociology.
- The studies have varied objectives design and theme which drawing out different result. Majority of studies pertaining to survey method.
- A large number of studies have investigated the negative effect of violent video and computer games on behavior of user and Majority of the studies report significant negative effect on aggressive and prosocial behavior with pathological gaming models.
- Only a few researches studying on Indian and Iranian samples.
In summary there are various research studies which are explicitly and implicitly relevant to this study. These research studies vary in objectives, research methodology, procedure of data collection, tools of data collection and analyzing. There is not any study approximate to the objectives and methodology which conducted in this study and in same geographical region. This study added to the raising body of research on the effect of video and computer game consuming on users.

The next chapter focuses on the methodology that has been applied to collect empirical data in order to evaluate behavioral problem status among adolescent due to video and computer games.