INTRODUCTION

Gambling is when an individual risk something of value (for example money, gadget, etc.) on an event with an uncertain outcome with the primary intent of winning. Gambling does not only refer to giving to casinos or racetrack. When an individual has bought a lottery ticket, bet money with friends on the result of a sporting event, or on a game of cards, or played bingo for money, or bet something of material value on a dare also refer to gambling. Gambling is an impulse control disorder wherein individuals fail to control their impulses to gamble, even after knowing the detrimental effects it has on them and their loved ones.

Gambling disorders, including pathological gambling and problem gambling, have received increased attention from clinicians and researchers over the past three decades since gambling opportunities have expanded around the world. Gambling disorders affect 0·2–5·3% of adults worldwide, although measurement and prevalence varies according to the screening instruments and methods used, and availability and accessibility of gambling opportunities. Gambling activities range from informal games of chance (eg., sports betting) to formalised and legal options, such as destination resort casinos and highly developed online gaming environments. The desire and willingness to wager money or other items of value on randomly established outcomes seems universal. Although most individuals participate in gambling as an enjoyable social activity, a small group of people become too seriously involved in terms of time invested and money wagered and they continue to gamble despite substantial and negative personal, social, family, and financial effects (Hodgins et al., 2011).

Disordered gambling (DG) has become a serious public health concern worldwide. Concerns for problems commonly associated with gambling have been present throughout the recorded history of mankind (National Research Council (NRC), 1999). Most individuals gamble without any negative consequences due to gambling, but often excessive gambling leads to several adverse consequences to the gamblers, their significant others and to their communities (Gambling Research Australia, 1999). The social and economic costs of disordered gambling are multitudinous. For example, the annual social cost of disordered gambling in the United States of America is estimated to be 5 billion dollars (NRC, 1999; Grinols, 2004). Over the centuries, beliefs regarding the causes of pathological gambling have
paralleled those of other health issues and have progressed through spiritual, moral, and physical theories of causality. With advancements in science, technology, and understanding of the complex interrelationships among genetics and environment, the causes of many addictions are now well understood and in many cases preventable and, or, treatable (Moore, 2002).

Disordered gambling and its consequences have often been hidden, complex, multifaceted and multidimensional phenomena (Ashley & Boehlke, 2012). The individuals with particular socio-demographic characteristics seemed to be at risk for the development of disordered gambling. For example male gender, young age, low socioeconomic status, low educational level, divorced or single marital status, and in some studies, a minority status (NRC, 1999; Ladoucer et al., 1999; Lund, 2007; Lyk-Jensen, 2010) have been linked to an increased risk for disordered gambling. Psychiatric comorbid illnesses have also been recognized to be common amongst persons suffering from disordered gambling (Roy et al., 1988; Black & Moyer, 1998; Cunningham-Williams et al., 1998). For example, severe depression, mood disorders, the use of nicotine and alcohol use disorder have been associated with disordered gambling (Lorains et al., 2011). Along with specific sociodemographic characteristics and psychiatric comorbid illnesses, availability of gambling venues is also associated with the prevalence of gambling (Ladoucer et al., 1999; Cambell & Lester, 1999).

During the college years, excessive or regular gambling have been proved harmful both financially and socially, particularly because the transition to college left students with fewer financial and social resources (Arnett, 2000). Pathological gambling has been a maladaptive pattern of gambling behavior that persists despite substantial adverse consequences. Pathological gamblers expend a remarkable amount of money, time, and emotional resources on gambling (Alessi & Petry, 2003). Gambling behaviors tend to escalate during the transition from adolescence to young adulthood (Slutske et al., 2003), with recent studies estimating that 42% of college students engage in gambling behaviors and 2% in frequent gambling (LaBrie et al., 2003). Further, the incidence of gambling among college students has increased in recent years (Winters et al., 1998; LaBrie et al., 2003). Typically, adolescents incur substantial debt and experience family and social relationship problems because of gambling. Some pathological gamblers even lost their jobs or engage in illegal
activities to support their gambling (American Psychiatric Association (APA), 1994; Petry & Armentano, 1999). Pathological gambling affects an estimated 1.6% of the adult population in the United States and Canada (Shaffer et al., 1999).

Over the past decade, adolescent gambling had increasingly recognized as an important public health issue and an emerging field of research (Neal et al., 2005; Messerlian et al., 2005; Blinn-Pike et al., 2010).

According to Mohan (2000), adolescence refers to a period of transition, turbulence, trance and tension unmatched for its energy and impacts on the rest of life. Adolescence has been a sensitive life period during which many health-damaging behaviors like smoking and alcohol use were typically adopted. Adolescents engaging in risk behaviors were at increased risk for experiencing also negative consequences and problems that were related to those behaviors. Alcohol use, for example, was common in adolescence and several negative experiences have been linked to adolescents’ alcohol use, particularly drunkenness-oriented drinking (Lavikainen et al., 2008). Along with alcohol drinking, adolescents’ gambling represents a cause for considerable concern. Even though the majority of adolescents who engage in gambling may not experience any harm or negative consequences, similar to alcohol use, excessive gambling has known to have negative effects in major areas of life. Gambling has been associated with a variety of factors including disruptions in social relationships, substance use, delinquency and criminal behavior (Hardoon et al., 2004).

Pathological gambling was classified as an impulse-control disorder (American Psychiatric Association (APA), 2000). It nevertheless shared many features with addiction disorders due to substance dependence under the bio-psycho-social point of view (Potenza, 2006). The chronic and progressive nature of this disorder was often characterized by an inability to control or quit gambling, ultimately causing an overall decline in social and family relationships (Potenza et al., 2002; Shaw et al., 2007), financial (Grant et al., 2010) and legal consciousness (Abbott & McKenna, 2005; Williams et al., 2005).

Concerning the cognitive sustainability, it has been well known that gambling stimulated the brain areas that were responsible for analysis and predictive processes, as documented by van Holst et al. (2010). When experiencing natural phenomena or social relationships, these processes help individual to elaborate behavioural rules that
were useful in situations of uncertainty. In the case of aleatory phenomena typical of gambling, the cognitive effort of inferring rules was continuously frustrated by events, which were indeed governed by chance.

If the cognitive dependence was responsible for triggering non-responsible behaviours, heavy gambling activities continuously subtracted time from other social and relational activities such as work, family and emotional relationships, often determining a breakup of the socio-relational sustainability; under this condition, relationships might become very conflicting (Potenza et al., 2001; Petry, 2003), trigger a variety of psychiatric disorders (Crockford & el-Guebaly, 1998) and increase risks of suicidal behaviour (Bourget et al., 2003; Hodgins et al., 2006).

The assessment of gambling problems in young people has most commonly been based on the diagnostic gambling screens such as the South Oaks Gambling Screen (SOGS-RA) and the Diagnostic and Statistical Manual Fourth Edition Multiple Response Juvenile (DSM-IVMR- J) diagnostic instrument. Some researchers have questioned the use of these measurement instruments in adolescents (Ladouceur et al., 2000; Marshall, 2005; Stinchfield, 2010). More specifically, it has been argued that adolescents may experience variety of harms in different social contexts in which the gambling was occurring, and thus, more attention should be given on assessment of all potential harms of gambling thoroughly, including less serious harms and other dimensions that were not typically part of the clinical based screens (Neal et al., 2005; Delfabbro et al., 2005).

Preferred games tend to include new types of games like slot machines and internet gaming during the last years. The trend is to move gambling from casinos and land based games to the internet. It has been specific for the teenagers, 11-19 years, to have a highly socialized life and make most of the activities in groups, gambling being one of them, as teenagers answered. Gambling leads to lowering academic scores and increasing absenteeism in educational institutions which can be an alarming sign for teachers. Family incomes do not affect whether teenagers gamble or not. Being rich or poor is not a condition for being more predisposed to gambling. Both are affected by gambling. Each pathological and problem gambler has cognitive distortions and they think they can control the outcome of a game. Irrational beliefs, magical thinking or superstitions are common among gamblers and this is the case with adolescent gamblers too (Lupu & Todirita, 2013).
GAMBLING AS AN ADDICTION

Many researchers have reported gambling to be a type of addiction.

DEFINITIONS

Plethora of terms have been used in the literature to understand ‘problem’ gambling – ‘problem’, ‘pathological’ and ‘compulsive’ being the most common - but ‘addictive’, ‘excessive’, ‘disorderly’, ‘Level 2’ and ‘Level 3’, ‘at-risk’, ‘in-transition’, ‘degenerate’ and ‘potential pathological’ are also used.

According to Dickerson et al. (1997), “Problem gambling’ refers to the situation when a person’s gambling activity gives rise to harm to the individual player, and/or to his or her family, and may extend into the community”. Disordered gambling is a term used to describe the full range of gambling problems, which includes pathological and subclinical gambling (Shaffer et al., 1997).

Gambling is an activity in which something of value is risked on the outcome of an event when the probability of winning or losing is less than certain (Korn & Shaffer, 1999). The Productivity Commission of Australia (1999) listed the following Tattersall’s definition among a list of definitions of problem gambling: “Preparedness to spend heavily, combined with frequent participation, implies that some gambling activities are strongly desired, and potentially habit forming. If the habit can become so strong it leads to serious social consequences, then that is grounds for community concern about the regulation of gambling, and the measures in place to deal with its consequences.” The United States National Research Council (1999) defined pathological gambling as: “mental disorder characterized by a continuous or periodic loss of control over gambling, a preoccupation with gambling and with obtaining money with which to gamble, irrational thinking, and a continuation of the behaviour despite adverse consequences”.

The American Psychiatric Association's DSM-III definition for pathological gambling, as defined by Dr. Rosenthal is: "A progressive disorder characterized by a continuous or periodic loss of control over gambling; a preoccupation with gambling and with obtaining money with which to gamble; irrational thinking and a continuation of the behavior despite adverse consequences" (Pathological Gambling Research, 1999). According to American Psychiatric Association, (2000), “Problem gambling has been characterized by a preoccupation with gambling which
leads to a continuous or periodic loss of control over time and/or money spent on gambling resulting in adverse impacts for the gambler, and perhaps for his or her family, his or her vocational pursuits and which may extend into the wider community”. Pathological gambling has been characterized by persistent and recurrent maladaptive gambling behavior, leading to significant deleterious legal, financial, physical and psychosocial consequences (DSM-IV-TR, American Psychiatric Association, 2000).

Dickerson (1991, quoted in O’Connor et al., 1999) defined problem gambling in terms of a continuum as follows: “Problem gambling is essentially a behaviour that will be present in varying degrees and forms. That is, gambling involvement rests on a continuum from occasional non-problematic use through to extreme over-involvement, with a host of related problems that may be accompanied by a sense of impaired control”.

Blaszczynski and Nower (2002) defined problem gambling with reference to impaired control and a disordered or diseased state. According to the authors, “the defining feature of a problem gambler is not only the emergence of negative consequences but also the presence of a subjective sense of impaired control, construed as a disordered or diseased state that deviates from normal, healthy behaviour. Impaired behavioural control, defined by repeated, unsuccessful attempts to resist the urge in the context of a genuine desire to cease, is the central, diagnostic and foundational feature of pathological gambling”. Raylu and Oei (2002) used the term: “pathological gambling to define gambling behaviour meeting the diagnostic criteria, but ‘problem gambling’ to include those individuals that may be experiencing problems but who do not meet the criteria”. Smith and Wynne (2002) noted that implicit in the definitions of gambling are four assumptions: (1) an element of risk is involved; (2) someone wins and someone loses-money, property or some other items of value change hands; (3) at least two parties must be involved in the activity—a person cannot gamble against him/herself; and (4) gambling is a conscious, deliberate, and voluntary activity”. Gambling, by its very nature, involves the voluntary assumption of risk. Risk-taking is reinforced by positive emotional experiences: relief from boredom, feelings of accomplishment, and the “rush” associated with seeking excitement. Those activities with the highest potential pay-offs tend to generate the
most excitement and serve to stimulate greater risk-taking activity (National Research Council, 1999)

The Nevada Council on Problem Gambling (2014) defined problem gambling as: “a progressive behavioural disorder in which an individual has a psychologically uncontrollable preoccupation and urge to gamble. This results in excessive gambling, the outcome of which is the loss of money, time and self-esteem. The gambling reaches a point at which it compromises, disrupts and ultimately destroys the gambler’s personal life, family relationships, and vocational pursuits. These problems in turn lead to intensification of the gambling behaviour. The principal features are emotional dependence on gambling, loss of control and interference with normal functioning”.

The National Council on Problem Gambling in the United States (2004) defined problem and pathological gambling as Problem gambling is gambling behavior which causes disruptions in any major area of life: psychological, physical, social or vocational. The term "Problem Gambling" includes, but is not limited to, the condition known as "Pathological", or "Compulsive" Gambling, a progressive addiction characterized by increasing preoccupation with gambling, a need to bet more money more frequently, restlessness or irritability when attempting to stop, "chasing" losses, and loss of control manifested by continuation of the gambling behavior in spite of mounting, serious, negative consequences”. According to Stichinfield et al. (2006), Problem gambling referred to gambling disrupting one’s own life (which includes pathological gambling), while pathological gambling is a mental disorder that resembles substance use disorders. Problem Gambling (PG) has been a more complex and unstable disorder (LaPlante et al., 2008) than originally and traditionally thought.

As with most addictive disorders, the vast majority of those who eventually experience disordered gambling do not develop addiction after their initial gambling experiences. Similar to other expressions of addiction (e.g., excessive psychoactive substance use), among those who have experienced a gambling disorder, gambling escalates—sometimes rapidly and more often slowly—as players develop neuroadaptation (i.e. tolerance and withdrawal). In addition to physical signs and symptoms, disordered gamblers often experience negative psychosocial consequences e.g., debt, shame, guilt, depression, loss of control (Shaffer et al., 2004). Individuals
who continue to gamble despite these adverse consequences, lose control over their
gambling, and crave opportunities to gamble, are most likely experiencing a clinical
disorder: called problem gambling.

**Diagnosing Statistical Manual criteria for Diagnosing Problem/Pathological
Gambling**

Pathological gambling was first introduced into the official diagnostic
omenclature with the publication of the 9th Edition of the International Classification
(PG) was formally recognized as a mental disorder by the American Psychiatric
(DSM-III). The diagnostic criteria for pathological gambling have been revised twice
since then (1987 and 1994) and the current standard has been DSM-IV (1994).
Proposed DSM-V includes some changes to pathological gambling. DSM-IV has
been the accepted standard and many instruments were based on it (e.g., SCID, DIS,
CIDI, AUDADIS, MAGS, GAMTOMS, DIGS, GAM-IV, DSM-IV-J and DSM-IV-
MR-J, NODS, CPGI).

A diagnosis of pathological gambling in the DSM-III required experiencing
three of the following seven symptoms that were primarily focused on legal and
financial consequences of gambling.

**Diagnostic Criteria for Pathological Gambling (DSM-III)**

A. The individual is chronically and progressively unable to resist impulses to
gamble.

B. Gambling compromises, disrupts, or damages family, personal, and vocational
pursuits, as indicated by at least three of the following:

1. Arrest for forgery, fraud, embezzlement, or income tax evasion due to
   attempts to obtain money for gambling

2. Default on debts or other financial responsibilities

3. Disrupted family or spouse relationship due to gambling

4. Borrowing of money from illegal sources (loan sharks)

5. Inability to account for loss of money or to produce evidence of winning
   money, if this is claimed
6. Loss of work due to absenteeism in order to pursue gambling activity
7. Necessity for another person to provide money to relieve a desperate financial situation

C. The gambling is not due to Antisocial Personality Disorder.

The diagnostic criteria for pathological gambling underwent a major overhaul for the DSM-III-R in 1987 when they were substantially rewritten to more closely resemble the diagnostic criteria for substance dependence. A diagnosis of pathological gambling in the DSM-III-R required experiencing four out of the following nine symptoms, with none of the diagnostic criteria from the DSM-III retained.

**Diagnostic Criteria for 312.31 Pathological Gambling (DSM-III-R)**

Maladaptive gambling behavior, as indicated by at least four of the following:

1. Frequent preoccupation with gambling or with obtaining money to gamble
2. Frequent gambling of larger amounts of money or over a longer period of time than intended
3. A need to increase the size or frequency of bets to achieve the desired excitement
4. Restlessness or irritability if unable to gamble
5. Repeated loss of money by gambling and returning another day to win back losses ("chasing")
6. Repeated efforts to reduce or stop gambling
7. Frequent gambling when expected to meet social or occupational obligations
8. Sacrifice of some important social, occupational, or recreational activity in order to gamble
9. Continuation of gambling despite inability to pay mounting debts, or despite other significant social, occupational, or legal problems that the person knows to be exacerbated by gambling

The diagnostic criteria for pathological gambling were again revised with the DSM-IV. A diagnosis of pathological gambling in the DSM-IV requires experiencing 5 of 10 symptoms; six of these symptoms were carried forward from DSM-III-R, three were brought back from the DSM-III, and one symptom was completely new to the DSM. The DSM-IV diagnostic criteria for pathological gambling are now
primarily composed of symptoms modeled on the substance dependence criteria with only two items referring to either legal or financial consequences of gambling.

The DSM-IV version listed 10 criteria for pathological gambling (American Psychiatric Association, 1994). According to DSM-IV-TR, individuals who concurrently experience five or more of the following ten criteria meet the diagnostic threshold for pathological gambling (PG) (American Psychiatric Association, 2000).

**Diagnostic Criteria for 312.31 Pathological Gambling (DSM-IV-TR)**

1. Preoccupied with gambling;
2. Need to gamble with increasing amounts of money in order to achieve the desired excitement;
3. Repeated unsuccessful efforts to control, cut back, or stop gambling;
4. Restless or irritable when attempting to cut down or stop gambling;
5. Gambling as a way of escaping from problems;
6. After losing money gambling, often returning another day to get even (“chasing” one’s losses);
7. Lying to family members, a therapist, or others to conceal the extent of involvement with gambling;
8. Committing illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling;
9. Jeopardizing or losing a significant relationship job, or educational or career opportunity because of gambling;
10. Relying on others to provide money to relieve a desperate financial situation caused by gambling.

Statistical analyses have generally found these 10 criteria tapped a single uniform underlying construct (Strong & Kahler, 2007). However, one of the ten criteria was rarely endorsed and appeared to add little to diagnostic classification accuracy. The criterion related to committing illegal acts (e.g. forgery, fraud, theft or embezzlement) to finance gambling is the least often endorsed criterion in a number of population surveys (Blanco et al., 2006; Strong & Kahler, 2007), and item response theory revealed that it added little to classification accuracy (Grant, 2010).
Hence, the DSM-V Workgroup has suggested that this criterion should be dropped in the next version of the DSM (Petry, 2010).

**Changes in the Diagnosing criteria for Pathological Gambling in DSM-V**

**Reclassification: From Impulse Control Disorder to Addiction**

In the DSM-IV-TR by American Psychiatric Association (2000), pathological gambling was classified under the section titled, “Impulse Control Disorders Not Elsewhere Classified,” along with Compulsive Hair Pulling (Trichotillomania); Intermittent Explosive Disorder; Kleptomania; and Pyromania. The DSM-V work group (2010) proposed that pathological gambling be moved to the category Substance-Related and Addictive Disorders.

The rationale for this change was that the growing scientific literature on pathological gambling revealed common elements with substance use disorders. Many scientists and clinicians have long believed that problem gamblers closely resemble alcoholics and drug addicts, not only from the external consequences of problem finances and destruction of relationships, but, increasingly, on the inside as well (APA, 1994). According to Dr. Charles O’Brien, chair of the Substance-Related Disorders Work Group for DSM-V, brain imaging studies and neurochemical tests have made a “strong case that gambling activates the reward system in much the same way that drug do” (Holden, 2010). Pathological gamblers report cravings and highs in response to their stimulus of choice; it also runs in families, often alongside other addictions (Potenza et al., 2005). Neuroscience and genetics research has played a key role in these determinations.

To conclude one may say that to diagnose a disordered gambling, the criteria that are displayed among the individual must occur within a 12-month period, unlike the DSM-IV which did not provide a time period for symptoms. In other words, if the person had two symptoms years ago and two symptoms in the past year, he or she would not qualify for a diagnosis (Petry et al., 2014).

**Following were the proposed changes for Pathological Gambling in DSM-V** (www.dsm5.org)

1. Change the name from Pathological Gambling to Disordered Gambling
2. Reclassify the disorder from Impulse-Control Disorders Not Elsewhere Classified to Substance-Related Disorders which will be renamed Addiction and Related Disorders;
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3. Eliminate the criterion, “has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling”
4. Lower threshold for diagnosis from five to four criteria
5. Specified time period; symptoms must be present during a 12 month time period

Diagnostic Criteria for 312.31 (F63.0) Gambling Disorder (DSM-IV)

1. Persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12-month period:
   a) Needs to gamble with increasing amounts of money in order to achieve the desired excitement.
   b) Is restless or irritable when attempting to cut down or stop gambling.
   c) Has made repeated unsuccessful efforts to control, cut back, or stop gambling.
   d) Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).
   e) Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed).
   f) After losing money gambling, often returns another day to get even (“chasing” one’s losses).
   g) Lies to conceal the extent of involvement with gambling.
   h) Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling.
   i) Relies on others to provide money to relieve desperate financial situations caused by gambling.

2. The gambling behavior is not better explained by a manic episode.

Specify if:

1. **Episodic:** Meeting diagnostic criteria at more than one time point, with symptoms subsiding between periods of gambling disorder for at least several months.
2. **Persistent:** Experiencing continuous symptoms, to meet diagnostic criteria for multiple years.
Specify if:

1. **In early remission:** After full criteria for gambling disorder were previously met, none of the criteria for gambling disorder have been met for at least 3 months but for less than 12 months.

2. **In sustained remission:** After full criteria for gambling disorder were previously met, none of the criteria for gambling disorder have been met during a period of 12 months or longer.

Specify current severity:

1. **Mild:** 4–5 criteria met.
2. **Moderate:** 6–7 criteria met.
3. **Severe:** 8–9 criteria met.

In the present investigation the scale developed by Fisher (2000), DSM-IV-MR-J Pathological Gambling Addiction Form, based on DSM-IV-TR criteria for pathological gambling has been used to measure the gambling tendencies among adolescents.

**RECENT TRENDS IN GAMBLING (INTERNET GAMBLING)**

Gambling dates back to ancient times, yet new arenas for gambling, such as the Internet, and methods of assessing psychiatric illness in the modern age have shifted our understanding of gambling as an addiction. Accordingly, Gambling Disorder is now a part of the Addictive Disorders in the DSM-V, which has further catalyzed a debate over the contribution of personality traits (rather than just personality disorders) to the manifestation and maintenance of psychiatric conditions such as Gambling Disorder (Odlaug & Chamberlain, 2014). With the emergence of Internet gambling, empirical gambling research has received impetus. There has been a growing body of research focused on actual gambling behavior instead of self-reported gambling behavior (Shaffer et al., 2010).

The first 1999 British prevalence survey revealed that none of the respondents aged 15–19 years had gambled online (Griffiths, 2001). Gambling problems were rarely brought to the attention of family practice physicians, but pathological gambling was associated with poor emotional and physical health. Recent availability and easy accessibility of Internet gambling may be associated with pathological gambling status, and Internet gambling may confer health risks. Thus Petry (2006)
conducted a study to evaluate the prevalence of Internet gambling, its association with pathological gambling, and the relationship between Internet gambling and health status among patients attending medical and dental clinics. The South Oaks Gambling Screen and Short Form 12 were administered to 1414 adults in waiting areas of clinics located in the greater Hartford, USA. Results revealed that only 6.9% of respondents reported ever gambling on the Internet, with 2.8% indicating frequent Internet wagering. Almost two-thirds (65.9%) of regular Internet gamblers were classified as probable pathological gamblers, compared with 29.8% of ever-Internet gamblers and 7.6% of non-Internet gamblers. Internet gambling was associated with poor mental and physical health, and this association remained significant even after controlling for age, gender, site and pathological gambling status. Thus Petry (2006) concluded that Internet gambling has been linked to pathological gambling and has been independently associated with poor health.

Wood et al. (2007) found a 5% online poker playing rate in a United Kingdom university student sample. In Canada, 3.7% of Quebec high school teenagers staked online in the previous year (Chevalier et al., 2003), while 11.7% of 631 Ontario underage students had wagered on the Internet (Ladouceur et al., 2005). Approximately 30–40% of Canadian youth might be playing on the practice sites (Byrne, 2004; Derevensky & Gupta, 2007). Romer (2010) noted that monthly Internet gambling shot up from 4.4% in 2008 to 16% in 2010 among male United States youngsters aged 18–22 years.

Recent available data suggested that the prevalence rates of pathological gambling were higher among Internet gamblers than offline players. A study of 1,356 United States college students (Petry & Weinstock, 2007) showed that 61.6% of regular Internet gamblers were pathological gamblers, compared with 23.9% of infrequent Internet gamblers and 5.0% of non-Internet gamblers. A United Kingdom survey revealed 37% of 127 United Kingdom university student Internet gamblers had gambling problems in their lifetimes (probable pathological gamblers, 19%; potential pathological gamblers, 18%) (Matthews et al., 2009).

There has been little research on Internet gambling among Chinese adolescents. Approximately 2–4.6% of high school students (grade 7–12) in Hong Kong gambled online in the past year (Hong Kong Polytechnic University, 2002; University of Hong Kong, 2005; Wong, 2010b). In Macau, 5.2% of high school
students (grade 9–12) wagered at online casinos (University of Macau, 2003). Wong (2010a) reported that 6.6% of 422 Macau high school students (grade 7–12) gambled online, and 25 and 10.7% could be designated as pathological and at-risk gamblers, respectively.

Olason et al. (2011) reported only 1.1% of Iceland adolescent offline gamblers showed signs of problem gambling, but 7.7% of online gamblers were identified as problem gamblers. These studies indicated that Internet gamblers were more susceptible to problem gambling than offline gamblers (Griffiths & Barnes, 2008). The rate of problem gambling among 465 Canadian youth online gamblers was 2.7 times higher than the non-Internet gamblers (McBride & Derevensky, 2012).

Internet gambling may constitute a more severe form of pathology, although research into this area has been quite limited to date. A Finnish study of 3,451 adults who had reported gambling over the past year found that those meeting criteria for gambling disorder were significantly more likely to report using both casino and Internet gambling avenues compared to both problem and non-problem gamblers who engage in casino-only gambling (Castren et al., 2013). This has been consistent with previous research suggesting that the more types of gambling a person has been engaged in, the worse the gambling severity (although importantly, not exclusive to Internet gambling) (Laplante et al., 2013). A second Finnish study, which randomly sampled 2,826 adults, found that Internet gambling alone was significantly associated with more severe gambling problems compared to other forms of gambling (e.g., casino gambling) (Castren et al., 2013), suggesting the need for more Internet gambling legislation (Bonnaire, 2012).

The Internet appeared to disproportionately affect adolescents and young adults, where problematic internet use behaviours have been shown to coincide with problematic gambling behaviours (Tozzi et al., 2013). What was less known, however, was whether a certain subtype of individual may be predisposed to engaging in Internet gambling and developing problematic gambling behaviours as a result. A study of 1,102 Swiss adolescents found that the risk of problem gambling was high for those who were male, abusing alcohol, and reported problematic internet use (Tozzi et al., 2013).
Wong and So (2014) investigated Internet gambling involvement and pathological gambling among 1004 Hong Kong adolescent students (597 boys, 407 girls) aged 12–19 years recruited by random selection of classes who responded to The diagnostic and statistical manual (4th edition) multiple response format for juveniles (DSM-IV-MR-J) (Fisher, 2000). The response rate was 86.6 %. Results indicated that more respondents participated in land-based gambling than Internet gambling (63.5 vs. 3.5 %) but online gamblers were 1.5 and 3.2 times more likely to develop pathological and at-risk gambling than non-Internet gamblers. Using the DSM-IV-MR-J criteria, 5.7 and 22.9 % of the Internet gamblers could be classified as at-risk gamblers and pathological gamblers, respectively. Majority (94.3 %) wagered online at home, and 91.4 % made their first bet before 18 years. Many perceived Internet gambling as a trendy (71.4 %) and safe entertainment (54.3 %). Problematic Internet gambling was significantly associated with the male gender, school grades, online gambling frequency, amount wagered and a gambling family environment.

Wong and So (2013) survey also revealed that more adolescents gambled offline than online during the past year (63.5 vs. 3.5 %). The 3.5 % of online gambling participation rate falls within the range of 2–4.6 % found in local surveys (Hong Kong Polytechnic University, 2002; University of Hong Kong, 2005; Wong, 2010b), but it was lower than the prevalence estimates reported in several recent western studies. For example, 24.3 % of 1,537 Iceland students (aged 13–18 years) wagered on the Internet during the previous 12 months (Olason et al., 2011). McBride and Derevensky (2012) noted 8 % of 465 Canadian college students (aged 18–20 years) gambled online. This study found gender difference in online gambling involvement, confirming that Internet gambling is a male-dominated activity (82.9 % males vs. 17.1 % females) (Petry & Weinstock, 2007; Romer, 2010; Spectrum Gaming Group, 2010; Wong, 2010a). Boys were also more likely than girls to gamble excessively on the Internet (90 vs. 10 %) Ample research evidence indicates similar results (Wong, 2010a; Olason et al., 2011; McBride & Derevensky, 2012).

PREVALENCE OF GAMBLING AMONG ADOLESCENTS

Abbott and Cramer (1993) found that participants who had their first gambling experience at a younger age engaged in more gambling activities as adults than those who first gambled in their 20s or 30s. The prevalence rates differ from past
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year gambling reports of the general adult population. Gambling at a younger age is associated with later life gambling behavior (Winters et al., 2002; Burge et al., 2006).

Despite higher prevalence rates of problem gambling among youth, studies suggest that, similar to adults, adolescent problem gamblers are, in fact, not a homogenous group (Gupta & Derevensky, 1997). Similar to adolescents and the general adult population, the majority of college students from 2 Minnesota universities were surveyed about their gambling involvement. Gambling was reported to be a common experience, with 87% having participated at least once in the previous year (Winters et al., 1998). A meta-analysis of 119 studies examining pathological gambling prevalence rates in United States and Canada revealed that 3.4 to 5.9 % of college students met lifetime criteria for the disorder (i.e., having experienced symptoms of pathological gambling at some point during their lifetime (Shaffer et al., 1999).

A more recent meta-analysis of researches which have been conducted on college students in United States and Canada revealed that 5.4–10.4 % of college students have engaged in behaviour that is consistent with pathological gambling (Blinn-Pike et al., 2007). As problem gambling has been a significant issue in most countries, meta analyses of studies conducted in U.S.A., Canada, North America, Europe, Australia, New Zealand and Asia by Shaffer et al. (2004) and Stucki and Rihs-Middel (2007) suggested that depending on country, methodology and classification system, between 0.2 to 3.5% of the adult population experience severe gambling problems; Young people are considered a high risk group, with research suggesting youth problem gambling rates are two to three times those of adults (Delfabbro et al., 2005; Blinn-Pike et al., 2007); The high problem gambling prevalence among youth partly reflects a tendency for young people to experiment with new and risky behaviours (Snow et al., 2003; DiClemente et al., 2009); Youth, particularly young men, can view gambling and alcohol consumption as ‘rites of passage’ into adulthood (Welte et al. 2009). A random phone survey of 2,274 United States young adults found 67.5 % to have gambled in the previous year (Welte et al., 2009). Furthermore, among those who had gambled in the past year, approximately 20, 10, and 5 % reported 1+, 2+, and 3+ DSM-III symptoms of pathological gambling, respectively.
Estimates from Walte et al. (2008) study revealed that 68% of adolescents in the age range of 14-21 have gambled at least once within the past year. According to the results of the 2007 European School Survey Project on Alcohol and Other Drugs (ESPAD) school survey (Järvinen-Tassopoulos & Metso, 2009), over 70% of 9th grade boys (aged between 15 and 16 years) reported having played slot machines at least once a month. The corresponding figure was 24% for girls.

Gambling prevalence studies from USA and Canada (Jacobs 2000), Australia (Delfabbro et al., 2005) and Europe (Fröberg, 2006; Molde et al., 2009; Luder et al., 2010; Kristiansen & Jensen, 2011) provide evidence that gambling is a common activity among young people, past-year prevalence rates ranging from 60 to 90% depending on the country and study methodology. The prevalence of gambling increases with age and is higher among boys than in girls (Fröberg, 2006; Blinn-Pike et al., 2010).

Findings from a study by Moore et al. (2013) on 1600 students (836 domestic students and 764 international students) at three Australian Universities revealed that although most students gamble infrequently, around 5 % of students are problem gamblers, a proportion higher than that in the general adult population. Popular gambling choices include games known to be associated with risk (cards, horse races, sports betting, casino games, and gaming machines) as well as lotto/scratch tickets. Males are more likely to be problem gamblers than females, and almost 10 % of male international students could be classified as problem gamblers. Hierarchical regression analysis showed that male gender, international student status, financial stress, negative affect and frequency of gambling on sports, horses/dogs, table games, casino gaming machines, internet casino games and bingo all significantly predicted problem gambling.

Lupu and Todirita (2013) aimed to find out the prevalence of pathological in Romanian teenagers. They questioned one thousand thirty-two teenagers in Cluj-Napoca and Harghita counties. Participants completed a questionnaire with 40 items including gamblers anonymous twenty questions. The sample included teenagers aged 11–19 years; 65.57% were male and 34.43% were female. The subjects were divided into three groups: non-gambling/recreational gambling or occasional gambling (0–1 positive answers — Level 1)—753 subjects (72.96%) [316 females and 437 males]; problem gambling (2–6 points—Level 2)—243 subjects (23.54%) [43 females and
200 males]; pathological gambling (above 7 points—Level 3)—36 subjects (3.48%) (3 females and 33 males). The mean age of pathological gamblers was 16.48 years. Gender differences were as expected, males engaging in pathological gambling (91.66% from pathological gamblers) more than females did (8.33% from pathological gamblers). Data revealed that the most encountered games practiced weekly were sport bets and slot machines in the case of 36.11% of the pathological gamblers; lotto, internet casino and pool bets each with 25%, followed by roulette and black-jack with 22.22%. From those who reported practicing gambling at a pathological level 66.66% engaged in alcohol consumption, 13.88% illicit drug use and 19.44% licit drugs. Just 16.66% smoke cigarettes. Data revealed higher rates of prevalence in Romanian teenagers than in other Central and Eastern European countries.

According to Holdsworth et al. (2013), problem gambling has been a social issue that has increasingly involved women; however, research into gambling and gambling problems amongst women has not kept pace with the feminization of gambling. According to Wong et al. (2014), gambling has become a public health problem in the United States, especially among emerging adults (18–25 year olds). Since 1995, rates have recently doubled with around 7–11 % of the emerging adult population having problems with gambling (Cyders & Smith, 2008). Some states have lowered their gambling age to 18 years old; in turn, the gambling industry has recently oriented their market to target this younger population. However, little has been known about the gender variation and the factors placing emerging adults at risk for getting engaged and developing problems with gambling (Wong et al., 2013).

According to Lang and Randall’s (2013) study (conducted on 213 young adults enrolled as undergraduate students at an upper Midwestern university, between the ages of 18-25 in United States) for many individuals, involvement with gambling begins at a young age. Lang and Randall (2013) reported that although fewer adolescents than adults reported gambling in the past year, adolescents identified with past year pathological gambling criteria at a rate that is 3 times higher than what was found among the adult population. According to Raisamo et al. (2013) in a national survey on 4,566 adolescents of 12–18-year-olds conducted in Finland in 2011, 44% had gambled during the past 6 months. Of the sample, 12% were frequent gamblers (at least weekly) and 32% were occasional gamblers (monthly or less often).
Compared to occasional gamblers, frequent gamblers were more likely to experience harms. The most commonly reported harms among frequent gamblers were ‘‘felt guilty or shameful due to gambling’’ (17%) followed by ‘‘problems with relationships’’ (13%) and ‘‘disruptions of daily rhythm’’ (10%). In age and gender-adjusted analysis, daily gamblers were significantly more likely to report all different types of harms when compared to other groups. These findings suggest that when planning and targeting youth gambling prevention and harm reduction strategies the nature and extent to which gambling may contribute to the different types of harms are important to consider.

A recent meta-analysis of 18 international studies conducted between 2005 and 2013 examining pathological gambling in college students found that approximately 10% of college students met criteria for pathological gambling (Nowak & Aloe, 2013).

Recent newspaper reports reflect rising gambling among adolescents in India also. Several reports in Times of India have been published. One report stated that a youth was killed over a minor dispute while gambling near Loknath Temple in Bhubaneswar (23rd January, 2014); ten youths were booked for gambling in public place by Udayagiri police (2nd June, 2014); Chamarajanagara rural cops arrested nine youth for gambling in public place (31st August, 2014); Aurangabad police arrested 14 people gambling in two separate raids and seized the gambling material worth Rs. 30,760 (10th September, 2014). In two different reports, Times of India stated incidence of gambling among women in Indian population. In Surat on 7th September, 2014, 13 women were arrested for gambling. These women regularly gambled with cards according to the report. According to this report, it was tradition among some communities in the city to gamble during festive occasions. It was slowly becoming a trend to gamble regularly.

A report in Hindustan Times stated that one in ten adolescents lie, steal, take drugs, gamble and violate social norms (24th October, 2009). In the same report it was also stated that “youth without symptoms of conduct disorder have a five percent rate of risky or problem gambling” said by John. W. Welte from Buffalo University Research Institute on Addictions (RIA) who led the study. According to him youth with symptoms of conduct disorder have a 23% rate of risky or problem gambling. In a study of 2274 youth between the ages of 14 and 21, Welte and his colleagues
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reported that the extent to which problem gambling and conduct disorder occurred at the same time was much stronger among younger (14-15 years old) adolescents.

According to a report by experts in Economic Times (16th July, 2012), facebook has played an important role in turning teens into gambling addicts. With a burst of casino-type games on facebook, experts had warned that the social networking site was turning youngsters into gambling addicts, as these types of games encourage teenagers to think gambling as harmless fun according to addiction experts in United Kingdom. Children use virtual coins to imitate the thrill of hitting the jackpot with slot machines and roulette games on their home computers and mobile phones.

The Hindu reported several incidences of gambling among Indian population. According to a report (22nd April, 2012), about 45 youths were held for betting in game of cricket. Cricket has become a game for gambling for many youth in the state of Andhra Pradesh, particularly in Godavari district. Bookies, including youth, were luring youngsters to invest lakhs of rupees, making them to commit heinous crimes, including murder, kidnap, theft, chain-snatching and so-on.

The Hindu had reported several incidences of gambling in past few months. On different instances youth and adults were arrested by the police for gambling in Tamil Nadu (16th July, 2014; 7th August, 2014; 12th September, 2014); in Andhra Pradesh (27th August, 2014; 15th September, 2014; 22nd September, 2014); inside a five star hotel in New Delhi (3rd September, 2014 and in Hyderabad (16th September, 2014). Huge amount of money and several mobile phones were also sized from the people who were gambling.

The fact that the prevalence rates for youth with severe gambling problems are 2–4 times that of adults is also of great concern. Whether these individuals will stop their excessive gambling behavior by the time they become adults with additional familial and personal responsibilities still remains an unanswered question. Psychologists need to focus on motives for gambling among adolescents to prevent this tendency becoming full fledged addiction in adults.

MOTIVES FOR GAMBLING

It has been argued that motivation has been a key determinant of gambling involvement. The participants’ who exhibit high self-determined motivational profile engage in gambling for fun and have a sense of choice and thus will report higher degree of involvement in gambling (Chantal et al., 2001).
Gambling among young adults occurs at a higher rate than in the general population and has been associated with a host of negative consequences. Rodriguez et al. (2014) designed a research to examine gambling motives as mediators of associations between motivational orientations and gambling behaviors. For this purpose authors selected 252 undergraduates who met 2+ criteria on the South Oaks Gambling Screen participated in a laboratory survey assessing their motivational orientations, gambling motives, and gambling behaviour (quantity, frequency, and problems). Mediation analyses suggested that autonomy was negatively associated with gambling problems through lower levels of chasing and escape motives. Further, controlled orientation was associated with more problems through higher levels of chasing and interest motives. Finally, impersonal orientation was negatively associated with amount won through escape motives. Overall, results supported exploring gambling behaviour and motives using a Self-Determination Theory (based on whether individuals are chronically exposed to environmental factors that support their autonomy (e.g., opportunities to make choices based on one’s desires) or restrict and force their behaviour (e.g., controlling environmental factors such as threats, pressures, and evaluations), individuals vary in the extent to which they are generally motivated for autonomous, controlled, or impersonal i.e., amotivational (reasons) framework.

A distinction can be made between motivational and involvement models of gambling behaviour (Binde, 2009b). Motivational models explain why people find it worthwhile to gamble, while involvement models explain why some people gamble just a little and others far too much. However, the two kinds of models overlap. A motivational model may to some extent account for involvement, since individual involvement is likely to be higher if there are multiple motives for gambling and since motivational strength varies. Involvement models include motives for gambling, which are subject to enforcing, attenuating and mediating factors.

As the term suggests, motivational models take account of people’s motives for gambling in general or for participating in specific games. Motivation is here understood in the general sense, as ‘what animates us, what prompts our initiation, choice, and persistence in particular behaviours in particular environments’ (Bernard et al., 2005). Motivational models can be quantitative, generated by the
statistical analysis of questionnaire data, or qualitative, consisting of lists of motives for gambling derived from observational studies.

Some models and analyses of gambling motivation have been based on ethnography. For example, recreational casino gambling in the USA was found to have eight motivational components: learning and evaluating, ‘rush,’ self-definition, risk-taking, cognitive self-classification, emotional self-classification, competing and communing (Cotte, 1997). Control, lift, and escape motives have been evident in the casino gambling of American senior citizens (Lorz, 2004). An observational study of baccarat players in Macau casinos concluded that players gamble for monetary reasons, excitement, entertainment and social values (Lam, 2012).

The second type of gambling behaviour model concerns involvement. While motivational models basically consist of a set of motives for gambling, involvement models describe processes that result in various degrees of engagement in gambling, ranging from none to excessive. Such models are usually more complex than motivational models and differ considerably from each other in terms of the factors included and processes suggested. Some models include mainly individual psychological and psychobiological factors (Blaszczynski & Nower, 2002; Ricketts & Macaskill, 2003), others only sociological and cultural factors (Ocean & Smith, 1993), but most models include both individual and societal-level factors (Zangeneh & Haydon, 2004; Ariyabuddhiphongs, 2006; Bernard, 2007).

Five motives for gambling

Diagram: Five Motives for Gambling

1. **The dream of hitting the jackpot** is the main motive for participating in lotteries and other games in which a small stake gives the chance to win huge sums of money. The player enjoys the pleasant fantasy of becoming rich and may intensify and extend this fantasy in various ways. Such pleasant dreams often figure in the promotion of lotteries (Binde, 2009c; McMullan & Miller, 2009). The big win is imagined to have the power to transform one’s life for the better. This is a process of self-fulfillment that includes personal development and living up to ideals of generosity and sociability (Binde, 2007b; Hedenus, 2011).

2. **Social rewards:** while gambling is a solitary activity for some people, the social dimension is important to many and makes them gamble more and in other ways than if they had to gamble alone. Gambling offers social rewards of three specific kinds:
   a. **Communion.** Gambling serves as a way of getting together and socializing with other people.
   b. **Competition** Gambling offers an established and readily available arena for competing with others, which makes gambling especially attractive to people of a competitive nature.
   c. **Ostentation** Gambling provides an opportunity to display conspicuous consumption, skillfulness, boldness, and more generally gallantry and familiarity with the ways of the world (Holtgraves, 1988).

3. **The gambling environment:** There are specific norms, vocabularies, cultural codes and player identities, and the settings have characteristic sounds, smells, architecture and activity rhythms (Krauss, 2010; Binde, 2011b). People may enjoy being part of such gambling scenes, as a relief from or addition to their ordinary lives. They can for a while become someone else and do something different with others. To occasional and curious visitors, such gambling environments may appear fascinating and inspire them to gamble.

4. **Intellectual challenge:** Some games offer the gambler choices that make it possible to influence the outcome. The gambler may spend much time increasing knowledge and developing skill for such games, which can provide an intellectually stimulating hobby and interest (Kerr et al., 2009; Binde, 2011b).
5. **Mood change**: Many games have the power to change the affective and emotional mood of their players. Gambling may also be relaxing, just as any other hobby or leisure activity that people engage in voluntarily to wind down for a while (Binde, 2011b).

The Canadian Foundation of Compulsive Gambling (1994) found that 65% of adults in Ontario who have gambling problems reported that they gambled for excitement. For regular players, the most important reasons for gambling seem to be escape and excitement (and consequently arousal), the latter being the primary factor in adolescent populations, Gambling among adolescents, already widespread, appears to be on the rise (Ladouceur et al., 1994). Gambling has also been shown to be highly comorbid with other risky behaviors such as substance abuse (Lesieur & Blume, 1993; Griffiths, 1995).

Neighbors et al. (2002) identified a comprehensive set of 16 gambling motives based on open-ended responses provided by college students who gambled. Results suggested that most college students gamble to win money, as a way to deal with boredom, and for social and enjoyment reasons. Additionally, Stewart and colleagues adapted the three-factor model for alcohol motives for gambling behavior (Stewart & Zack, 2008; Stewart et al., 2008), with results suggesting that gambling for enhancement and coping motives were more strongly associated with gambling problems than were social motives (Stuart et al., 2008). Other recent research has also suggested that gambling for money and for charitable events were frequently endorsed reasons for gambling (McGrath et al., 2010).

Lee et al. (2014) investigated three different types of gamblers (recreational, problem, and pathological gamblers) to determine differences in gambling motivations and recreational activity preferences among casino gamblers. Authors collected data from 600 gamblers recruited in an actual gambling environment inside a major casino in South Korea. Findings indicated that motivational factors of escape, sightseeing, and winning were significantly different among these three types of gamblers. When looking at motivations to visit the casino, pathological gamblers were more likely to be motivated by winning, whereas recreational gamblers were more likely to be motivated by scenery and culture in the surrounding casino area. Meanwhile, the problem gamblers fell between these two groups, indicating higher preferences for non-gambling activities than the pathological gamblers.
DIFFERENCES BETWEEN PROBLEM AND PATHOLOGICAL GAMBLING

According to Jazaeri and Habil (2012), problem gambling is an urge to gamble despite harmful negative consequences or a desire to stop. The term is preferred to compulsive gambling among many professionals, as few people described by the term experience true compulsions in the clinical sense of the word. Problem gambling often is defined by whether harm is experienced by the gambler or others, rather than by the gambler’s behavior. Severe problem gambling may be diagnosed as clinical pathological gambling if the gambler meets certain criteria.

The most severe pattern of disordered gambling is pathological gambling (PG) which has been categorized by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) as a disorder of impulse control (APA, 1994). Pathological gambling meets at least five of the ten criteria listed in DSM-IV. In addition to pathological gambling, DSM-IV can also be used to identify a milder form of disordered gambling, problem gambling. Problem gambling meets 3–4 of the ten criteria listed in DSM-IV.

Extreme cases of problem gambling may cross over into the realm of mental disorders. Pathological gambling was recognized as a psychiatric disorder in the DSM-III, but the criteria were significantly reworked based on large-scale studies and statistical methods for the DSM-IV. As defined by American Psychiatric Association, pathological gambling is an impulse control disorder that is a chronic and progressive mental illness. Pathological gambling has now been defined as persistent and recurrent maladaptive gambling behaviour meeting at least five of the Diagnostic and Statistical Manual criteria for gambling.

Epidemiological studies estimated that the prevalence of pathological gambling has been between 1.1% and 5.3% among the adult population (Shaffer et al., 1999; Shaffer & Hall, 2001; Welte et al., 2002; Hodgins et al., 2011). Recent analysis by Williams and colleagues (Williams et al., 2012) stated that the standardized past-year prevalence of pathological gambling varied from 0.5% to 7.6% internationally. Currently in Finland the past-year prevalence of pathological gambling is estimated to be 1%, and problem gambling 1.7% (Turja et al., 2012).

THEORETICAL PERSPECTIVES OF PATHOLOGICAL GAMBLING

Several divergent theoretical approaches have attempted to explain problem and pathological gambling including addiction, psychodynamic, biological/genetic, neurobiological, learning, cognitive-behavioral, and sociological theories (Gupta &
Derevensky, 2005; Petry, 2005). Conceptually, most of these models perceive pathological gambling either as a categorical or a spectrum disorder. While many of these models share common elements, they each assume that the interaction of significant bio-psycho-social and environmental variables in the etiological process may be accounted for by one set of fundamental principles. The underlying assumption is that disordered gamblers are essentially a relatively homogeneous population. As a consequence, theoretically driven treatments are applied indiscriminately to all individuals with gambling problems irrespective of gender, ethnicity, type of gambling, developmental history, or neurobiology. The majority of explanatory models of pathological gambling to date have failed to differentiate specific typologies of gamblers and pathological gamblers despite the recognition of multiple causes precipitating gambling problems and possible causal pathways (Blaszczynski & Nower, 2002; Nower & Blaszczynski, 2005).

**Biological Theories of Pathological Gambling**

**Biological theories** are those that view gambling addiction as caused in part by biological predisposition, or genetic inheritance. However, it is well-established that genetics alone do not determine behavior or addiction. There has to be other factors involved, such as psychological and environmental. Therefore, biological theories by themselves do not fully explain gambling addiction. There is a complex interaction between the predisposition (genetic make-up) of the individual and their environments. Biological theories assume that addiction, whether to alcohol, gambling, or drugs, tends to run in families (Blume, 1987). Those who have a gambling problem are likely to have a one or more family member who has a history of addiction (Roy et al., 1988).

**Arousal Theory**

The primary measure of arousal is the increase in heart rate. It has been found that the heart rate of compulsive gamblers is much higher and more persistent (Dickerson & Adcock, 1987) than non-problem gamblers (Roby & Lumley, 1995). According to Sharpe et al. (1995) for compulsive gamblers, even exposure to gambling-related audible or visual stimuli can create arousal (increase in heart rate). These stimuli include the ringing sound of slot machines; seeing the word "casino" or "win", pictures of horses or race tracks, pictures of playing cards, a poker table, a stock ticker, and so on. The arousal theory suggests that problem gamblers are
attempting to seek and maintain an optimum level of stimulation through gambling. Problem gamblers are seeking a high.

**The General Theory of Addiction (Jacobs’, 1986).**

The theory suggests that a physiological pre-condition (genetics) is combined with two other factors: unipolar physiological resting state and psychological problems as the causes of addiction. In order to escape the discomfort caused by these factors, the individual engages in addictive behaviour.

1. **Unipolar physiological resting state.** The compulsive gambler is chronically under stimulated or over-stimulated due to chemical imbalances. According to Blaszczynski et al. (1990) compulsive gamblers were found to be more prone to boredom and gamble to seek stimulation to relieve boredom.

2. **Psychological problems.** Feelings stemming from rejection, humiliation, insecurity, guilt, failure, shame can create considerable psychological pain. In addition, negative moods such as depression and anger contribute to the persistence of gambling behavior (Jacobs’, 1986).

**Medical or Disease Model of Pathological Gambling (Blume, 1988)**

The medical or disease model of gambling addiction by Blume (1988) is the most dominant one in gambling. "Compulsive" is a term usually used by the lay person, while the term "pathological" is often used by clinicians (researchers, psychologists, psychiatrists, scientists). In the disease model, the individual is considered either a compulsive gambler or a non-gambler. There is no in-between; the compulsive gambler is considered qualitatively different from non-gamblers. The qualitative differences between compulsive gamblers and non-gamblers are due to a combination of factors that can be measured.

- Physiological factors which pre-dispose the individual to gambling addiction.
- A mental illness such as obsession or compulsion.
- Environmental circumstances.

In the disease model, pathological gambling had a behavioral pattern. One that was repeatedly harmful to the individual and is outside of the individual's conscious control. It is an involuntary action, something that just happens to the individual without his or her choosing-- the problem is an impulse control disorder. In the disease theory, gambling addiction is itself a disease and not a symptom of another
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disease or illness. The disease, pathological gambling, is manifested through characteristic signs, symptoms, and stages of development (Blume, 1988).

Rosecrance (1985-1986) summarized the major components of gambling addiction defined by the Disease Model-

- Gambling addiction is a single phenomenon. It is a disease by itself and not a symptom of another illness or disease.
- Compulsive gamblers are qualitatively different from other gamblers. These differences can be measured.
- Compulsive gamblers gradually lose control and are eventually unable to stop gambling despite negative consequences.
- Compulsive gambling is a progressive condition, a slow deterioration. One with an inexorable progression through well defined stages-
  a) The winning stage. The initial success is characterized by the "big win". The gambler develops unrealistic expectations of future winnings.
  b) The losing stage. There is a progressive, slow loss of money. The gambler believes that only through increased gambling can he or she win back this money. The gambler believes he or she is in a temporary slump and their luck will soon change.
  c) The desperate stage. The gambler feels the need to be in action and is driven by irrational optimism about winning. His/her time and energy are consumed with gambling.
  d) Money becomes a means to gamble; it has no other value.
  e) The gambler suffers psychological distress, as unresolved feelings of guilt keeps him or her gambling, or "in action."
  f) The chasing stage. In desperate attempts to win back lost money, the gambler will do almost anything to be in action, including illegal activities such as embezzlement, fraud, and theft.
  g) The gambler experiences bouts of guilt and self-castigation and attempts to quit. This is followed by a period of reflection and rationalization. However, unable to stop, the gambler continues with the downward spiral. Gambling is now a compulsion, undertaken in a frantic, even ritualistic manner.
h) The rock bottom stage. All money sources are exhausted and the gambler admits he/she has a problem and seeks help.

- In the disease model, gambling addiction is a permanent and irreversible condition. The only cure is total abstinence. If the gambler places one bet after a period of abstinence, he or she would go through all the stages described above (a-h) again.

Studies reviewing the above model are many. According to Rossol (2001) the disease view of problem gambling was reflected in the Gamblers Anonymous definition: “Compulsive gambling is an illness, progressive in nature, which can never be cured, but can be arrested.”

Many researchers advocated bio-psychosocial approach to problem gambling which recognized that there has been the multiplicity of forces underpinning the behaviour of the problem gambler: the biochemistry of the individual, psychological aspects of the individual’s functioning, and the cultural and social forces shaping behaviour (Shaffer & Kidman, 2003; Griffiths & Delfabbro, 2004). However, as Raylu and Oei (2002) noted, that there have been no theoretical model comprehensive enough to encompass all these aspects.

**A Pathways Model of Problem and Pathological Gambling (Blaszczynski and Nower, 2002)**

Blaszczynski and Nower (2002) are critical of a simplistic view of viewing problem gambling merely as an addiction or impulse control disorder. They argue that the quest to impose one theoretical model is misguided as problem gamblers are not a homogeneous group; rather there are three distinct pathways to problem gambling or three distinct sub-groups of problem gamblers: behaviorally conditioned problem gamblers, emotionally vulnerable problem gamblers, and antisocial, impulsivist problem gamblers. Problem gambling is (Blaszczynski & Nower, 2002) “… the end result of a complex interaction of genetic, biological, psychological and environmental factors. Simple consideration of gambling as an addiction or as a compulsive or impulse control disorder is too limiting in scope.”

According to Myrseth (2011), Blaszczynski and Nower suggested the existence of various subgroups of gamblers, each with a distinct pathway characterized by specific vulnerability factors, demographic features, and etiological
processes. **Blaszczynski and Nower (2002)** proposed a pathways model of problem and pathological gambling which integrates the contribution of multiple variables such as biological, personality, developmental, cognitive, learning theory and ecological determinants of problem and pathological gambling.

The first group is labeled as the **behaviorally conditioned problem gamblers** (Pathway 1), and Blaszczynski and Nower (2002) describe such gamblers as being “essentially ‘normal’ in character; that is, they do not show signs of premorbid psychological disturbance” (Blaszczynski & Nower, 2002). These individuals lose control over gambling due to classical and operant conditioning and distorted cognitions related to the probabilities of winning. It is further proposed that this subgroup would benefit from minimal intervention programs.

The second subgroup proposed is characterized by pre-morbid anxiety and/or depression, disturbed family and personal histories, poor coping and problem-solving skills, and affective instability. This group is labeled the **emotionally vulnerable problem gamblers** (Pathway 2). For these individuals, gambling serves the function of emotional escape through dissociation while gambling. The psychological dysfunction in these gamblers makes them more resistant to change, and Blaszczynski and Nower suggested that the treatment of these gamblers should also address their underlying vulnerabilities as well as their gambling behavior.

The third group is called the **antisocial impulsivist problem gamblers** (Pathway 3), and in addition to an emotional vulnerability, this group is characterized by a biological vulnerability toward impulsivity, early onset, attentional deficits, antisocial traits and poor response to treatment. These gamblers are less motivated to seek treatment, have higher attrition rates and respond poorly to any form of intervention.

The term ‘biologically-based’ is more preferable to ‘anti-social impulsivist’ in describing the third pathway as it recognizes the importance of underlying neurobiological factors and de-emphasizes the anti-social component. All three groups have common exposure to related ecological and cultural factors (e.g., availability, accessibility, and acceptability), cognitive processes and distortions, and contingencies of reinforcement. However, the model suggests that predisposing emotional stressors and affective disturbances for some individuals and biological impulsivity for others represent significant additive risk factors.
Diagram: Integrated Model of Problem Gambling

According to this model, problem gambling has been a heterogeneous and multidimensional disorder with a complex interaction of genetic, biological, psychological and environmental factors (Blaszczynski & Nower, 2002). This model was however theoretical, and some of its aspects still remains to be empirically tested.
The pathways model may be useful to clinicians in separating subgroups of problem gamblers that require different management strategies (Blaszczynski & Nower, 2002; Goudriaan et al., 2004). This model may also help delineate subgroups of pathological gamblers in terms of their bio-behavioural vulnerabilities (Goudriaan et al., 2004).

Since the publication of the Pathways Model, a number of studies have identified relationships among various predisposing factors identified in the model as relevant to distinguishing among subgroups of problem gamblers. One study of personality disorders in problem and pathological gamblers (Sacco et al., 2008) found that pathological gamblers reported more symptoms of borderline personality disorder before, but not after controlling for depression, suggesting a complex relationship among these variables. Similarly (Clark, 2006; Bagby et al., 2007), both reported that trait impulsivity and emotional vulnerability were additional risk factors for pathological gambling, though Clark further hypothesized that impulsivity served as a mediator for depression. A number of other studies have found relationships between problem gambling and other factors including sensation-seeking (Bonnaire et al., 2007), negative affect and distress tolerance (Daughters et al., 2005), autonomic arousal (Moodie & Finnigan, 2005), and antisocial personality disorder (Pietrzak & Petry, 2005).

Only a few studies have explored the possibility of heterogeneous subtypes among problem gamblers, which is the conceptual framework of the Pathways Model. Using a measure of gambling experiences, Ledgerwood & Petry (2006) identified three subgroups of problem gamblers; those who gamble (a) to escape negative emotions, (b) as a primary means of avoidance and dissociation, and (c) to seek attention for narcissistic reasons. In another study of male pathological gamblers in Spain, Gonzalez-Ibanez et al. (2003) assessed gamblers on measures of depression, psychoticism, somatization, impulsiveness, interpersonal sensitivity and phobic anxiety. These authors identified three distinct clusters, each exhibiting progressively more severe symptoms of psychopathology on these variables, suggesting that subgroups differed by degree of psychopathology rather than merely by the appearance of psychological symptoms. This finding is consistent with Pathways 2 and 3 gamblers, though the authors did not measure the presence or absence of these symptoms in relation to the development of gambling problems.
In a more recent study, Stewart et al. (2008) conducted a principal components analysis on subscales of the Inventory of Gambling Situations by Turner et al. (2006), prior to submitting obtained factor scores to cluster analysis. Similar to other research, they found three clusters of problem gamblers: (a) those who reported gambling for “enhancement” without negative emotional factors; (b) those with low positive and negative emotional regulation; and (c) those with very high negative and positive emotional factors in gambling situations together with more significant gambling and alcohol problems. Their findings also lend general support to the notion that distinct subgroups of problem gamblers exist, though none of these explorations examined the range of factors identified by the Pathways Model.

Findings from a study by Gupta et al., (2013) provided empirical evidence for identifiable subtypes of adolescents experiencing gambling-related problems. While the sample size precluded only using adolescents with the most severe gambling-related problems (pathological gamblers), the inclusion of those identified as at-risk for a gambling (i.e., at-risk gamblers endorsing three items on the DSM-IV-MR-J) allowed for an examination of identifying distinguishing characteristics of those adolescents experiencing gambling-related problems. While ideally a replication study should include a much larger community or clinical sample allowing for a sufficiently large subsamples of youth meeting the criteria for pathological gambling, there was ample evidence that those identified as at-risk are similar in many respects to pathological gamblers (Derevensky et al., 2007; van hamel et al., 2007; Dickson et al., 2008).

**CATEGORIES/TYPES OF GAMBLING**

Gambling addiction, conceptualized by Shaffer and Hall (1996), can be divided into 4 levels.

- **Level 0 (zero):** Level 0 is reserved for non-gamblers, those who don't gamble at all.
- **Level 1:** Level 1 is reserved for non-problem gamblers, those who do gamble but do not have a problem (occasional recreational gamblers/ social gamblers).
- **Level 2:** Level 2 is reserved for those at risk or in transition (in the early stages) of developing a gambling problem.
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- **Level 3**: Level 3 is reserved for people with the most severe gambling problem (problem gamblers), those who meet the APA's DSM criteria for gambling addiction.

- **Level 4**: Level 4 are all those in Level 3 who present themselves for treatment. Most information from pathological gambling studies is taken from those in this level.

The checklist contains ten items, and respondents are typically classified as social gamblers if they have gambled in the past year and endorsed zero to two items (0-2) on the checklist, as at-risk for developing a gambling problem if they endorsed three to four (3-4) items, and as probable pathological gamblers (PPGs) if they endorsed five or more (<4) items.

In a study, Lupu et al. (2001) analyzed the risk factors for problem gambling in 231 Romanian adolescents between the ages of 14 and 18 years. Using the GA-20 scale, Lupu et al. 2001 categorized the participants into three groups: non-gambling/recreational gambling, occasional gambling (0–1 positive answers—Level 1); problem gambling (2–7 positive answers—Level 2); pathological gambling (7–20 positive answers—Level 3). Results revealed that 34% were non-gamblers or gambled very occasionally (Level 1); 54% were problematic players (Level 2); and 12% were defined as pathological gamblers (Level 3) (Lupu, 2009). Risk factors for pathological gamblers included: parental divorce, serious physical illness in a family members, death of a family member, family break-up, psychological illness in a family member, sexual abuse, and being in a severe accident. Results also showed that 14% of problem gamblers used illegal drugs.

Lupu et al. (2001) identified two distinct types of pathological gambler, Adolescents from an unfavorable family and social environment, who had to deal with stress and trauma (e.g.: neglect, physical, and/or sexual abuse). In this case gambling was a coping mechanism to deal with chronic stress. Adolescents from a favorable family and social environment with a medium to high income group, where parents neglected the child because of hard working. In this case gambling was a way to spend time and/or to attract a parent’s attention.

According to Lakey et al. (2007) a discussion is also underway regarding the most useful diagnostic threshold for gambling related pathology. The current DSM-IV (American Psychiatric Association, 1994) standard is that if five or more out of 10
specified symptoms are evident, the diagnosis of problem gambling (PG) is assigned; otherwise, no diagnosis is given. Problem Gambling Screen Respondents completed the checklist of DSM-IV criteria for problem gambling (American Psychiatric Association, 1994).

STATEMENT OF THE PROBLEM

The primary aim of the present study was to compare adolescents of both the genders, with and without gambling tendencies on gambling tendencies and psycho-social factors viz. Mental Health and its dimensions; Stress Symptoms; Perceived Stress; Styles of Coping; Dimensions of Perceived Parental Bonding; Perceived Social Support; Dimensions of Sensation Seeking; Rotters’ Locus of Control; Eysenckian dimensions of Personality; Dimensions of Impulsivity put forth by Barratt; Satisfaction with Life; Satisfaction with time spent with Father; Bonding with Father; Satisfaction with time spent with Mother; Bonding with Mother; Perceived Health Status and Perceived Happiness Status.

The secondary aim of the research was to study the relationship between gambling tendencies and psycho-social factors among both male and female adolescents.