

Measuring Gambling Problems Among Adolescents: Current Status and Future Directions

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ABSTRACT *While there is a growing body of research concerning risk, protective and psycho-social correlates associated with youth gambling and problem gambling, our conceptualisation and measurement of adolescent problem gambling has not evolved to the same extent. This paper highlights our current understanding and measurement of adolescent problem gambling while drawing attention to recent research findings suggesting the need for the refinement of current measures and for the development of a new gold standard instrument. Recommendations and consideration for future directions are provided.*

Introduction

There remains considerable consensus in the literature that gambling and wagering among adolescents is a common, popular form of entertainment that does not seem to be abating. A number of large-scale prevalence studies conducted in the USA, Canada, Europe, New Zealand and Australia all confirm the high prevalence rates of gambling participation among high school age adolescents (Delfabbro *et al.*, 2005; Delfabbro and Thrupp, 2003; Derevensky and Gupta, 2000a, 2000b; Griffiths, 1995; Jacobs, 2004; Moore and Ohtsuka, 1999; National Research Council (NRC), 1999). Early meta-analyses by Shaffer and Hall (1996), Shaffer *et al.* (1997) and reviews by Jacobs (2004) suggest that adolescent lifetime gambling rates range from 39 to 92%, with adolescents exhibiting significant gambling-related problems to be somewhere between 4 and 8% and another 8–14% remaining at risk for either developing or returning to a serious gambling problem. While there is a lack of consensus as to the actual adolescent prevalence rate of severe gambling problems, most have concluded that an identifiable proportion of adolescents as well as adults gamble excessively and that adolescents as a group constitute a high-risk population for gambling problems (Derevensky and Gupta, 2004a; Jacobs, 2004; National Research Council, 1999).

Early conceptualisations of pathological gambling were primarily based upon clinical experience of adults presenting in treatment and self-help groups. The result was a general consensus among researchers and clinicians suggesting that pathological gambling is a multidimensional problem (Govoni *et al.*, 2001). While much of these discussions were predicated upon adults rather than youth (the term youth differs with respect to varying age groups in different parts of the world, but in general includes individuals between ages 12 and 18 with some extending this to age 21), these early attempts at assessing and screening for

gambling severity focused upon both the behaviors associated with gambling and their concomitant gambling-related problems/consequences.

While new screening instruments have recently been developed to identify adults with pathological gambling problems (e.g. the Canadian Problem Gambling Index [CPGI], NODS, Victorian Gambling Screen [VGS]), the same has not been true for identifying special populations. More recently, several of the newer instruments designed to assess severity of adult pathological gambling have assumed a somewhat more public health approach to gambling problems in contrast to those instruments emphasising a heavy psychological perspective. Nevertheless, even the new screening instruments have elected to retain many traditional items and constructs used in earlier screens and reflect a continued emphasis on the psychological aspects and resulting negative consequences associated with disordered gambling (Abbott *et al.*, 2004).

Survey instruments, in general, have received serious criticism (see Derevensky *et al.*, 2003; Ferris *et al.*, 1999; Volberg, 1994). Nevertheless, most existing instruments and measures have continued to focus upon behavioral indicators of problem playing, the emotional and psychological correlates associated with pathological gambling, the adverse consequences of excessive playing and the economic and sociological aspects directly associated with excessive gambling (for a review of adult instruments see Abbott *et al.*, 2004; Ferris *et al.*, 1999; Govoni *et al.*, 2001; and Petry, 2005).

Instruments used to Assess Adolescent Problem Gambling

Despite advances in our understanding of the etiology and correlates associated with problem gambling in the last decade (for reviews see Derevensky and Gupta, 2004a, 2004b and Stinchfield, 2004), new screening instruments assessing adolescent problem gambling are still lacking (it should be noted that the Canadian Centre for Substance Abuse and the Ontario Problem Gambling Research Centre are working on developing a new adolescent instrument). Currently, most adolescent gambling screens have been adapted from adult instruments, having incorporated adult criteria while modifying the questions to make them more age/developmentally appropriate. Such instruments include the South Oaks Gambling Screen-Revised for Adolescents (SOGS-RA) (Winters *et al.*, 1993), DSM-IV-J (Fisher, 1992) and its revision the DSM-IV-MR-J (Fisher, 2000) and the Massachusetts Adolescent Gambling Screen (MAGS) (Shaffer *et al.*, 1994) (see Derevensky and Gupta, 2004c for a detailed description of each instrument and their criteria). Like adult instruments, there exist common constructs underlying the instruments. Similarly, while the number of items and constructs may differ, each criterion item has equal weighting and a suggested cut score is provided identifying pathological and/or problem gambling for each respective instrument. It should be noted that abridged cut scores have been used in a variety of prevalence studies to add to the confusion. These variations in cut score criteria have led to serious difficulties in reliably estimating the prevalence rates of adolescent problem gambling as well as the ability to compare study outcomes. Still further, Gambino (2006, forthcoming) has made a strong argument for the need for obtaining community-specific validation evidence before placing too much credence on these scales.

Perspectives on the Adolescent Prevalence Data

The discrepant variability of reported prevalence rates of youth problem gambling using a variety of adolescent instruments has been reported to be generally larger compared to the variability reported for adult prevalence rates of problem gambling (National Research Council, 1999) and remains troubling (Derevensky *et al.*, 2003). As well, questions regarding the comparability of findings using different instruments have been raised and the validity of reported prevalence rates has been seriously questioned (Ladouceur, 2001; Ladouceur *et al.*, 2000) (see Derevensky *et al.*, 2003 for a discussion of these issues). To compound the issue, items may have been added, modified, deleted, translated into other languages without verifying their applicability and criteria scores adjusted in a number of prevalence studies.

Derevensky *et al.* (2003) have argued that differences in prevalence rates are likely affected by a number of important situational and measurement variables including sampling procedures (e.g. telephone surveys vs school-based screens, community vs convenience samples, failure to include high-risk populations such as school dropouts, delinquents, etc.), use of different instruments and measures and varying cut-point scores. As well, the use of modified instruments (some studies have reduced the number of items administered to youth), the inconsistency of availability and accessibility of gambling venues, gender distributions within each of the studies, the age of the population being assessed, cultural/ethnic differences and the time frame used for assessing gambling behavior (past year [this may also be confusing as some adolescents may perceive past year as the previous 12 months while others may interpret it as within the past calendar year], or lifetime) have been cited as important variables affecting the outcome. Finally, it must also be acknowledged that there also exists the distinct possibility that adolescent reports are more variable than their adult counterparts (for a more thorough explanation see the reviews by Derevensky and Gupta, 2000a, 2000b; Derevensky *et al.*, 2003; Shaffer *et al.*, 2004; Stinchfield, 2002; Volberg, 2001; Winters, 2001).

Compounding the issue of variability among adolescent studies is the lack of consistency in terminology used to identify adolescents with serious gambling problems (e.g. pathological gamblers, probable pathological gamblers, compulsive gamblers, problem gamblers, Level 3, disordered gamblers), prompting a call for the standardisation of nomenclature, terminology and definitions (Cunningham-Williams, 2000; Petry, 2005; Shaffer *et al.*, 2004). While continuously searching for the *gold standard* measurement instrument, Volberg (2001) contends that there remains considerable value in our continued discussions and debate over the definition and etiology of problem and pathological gambling given that such discussions will likely stimulate the development of new criteria and refinements of existing screening and diagnostic instruments.

Any self-report measure is subject to the individual reporting accurate information. While there is evidence that individuals scoring within the pathological gambling range on screening instruments fail to view themselves as having a significant gambling problem (Hardoon *et al.*, 2003), this problem is not unique to gambling screens but to many adolescent psychometric measures. Epidemiological studies of problem and pathological gamblers among both adults and adolescents have been plagued with serious methodological limitations and biases including problems specific to survey instruments, non-responses and

refusal biases, the exclusion of institutionalised populations, exclusion of specific groups and difficulties associated with telephone surveys (Lesieur, 1994).

Adolescent Assessment Instruments: What Are They Measuring?

Given our evolving conceptualisation about the nature of pathological gambling, regional and cultural issues, differences in gaming availability (including technologically-based forms of gambling, for example Internet and mobile gambling) and accessibility, such differences have led to changing diagnostic criteria as evidenced when comparing the criteria found in the DSM-III (American Psychiatric Association (American Psychiatric Association, 1980), DSM-III-R (American Psychiatric Association, 1987), DSM-IV (American Psychiatric Association, 1994) and will likely be the case when the DSM-V is published. Pathological gambling is currently viewed as an impulse control disorder, nevertheless, there are a growing number of individuals who would prefer that it be conceived as an addictive disorder given the many parallels in diagnostic criteria with substance abuse disorders (Derevensky, 2006). While the diagnostic criteria in the DSM have been established primarily for adult pathological gamblers, adolescent gambling screens have generally followed a similar pattern.

Paralleling the most common adult instruments, the SOGS-RA (Winters *et al.*, 1993), DSM-IV-J (Fisher, 1992) and its revision the DSM-IV-MR-J (Fisher, 2000) and the MAGS (Shaffer *et al.*, 1994) have been used in a large number of adolescent prevalence studies and are frequently used within a clinical context. Similar to adult instruments, there exist common constructs underlying these instruments (see Table 1). Stealing money to support gambling, occupational/school-related

Table 1. Comparative criteria found on the DSM-IV-MR-J, SOGS-RA and MAGS adolescent gambling screens

Assessment items	DSM-IV-MR-J	SOGS-RA	MAGS
Preoccupation	x		
Tolerance	x		
Withdrawal	x		
Escape	x		
Chasing losses	x	x	
Lying/secretiveness	x	x	
Loss of control	x	x	x
Illegal acts/borrowing money	x	x	x
Risked significant relationships	x		x
Bailout		x	
Family problems	x	x	x
Guilt/remorse		x	x
Occupational/school problems	x	x	x
Pressure to gamble			x
Help-seeking	x		x
Frequency of gambling compared to others			x
Self-perception of gambling			x
Financial concerns			
Concern and criticism from others		x	x
Parents' gambling		x	
Amount of money gambled		x	

problems and disrupted relationships are common among these instruments. Other common elements among several of these scales include chasing losses, lying or deception about one's gambling problems, disrupted familial relationships and concern/criticism from others. Similarly, while the number of items and constructs differ, each criterion item has equal weighting and a criterion score is provided identifying pathological gambling for each respective instrument. Incorporating either a past year and/or lifetime measure of gambling these scales continue to emphasise the negative psychological and behavioral consequences of excessive gambling while limiting the inclusion of constructs indicative of an impulse control disorder.

Are Current Screening Measures Comparable?

As previously noted, different instruments while having some similarities also incorporate different constructs and criteria. As such, one would conclude that when comparing adolescent prevalence rates of pathological gambling comparability data should be treated with extreme caution. Derevensky and Gupta (2000a) using a school-based sample of 980 youth, ages 16–20 (mean age = 18.5 years, s.d. = 1.69), compared performance on multiple measures (DSM-IV-J, SOGS-RA and the GA-20 Questions). Based upon student performance they concluded a fairly high degree of agreement between instruments exists, with a relatively small classification error, especially for male pathological gamblers. Overall, the inter-correlation matrix for the three instruments revealed correlation coefficients in the moderate range (0.61–0.68), with correlations being much higher for males (range between 0.75 and 0.84) than females (range between 0.31 and 0.50) (gender differences were likely the result of the small number of female pathological gamblers observed in the sample). Derevensky and Gupta reported a high concordance rate for the identification of problem gamblers among these instruments, relatively small false negative and false positive rates between instruments and that youth identified as probable pathological gamblers were found to have endorsed *all* items more frequently. Somewhat similar findings have been reported by Volberg (1998, 2002) using both the DSM-IV-MR-J and the SOGS-RA in two large-scale adolescent studies.

Adolescents with Gambling Problems; Current Research Findings and Implications for Assessment

There is little doubt, based upon a growing body of empirical and clinical evidence, that adolescent pathological gamblers are similar to adult pathological gamblers. They tend to exhibit a preoccupation with and continued need for gambling, a lack of adequate control over setting and maintaining personal limits, irrational thinking and erroneous cognitions, difficulties in social relations and occupational/educational difficulties, continuous and/or periodic episodes of excessive gambling and have extreme difficulty when trying to stop playing despite the adverse consequences associated with their gambling (Derevensky and Gupta, 2004a, 2004b). While a number of risk and protective factors have been associated with both adolescent problem and pathological gambling (e.g. Derevensky and Gupta, 2004a; Dickson *et al.*, 2002, 2006; Hardoon *et al.*, 2004; Lussier *et al.*, 2005), there is a recognition that adolescent problem and pathological gamblers do not make up a homogenous group. In addition to

cultural (Ellenbogen *et al.*, 2006) and gender differences (Ellenbogen *et al.*, 2005), there is empirical evidence suggesting that youth gambling problems may not be a unitary construct or trait but rather represent a constellation of disorders including impulsivity, alcohol abuse or dependence, depression, mental health disorders and conduct disorders (Gupta and Derevensky, 1998a, 1998b; Derevensky and Gupta, 2002; Hardoon *et al.*, 2004; Vitaro *et al.*, 2004).

It is important to recognise that most childhood disorders do not present as unidimensional problems but rather, that in general, co-morbidity is the norm rather than the exception (Mash and Hunsley, 2005; Jensen, 2003; Youngstrom *et al.*, 2003). Gambling disorders among adolescents are similarly no exception. While divergent theoretical approaches have attempted to explain problem and pathological gambling (see Gupta and Derevensky, 2004; and Petry, 2005 for a comprehensive description), these models have generally perceived pathological gambling either as a categorical or a spectrum disorder. Given these models share similar commonalities, they each assume that the interaction of significant biological, psychological and social variables in the etiological process are accounted for by a single set of fundamental principles such that disordered gamblers are essentially a relatively homogeneous population.

The current models of pathological gambling, including those emphasising a cognitive, psychodynamic, social learning theory and behavioral approach, have in general failed to differentiate specific typologies of problem and pathological gamblers despite the recognition of multiple causes precipitating gambling problems and possible causal pathways (Blaszczynski and Nower, 2002; Gupta and Derevensky, 2004; Nower and Blaszczynski, 2004; Vitaro *et al.*, 2004). As such, Blaszczynski and Nower (2002) have suggested a conceptual pathway model that identifies three primary subgroups/clusters of gamblers; behaviorally-conditioned, emotionally-vulnerable and biologically-based impulsive pathological gamblers (they also acknowledge that there may be more than three distinct pathways). It has been suggested that all three groups have common exposure to related ecological factors (e.g. availability, accessibility and acceptability of gambling opportunities), cognitive processes and distortions and contingencies of reinforcement. However, the predisposing emotional stressors and affective disturbances for some individuals and biological impulsivity for others represent significant additive risk factors. Their differential pathways model has significant implications both for the assessment and treatment of adolescent pathological gamblers (and adult pathological gamblers as well) given their different etiologies (Blaszczynski and Nower, 2002; Gupta and Derevensky, 2004; Nower and Blaszczynski, 2004).

Pathological Gambling: How Enduring a Disorder?

As previously mentioned, most instruments and studies incorporate either a lifetime or past year timeframe. It has been argued that a past year timeframe may be somewhat confusing as some adolescents may interpret this as the previous 12 months while others may view it as a calendar year. More importantly, a lifetime framework for a 14 or 16 year-old is significantly different from an adult lifetime period. There is also some indication that adolescent pathological gambling is not an enduring disorder with some empirical evidence and considerable clinical support that individuals move between pathological gambling and non-pathological gambling states (Winters *et al.*, 2002). Most screening instruments, at best, appear to provide a snapshot in time.

There is growing body of clinical and empirical research suggesting that the development of pathological gambling is unremitting in nature and progressive in its course, following a sequential path from limited playing with early wins to excessive playing with devastating financial, psychological and social losses (Custer and Milt, 1985; Derevensky and Gupta, 2004a; Nower and Blaszczynski, 2002). While there has been evidence suggesting that adolescent pathological gamblers experience intermittent bouts of their gambling behavior (often based upon their access to money and to gambling venues), the focus on progressive continuity has, in turn, shaped the measurement of the disorder (American Psychiatric Association, 1994). As such, current gambling screens seek to identify the symptoms and adverse behavioral consequences of impaired control over a specific timeframe. This in turn has resulted in most instruments focusing upon identified consequences over time with little attention to identifying the specific duration, frequency, or intensity of the gambling behavior itself (Nower and Blaszczynski, 2002). It is only the DSM-IV-MR-J (Fisher, 2000) that has attempted to differentiate more intense gamblers such that scoring criteria are only attributed to those who indicate a greater frequency of symptoms or consequences associated with their play.

In contrast to traditional conceptualisations, Nower and Blaszczynski (2002) have hypothesised based upon clinical evidence of the existence of a distinct subgroup of *binge gamblers* whose behavior is characterised by a history of intermittent bouts of severe dyscontrol and excessive gambling coupled with intervening periods of abstinence. These gamblers experience rapid escalation of intense uncontrolled gambling binges that may result in psychosocial consequences. However, unlike individuals exhibiting other gambling patterns, these binges are time-limited, often reaching a peak that is followed by an abrupt cessation during which time individuals report an absence of any persistent preoccupations or urges.

Depending upon the timeframe incorporated for assessing problem gambling, such binge gamblers may meet diagnostic criteria if screened during a binge episode yet may not in fact warrant diagnosis of the disorder because of an ability to control their gambling behaviors between episodes. The question remains, should these binge gamblers be viewed as distinct from other pathological gamblers? Gupta *et al.* (2005) have argued that the distinction should lie in the frequency and proximity with which binge episodes occur. They contend that an individual experiencing a binge gambling episode every two weeks should not receive the same classification as individuals experiencing binge episodes twice per year, despite meeting similar DSM criteria during a pre-established gambling period (e.g. past year). It *may* well be that the higher prevalence rates of pathological gambling among adolescents as compared to adults are accounted for by the phenomenon of binge gambling. It should not be misconstrued that periods of excessive gambling is merely a passing fad with no long-term negative implications. As Gupta and Derevensky (2000, 2004) and Ladouceur and Mireault (1988) have noted, the severity and seriousness of the long-term negative behaviors associated with adolescent pathological gamblers can result in delinquency and criminal behavior, academic failure and early school withdrawal, disrupted peer and familial relations, multiple mental health problems and suicide attempts.

Nower and Blaszczynski (2002) hypothesised that gambling binges are likely characterised by six factors including (a) the sudden onset of irregular and

intermittent periods of sustained gambling, (b) involving excessive expenditures relative to income; (c) rapidly spent over a discrete interval of time, (d) accompanied by a sense of urgency and impaired control, (e) resulting in marked intra-and inter-personal distress and (f) the absence between bouts of any rumination, preoccupation or cravings to resume participation in gambling.

Research into other binge behaviors common among adolescents (e.g. alcohol, drugs, food) has revealed that bingeing is associated with increased pathology and multiple adverse outcomes (Langer and Tubman, 1997; Martin *et al.*, 1995; Yu and Shackel, 2001). This has particularly significant implications for adolescents given that research has established that adolescent behavioral patterns often set the stage for adult maladaptive behaviors (Resnick *et al.*, 1997).

Assessing Adolescent Problem Gambling: For What Purpose?

Many clinical psychologists perceive assessment services as a unique and defining feature within multidisciplinary child healthcare settings (Krishnamurthy *et al.*, 2004; Mash and Hunsley, 2005). Recent established standards for assessment instruments acknowledge the importance of considering both assessment purposes and contexts (an important feature given the quickly evolving changing types and venues for gambling) (American Psychological Association, 2000). Reviews of literature and empirical work have suggested a multiplicity of problems associated with adolescent problem gamblers. These individuals exhibit heightened psychological and mental health problems including increased anxiety, depression, attentional deficits and conduct disorders (Derevensky and Gupta, 2004a; Dickson *et al.*, 2006; Hardoon and Derevensky, 2002; Petry, 2005; Productivity Commission, 1999; Ste-Marie *et al.*, 2006; Stinchfield, 2004).

It is possible to identify a limited number of inter-related purposes for the assessment of adolescent gambling problems among adolescents. These purposes have applicability for the assessment for most disorders (Mash and Hunsley, 2005). With respect to pathological gambling, the following primary aims can be articulated (a) diagnosis and case formulation (i.e. identifying the underlying determinants and etiologies of the presenting problem, which may or may not include the use of formal diagnostic or categorisations), (b) screening (identifying both adolescents who are exhibiting significant symptomatology and/or who may be recommended for further assessment for a gambling problem), (c) prognosis and prediction (generating the course of predictions for individuals at-risk for developing a problem such that if left untreated (some form of intervention) would be at a higher-risk for developing a gambling problem), (d) treatment design and planning for individuals with significant gambling-related problems, (e) treatment monitoring (i.e. tracking changes in frequency and number of symptoms, behavioral indices indicating some form of change) and (f) treatment efficacy (determining the overall effectiveness of a particular intervention program). It is important to note that while these primary purposes are inter-related, each may require some form of modification of a gambling instrument (Derevensky and Gupta, 2004c).

Psychometric Qualities of Good Instruments

While it is not our intention to reiterate the psychometric standards for the development of a gold standard instrument, including reliability, construct and

concurrent validity, appropriate norms and standardisation procedures, established and reliable cut off scores, classification accuracy (issues which have been addressed by Anastasi, 1988; Derevensky *et al.*, 2003; Govoni *et al.*, 2001; Nunnally, 1978), suffice it to say that such qualities are necessary before an assessment instrument is applied to clinical, research and public health purposes.

Our Current State

The questions of nomenclature, reliability estimates and construct validity of measures of youth problem gambling are significant and important issues. Efforts to resolve issues surrounding a definition of pathological gambling, nomenclature and initiatives to develop a more reliable and valid instrument for youth remain necessary. Debates concerning the nature of pathological gambling, addiction or impulse control, remain (Martin and Petry, 2005). Until such debates abide and a deeper understanding is gained, measurement tools will always be in question and experience transition. One construct that crosses the threshold of both sides of the debate is that of *impaired control*. Clinicians often assess a clients' ability to control their gambling impulses or urges as a benchmark of severity of their gambling problem; and those who seem to experience a significant impairment of this control process are perceived as needing the most help.

Our existing measures of problem or pathological gambling are primarily consequence-based and have very few items tapping into the construct of impaired control. The inclusion of such items would likely provide a more accurate assessment of a true gambling disorder. Nonetheless, our existing adolescent gambling instruments are in fact excellent *screening* measures. The current screening instruments are most useful in identifying youth requiring secondary prevention efforts. However, their ability to accurately classify individuals into problem severity groups is necessarily limited and their usefulness in prevalence studies provides loose estimates at best.

Derevensky *et al.* (2003), although contentious, argued that our current screening instruments likely underestimate the severity of gambling problems experienced by youth, the accuracy of such classifications being in need of further empirical work. Derevensky and his colleagues argued that given the two predominant methodological assessment procedures (i.e. telephone interviews and school-based surveys) used in collecting survey data may be omitting an important segment of the youth population including delinquents, school dropouts, absent students and those failing to participate in such studies. Such students have been reported to have, in general, a higher rate of gambling problems (Jacobs, 2004; Magoon *et al.*, 2003, 2005).

Future Directions

While we have noted areas of concern in our current methods of measuring adolescent pathological gambling, we recognise that until we clearly define the construct of underage pathological gambling, ambiguities and assessment problems will continue to prevail. For the time being, the best we can strive to do is improve upon our psychometric techniques to limit the number of misidentified individuals (e.g. false positives and false negatives). Pathological gambling, according to the DSM-IV, is characterised by a continuous or periodic loss of control over gambling. Currently, such behavior is generally accompanied

by a progression of gambling frequency, increasing amounts of money wagered and a continuation of this behavior despite a multitude of adverse consequences. Given the conceptualisation that pathological gambling is a progressive disorder and the repeated findings showing a significantly larger number of males than females with gambling problems, our sampling techniques in the development of new scales must be adjusted. There is not only ample evidence that gender differences exist with respect to overall prevalence rates of problem gambling but that within our screening instruments certain items are differentially endorsed by males and females (Ellenbogen *et al.*, 2005).

Within the revised version of the DSM-IV-J (DSM-IV-MR-J), Fisher (2000) argued for the importance of qualitative differences within items to differentiate between minimal gambling-related negative consequences versus more severe consequences. Predicated upon Fisher's belief that the endorsement of an item once or twice might not be indicative of a behavior pattern and as such may not typify the individual's behavior, she developed a differential qualitative scoring system for each item. As such, only items endorsed frequently are included and scored as indicative of a problem. This is an important consideration and represents a significant improvement over other measures. We concur with Fisher as well as with Murray *et al.* (2005) assertion that merely using dichotomous items limits the potential usefulness of such measures. Nevertheless, all of our current measures continue to assign items to be of equal weighting. For example, while using school money for gambling may not be viewed as serious as stealing money in order to gamble, they are both given equal weighting when computing the cumulative total score. Future scales will need to address issues related to the frequency of item endorsements and their weightings.

Any attempts at redefining the definitions and underlying constructs must have strong empirical support and general consensus as well as internal consistency and factor structures. This may not be an easy task given that problem gamblers do not always display the same patterns of behaviors nor do they experience clearly defined distinct symptoms not present in other disorders. Different patterns of gambling and different pathways are important considerations. Nevertheless, the most important criterion in judging any instrument will be the degree of accuracy of classification. With wide cultural diversity, ever changing forms of gambling and ease of accessibility, we will need international collaboration to achieve this goal.

Given the current widespread expansion of gambling and the responsibility of regulators and policy makers to ensure the safety of adolescents, the need for developing new measures is obvious. There are few researchers or clinicians who would not argue for a 'major, coherent effort in the development and testing of instruments to screen [and use clinically] for problem gambling in youth, with the aim of establishing one internationally accepted *gold standard* measure' (Fisher, 2000). As Derevensky and Gupta (2004c) noted, our growing body of empirical knowledge concerning the etiology, trajectory, risk and protective factors and consequences of excessive gambling will help shed light on the development and hopefully the agreement of new criteria for defining adolescent pathological gambling and subsequently the development of new instruments. It nevertheless is important to note that the call for a universal measure may have its severe limitations given the widespread cultural diversity and types of gambling available in different jurisdictions. Yet, similar to other established criteria and accepted measures in other adolescent domains, the development of a universally accepted measure is a laudable goal.

The basic assumption underlying pathological gambling is that it is generally a robust phenomenon that exists and can be reliably measured (Abbott *et al.*, 2004; Shaffer *et al.*, 1997). Nevertheless, in spite of the assumption that pathological gambling exists and can be measured, there continues to be a fundamental disagreement about the constructs to be included in the measurement of pathological gambling (Abbott *et al.*, 2004). While they aptly note that such disagreements are not unusual, even in mature scientific fields, these disagreements have perpetuated the confusion and uncertainty over the prevalence rates of problem gambling (they were referring to adult problem gambling but a similar argument could easily be made for adolescent problem gambling) and its impact on public policy. While we are moving toward a more public health approach in our understanding and treatment of pathological gambling (e.g. Korn and Shaffer, 1999; Messerlian *et al.*, 2004), the field remains in need of some consensus.

Abbott and his colleagues 2004 predict that the field will continue to grapple with some rather fundamental questions about the nature and constructs associated with problem gambling. Whether gambling disorders comprise a single, identifiable pathological syndrome or rather lies on a continuum, whether it remains a recurring progressive disorder or can be marked by episodic binges of behavior, whether we are concerned with different pathways and types of gamblers will surely influence our conceptualisation and development of future instruments. There remains little doubt that gambling among adolescents is commonplace and that a number of youth experience severe gambling and gambling-related problems. Shaffer *et al.* (2004) suggest that to adequately examine the determinants of disordered problem gambling, scientists will need to improve their theoretical models that identify causal pathways and clarify the dimensions that underlie gambling-related problems. Whether problem gambling among adolescents represents part of a greater adolescent problem behavior syndrome or is a unique disorder that fits more neatly into a problem gambling syndrome (Dickson *et al.*, 2002), policy makers, regulators and treatment providers cannot wait on the development of new instruments or the resolution of such fundamental issues.

It is equally important to address the notion of youth, which in different cultures may be associated with different age groups. As such, the development of a new measure must in addition to taking into account cultural and gender differences, must also assume age disparities. The growing body of research which continues to focus on youth more broadly defined as representing those individuals in transition to adulthood (which can range in age from 15 to 25 depending upon cultural and geographic differences) similarly needs to be considered in the development of any new gold standard instrument. Yet, it is similarly important to note that even when using the current instruments for high-school age children (age ranging between 12 and 18) studies have shown remarkable consistency in the prevalence rates of adolescent gambling problems (Derevensky *et al.*, 2003).

There is little doubt that an effective screening tool designed to measure the prevalence of youth problem gambling and to help identify individuals at-risk for developing a problem must include behavioral items describing not only the frequency and severity of the problem but their adverse psychological, sociological and financial consequences. Researchers and clinicians need to establish whether to strive to develop an instrument either for the purpose of identification of

prevalence rates of problematic gambling in a general population or whether it should also have clinical utility. While the two purposes may not be mutually exclusive there may be some fundamental differences. It is important to note that our current screening tools are designed to be simple, quick and efficient and are not expected to measure the subtleties and complexities associated with a multi-dimensional behavioral disorder. Effective screening measures, in some settings, should err on the side of caution by way of encouraging item endorsements minimising the number of false-negatives (Anastasi, 1988). More recently, Nathan (2005) argues that one of the most important future developments in our understanding of pathological gambling ought to be assessment and diagnosis; the other being empirically validated treatments. On an international level the field has witnessed an increased concern over the issues related to youth gambling. Our knowledge in the field is quickly growing and, as such, the development of a gold standard instrument for youth which would enable researchers and policy makers to monitor problem gambling rates over time and allow for an assessment of the concordance and prevalence rates among different geographic regions and cultural groups is within our reach and should be a priority.

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