

Pathways of Youth Gambling Problem Severity

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Prospective studies are needed to advance knowledge of the developmental features of gambling involvement and associated problems. Developmental pathways of youth gambling problem severity (no problem gambling, at-risk gambling, and problem gambling) are described on the basis of a 3-wave data set that spans midadolescence to young adulthood ($N = 305$). The most prevalent group was the resisters (no problem gambling at all data points); 60% of study participants were in this group. New incidence cases (no problem gambling followed by at-risk or problem gambling) and desistors (at-risk or problem gambling followed by no problem gambling) were found among 21% and 13% of participants, respectively. Only 4% of cases were persistors, that is, at-risk or problem gambling at all 3 data waves. Findings are discussed in light of extant research on adolescent gambling that heretofore has not benefited from a developmental pathway perspective.

Cross-sectional studies have indicated that youth gambling occurs on a frequency continuum, ranging from no involvement to experimentation, occasional gambling, regular gambling, and preoccupation with serious adverse consequences (see review by Stinchfield & Winters, 1998). Indeed, adolescents may be particularly vulnerable to addictions, such as problem gambling, owing to neurodevelopmental characteristics of this age group (Chambers, Taylor, & Potenza, 2003). A range of adolescents have been identified as *at-risk*, *problem*, or *pathological* gamblers, various terms used to reflect gambling-related problems (Winters & Anderson, 2000). Shaffer and Hall (1996), in their comprehensive review of all adolescent-prevalence studies, estimated that between 4% and 7% of youth display a serious gambling problem. Jacobs (1989) earlier reached a similar conclusion; he placed the rate of youth problem gamblers at 4%–6%. In comparison, adults have prevalence rates of pathological gambling between 1% and 3% (American Psychiatric Association, 1994). The differences in these rates between adults and youth may reflect true differences in prevalence rates or differences in definitions and measures of problem and pathological gambling (National Research Council, 1999).

Prospective studies have described changes in adult problem gambling over time (e.g., Slutske, Jackson, & Sher, 2003; Volberg, 1994), and one study (Winters, Stinchfield, Botzet, & Anderson, 2002; Winters, Stinchfield, & Kim, 1995) has described changes in adolescent problem gambling. The Slutske et al. (2003) study

found that aggregate levels of problem gambling were fairly stable but that on an individual level, problem gambling was relatively transitory and episodic. Shaffer and Hall (2002) also observed that many frequent gamblers who meet criteria for at-risk gambling return to nonproblem gambling rather than progress to problem gambling. The Winters et al. (2002) study, which was based on the results of a three-wave study of 305 participants that spanned midadolescence to young adulthood, reported two main findings: (a) The prevalence at Wave 3 (young adulthood) of problem gambling, defined as 4+ on the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987), remained unchanged from the previous two waves (adolescence), and (b) there was a significant increase from adolescence to young adulthood of at-risk gambling, defined as a SOGS score of 2–3. However, individual-level changes in gambling groups (at-risk and problem) across time were not reported in the study. Thus, it is not known how patterns of gambling severity changed over time or the extent to which new nonproblem cases (i.e., at-risk gamblers or problem gamblers) emerged in young adulthood.

The present study extends our earlier aggregate-level analysis (Winters et al., 2002) by describing developmental problem gambling groups. Specifically, we characterize the frequency of four mutually exclusive groups on the basis of three waves of data: (a) resistance from at-risk or problem gambling, (b) persistence of at-risk or problem cases, (c) desistance to less severe gambling, and (d) incidence of new at-risk or problem cases. The analyses are based on gambling data collected across an 8-year interval spanning the adolescent to young adult years (ages 16–24).

Method

Sample

As described elsewhere (Winters et al., 2002), the longitudinal cohort consists of 305 young adults who received all three assessments (Time 1 [T1] in 1992, Time 2 [T2] in 1994, and Time 3 [T3] in 1997–1998). This sample represents 87% of the individuals eligible ($N = 350$) for all three assessments. Nonparticipants were comparable to participants on all demographic and T1 gambling variables except that nonparticipants were

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slightly older than participants ($p < .08$). The background characteristics of participants are as follows: Mean ages were 16.0, 17.6, and 23.8, respectively; 51% were male; 96% were White; 95% had a high school degree (at T3); and 86% resided in Minnesota (at T3).

Measures

The sample was administered comparable structured telephone interviews at each time point. The interview provided measures of the following youth gambling variables: prior-year gambling frequency for 11 activities, prior-year signs and symptoms of gambling-related problems (South Oaks Gambling Screen—Revised Adolescent [SOGS–RA; Winters, Stinchfield, & Fulkerson, 1993] at T1 and T2; SOGS [Lesieur & Blume, 1987] at T3), grade of first gambling experience, prior year alcohol and other drug use, mental health status, school achievement, delinquent behavior, and parental history of gambling behavior. The SOGS–RA and SOGS each contain a set of problem severity items reflecting criteria for pathological gambling similar to those in the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994), such as loss of control, preoccupation, and negative consequences associated with gambling involvement (e.g., “Have you felt like you would like to stop gambling but didn’t think you could?” and “Have people criticized your gambling?”). The adult SOGS has 20 problem severity items (Lesieur & Blume, 1987), whereas the adolescent SOGS–RA, which was developmentally adjusted for use with youth, has 12 problem severity items (Winters et al., 1993). The 8 SOGS items that are not a part of the SOGS–RA pertain to various sources from which the gambler may have borrowed money to finance his or her gambling habit. To minimize a confound with the data analysis, we based group classification of problem severity status (described below) on the 12 items that were identical in the SOGS–RA and SOGS.

Problem Severity Groups

No problem gambling (in the prior year) was defined as a score of 0 or 1 on the 12-item SOGS–RA/SOGS. A nongambler for a given prior year would automatically receive a score of 0. *At-risk gambling* (in the prior year) was defined as a score of 2 or 3 on the SOGS–RA/SOGS. *Problem gambling* (in the prior year) was defined as a score of 4 or more on the SOGS–RA/SOGS.

We recognize that there is a lack of consensus in the gambling research literature as to how to best categorically define adolescent gambling problem severity (Derevensky, Gupta, & Winters, 2003; Shaffer & Hall, 1996). However, given the lack of a benchmark standard for defining youth gambling problem severity, and given that we used the present definition of gambling severity groups in our prior prospective reports (Winters et al., 1995, 2002), we chose to retain this grouping strategy.

Developmental Gambling Groups

We identified developmental gambling groups using a procedure similar to the one used by Slutske et al. (2003) in their adult longitudinal study. Membership in a gambling group was created for each participant by characterizing his or her gambling status at each of the three waves (T1, T2, and T3) with the following three codes: N (no problem gambling), A (at-risk gambling), or P (problem gambling). First, second, and third letters in the series represented T1, T2, and T3 status, respectively. The number of different possible three-letter subject codes or pathways is 27 (3^3). The three-letter codes were further grouped into these four mutually exclusive developmental gambling groups: stable, no-problem gambling at all three waves (resistors); stable at-risk or problem gambling at all three waves (persistors); change from either at-risk or problem gambling to no problem gambling without a return to at-risk or problem gambling (desistors); and new incidence cases, that is, no problem gambling at the first wave and at-risk or problem gambling at both the second and third waves, or no

problem gambling at both the first and second waves and at-risk or problem gambling at the third wave. Only six of the letter codes (8 participants) could not be placed into one of these four groups.

Procedure

As described in Winters et al. (2002), participants were administered an interview over the telephone at each time point. Interviewers were well-trained undergraduate or graduate research assistants. A target case was considered unreachable if contact and consent could not be obtained after 20 callbacks, spread over a 4-week period. For minors (relevant at T1 and T2), parental consent was required. We screened data for both missing cases and outlier scores on all study measures.

Results

Table 1 provides a list of the letter codes associated with the target gambling groups (resistors, persistors, desistors, new incidence cases, and other) and group frequencies. The data reveal

Table 1
Frequencies of Three-Letter Codes and Developmental Gambling Groups ($N = 305$)

| Group | <i>n</i> | % |
|---------------------|----------|----|
| Resistors: N N N | 182 | 60 |
| Persistors | | |
| A A A | 4 | |
| A A P | 1 | |
| A P A | 0 | |
| A P P | 1 | |
| P A A | 1 | |
| P A P | 0 | |
| P P A | 2 | |
| P P P | 2 | |
| Total | 11 | 4 |
| Desistors | | |
| A N N | 23 | |
| A A N | 15 | |
| A P N | 1 | |
| P A N | 2 | |
| P P N | 0 | |
| P N N | 0 | |
| Total | 41 | 13 |
| New incidence cases | | |
| N N A | 45 | |
| N N P | 1 | |
| N A P | 1 | |
| N P P | 4 | |
| N P A | 3 | |
| N A A | 9 | |
| Total | 63 | 21 |
| Other | | |
| N A N | 3 | |
| N P N | 3 | |
| A N A | 0 | |
| A N P | 2 | |
| P N A | 0 | |
| P N P | 0 | |
| Total | 8 | 3 |

Note. N = no problem gambling (0 or 1 on the SOGS–RA/SOGS, or no gambling); A = at-risk gambling (2 or 3 on the SOGS–RA/SOGS); P = problem gambling (4 or more on the SOGS–RA/SOGS). SOGS–RA = South Oaks Gambling Screen—Revised Adolescent; SOGS = South Oaks Gambling Screen.

several patterns. The majority of cases (60%) revealed a stable resistor pattern (NNN); that is, no problem gambling occurred at all three waves. No problem gambling typically occurred in the presence of some gambling involvement although rarely at a regular level (i.e., weekly or daily frequency of at least one game). Among these 182 resistors, only 29 (16%) reported no recent gambling at all three data points, and only 6 (3%) reported no recent gambling for two data waves. On the other hand, no resistors were regular gamblers at two or three data waves, and only 3 resistors (2%) reported regular gambling at one data wave.

The least frequent target pattern observed was the persistors. Maintaining either at-risk or problem gambling was observed in only 4% of cases. Among the persistors, only 2 participants (18%) maintained problem gambling over the course of the study (PPP). Both of them were regular gamblers at all data waves. However, 29% (7 out of 24 cases) of individuals who reported problem gambling (P) at any single wave reported at-risk or problem gambling at both other waves. It was relatively unusual for a participant to report problem gambling at one wave and no problem gambling at the other two waves: 3 participants revealed the NPN letter code, 1 participant had the NNP letter code, and no participants had the PNN letter code. Among these 4 participants with a single P letter code, it was always the case that the data wave associated with problem gambling was linked with regular gambling and the data wave associated with no problem gambling was never linked with regular gambling.

Thirteen percent of the participants ($n = 41$) exhibited the desistor pattern. Nearly all desistors had three-letter codes of either ANN or AAN (38 of 41). Thus, it was rare for desistors to include problem gambling at any of the three study waves. The other 3 desistors had letter codes of PAN (2) or ANP (1); thus, there were no desistors with letter codes of PNN or PPN. New incidence cases were relatively frequent. Twenty-one percent of cases revealed an at-risk or a problem gambling status at either the second or third wave following no problem gambling at the first wave. Nearly two thirds of new incidence cases (45 of 63) had the NNA letter code, and another 9 individuals revealed an NAA letter code. New incidence cases were more often characterized by at-risk gambling status (NNA, NAA) than by problem gambling status (NNP, NAP, NPP) (17% and 2%, respectively).

The 8 cases in the other category were NAN (3), NPN (3), and ANP (2). The NAN and NPN patterns combine notions of both incidence (at the second data wave) and desistance (a return to no problem gambling at the third data wave).

Discussion

This study provides a more detailed picture of gambling behavior pathways than prior publications of our longitudinal results. In light of the finding that resistors constituted the most prevalent pathway, coupled with the result that nearly all of these individuals had engaged in some form of gambling at one or more waves (and 77% reported prior 12 months gambling at each wave), the data further support the argument we advanced in our 2002 report (Winters et al., 2002)—that is, gambling involvement by young people does not reliably contribute to at-risk or problem gambling. The developmental pathway analysis also clarified what accounted for the significant increase at young adulthood of at-risk gambling. We observed 45 cases with an NNA pattern, which was the second

most frequent pattern, yet only 9 cases showed an NAA pattern. Thus, young adulthood seems to be a particularly important age period, when gambling-related problems emerge in the form of at-risk gambling.

Another finding was that early problem gambling, although rare, was moderately associated with later problem gambling. Among the 7 problem gamblers at T1, 4 (57%) were problem gamblers at either or both T2 and T3, and 6 of 16 (38%) T2 problem gamblers were problem gamblers at T3. On the other hand, early at-risk gambling was not a common harbinger of later problem gambling. At-risk gambling likely emerged first during young adulthood rather than preceding the later emergence of problem gambling. Among the 47 at-risk gamblers at T1, only 5 (11%) were problem gamblers at either or both T2 and T3; among the 36 at-risk gamblers at T2, only 2 (6%) were problem gamblers at T3. Even among the 20 cases that revealed at-risk gambling at both T1 and T2, only 1 individual revealed problem gambling at T3. Yet 70% of T3 at-risk gamblers were non-problem gamblers at both T1 and T2. Of course, a more extended prospective examination of the data is needed to see the extent that at-risk gambling during youth is a reliable predictor of later adult problem gambling.

The findings must be viewed in light of study limitations. First, all data are solely based on self-report. Second, whereas our sample of 305 participants represents cases with data at all three waves, the eligible sample for the longitudinal study was 350. Whereas the attrition analysis indicated that cases lost to attrition (13%) did not differ on any gambling or psychosocial functioning variables except age as compared with the retained cases, it is important to keep in mind that our study suffers from some attrition. Third, as already noted, our grouping strategy for the designations of no problem, at-risk, and problem gambling is open for debate. Fourth, given that the adult SOGS was administered at T3 whereas the adolescent SOGS-RA was administered at T1 and T2, it is possible that a measurement confound occurred. Finally, the sample is limited to Minnesota youth, and the sample size is relatively small; thus, one needs to be cautious when generalizing the findings to youth in general.

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