

Psychological and Social Factors Associated with Problem Gambling in Ontario: A One Year Follow- Up Study

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EXECUTIVE SUMMARY

In 2001, the Responsible Gambling Council and the Canadian Centre on Substance Abuse conducted a gambling prevalence study in Ontario with a sample of 5,000 adults 18 years and older (Wiebe, Single & Falkowski-Ham, 2001). The study provided baseline information on the nature and extent of gambling and gambling problems in Ontario communities, and on the characteristics, behaviours and consequences associated with problem gambling. The present study builds on the Ontario prevalence study by following up a sample of participants approximately one year later.

The present study employs a longitudinal design to monitor stability and change in problem gambling levels among those identified as having problems in the earlier study. The strength of a longitudinal design is that it allows for an examination of whether non-problem and problem gambling status remains stable or varies over time, and identifies the circumstances associated with any such changes.

The results from this study are presented in two reports. This report “Psychological and Social Factors Associated with Problem Gambling in Ontario: A One Year Follow-up Study” examines the relationship between problem gambling and depression, distress, loneliness, life events and social support. The companion report “Exploring the Evolution of Problem Gambling: A One Year Follow-up Study” by Wiebe, Single and Falkowski-Ham (2003) examines the development and types of gambling-related problems that individuals experience (i.e. financial, relationships, etc.), how they address these problems, and how individuals have been negatively impacted by other’s gambling.

A total of 448 participants from the original prevalence study were re-contacted approximately one year later, and the Canadian Problem Gambling Index (CPGI) was re-administered to assess current problem gambling status. In

the original study, the CPGI was used to classify participants as non-gamblers, non-problem gamblers, at risk of developing problems, experiencing moderate problems, and experiencing severe problems.

The results revealed substantial change in gambling status over the one-year period in both directions – that is, some people who originally reported problems improved in status, and others originally without problems or with less severe problems deteriorated in status.

Improvements in status were most noteworthy among those originally identified with less than severe gambling problems. Among those classified as “at-risk of developing problems” in the original study, 53% changed status to “non-problem gamblers”, and an additional 6% changed to “non-gamblers” at the one-year follow-up. Among individuals classified as “experiencing moderate problems” in the initial survey, 38% had moved to “at-risk of developing problems” one year later, and 26% had moved to “non-problem gambling” status. The majority of people classified as “non-problem gamblers” in the initial survey remained non-problem gamblers one year later (85%). The group classified with “severe gambling problems” at the outset demonstrated far more stability in their gambling levels than those in the “at-risk” or “moderate problem” groups. The majority (80%) of these individuals continued to have severe problems one year later.

While there was an overall trend towards reductions in problem gambling, it is interesting to note that approximately 10% of participants at each gambling level progress to more serious problems. That is, approximately 10% of non-problem gamblers in the initial survey were classified as “at-risk of developing problems” one year later. Similarly, 10% of those initially classified as “at-risk of developing problems” were classified as “experiencing moderate problems” one year later. Finally, approximately 10% of those classified as “experiencing moderate problems” at the outset were found to be “experiencing severe

problems” at the one-year follow-up. Replication studies are required to validate this observation.

In terms of social and psychological factors, the results revealed strong relationships between gambling problems at follow-up and depression, distress, loneliness, life events and low social support. The factors related to increased CPGI scores from time 1 to time 2 included increased loneliness and distress and decreased social support from friends. Combined, the results conveyed a profile of individuals with gambling problems as emotionally distressed and lonely, and having low social support.

A series of analyses were conducted to examine the social and psychological variables most predictive of time 2 CPGI scores, over-and-above the predictive effects of gambling symptom severity observed one year previously. First, the results showed that time 1 CPGI scores are a powerful predictor of time 2 CPGI scores, accounting for almost 50% of the variation in time 2 CPGI scores. This predictive effect of time 1 CPGI scores on time 2 CPGI scores therefore represented the benchmark that other variables were forced to overcome. When loneliness, low social support, life events and emotional distress were examined simultaneously, emotional distress was the only significant variable in predicting increases in gambling problems.

A limitation of the present research is the fact that much of the findings were cross sectional in nature. However, the findings suggest that several of the psychosocial dimensions are promising candidate variables that may act as true vulnerabilities for subsequent gambling problems. This possibility will require a more extensive longitudinal study that would include these promising variables at baseline along with gambling problem measures. This type of design would help to determine whether individuals in society who are emotionally vulnerable are those most at risk of developing gambling problems over time. As well, longer-term follow-up studies with non-gamblers and a larger number of individuals with

gambling-related problems are required to confirm the patterns of stability and change in gambling levels observed in the present study.

1.0 Introduction

Over the last decade, Ontarians have experienced a large increase in gambling and gambling opportunities. This shift in the role of gambling in society is accompanied with concerns about potential social and economic costs. The study “Measuring Gambling and Problem Gambling in Ontario”, funded by the Ontario Problem Gambling Research Centre, examined gambling patterns and the prevalence of problem gambling among adult Ontarians (Wiebe, Single & Falkowski-Ham, 2001). The prevalence study provides baseline information about the nature and extent of gambling problems in Ontario communities, and on the characteristics, behaviours and consequences of uncontrolled gambling behaviour.

The present study, also funded by the Ontario Problem Gambling Research Centre, builds on the Ontario prevalence study by following up a sample of participants from the prevalence study approximately one year later. A limitation of snapshot prevalence studies is that they provide no indication of changes in gambling behaviour over time, or the factors associated with the progression of gambling problems, or recovery from such problems. In addition, time constraints associated with telephone surveys severely limit the depth and type of investigation.

This follow-up study measures changes in gambling levels (i.e. non-problem and problem gambling) as measured by the Canadian Problem Gambling Index (CPGI), examines the social and psychological correlates associated with problem gambling, provides an in-depth examination of the types and characteristics of gambling problems, strategies used to alleviate concerns created by gambling, and ways in which individuals are being negatively impacted by others’ gambling. The results from the follow-up study are presented in two separate reports: Psychological and Social Factors Associated with Problem Gambling in Ontario: A One Year Follow-up Study (Wiebe, Cox & Falkowski-Ham, 2003) and Exploring the Evolution of Problem Gambling: A One Year Follow-up Study (Wiebe, Single & Falkowski-Ham, 2003).

This report, *Psychological and Social Factors Associated with Problem Gambling in Ontario: A One Year Follow-up Study*, examines the relationship between depression, distress, loneliness, life events and social support to time 2 CPGI level and movement on the CPGI from baseline to follow-up. The companion report, *Exploring the Evolution of Problem Gambling: A One Year Follow-up Study* (Wiebe, Single & Falkowski-Ham, 2003), examines the development and types of gambling-related concerns experienced by individuals (i.e. financial, relationships, etc.), how these concerns are addressed, and looks at ways in which people are being negatively impacted by someone else's gambling. To provide context, both this report and the companion report include a section that presents the stability and change in gambling levels, as measured by the CPGI, over a one-year period.

2.0 Literature Review

During the past two decades, there has been a broad expansion of gambling across Canada and the United States (Shaffer, Hall & Vander Bilt, 1997). Ontario has three commercial casinos, five charity casinos, 15 racetrack facilities, as well as lotteries and bingo (Ontario Lottery and Gaming Corporation, 2003). Currently, there are 16,458 electronic gambling machines in the province, or 1 per 524 adults. Of all the provinces, Ontario draws the most revenue from gambling at nearly \$2.34 billion in 2001/2002 (Stefaniuk, 2003).

The broad expansion of gaming is accompanied with concerns about potential social and economic consequences. In 2001 a gambling prevalence study was conducted in Ontario with a representative sample of 5,000 adults 18 years and older. The Canadian Problem Gambling Index (CPGI) was used to categorize gambling behaviour into five separate categories: non-gambler, non-problem gambling, at-risk, moderate gambling problems and severe gambling problems. The results showed that 3.8% of adults 18 years and older in Ontario have moderate (3.1%) or severe (0.7%) gambling problems (Wiebe, Single & Falkowski-Ham, 2001).

The prevalence study provides important information on the extent and distribution of problem gambling in Ontario, as well as an examination of demographic, social and personal dimensions related to gambling levels. As a cross-sectional design, however, this study only provides a snapshot of current gambling practices in the province. In addition, given the time constraints associated with telephone interviews, the depth of information that can be collected is limited. Longitudinal designs are needed to monitor changes in problem gambling levels, as well as identify the factors associated with movement from lower to higher levels of problematic gambling, and from problem gambling to non-problem gambling. Follow-up studies also allow for more in-depth investigation of key variables.

In 1998, Abbott, Williams and Volberg (1999) followed up 217 participants from the original sample of 4,053 people who participated in New Zealand's 1991

prevalence study. The results provide valuable insight into changes in gambling patterns over a 7-year period. The results showed that over three-quarters (77%) of those who were current problem gamblers at time 1 shifted into non-problem gambling at time 2, and 45% of current probable pathological gamblers at time 1 shifted to non-problem gambling. An unexpected finding was the large decrease in the percentage of lifetime problem or probable pathological gamblers, a measure that should not shift with time. As noted by the authors, these findings raise important questions about the test retest reliability of the lifetime SOGS-R measure. The factors associated with problem gambling outcome seven years later included a preference for track betting, a higher 1991 current SOGS-R score and experiencing alcohol-related problems in 1991.

Given the present state of knowledge, there appears to be no single “root cause” of problem and pathological gambling (NORC, 1999); instead a variety of factors come into play. The National Council of Welfare (1996) reviewed the results of eight Canadian adult prevalence studies in an attempt to identify the profile of a problem gambler. The review identified a fairly consistent pattern between problem gambling and being male, single and under the age of 30 years. In the Ontario prevalence study, young adults (18-24 years of age) were almost twice as likely as the general population to have moderate to severe gambling problems (7% vs. 3.8%). Similarly, in his review of prevalence studies, Korn (2000) observed that being male, young, and having a concurrent substance abuse or mental illness placed people at greater risk for gambling-related problems.

In the NORC study (1999), problem gamblers were more likely than non-problem gamblers to have been on social assistance, declared bankruptcy, have mental illness issues, received mental health care in the past year and have been arrested or incarcerated. Volberg and Abbott (1994) found that the variables that discriminated most between the combined problem-pathological and no problem groups were ethnicity, age, parental history (having a parent with a gambling problem), marital status and household size.

A number of studies have specifically examined the link between emotional states and gambling levels (Jacobs, 1986; 1987; Rosental, 1993). However, because this research tends to rely on cross-sectional designs, the temporal sequence of gambling and various emotional indicators is difficult to establish with any reliability.

McCormick et al. (1984) explored the relationship between diagnosable disorders of affect and pathological gambling. The sample consisted of 50 pathological gamblers admitted to an inpatient gambling treatment program. Of the total sample, 38 patients (76%) had major depressive disorder. As noted by the authors, an interesting question is whether the depression creates a motivation to escape these feeling through gambling or if the gambling losses create the depression. In the study group, participants were unable to report reliably the temporal relationship between early gambling and early depressive episodes.

Beaudoin and Cox (1999) examined the characteristics of 57 adults seeking treatment for gambling problems. Approximately 30% of the sample reported receiving mental health services in the past, most commonly for depression. Furthermore, 40% of the sample reported gambling to rid unpleasant feelings. These results suggest that, for some people, gambling may act as a coping mechanism for depression.

Pathological gambling often occurs in conjunction with other behavioural problems, including substance abuse, mood disorders, and personality disorders (Blaszczynsk & Steele, 1998; NORC, 1999). The joint occurrence of two or more psychiatric problems, termed comorbidity, is an important, though complicating factor in studying the basis of this disorder. Is problem or pathological gambling a unique pathology that exists on its own or is it merely a symptom of a common predisposition, genetic or otherwise, that underlies all addictions?

Recently, detailed structural and open-ended interviews with problem gambling clients at the Addictions Foundation of Manitoba found that, in addition to feelings of depression, many problem gamblers reported that they gambled in bars and in casinos to ease their profound sense of loneliness. A study by Brown

and Coventry (1997) of women with gambling problems found that the most common motivations for women gambling were boredom, loneliness, and isolation. Trevorrow and Moore (1998) found that women who were classified as having gambling problems were significantly lonelier (more alienated) than non-gamblers and non-problem gamblers. The researchers conclude that their study is “suggestive of loneliness (or alienation) as either a consequence or a vulnerability factor for problem gambling, but a longitudinal research design would be needed to clarify this issue” (Trevorrow and Moore, 1998: 263).

Life stressors have also been identified as an important component in the development of gambling problems. The General Theory of Addictions (Jacobs, 1986) proposes that certain personality characteristics and life events influence the development of gambling problems. Jacobs suggests that excessive gambling may result from a history of negative childhood experiences. Additionally, personal vulnerability has been linked by some researchers to negative childhood experiences of inadequacy, inferiority, low self-esteem and rejection (McCormick et al., 1987, McCormick et al., 1989). A study by Taber et al. (1987) has found that out of 44 individuals admitted to an inpatient gambling treatment program, 23% had experienced severe trauma during their lives and another 16% reported moderately heavy trauma. Furthermore, those with traumatic experiences also reported higher rates of substance abuse, depression, and anxiety than those without such experiences.

Finally, strong or weak social support networks can aid treatment or further a gambling addiction. Addiction research has found that strong family or friendship bonds, and general involvement of family and friends in the affected persons life are some of the protective factors against an addiction (AADAC, 2001).

The present study adds to the limited available knowledge by employing a longitudinal design to monitor stability and change in problem gambling levels over a one-year period. This study also provides detailed information on the relationship between depression, distress, loneliness, life events and social support and gambling levels in the general population.

The results of this study are presented in four separate sections. The first section examines changes in gambling levels among participants over an approximate one-year period. This is followed by an examination of gambling activities, favourite activities, the amount of time spent gambling and who participants gamble with by time 2 CPGI level and by movement on the CPGI from time 1 to time 2 (those with increased CPGI levels, decreased levels and the same CPGI levels). The next section examines the relationship between problem gambling and various psychological and social dimensions, including DSM pathological gambling criteria, mental health treatment, depression, loneliness, distress, life events and social support. The report concludes with a discussion of the salient findings in terms of the psychosocial factors related to problem gambling and highlights areas for further research.

3.0 Design and Methodology

3.1 Sample

In the Ontario prevalence study, 5,000 Ontario residents 18 years and older were interviewed by telephone between March and May 2001 (time 1). In the present study, 448 participants from the prevalence study were re-contacted by telephone in August 2002 (time 2).

Initially, the names of 723 participants from time 1 were sent to the research firm to be contacted. This sample was comprised of all respondents who scored one or more on the CPGI screen, and 150 randomly selected non-problem gamblers (score of 0 on the CPGI). The data collection agency, however, was unable to complete enough interviews. As a result, they were asked to re-contact any respondent who refused, as well as an additional 500 randomly selected non-problem gamblers were sent to supplement the original sample. In total, 603 respondents were successfully contacted by telephone, and 457 agreed to participate in the study. Later, the data for nine people at time 2 was deleted when it was discovered that they were not the same people interviewed at time 1. Thus, among those successfully contacted on the telephone, 74.3% of participants agreed to participate, among eligible participants, the response rate was 42.7% (see Appendix A). This response rate is in the middle range of rates achieved in Canada for general population gambling prevalence studies.

Appendix A compares the time 1 gambling levels and demographic characteristics of those who were interviewed and those who were not successfully contacted or refused to participate. The results show that the least likely group to participate are individuals with severe gambling problems. It is not known whether this lower response rate is related to refusals to participate, or an inability to successfully contact those with severe gambling problems. Either way, caution needs to be exercised in reviewing the results related to individuals with severe gambling problems. In terms of demographics, younger participants (18-24 years), and those with completed high school education are under-

represented. While the transient nature of young adults may explain the reduced participation rate among this group, the link with education is not as clear.

3.2 Measurement Instrument

The questionnaire assessed participation in a range of gambling activities, levels of problem gambling, various psychological and social dimensions and demographics (see Appendix B). Specifically:

- Sections of the Canadian Problem Gambling Index (CPGI) were re-administered to examine participation in gambling activities and assess levels of problem gambling. The CPGI classifies participants as non-gamblers, non-problem gamblers, at risk, moderate problems and severe problems (see Wiebe, Single & Falkowski-Ham, 2001, for details on the CPGI).
- Questions were included to assess the “associated features” of pathological gambling noted in the DSM-III-R and DSM-IV. These questions were used in a clinical study with gambling treatment clients (Beaudoin & Cox, 1999). These items are assessed in addition to the “core” features or symptoms of gambling that are used in diagnostic decision-making.
- Participants were also asked if they had received treatment for mental health issues in the past, and if so, what was the nature of these concerns.
- Emotional Distress was measured by the 14-item distress index used in the National Comorbidity Survey (NCS; Kessler et al., 1994). The NCS was one of the largest and most comprehensive community mental surveys ever conducted. The NCS Distress Index asks respondents to rate severity of 14 items over the past 30 days. Most of the items relate to psychological symptoms of depression (e.g., feelings of worthlessness, loss of interest in things) and anxiety (frightened). A detailed psychometric study of the NCS Distress Index found strong support for this instrument (McWilliams, Cox, & Enns, 2003).
- The UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980; Russell, Peplau, & Ferguson, 1978) is a 20-item item scale that is a general measure of the important psychological construct of loneliness. The scale went through careful and extensive psychometric evaluation development and it contains multiple lines of evidence for its validity and reliability (Russell et al., 1978; 1980).

- To assess stressful life events that had occurred over the past year, the Life Events Inventory (Cochrane & Robertson, 1972) was used. This is a 55-item index that asks respondents about the occurrence of specific life events (i.e., marital separation, retirement) The LEI is frequently used in mental health and addictions research, including community surveys and follow-up studies. We calculated a total score based on total number of life events experienced in the year prior to follow-up testing. The LEI allows researchers to assess the severity of environmental or social stressors, which might then interact with individual psychological characteristics such as distress or loneliness.
- The Multidimensional Scale of Perceived Social Support (Zimet et al., 1988) was used to measure levels of social support. This consists of 12 items that assess three separate facets of social support: Special Person, Family, and Friends. Either separate subscales or a total score can be calculated. The MSPSS is a brief and effective way to assess major domains of social support. It has sound psychometric properties and the separate scales were supported through factor analysis (Zimet et al., 1988).
- Demographic variables included gender, age, employment, educational attainment, and household income.

3.3 Data Analysis

The McNemar chi-square statistic was used to examine changes in gambling levels from time 1 to time 2, and the chi-square statistic was used to examine the relationship between gambling status and various psychological and social variables. Hierarchical regression analysis was used to examine the best psychosocial predictors of increases in CPGI score from time 1 to time 2.

3.4 Limitations

In reviewing the results, it is important to keep in mind some of the limitations associated with this study:

- This study includes both prospective and retrospective data. While the CPGI was administered at both time 1 and time 2, all other variables were measured at time 2 only, and therefore are retrospective in nature. Observed statistical relationships in this study only signify associations between variables, not necessarily causal relationships.

- The lower response rate, particularly among individuals with severe gambling problems and younger participants, may represent a selection bias. As such, the results may not be generalizable to certain groups of individuals with gambling problems.
- Due to the small number of individuals with moderate (n=36) and severe gambling problems (n=12) at time 2, and the relatively few individuals with increased CPGI scores from time 1 to time 2, the results need to be viewed with caution.
- Limitations of the psychometric properties of the CPGI have implications for the study's findings. The CPGI (Ferris and Wynne, 2001) has a test-retest reliability of $r=0.78$ over a period of three to four weeks. Therefore, some of the shifts observed in the present study may be due to measurement error.

Due to these limitations, this study needs to be viewed as an exploratory investigation of the change versus stability of problem gambling.

4.0 Stability and Change in Gambling Levels

This section examines changes in gambling levels among participants from time 1 to time 2. Data is also presented that examines the nature of problems that individuals are experiencing, as measured by the individual CPGI items. This information is provided by time 2 gambling level, as well as by respondents' movement on the CPGI: whether the individual's CPGI level increased (more problematic), stayed the same, or decreased (less problematic) since baseline. The section concludes with an examination of demographic characteristics associated with gambling levels and movement.

4.1 CPGI Gambling Levels

Changes in CPGI level from time 1 to time 2, just over a one-year period, appear in Table 4.1. Although it appears that the proportion of individuals with severe problems increased from time 1 (1.1%) to time 2 (2.7%), this change was not statistically significant. However, significant reductions were observed among those gambling at-risk (37.3% to 20.8%) and those with moderate gambling problems (13.8% to 8.1%). A significant increase was observed among the proportion of non-problem gamblers from time 1 (47.7%) to time 2 (64.0%). Analysis was also conducted that examined changes in average CPGI scores from time 1 to time 2 using a paired Student's t-test. The CPGI provides a score between 0 and 27, with higher scores associated with increased problems. The results were significant ($p=.012$) with an overall decrease in CPGI scores from an average of 1.2 at time 1 ($sd=2.2$) to 1.0 at time 2 ($sd=2.4$).

CPGI	Time 1 %	Time 2 %
Non-gamblers	0	4.3
Non-problem	47.7	64.0
At risk	37.3	20.8
Moderate	13.8	8.1
Severe	1.1	2.7
N	442	442

The following four figures show the movement in gambling levels from time 1 to time 2 by time 1 CPGI gambling level. For instance, Figure 4.1 shows that the large majority of individuals classified as non-problem gamblers at time 1 (n=211) remained the same at time 2 (84.8%). However, 10% of those classified as non-problem gamblers at time 1 progressed to at risk gambling at time 2.

Figure 4.1: CPGI level at time 2 for non-problem gamblers at time 1

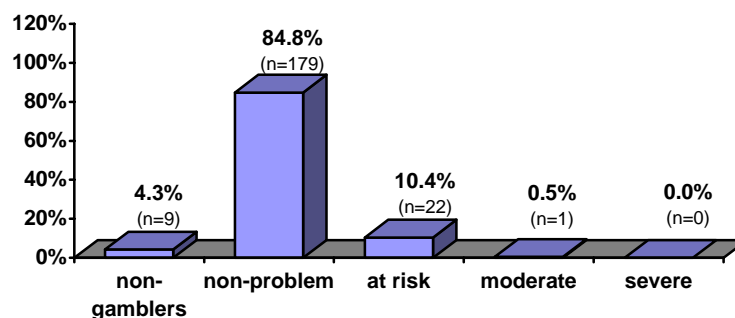


Figure 4.2 shows the change in gambling status observed among time 1 at risk gamblers (n=165). As shown, just over one quarter (27.9%) remained at risk gamblers at time 2, with the majority reducing their gambling to less problematic levels. Similar to the results noted above, just over 10% progressed to a more problematic level in just over a one-year period.

Figure 4.2: CPGI level at time 2 for at risk gamblers at time 1

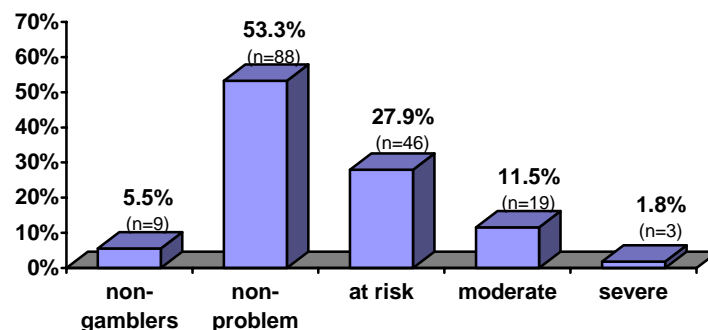
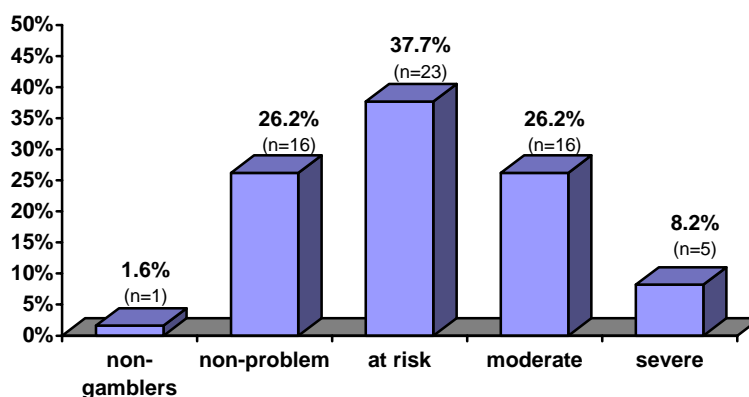


Figure 4.3 shows changes from time 1 to time 2 for individuals classified as having moderate problems at time 1 (n=61). Just over one quarter (26.2%)

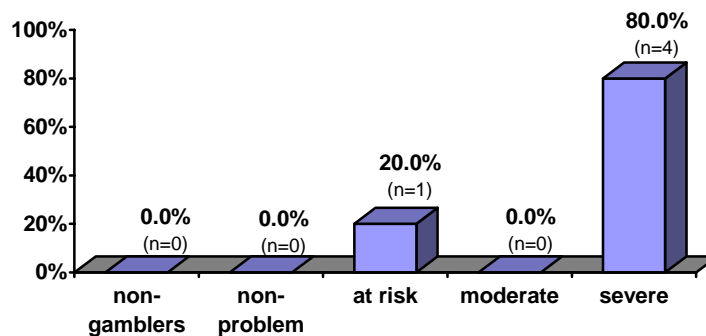
continued to have moderate gambling problems at follow-up. The majority decreased their gambling to less problematic levels (37.7% at risk, 26.2% non-problem). Again, just under 10% (8.2%) moved to more problematic levels, in that they were now experiencing severe gambling problems.

Figure 4.3: CPGI level at time 2 for moderate problem gamblers at time 1



As shown in Figure 4.4, there was a fair amount of stability in gambling levels among those classified as having severe gambling problems at baseline (n=5). Over an approximate one-year period, the large majority (80.0%) of individuals with severe gambling problems continued to have severe problems. One individual, representing 20.0% of the sample, reduced their gambling from the severe problem level to an at risk level.

Figure 4.4: CPGI level at time 2 for severe gamblers at time 1



In total, the majority (55.4%) of respondents remained at the same CPGI level from time 1 to time 2, 33.3% moved to a lower level, and just over 10% (11.3%) moved to more problematic levels at time 2.

One type of measurement error that could account for the observed shifts in gambling levels is regression toward the mean (Campbell and Kenny, 1999). Anytime a variable is measured with less than perfect reliability, scores will change from time 1 to time 2. Scores at the extremes of the distribution will change in a more noticeable manner. High scores can only move down and low scores can only move up so extreme scores will tend to change the most in the direction of the mean. At the same time scores in the middle of the distribution will move up or down. Since we are dealing with extreme scores in a distribution we cannot rule out the possibility that changes observed from time 1 to 2 are due to regression to the mean.

To examine how regression to the mean would impact the changes in categories in the CPGI, a number of simulations were conducted (see Appendix C). The results revealed a number of notable discrepancies between the results obtained and what would be expected from regression toward the mean. The relatively constant 10% shift upwards appears to be inconsistent with regression to the mean. More people that were non-problem gamblers (a score of 0 on the CPGI) stayed at that level than would be expected with regression toward the mean. Most of the severe problem gamblers from time 1 remained severe problem gamblers at time 2. Regression toward the mean would have predicted that most of these extreme scores would have regressed downwards. However, the very small sample size of severe problem gamblers must be considered. Finally, there also appears to be more movement downwards, and less movement upwards for moderate problem gamblers than would be expected. Therefore, while regression toward the mean is a factor when using any measure with less than perfect reliability, a number of the observed shifts in this study are not consistent with this type of measurement error.

4.2 CPGI Item Endorsement

Table 4.2 shows the endorsement of the CPGI items by time 2 gambling level. Among all CPGI levels, the most commonly endorsed items include feeling guilty, chasing losses, and betting more than one can afford to lose. Respondents experiencing severe gambling problems are also likely to report being criticized about their gambling, feeling that they might have a problem with gambling, and feeling that gambling has caused them health problems.

CPGI items	CPGI level				Total Gamblers %
	Non-problem %	At risk %	Moderate %	Severe %	
Feel guilty about the way you gamble ***	0	31.5	77.8	100.0	16.3
Chasing losses ***	0	35.9	55.6	91.7	15.1
Bet more than could afford to lose ***	0	20.7	47.2	91.7	11.1
Have people criticized your betting ***	0	12.0	33.3	83.3	7.8
Feel that you might have a problem with gambling ***	0	7.6	34.3	83.3	6.9
Feel gambling has caused you any health problems ***	0	12.1	22.2	75.0	6.6
Need to gamble with larger amounts of money to get the same feeling of excitement ***	0	9.0	25.0	50.0	5.5
Feel your gambling has caused financial problems ***	0	4.3	22.2	72.7	4.7
Borrow money or sold anything to get money to gamble ***	0	2.2	11.1	33.3	2.4
N	283	92	36	12	423

*** p<0.001

Examination of CPGI item endorsement by movement shows that those who progressed to more problematic levels of gambling are the most likely to endorse all the items on the CPGI (see Table 4.3). Consistent with the results above, guilt feelings, chasing losses and betting more than one can afford to lose are the most common characteristics associated with increases in problematic levels of gambling.

Table 4.3: Endorsement of CPGI items (time 2) by movement				
CPGI items	Movement			Total Gamblers %
	Moved up %	Stayed the same %	Moved down %	
Feel guilty about the way you gamble ***	56.0	13.1	7.0	16.3
Chasing loses ***	48.0	13.1	6.3	15.1
Bet more than could afford to lose ***	42.0	8.6	3.9	11.1
Have people criticized your betting***	30.0	5.3	3.9	7.8
Feel that you might have a problem with gambling ***	20.4	6.5	2.3	6.9
Feel gambling has caused you any health problems**	18.4	6.5	2.3	6.6
Need to gamble with larger amounts of money to get the same feeling of excitement ***	24.0	3.7	1.6	5.5
Feel your gambling has caused financial problems ***	22.4	3.7	0	4.7
Borrow money or sold anything to get money to gamble***	12.0	1.2	0.8	2.4
N	50	245	128	423

** p<.01; *** p<.001

4.3 Demographic Characteristics

The demographic characteristics associated with time 2 gambling levels, including non-gambling, are presented in Table 4.4. While significant relationships were observed with educational attainment and employment status, the relationships were not clear. Respondents with completed high school were the most likely to experience moderate gambling problems, and those with some post secondary education were the most likely to experience severe gambling problems. Unemployed respondents were the most likely to experience moderate gambling problems, and students were the most likely to experience severe gambling problems.

Table 4.4: Demographic characteristic by CPGI levels at time 2						
	CPGI level					Total Population %
	Non-gamblers %	Non-problem %	At-risk %	Moderate %	Severe %	
Region						
East	0	75.0	16.1	7.1	1.8	12.7
Central East	4.6	60.0	20.0	12.3	3.1	14.7
Toronto	3.1	59.2	25.5	6.1	6.1	22.2
Central West	11.1	56.8	22.2	8.6	1.2	18.3
Central South	2.3	63.6	25.0	6.8%	2.3	10.0
South West	3.4	76.3	13.6	5.1	1.7	13.3
North	2.6	64.1	20.5	12.8	0	8.8
Gender						
Male	4.9	62.5	23.7	7.1	1.8	50.7
Female	3.7	65.6	17.9	9.2	3.7	49.3
Age						
19-24	6.5	60.9	28.3	2.2	2.2	10.5
25-34	3.4	64.4	24.1	4.6	3.4	19.9
35-49	2.8	65.3	18.8	10.4	2.8	33.0
50-59	5.8	55.1	23.2	10.1	5.8	15.8
60+	5.5	69.2	15.4	9.9	0	20.8
Marital status						
Married	5.1	68.2	16.6	8.3	1.8	49.2
Living with a partner	0	71.8	15.4	7.7	5.1	8.8
Widowed	0	73.3	23.3	3.3	0	6.8
Divorced/separated	4.4	51.1	31.1	11.1	2.2	10.2
Single	5.5	55.5	26.4	8.2	4.5	24.9
Educational attainment *						
Some high school	3.8	66.0	24.5	5.7	0	12.0
Completed high school	4.5	56.2	19.1	16.9	3.4	20.2
Some post secondary	3.0	64.2	23.9	3.0	6.0	15.2
Completed Postsecondary	2.0	67.8	21.7	7.2	1.3	34.5
Completed postgraduate education	10.0	63.8	16.3	6.3	3.8	18.1
Employment *						
Employed	4.1	64.6	21.8	6.5	3.1	66.8
Unemployed	5.0	50.0	15.0	30.0	0	4.5
Student	8.3	58.3	25.0	0	8.3	5.5
Retired	2.4	70.7	15.9	9.8	1.2	18.6
Other	10.0	45.0	30.0	15.0	0	4.6
Household Income						
<\$20 000	12.5	50.0	25.0	12.5	0	8.4
<\$30 000	0	70.0	16.7	6.7	6.7	7.9
<\$40 000	7.5	55.0	22.5	10.0	5.0	10.5
<\$50 000	0	67.4	20.9	11.6	0	11.3
<\$60 000	5.7	66.0	22.6	5.7	0	13.9
\$60 000 +	3.8	67.4	18.5	6.5	36.8	48.2
N	19	283	92	36	12	442

* p<0.05

In terms of CPGI movement, none of the demographic characteristics were significantly related to the direction of movement.

5.0 Gambling Activities

Participants were provided with a list of gambling activities and asked if they had participated in any of these in the past 12 months. Table 5.1 shows gambling participation by time 2 CPGI level. Among all gamblers, the most common gambling activities are lottery, raffle or scratch tickets, followed by playing slots/VLTs in casinos. Among the least common activities are betting on sports through a bookie, slots/VLTs other than at a casino or racetrack, Internet gambling and speculative stock investments.

Those with moderate gambling problems are the most likely group to play casino table games, sport select and visit casinos out of the province. Respondents experiencing severe gambling problems are the most likely to play slots or electronic gaming machines in a casino or racetrack, purchase scratch tickets, play Bingo and gamble on the Internet.

Gambling Activities	CPGI level				Total Gamblers %
	Non problem %	At risk %	Moderate %	Severe %	
Lottery	80.2	81.5	80.6	91.7	80.9
Raffles	61.8	70.3	58.3	58.3	63.2
Scratch **	42.6	62.0	58.3	75.0	49.2
Slots/VLTs in casino ***	35.3	64.1	66.7	83.3	45.6
Outcome of sporting events	18.4	25.3	33.3	16.7	21.1
Slots/VLTs at race tracks ***	11.3	28.3	41.7	83.3	19.6
Cards/board games with friends	14.5	19.6	22.2	16.7	16.3
Horse Races	11.7	19.6	19.4	16.7	14.2
Bingo ***	8.8	17.4	30.6	41.7	13.5
Games of skill	9.9	19.6	16.7	16.7	12.8
Arcade/video games	9.9	19.8	13.9	16.7	12.6
Casinos out of province **	8.1	19.6	25.0	16.7	12.3
Casino table games **	7.4	20.7	22.2	8.3	11.6
Sport Select *	7.1	15.2	22.2	16.7	10.4
Stocks	4.6	12.0	5.6	16.7	6.6
Internet *	3.2	8.7	2.8	16.7	4.7
Sports with bookie	0.7	0	2.8	0	0.7
N	283	92	36	12	423

* p<0.05; ** p<0.01; *** p<0.001

Table 5.2 shows gambling activities based on the direction of movement between time 1 and time 2. Participants with increased time 2 CPGI scores were

more likely than those with decreased scores or the same scores to gamble on a number of activities, particularly slots in a casino or racetrack, Bingo, casinos out of province, and scratch tickets.

Table 5.2: Gambling activities by movement				
Gambling activities	Movement			Total Gamblers %
	Moved up %	Stayed the same %	Moved down %	
Lottery *	84.0	80.4	80.5	80.9
Raffles **	66.0	66.3	56.3	63.2
Scratch **	66.0	47.8	45.3	49.2
Slots/VLTs in casino ***	66.0	42.0	44.5	45.6
Outcome of sporting events	18.0	20.8	22.8	21.1
Slots/VLTs at race tracks ***	40.0	18.4	14.1	19.6
Cards/board games with friends	20.0	15.9	15.6	16.3
Horse Races	12.0	13.1	17.2	14.2
Bingo ***	30.0	10.2	13.3	13.5
Games of skill	20.0	12.2	10.9	12.8
Arcade/video games	16.0	13.5	9.4	12.6
Casinos out of province **	28.0	8.6	13.3	12.3
Casino table games **	24.0	7.8	14.1	11.6
Sport Select	10.0	7.8	15.6	10.4
Stocks	4.0	6.1	8.6	6.6
Internet *	12.0	2.9	5.5	4.7
Sports with bookie	2.0	0	1.6	0.7
N	50	245	128	423

* p<0.05; ** p<0.01; *** p<0.001

Participants were also asked to state their favourite gambling activity (see Table 5.3). Lottery tickets are the preferred gambling activity among the majority of non-problem gamblers. The most preferred activities among those gambling at severe levels are slot machines/VLTs and Bingo, while those with moderate gambling problems tend to prefer slot machines/VLTs.

Favourite Gambling Activities	CPGI level				Total Gamblers %
	Non-problem %	At risk %	Moderate %	Severe %	
Lottery tickets ***	53.0	35.8	20.6	16.7	44.4
Slot machines/VLTs *	21.9	28.4	44.1	33.3	26.0
Scratch tickets	13.0	13.6	8.8	8.3	12.6
Casino table games	7.9	12.3	17.6	16.7	10.2
Bingo **	6.0	7.4	14.7	33.3	8.2
Card/board games with friends/family	7.0	8.6	14.7	0	7.9
Outcome of sporting events	4.7	7.4	5.9	0	5.3
Horse races	4.2	1.2	5.9	16.7	4.1
Sport Select	2.8	3.7	2.9	8.3	3.2
Raffles	2.3	2.5	0	0	2.0
Games of skill	1.4	2.5	0	0	1.5
Stocks *	0	3.7	0	8.3	1.2
Casinos out of province	1.4	1.2	0	0	1.2
Arcade/video games	0.5	0	0	0	0.3
Internet	0.5	0	0	0	0.3
Sports with bookies	0.5	0	0	0	0.3
N	215	81	34	12	342

* p<0.05; ** p<0.01; *** p<0.001

Table 5.4 presents respondents' favourite gambling activity among individuals who moved up, stayed the same or moved down in their CPGI level. In many respects, these results mirror the analysis above. The favourite activity among individuals who increased their CPGI level from time 1 to time 2 is slot machines and VLTs (although the result was not statistically significant). Lottery tickets are the favourite gambling activity among those who stayed the same or moved down. In addition, individuals who moved up are the most likely group to identify Bingo and casino table games as their favourite activity.

Favourite Gambling Activities	Movement			Total Gamblers %
	Moved up %	Stayed the same %	Moved down %	
Lottery tickets ***	28.3	53.5	33.7	44.4
Slot machines/VLTs	32.6	24.7	25.5	26.0
Scratch tickets	8.7	12.6	14.3	12.6
Casino table games **	23.9	7.1	10.2	10.2
Bingo *	17.4	5.1	10.2	8.2
Card/board games with friends/family	10.9	7.6	7.1	7.9
Outcome of sporting events	2.2	5.1	7.1	5.3
Horse races	6.5	3.5	4.1	4.1
Sport Select	4.3	2.0	5.1	3.2
Raffles	0	2.5	2.0	2.0
Games of skill	2.2	1.0	2.0	1.5
Stocks	2.2	1.0	1.0	1.2
Casinos out of province	2.2	1.0	1.0	1.2
Arcade/video games	0	0	1.0	0.3
Internet	0	0	1.0	0.3
Sports with bookies	0	0	1.0	0.3
N	46	198	98	342

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

The figure below displays the average number of hours spent each month gambling by time 2 CPGI level. Clearly, the amount of time spent gambling increases with problematic levels of gambling ($F(3, 317) = 29.57, p < 0.001$). Whereas non-problem gamblers report spending approximately 2 hours a month gambling, those at the severe level gamble approximately 25 hours each month.

Figure 5.1: Average number of hours spent on gambling each month by CPGI level at time 2

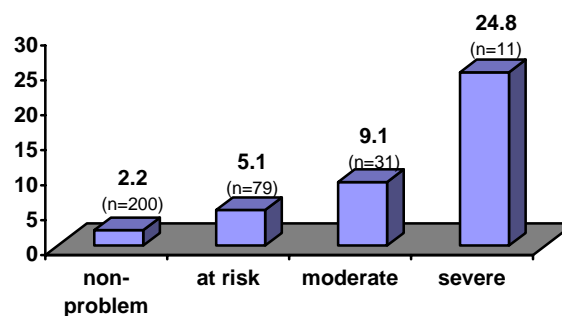
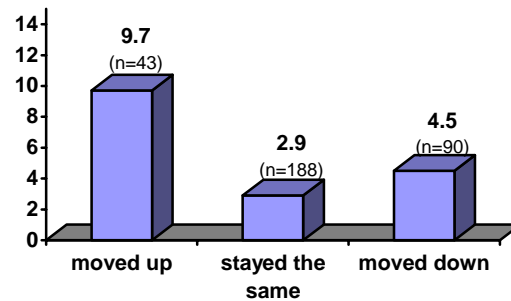


Figure 5.2 shows the average number of hours spent on gambling by movement on CPGI from time 1 to time 2. Respondents who moved up in CPGI level from time 1 to time 2 spend significantly more time gambling (average 9.7

hours/month) than those who stayed the same (2.9 hours) or moved down (4.5 hours) ($F\{2, 318\}=9.66, p<0.001$).

Figure 5.2: Average number of hours spent on gambling each month by movement



A question was posed that asked participants whether they gamble alone or with others ($X^2=17.74, df=9, p<.05$). As shown in Table 5.5, a large portion of all gamblers, regardless of CPGI level, report gambling alone. This may be related to the popularity of purchasing lottery tickets. Those with severe and moderate problems are more likely than expected to gamble with family, and those with severe problems are less likely to gamble with friends. Alternatively, those at-risk are more likely than expected to gamble with friends and less likely to gamble with family.

	CPGI Level				Total Gamblers %
	Non problem %	At risk %	Moderate %	Severe %	
Alone	39.1	31.5	25.0	50.0	36.5
Friends	26.5	46.1	30.6	8.3	32.6
Family	24.1	18.0	33.3	41.7	24.1
Other	7.3	4.5	11.1	0	6.8
N	274	89	36	12	411

Table 5.6 shows that respondents with increased CPGI scores from time 1 to time 2 are the most likely group to gamble with family members, those with the same scores are the most likely group to gamble alone, and those with

decreased scores are the most likely group to gamble with friends ($X^2=21.15$, $df=6$, $p<0.01$).

Table 5.6: Whom the respondents gambles with by movement				
	Movement			Total Gamblers %
	Moved up %	Stayed the same %	Moved down %	
Alone	20.4	43.6	29.4	36.5
Friends	26.5	30.1	39.7	32.6
Family	42.9	20.3	23.8	24.1
Other	10.2	5.9	7.1	6.8
N	49	236	126	411

6.0 Psychological and Social Dimensions

This section examines the relationship between problem gambling and various psychological and social dimensions, including DSM pathological gambling criteria, mental health treatment, depression, loneliness, social support, distress, and life events. Relationships are examined by time 2 CPGI level as well as by CPGI level movement.

6.1 Associated Features of DSM Pathological Gambling

Table 6.1 shows the relationship between time 2 CPGI level and associated features of pathological gambling noted in the DSM-III-R and DSM-IV. These questions were used in a clinical study with gambling treatment clients (Beadoin & Cox, 1999).

Those gambling at severe levels were the most likely to feel detached from their surroundings while gambling, take risks in life, view money as a solution to their problems, describe themselves as a big spender, and gamble as a way of escaping problems. With the exception of gambling to escape problems, there are few differences between at risk gambling and those with moderate problems on these same dimensions. There were no significant relationships between time 2 CPGI levels and describing oneself as competitive or easily bored.

	CPGI level					Total Population %
	Non-gamblers %	Non-problem %	At risk %	Moderate %	Severe %	
Ever felt detached from surrounding while gambling ***	0	3.7	10.0	11.1	41.7	6.6
Do you like a lot of risks in life? *	15.8	12.2	18.7	19.4	45.5	15.2
Do you see money as the solution to almost all your problems ***	10.5	13.3	29.7	25.0	50.0	18.5
Would you describe yourself as a 'big spender'? ***	15.8	8.6	19.8	25.0	58.5	14.0
Would you describe yourself as a competitive person	73.7	59.8	64.0	48.6	75.0	60.8
Would you say that in general you are easily bored	21.1	27.3	33.7	41.7	50.0	30.2
Ever gamble as a way of escaping life's problems ***	0	1.8	8.7	45.7	66.7	8.4
N	19	282	92	36	12	441

*p<0.05; ***p<0.001

Table 6.2 presents responses to DSM criteria and movement in CPGI level. Respondents who moved up on CPGI between time 1 and time 2 are the most likely to view money as the solution to almost all their problems, to describe themselves as 'big spenders' and to gamble to escape life's problems. No other significant relationships were observed.

	Movement			Total Population %
	Moved up %	Stayed the same %	Moved down %	
Ever felt detached from surrounding while gambling?	10.0	5.1	7.8	6.6
Do you like a lot of risks in life?	20.4	13.3	16.4	15.2
Do you see money as the solution to almost all your problems *	32.7	15.7	18.5	18.5
Would you describe yourself as a 'big spender'? **	28.0	12.8	11.1	14.0
Would you describe yourself as a competitive person	66.7	58.4	62.8	60.8
Would you say that in general you are easily bored	38.0	30.3	27.2	30.2
Ever gamble to escape life's problems ***	28.6	7.3	3.4	8.4
N	50	244	147	441

*p<0.05; ** p<0.01; ***p<0.001

6.2 Mental Health Treatment

The survey included a question that asked participants whether they had ever been seen by a mental health professional for psychological problems. Of the total sample, 79 respondents (17.0%) indicated that they had sought treatment. The percentage receiving treatment increased with level of gambling problems ($X^2=12.08$, $df=4$, $p<0.05$). Whereas 13.9% of non-problem gamblers have received treatment, the proportion increased to 19.6% among those gambling at risk, 30.6% for those with moderate problems and 41.7% for those with severe problems.

Table 6.3 presents the reasons individuals sought treatment by time 2 CPGI level. The most common reason among non-problem gamblers and those with moderate and severe gambling problems is depression. Stress is the most common reason cited for those gambling at risk. Other reasons cited were quite varied, and included issues such as eating disorders, obsessive-compulsive disorder, schizophrenia, agoraphobia, grief, and alcohol problems. One person mentioned receiving help for a gambling problem.

	CPGI level					Total %
	Non-gamblers %	Non-problem %	At risk %	Moderate %	Severe %	
Depression	100.0	41.0	11.1	36.4	40.0	35.5
Anxiety/breakdown	0	23.1	22.2	36.4	0	22.4
Stress	0	5.1	38.9	0	0	11.8
Marriage/family problems	0	7.7	11.1	9.1	0	7.9
Adolescent problems	0	7.7	0	0	20.0	5.3
Other	0	25.6	38.9	18.2	40.0	27.6
N	3	39	18	11	5	76

There were no differences related to CPGI movement and treatment for psychological problems ($X^2=1.14$, $df=2$, N.S.). Whereas 22.0% of those who moved up had sought professional help, the rates for those who remained at the same level or moved down were 15.9% and 17.9%, respectively.

6.3 Depression

A series of questions were posed to assess depression. The results, presented in Table 6.4, show that as the severity of gambling problems increase so does the likelihood of feeling depressed or down most of the day ($X^2=15.64$, $df=4$, $p<.01$), losing interest or pleasure in things they usually enjoyed ($X^2=12.71$, $df=4$, $p<.05$) and no longer doing things they used to do ($X^2=10.60$, $df=4$, $p<.05$). Interestingly, when examining trends, a greater proportion of non-gamblers, compared to non-problem gamblers, report feeling depressed, losing interest in things and no longer doing things they used to do.

	CPGI level					Total Population %
	Non-gamblers %	Non-problem %	At risk %	Moderate %	Severe %	
Has there been a period of time when you were feeling depressed or down most of the day **	31.6	21.3	21.7	41.7	58.3	24.5
Did it last as long as two weeks?	50.0	35.6	21.1	46.7	14.3	34.0
What about losing interest or pleasure in things you usually enjoyed? *	26.3	18.4	26.4	25.0	58.3	22.0
Was it nearly every day?	60.0	38.0	33.3	55.6	28.6	38.9
Did it last as long as two weeks?	60.0	40.4	29.2	55.6	28.6	39.2
Have you stopped doing anything you used to do? *	27.8	20.6	30.8	31.4	54.5	24.7
N	19	282	92	36	12	441

* $p<0.05$; ** $p<0.01$

No significant relationships were observed between indicators of depression and CPGI movement. That is, individuals with increased CPGI scores did not differ from others in terms of feelings of depression, losing interest in things, or no longer engaging in activities that they used to do.

Of the 108 respondents who indicated that they stopped doing things that they used to do, the most common reason for the change among all participants combined was health problems (see Table 6.5). The only significant difference related to time 2 CPGI level was financial reasons, with those with moderate gambling problems being the most likely group to report financial reasons ($X^2=10.13$, $df=4$, $p<.05$).

	CPGI level					Total %
	Non-gamblers %	Non-problem %	At risk %	Moderate %	Severe %	
Health problems	40.0	35.1	21.4	18.2	0	28.0
Too busy/other activities	0	22.8	32.1	18.2	0	22.4
Loss of interests	20.0	8.8	7.1	18.2	16.7	10.3
Work	0	5.3	10.7	0	16.7	6.5
Financial reasons *	0	0	10.7	18.2	0	4.7
Family problems	0	1.8	3.6	18.2	0	3.7
Depression	0	3.5	0	0	16.7	2.8
No reason	0	3.5	0	0	0	1.9
Other	40.0	19.3	14.3	0	33.3	17.8
N	5	57	28	11	6	107

*p<0.05

6.4 Loneliness, Social Support, Distress Life Events

Table 6.6 presents the average scores on the measures of loneliness (UCLA), perceived social support (MSPSS), levels of distress (NCS) and life events (LEI) by time 2 CPGI level. Higher scores represent higher levels of the construct being measured.

All variables were significantly related to CPGI level. Specifically, higher levels of gambling problems are associated with increased levels of life events, loneliness and distress. Non-problem gamblers report the highest levels of social support, while those with severe problems the least.

	CPGI level					Total Population
	Non-gamblers	Non-problem	At risk	Moderate	Severe	
LEI *	4.8	4.8	5.8	5.9	6.4	5.1
UCLA ***	35.8	30.5	34.3	36.7	44.5	32.4
NCS ***	24.3	23.5	26.4	29.9	37.1	25.0
MSPSS - Total ***	71.8	73.6	70.3	66.7	55.5	71.8
MSPSS-Family ***	23.4	24.2	23.1	21.0	19.3	23.6
MSPSS-Special Person **	24.3	25.2	24.4	23.4	19.6	24.7
MSPSS-Friend ***	24.2	24.2	22.3	22.6	16.7	23.5
N	19	281	92	36	12	440

* p<0.05; ** p<0.01; *** p<0.001

Table 6.7 examines these social and psychological dimensions by CPGI movement. Although significant relationships were found related to loneliness and levels of distress, no clear patterns emerged. That is, individuals who moved up were not that different from those who moved down. In addition, individuals with increased CPGI scores reported the lowest levels of social support from friends.

	Movement			Total population
	Moved up	Stayed the same	Moved down	
LEI	5.7	4.8	5.3	5.1
UCLA **	35.0	31.0	33.9	32.4
NCS *	28.6	24.2	25.2	25.0
MSPSS - Total	70.1	72.4	71.3	71.8
MSPSS-Family	23.7	23.7	23.4	23.6
MSPSS-Special Person	24.7	24.9	24.4	24.7
MSPSS-Friend *	21.9	23.8	23.4	23.5
N	50	243	147	440

* p<0.05; ** p<0.01

6.5 Predicting Increases in Problem Gambling Scores

In this section, regression analysis is used to examine the best psychosocial predictors of increases in CPGI score from time 1 to time 2. The variables of interest include loneliness, social support, distress, and life events. This analysis is intended to enhance understanding of the factors that play a role in the development of problems. Of course, because the psychosocial variables were all measured at the same time as time 2 CPGI, it is not possible to identify causal relationships. Rather, this analysis will identify the promising candidate variables for future studies designed to examine causal underlying factors.

To start, the relationship between time 1 scores to time 2 scores was examined. The results showed that CPGI time 1 scores are a powerful predictor of CPGI time 2 scores, accounting for almost 50% (adjusted R-squared=.49) of the variation in time 2 CPGI scores ($F=353.47$, $p<.001$). This predictive effect of time 1 CPGI scores on time 2 CPGI scores therefore represented the benchmark that other variables were forced to overcome in all of the subsequent hierarchical regression analyses.

The first regression model tested the additive effects of socio-demographic variables, including region, gender, age, marital status, household income, and employment status. None of the sociodemographic variables were significant predictors of CPGI time 2 scores after the effects of CPGI time 1 were entered.

Next, a linear regression was run to attempt to predict time 2 CPGI scores from time 1 CPGI scores and four psychosocial measures: Life Events, UCLA Loneliness, NCS Distress Index, and MSPSS Social Support Index, along with the three sub-scales of the MSPSS Social Support Index (friend, special person, and family). In the final model, only two variables were significant predictors of time 2 CPGI scores: time 1 CPGI (Beta=.67, $p < .001$), and NCS Distress Index (Beta=.16, $p < .001$). This model explained 52% of the variation in time 2 CPGI scores. An incremental F-test showed that the increased variation (50% to 52%) explained by adding NCS Distress to the model was statistically significant ($F(1, 417) = 17.45, p < .001$).

7.0 Discussion

This study contributes to the limited information by examining problem gambling stability and progression over a one-year period and the relationship between distress, loneliness, social support and life events to problem gambling. The results show a fair amount of fluctuation in gambling levels over time, particularly with at risk and moderate problem gambling. The majority of individuals classified as gambling at risk or as having moderate problems at time 1 were gambling at less problematic levels at time 2. The group with severe gambling problems at time 1 demonstrated far more stability in their gambling levels. The large majority of individuals with severe gambling problems at time 1 continued to experience severe problems at time 2. It is interesting to note that approximately 10% of participants at each gambling level progress to more problematic level. That is, approximately 10% of time 1 non-problem gamblers were gambling at risk at time 2, 10% of time 1 at risk gamblers were experiencing moderate problems at time 2, and finally, 10% of those with time 1 moderate problems were experiencing severe problems at time 2. These 50 individuals with increased CPGI scores represent an important group in that they may provide the greatest insight into the factors underlying the development of gambling problems. However, longer-term follow-up studies are required to determine whether a progression continues, or if this forward transition is temporary.

In terms of social and psychological factors, the results revealed significant relationships between time 2 CPGI scores and increased levels of depression, distress, loneliness, life events and decreased social support. The social and psychological dimensions related to increased CPGI scores from time 1 to time 2 included increased loneliness and distress and decreased social support from friends. Combined, the results from this study conveyed a profile of the problem gambler as emotionally distressed and lonely, and having low social support.

The hierarchical regressions employed in the study allowed us to evaluate the additive effects of psychosocial variables, over-and-above the predictive effects of gambling severity observed one year previously. When loneliness, social support, life events and severity of emotional distress were examined simultaneously, emotional distress was the only significant variable in predicting increases in gambling problems. The items of the NCS Distress Index assess both depression (feeling blue) and anxiety (frightened). The role of emotional distress in understanding gambling problems may involve using gambling as a sort of self-medication. It will be recalled that a significantly greater percentage of individuals with increased CPGI scores, as well as those gambling at severe levels, reported that they gambled “as a way of escaping from problems in life or as a way of getting rid of unpleasant feelings.” Together, these findings suggest that further work is needed to investigate the role of distress, depression and motivation to gamble in problem gamblers.

In this regard, the greatest limitation of the present research is the fact that much of the findings were cross sectional in nature. However, the findings suggest that several of the psychosocial dimensions are promising candidate variables that may act as true vulnerabilities for subsequent gambling problems. This possibility will require a more extensive longitudinal study that would include these promising variables at baseline along with gambling problem measures. This type of design would help to determine whether individuals in society who are emotionally vulnerable are those most at risk to develop gambling problems over time.

This exploratory study provides a snapshot of the progression of problem gambling over a one-year period. The limitations associated with this study, however, are important to realize. The study’s less than ideal response rate produces a potential for bias. Replication studies, with larger samples sizes over a longer follow-up period are required to gain a more complete understanding of the stability and progression of problem gambling, and the factors associated with changes in gambling levels. Finally, while the present study only followed-up gamblers, future longitudinal studies would benefit by including non-gamblers.

Non-gamblers provide a ready source of new gamblers and problem gamblers and therefore are an important group to include in future studies of this type.

Finally, as a next step in this research, analyses will be conducted to examine the relationship between variables measured at time 1 (e.g. gambling activities, socio-demographics) and time two gambling level. As well, a more refined examination of factors associated with change and stability will be achieved by examining changes in scores, not just levels. It is anticipated that these additional analyses will provide further insights into the factors associated with stability and change.

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Appendix A

Sample Representativeness

Tables A1 and A2 below summarize the number of people who participated in this study, as well as people who could not be found or refused to participate for both samples. For sample 1, a total of 396 respondents were successfully contacted and asked to participate in the follow-up study. Of those successfully contacted, 323 agreed to participate in this study. Therefore the response rate for successful contacts was 81.6%, and the response rate for eligible contacts was 53.7%. For sample 2, a total of 207 respondents were successfully contacted and asked to participate in this study. Of these, 134 completed the interview. The response rate among those successfully contacted for sample 2 was 64.7%, and 29.9% among eligible respondents.

The reason for the difference in the response rates is that the research company was asked to re-contact all original refusals to participate in the study for sample 1, while this was not done for sample 2. Many of the respondents from sample 1 who originally declined to participate, agreed to participate when asked again. On the other hand, refusals from sample 2 were not re-contacted since the quota for the sample was met.

The combined (sample 1 and sample 2) total of eligible respondents was 603. Of these, 457 agreed to participate in this study. Later, the data for nine people at time 2 was deleted when it was discovered that they were not the same people interviewed at time 1. Therefore, among all successfully contacted respondents, the response rate was 74.3%, and among eligible participants, the response rate was 42.7%.

Table A1: Contact Summary for Ontario Gambling Follow-up Study Sample 1	
Total number of attempts	723
Not in service	105
Fax/ modem line	12
Business line	4
Total eligible contacts	602
Busy	5
Answering machine	72
No answer	25
Communication/ language problem	10
Illness/ Incapable	10
Select person not available	84
Total actual contacts	396
Disqualified	3
Household refusal	0
Respondent refusal	7
Respondent refused second time	58
Terminate	2
Refuse on intro	3
Complete	323

Table A2: Contact Summary for Ontario Gambling Follow-up Study Sample 2	
Total number of attempts	500
Not in service	45
Fax/ modem line	5
Business line	2
Total eligible contacts	448
Busy	4
Answering machine	123
No answer	18
Communication/ language problem	1
Illness/ Incapable	8
Select person not available	87
Total actual contacts	207
Disqualified	0
Household refusal	1
Respondent refusal	71
Terminate	0
Refuse on intro	1
Complete	134

Table A3 shows the response rates for each of the gambling categories. There was a significant difference between respondents who were interviewed and those who were not interviewed ($X^2=16.850$, $df=3$, $p<0.01$). Those experiencing severe gambling problems have the lowest response rate, while those with moderate gambling problems were the most likely group to participate in this study. These response rates are an underestimation as it includes all attempts, even those with a fax, etc. Because this information was not kept for type of gambler, it is impossible to calculate the eligible response rates.

Table A3: CPGI level by whether the participant was interviewed or not.			
CPGI level	Interviewed	Not interviewed	N
Non-problem	33.3%	66.8%	648
At risk	41.2%	58.8%	405
Moderate	46.2%	53.8%	132
Severe	17.2%	82.8%	29
N	448	766	1214

Table A4 compares the demographic characteristics of the two groups. There are no differences between responders and non-responders related to region, gender, marital status, employment status, and household income. Younger participants (18-24 years) were the least likely age group to be successfully re-interviewed ($X^2=28.520$, $df=4$, $p<0.001$). This is not totally unexpected, as this age group tends not to have a stable residence (whether to go away to school or move from a campus residence back home). In addition, there was a difference between the two groups related to educational attainment, with participants with complete high school the least likely to be successfully re-contacted ($X^2=10.501$, $df=4$, $p<0.05$).

Table A4: Demographic characteristics of people who were interviewed and those who were not interviewed		
	Interviewed	Not Interviewed
Region		
East	12.5	13.4
Central East	14.5	14.2
Toronto	22.1	22.8
Central West	18.5	16.8
Central South	10.0	11.7
South West	13.6	13.7
North	8.7	7.2
Gender		
Male	50.0	53.5
Female	50.0	46.5
Age **		
18-24	12.9	23.5
25-34	18.5	21.2
35-49	32.6	23.5
50-59	15.4	15.5
60+	20.5	16.3
Marital status		
Married	48.7	42.1
Living with a partner	8.7	11.1
Widowed	5.6	5.0
Divorced/separated	11.4	11.4
Single	25.7	30.4
Educational attainment *		
Some high school	11.9	9.7
Completed high school	20.8	28.6
Some post secondary	15.0	14.6
Completed post secondary	34.5	29.1
Completed post graduate education	17.9	18.0
Employment		
Employed	67.0	64.9
Unemployed	4.2	4.2
Student	6.7	10.9
Retired	17.0	13.9
Other	5.1	6.0
Household Income		
<\$20 000	11.6	14.7
<\$30 000	10.8	11.6
<\$40 000	10.0	12.2
<\$50 000	10.0	10.0
<\$60 000	12.6	10.9
\$60 000 +	45.0	40.6
N	448	766

Note: ** p<0.000, * p<0.05

Appendix B: Questionnaire

INTERVIEWER: _ _ _ _

PHONE: _ _ _ _ - _ _ _ _

GENDER: Male1

Female.....2

Information to the Subject/Consent Form

Hi, my name is (first & last) and I'm calling from Viewpoints Research on behalf of the Responsible Gambling Council (Ontario) formerly the Canadian Foundation on Compulsive Gambling. May I please speak to (name of subject)?

- (1) We are contacting a group of individuals who participated in a research study last year, which studied gambling activities and attitudes of Ontario adults. At that time we indicated that we may be contacting you for a follow up study. Do you recall?
- (2) At this time we would like to survey all individuals who obtained a score of 1 or more on the Canadian Problem Gambling Index administered during the interview, and find out more information about your gambling behaviour and attitudes.
- (3) The survey will also ask you questions about:
 - The types of gambling activities you participate in, and the amount of time spent on gambling
 - Negative impacts that you have experienced from your own and other's gambling
 - Your general well-being, including feelings of sadness and loneliness
 - Your social support network
 - Any positive or negative life events you have experienced
- (4) The study will provide important information on the nature of gambling among Ontarians and related service needs. And upon project completion, full research results will be available on the Responsible Gambling (RGCO) web-site, as well, we would be happy to send you a summary of the results.
- (5) If you want further information on this study, you may call the researcher, Jamie Wiebe you may call a total free number (1-888-391-1111).
- (6) The survey will take approximately 30 minutes. You can refuse to answer any question or you can quit the survey at any time. All of your answers will remain confidential; you will not be identified in any report that may arise from this study. Only the researchers on this project will have access to all of the information collected. If the data is shared with other researchers in the future, all identifiers would be removed.
- (7) At the end of the survey we will provide you with numbers to counseling service, information about a toll free gambling help line, and the number to the Depression and Anxiety Information Resource and Education Centre (DIRECT).
- (8) Would you be willing to participate?

I am going to begin by going over a list of gambling activities. Please tell me if you have wagered or spent money or anything of value on any of these activities during the past year.

		Yes	No	DK	Ref
Q1	Lottery tickets like the 649, Super 7, Pick 3 or POGO?	1	2	3	4
Q2	Instant win or scratch tickets like break open, pull tab, or Nevada Strips?	1	2	3	4
Q3	Raffles or fundraising tickets?	1	2	3	4
Q4	Horse races (i.e. live at race-track or off track)?	1	2	3	4
Q5	Bingo?	1	2	3	4
Q6	Coin slot machines or video lottery terminals in a casino?	1	2	3	4
Q7	Games other than slot machines in a casino such as poker, blackjack, roulette or keno?	1	2	3	4
Q8	Slot machines or video lottery terminals at race tracks?	1	2	3	4
Q9	Slot machines or video lottery terminals <u>other than at casinos?</u>	1	2	3	4
Q10	Sport Select (e.g. Pro Line, Over/Under, Point Spread)?	1	2	3	4
Q11	Sport pools or the outcome of sporting events?	1	2	3	4
Q12	Cards or board games anywhere other than at casinos (at home, friend's homes, work, card rooms, etc.)?	1	2	3	4
Q13	Games of skill such as pool, bowling or darts?	1	2	3	4
Q14	Arcade or video games?	1	2	3	4
Q15	Internet?	1	2	3	4
Q16	Sports with a bookie?	1	2	3	4
Q17	Short-term speculative stock or commodity purchases such as day trading, not including long-term investments such as mutual funds or RRSPs?	1	2	3	4
Q18	Casinos out of province (e.g. Las Vegas or Atlantic City or casinos in other Canadian provinces)?	1	2	3	4

IF NO TO ALL GAMBLING GOTO Q38

Q19 What is your preferred gambling activity? If there is more than one, please mention all of them. **DO NOT READ**

Lottery tickets like the 649, Super 7, Pick 3 or POGO?	01	GO TO Q20
Instant win or scratch tickets like break open, pull tab, or Nevada Strips?	02	GO TO Q20
Raffles or fundraising tickets?	03	GO TO Q20
Horse races (i.e. live at race track or off track)?	04	GO TO Q20
Bingo?	05	GO TO Q20
Coin slot machines or video lottery terminals?	06	
Games other than slot machines in a casino such as poker, blackjack, roulette or keno?	07	GO TO Q20
Sport Select (e.g. Pro Line, Over/Under, Point Spread)?	08	GO TO Q20
Sport pools or the outcome of sporting events?	09	GO TO Q20
Cards or board games anywhere other than at casinos (at home, friend's homes, work, card rooms, etc.)?	10	GO TO Q20
Games of skill such as pool, bowling or darts?	11	GO TO Q20
Arcade or video games?	12	GO TO Q20
Internet?	13	GO TO Q20
Sports with a bookie?	14	GO TO Q20
Short-term speculative stock or commodity purchases such as day trading, not including long-term investments such as mutual funds or RRSPs?	15	GO TO Q20
Casinos out of province (e.g. Las Vegas or Atlantic City or casinos in other Canadian provinces)?	16	GO TO Q20
Don't know	17	GO TO Q20
Refused	18	GO TO Q20

Q19a **IF COIN SLOT MACHINES OR VLTs THEN ASK:** What game do you prefer?

Q20 On average, how many hours or minutes do you normally spend each month on all of these gambling activities? Please give the total amount of time spent on gambling in an average month. **IF ONLY MINUTES, ENTER 0 FOR HOURS.**

Hours _____
Minutes _____

Don't know4
Refused5

Q21 Whom do you gamble with? (**DO NOT READ**)

Alone.....1
Friends.....2
Family3
Other (please specify)4

DO NOT READ

Don't know5
Refused6

Some of the next questions may not apply to you, but please try to be as accurate as possible. Thinking about the last 12 months, would you say you never, sometimes, most of the time or almost always ... **ROTATE.**

		Never	Some- times	Most of the time	Almost always	DK	REF
Q22	Bet more than you could really afford to lose?	1	2	3	4	5	6
Q23	Need to gamble with larger amounts of money to get the same feeling of excitement?	1	2	3	4	5	6
Q24	Go back another day to try to win back the money you lost?	1	2	3	4	5	6
Q25	Borrow money or sold anything to get money to gamble?	1	2	3	4	5	6
Q26	Feel that you might have a problem with gambling?	1	2	3	4	5	6
Q27	Feel gambling has caused you any health problems, including stress or anxiety?	1	2	3	4	5	6
Q28	Have people criticizing your betting or telling you that you have a gambling problem, regardless of whether or not you think it is true?	1	2	3	4	5	6
Q29	Feel your gambling has caused financial problems for you or your household?	1	2	3	4	5	6
Q30	Feel guilty about the way you gamble or what happens when you gamble?	1	2	3	4	5	6

Q31 Was there a specific event that was related to you taking up gambling on a regular basis?

Yes	1	
No.....	2	GOTO Q32
Don't gamble on a regular basis	3	GOTO Q32
DO NOT READ		
.....		
Don't know	4	GOTO Q32
Refused	5	GOTO Q32

Q31a What was the event?

More gambling opportunities.....	1
Something to do with friends.....	2
Retirement.....	3
Loss of a spouse	4
Other (please specify)	5
DO NOT READ	
Don't know	6
Refused	7

Q32 In the past year, have you lost interest in hobbies or activities you used to enjoy as a result of gambling?

Yes	1	
No.....	2	GOTO Q33
DO NOT READ		
Don't know	3	GOTO Q33
Refused	4	GOTO Q33

Q32a If yes, what are some of the activities that you lost interest in? (please specify)

Q33 In the past 12 months, have you had any concerns regarding the impact gambling has on your life?

Yes	1	
No.....	2	GOTO Q34
DO NOT READ		
Don't know	3	GOTO Q34
Refused	4	GOTO Q34

Q33a What are those concerns? **DO NOT READ**

Financial—depleting savings, borrowing money, in debt ...	1
Relationships—quality with family and friends	2
Feeling depressed, anxious, stressed.....	3
Decrease in health	4
Other (please specify)	5
<hr/>	
Don't know	6
Refused	7

Q33b How long have you had these concerns?

Less than 1 year	1
1-5 years.....	2
Over 5 years	3
DO NOT READ	
Don't know	4
Refused	5

Q33c What happened for you to become concerned about your gambling? What was your turning point?

Using up savings	1
Owing money to others	2
Going in debt	3
Problems at work	4
Family or friends express concern	5
Spending a lot of time gambling	6
Relationships with friends or family start to deteriorate	7
Other (please specify)	8

DO NOT READ

Don't know	9
Refused	10

Q33d Have you shared these concerns with anyone?

Yes	1
No	2
Refused	3

GOTO Q33F
GOTO Q34

Q33e Who did you share these concerns with? (check all that apply)

Spouse	1
Other family member (specify).....	2
<hr/>	
Friend	3
Physician	4
Other health professional	5
Clergy.....	6
Other (please specify)	7
<hr/>	
Refused	8

Q33f Why did you not share your concerns with someone?

Shame, humiliation	1
Didn't want to burden them with my problems	2
Fear loss of independence	3
Didn't think that they could handle/deal with it	4
Felt that I could handle it myself	5
Other (please specify)	6

DO NOT READ

Don't know	7
Refused	8

Q34 Have you ever tried to stop or reduce your gambling?

Yes	1
No.....	2
Refused	3

GOTO Q37
GOTO Q37

- Q35 What did you do to try and stop or reduce your gambling?
- | | | |
|--|---|--|
| Sought outside help from counselor, psychologist | 1 | |
| Limited access to money..... | 2 | |
| Increased other activities..... | 3 | |
| Other (please specify) | 4 | |
| <hr/> | | |
| Refused | 5 | |
- Q36 Did it work?
- | | | |
|---------------|---|------------------|
| Yes | 1 | |
| No..... | 2 | GOTO Q36B |
| Refused | 3 | GOTO Q37 |
- Q36a If yes, why were you successful?
- _____
- _____
- Q36b If no, why do you think you were not successful?
- _____
- _____
- Q37 Is there a specific type of gambling activity that is causing problems for you?
- | | | |
|------------------|---|------------------|
| Yes | 1 | |
| No..... | 2 | GO TO Q38 |
| Don't know | 3 | GO TO Q38 |
| Refused | 4 | GO TO Q38 |
- Q37a What activity or activities cause you problems? (**CIRCLE ALL THAT APPLY**)
- | | | |
|------------------------------|---|------------------|
| VLTs/Slots | 1 | |
| Bingo..... | 2 | |
| Lottery/scratch tickets..... | 3 | |
| Horseraces..... | 4 | |
| Casino table games | 5 | |
| Speculative investments..... | 6 | |
| Other (please specify) | 7 | |
| <hr/> | | |
| Don't know | 8 | GO TO Q38 |
| Refused | 9 | GO TO Q38 |

Q37b How long have you been gambling on this activity (months) **(IF ONLY MONTHS, ENTER 0 FOR YEARS)**

	Years	Months	DK	Ref
VLTs/Slots			98	99
Bingo			98	99
Lottery/scratch tickets			98	99
Horseraces			98	99
Casino table games			98	99
Speculative investments			98	99

Q37c What are the reasons that brought you to start gambling on this activity?

Q37d What benefits do you receive from gambling on this activity?

AFFECTED QUESTIONS

Q38 Have you ever experienced problems from someone else’s gambling?

- Yes1
- No2 **GO TO Q60**
- Don’t know3 **GO TO Q60**
- Refused4 **GO TO Q60**

Q39 How long have you experienced problems from this person’s gambling? **(IF ONLY MONTHS, ENTER 0 FOR YEARS)**

- _____ Years
- or
- _____ months
- Don’t know98
- Refused99

Please tell me whether you have ever had to help this person out in any of the following ways because of their gambling problem.

	YES	NO	Don’t Know	Refused
Q40 Financial support such as lending or giving them money	1	2	3	4
Q41 Providing them with emotional support	1	2	3	4
Q42 Providing them with a place to stay	1	2	3	4
Q43 Looking after their children	1	2	3	4
Q44 Covering up their gambling	1	2	3	4

Q45 Have you had to help them in any other ways not mentioned? **PROBE**

Can you please tell me whether you have ever experienced any of the following because of this person's gambling. Have you ever **ROTATE**

		Yes	No	Don't know	Refused
Q47	Been threatened by this person	1	2	3	4
Q48	Had your money or credit cards stolen or used without permission	1	2	3	4
Q49	Had other valuables taken or sold	1	2	3	4
Q50	Been pushed, hit, or physically abused in any way	1	2	3	4
Q51	Had loans not paid back	1	2	3	4
Q52	Manipulated into lending money	1	2	3	4
Q53	Been neglected/abandoned	1	2	3	4

Q54 Have you experienced any other negative impacts not mentioned? **PROBE**

Q55 Can you please tell me the gender of the person with the gambling problem?

- Male1
 Female.....2
 Refused3

Q56 What is the age of this person?

- Under 20.....1
 20-292
 30-393
 40-494
 50-595
 60-696
 70+7
 Refused8

Q57 What is this person's relationship to you? They are your:

- Spouse1
 Child.....2
 Sibling.....3
 Grandchild.....4
 Parent5
 Other relative6
 Friend7
 Refused8

Q58 Do you know what type of gambling is causing problems for this person? (check all that apply)

VLTs/Slots	1
Bingo.....	2
Lottery/scratch tickets.....	3
Horseraces.....	4
Casino table games	5
Speculative investments.....	6
Other (please specify)	7

DO NOT READ

Don't know	8
Refused	9

Q59 Have you ever tried to receive help for yourself?

Yes	1	
No.....	2	GO TO Q60
Don't know	3	GO TO Q60
Refused	4	GO TO Q60

Q59a What did you do?

DSM-IV QUESTIONS

Now I would like to ask you a few questions about your personality.

Q60 Have you ever felt detached from your surroundings while gambling, as though in a trance?

Yes	1
No.....	2
Don't know	3
Refused	4

Q61 Do you take a lot of risks in life?

Yes	1
No.....	2
Don't know	3
Refused	4

Q62 Do you see money as the solution to almost all your problems?

Yes	1
No.....	2
Don't know	3
Refused	4

Q63 Would you describe yourself as a "big spender"?

Yes1
 No.....2
 Don't know3
 Refused4

Q64 Would you describe yourself as a competitive person?

Yes1
 No.....2
 Don't know3
 Refused4

Q65 Would you say that in general you are easily bored?

Yes1
 No.....2
 Don't know3
 Refused4

Q66 Have you ever been seen by a mental health professional for any psychological problems?

Yes1
 No.....2 **GO TO Q68**
 Don't know3 **GO TO Q68**
 Refused4 **GO TO Q68**

Q67 What type of problem did you have? **PROBE**

DISTRESS INDEX ITEMS

Now, I would like to ask you a few questions about how you have been feeling in the past month. During the past 30 days, how often did you.....? Did you often, sometimes, rarely or never feel that way? **ROTATE**

		Often	Some- times	Rarely	Never	DK	Refused
Q68	Feel "trapped" or "caught"?	1	2	3	4	5	6
Q69	Feel suddenly scared for no reason?	1	2	3	4	5	6
Q70	Blame yourself for things?	1	2	3	4	5	6
Q71	Feel lonely?	1	2	3	4	5	6
Q72	Feel blue?	1	2	3	4	5	6
Q73	Worry too much about things?	1	2	3	4	5	6
Q74	Feel no interest in things?	1	2	3	4	5	6
Q75	Feel frightened?	1	2	3	4	5	6
Q76	Feel hopeless about the future?	1	2	3	4	5	6
Q77	Have trouble concentrating?	1	2	3	4	5	6

		Often	Some- times	Rarely	Never	DK	Refused
Q78	Feel tense or keyed up?	1	2	3	4	5	6
Q79	Feel everything was an effort?	1	2	3	4	5	6
Q80	Feel worthless?	1	2	3	4	5	6
Q81	Feel exhausted for no good reason?	1	2	3	4	5	6

Q82 Do you ever gamble as a way of escaping from problems in life or as a way of getting rid of unpleasant feelings?

- Never.....1
 Yes, at some time in my life2
 Yes, in the past year.....3
 Yes, in the past month.....4
DO NOT READ
 Don't know5
 Refused6

MOOD EPISODES

Now I am going to ask you some questions about your mood. At some time over the last 12 months.....

Q83 Has there been a period of time when you were feeling depressed or down most of the day nearly every day?

- Yes1
 No.....2 **GO TO Q84**
 Don't know3 **GO TO Q84**
 Refused4 **GO TO Q84**

Q83a Did it last as long as two weeks?

- Yes1
 No.....2
 Don't know3
 Refused4

Q84 What about losing interest or pleasure in things you usually enjoyed?

- Yes1
 No.....2 **GO TO Q85**
 Don't know3 **GO TO Q85**
 Refused4 **GO TO Q85**

Q84a Was it nearly every day?

- Yes1
 No.....2
 Don't know3
 Refused4

Q84b Did it last as long as two weeks?

- Yes1
 No.....2
 Don't know3
 Refused4

Q84c Have you stopped doing anything you used to do?

- Yes1
 No.....2 **GO TO Q85**
 Don't know3 **GO TO Q85**
 Refused4 **GO TO Q85**

Q84d Why? **PROBE**

MSPSS---SOCIAL SUPPORT

Now I would like to ask you a number of questions about the different people in your life. Please indicate on a scale from 1 to 7, where 1 means very strongly disagree and 7 means very strongly agree, how much you agree with the following statements. **ROTATE**

	Very Strongly Disagree				Very Strongly Agree				DK	Ref
Q85	1	2	3	4	5	6	7	8	9	
	There is a special person who is around when I am in need.									
Q86	1	2	3	4	5	6	7	8	9	
	There is a special person with whom I can share my joys and sorrows.									
Q87	1	2	3	4	5	6	7	8	9	
	My family really tries to help me.									
Q88	1	2	3	4	5	6	7	8	9	
	I get the emotional help and support I need from my family.									
Q89	1	2	3	4	5	6	7	8	9	
	I have a special person who is a real source of comfort to me.									
Q90	1	2	3	4	5	6	7	8	9	
	My friends really try to help me.									
Q91	1	2	3	4	5	6	7	8	9	
	I can count on my friends when things go wrong.									
Q92	1	2	3	4	5	6	7	8	9	
	I can talk about my problems with my family.									
Q93	1	2	3	4	5	6	7	8	9	
	I have friends with whom I can share my joys and sorrows.									
Q94	1	2	3	4	5	6	7	8	9	
	There is a special person in my life who cares about my feelings									
Q95	1	2	3	4	5	6	7	8	9	
	My family is willing to help me make decisions									
Q96	1	2	3	4	5	6	7	8	9	
	I can talk about my problems with my friends									

REVISED UCLA LONELINESS SCALE

Next, please indicate if you never, rarely, sometimes or often feel the way described in each of the following statements. **ROTATE**

		NEVER	RARELY	SOMETIMES	OFTEN	DK	REF
Q97	I feel in tune with the people around me	1	2	3	4	5	6
Q98	I lack companionship	1	2	3	4	5	6
Q99	There is no one I can turn to	1	2	3	4	5	6
Q100	I do not feel alone	1	2	3	4	5	6
Q101	I feel part of a group of friends	1	2	3	4	5	6
Q102	I have a lot in common with the people around me	1	2	3	4	5	6
Q103	I am no longer close to anyone	1	2	3	4	5	6
Q104	My interests and ideas are not shared by those around me	1	2	3	4	5	6
Q105	I am an outgoing person	1	2	3	4	5	6
Q106	There are people I feel close to	1	2	3	4	5	6
Q107	I feel left out	1	2	3	4	5	6
Q108	My social relationships are superficial	1	2	3	4	5	6
Q109	No one really knows me well	1	2	3	4	5	6
Q110	I feel isolated from others	1	2	3	4	5	6
Q111	I can find companionship when I want it	1	2	3	4	5	6
Q112	There are people who really understand me	1	2	3	4	5	6
Q113	I am unhappy being so withdrawn	1	2	3	4	5	6
Q114	People are around me but not with me	1	2	3	4	5	6
Q115	There are people I can talk to	1	2	3	4	5	6
Q116	There are people I can turn to	1	2	3	4	5	6

Q117 Currently are you married, living with a partner, widowed, divorced, separated or have you never been married?

- Married (incl widowed and divorced who remarried)1
- Living with a partner.....2
- Widowed (not remarried).....3
- Divorced or separated (not remarried).....4
- Single, never married5
- DO NOT READ**
- Don't know6
- Refused7

LEI—Life Events

Next I would like to ask you a few questions about various events that may have happened to you in the past year. Please indicate which of the following events have happened to you in the past year? **ROTATE**

		No	Yes	DK	REF
Q118	Unemployment (of head of household)	1	2	3	4
Q119	Trouble with superiors at work	1	2	3	4
Q120	New job in same line of work	1	2	3	4
Q121	New job in new line of work	1	2	3	4
Q122	Change in hours or conditions in present job	1	2	3	4
Q123	Promotion or change of responsibilities at work	1	2	3	4
Q124	Retirement	1	2	3	4
Q125	Moving house	1	2	3	4
Q126	Purchasing own house (taking out mortgage)	1	2	3	4
Q127	New neighbors	1	2	3	4
Q128	Quarrel with neighbors	1	2	3	4
Q129	Income increased substantially (25%)	1	2	3	4
Q130	Income decreased substantially (25%)	1	2	3	4
Q131	Getting into debt beyond means of repayment	1	2	3	4
Q132	Going on holiday	1	2	3	4
Q133	Conviction for minor violation (e.g. speeding or drunkenness)	1	2	3	4
Q134	Jail sentence	1	2	3	4
Q135	Involvement in fight	1	2	3	4
Q136	Immediate family member starts drinking heavily	1	2	3	4
Q137	Immediate family member attempts suicide	1	2	3	4
Q138	Immediate family member sent to prison	1	2	3	4
Q139	Death of immediate family member	1	2	3	4
Q140	Death of close friend	1	2	3	4
Q141	Immediate family member seriously ill	1	2	3	4
Q142	Gain of new family member (immediate)	1	2	3	4
Q143	Problems related to alcohol or drugs	1	2	3	4
Q144	Serious restriction of social life	1	2	3	4
Q145	Period of homelessness (hostel or sleeping rough)	1	2	3	4
Q146	Serious physical illness or injury requiring hospital treatment	1	2	3	4
Q147	Prolonged ill health requiring treatment by own doctor	1	2	3	4
Q148	Sudden and serious impairment of vision or hearing	1	2	3	4
Q149	Unwanted pregnancy	1	2	3	4
Q150	Miscarriage	1	2	3	4

		No	Yes	DK	REF
Q151	Abortion	1	2	3	4
Q152	Sex difficulties	1	2	3	4
MARRIED ONLY / LIVING WITH PARTNER (1 or 2 on Q 117)					
Q153	Marriage / Began living with partner	1	2	3	4
Q154	Pregnancy (own or of wife/partner)	1	2	3	4
Q155	Increase in number of arguments with spouse/partner	1	2	3	4
Q156	Increase in number of arguments with other immediate family members (e.g. children)	1	2	3	4
Q157	Trouble with other relatives (e.g. in-laws)	1	2	3	4
Q158	Son or daughter left home	1	2	3	4
Q159	Children in care of others	1	2	3	4
Q160	Trouble or behaviour problems in own children	1	2	3	4
Q161	Death of spouse/partner	1	2	3	4
Q162	Divorce	1	2	3	4
Q163	Marital separation	1	2	3	4
Q164	Sexual affair outside of your primary relationship	1	2	3	4
Q165	Break up of affair	1	2	3	4
Q166	Infidelity of spouse/partner	1	2	3	4
Q167	Marital /relationship reconciliation	1	2	3	4
Q168	Spouse/partner begins or stops work	1	2	3	4
SINGLE OR NEVER MARRIED ONLY (5 ON Q117)					
Q169	Break up with steady boy or girl friend	1	2	3	4
Q170	Problems related to sexual relationship	1	2	3	4
Q171	Increase in number of family arguments (e.g. with parents)	1	2	3	4
Q172	Break up of family	1	2	3	4

DEMOGRAPHICS

Finally, we would like to ask you some basic demographic questions. Like all your other answers, this information will be kept strictly confidential.

Z1	What is your age? ENTER THE AGE OF RESPONDENT	
	_____1	
	DO NOT READ2	
	Don't know3	
	Refused4	

Z2 What is your present job status? Are you employed full time, employed part time, unemployed, a student, retired or a homemaker? **IF RESPONDENT GIVES MORE**

THAN ONE ANSWER, RECORD THE ONE THAT APPEARS FIRST ON THE LIST.

Employed full time (30 or more hrs/wk)	1
Employed part time (less than 30 hrs/wk)	2
Unemployed	3
Student—employed part or full time	4
Student—not employed	5
Retired.....	6
Homemaker.....	7
Other (specify)	8
DO NOT READ	
Don't know	9
Refused	10

Z3 Could you please tell me how much income you and other members of your household received last year? Please include income from all sources such as savings, pensions, rent and employment insurance as well as wages. We don't need the exact amount: could you tell me which of these broad categories it falls into?

Less than \$20,000	1
Less than \$30,000	2
Less than \$40,000	3
Less than \$50,000	4
Less than \$60,000	5
Less than \$70,000	6
Less than \$80,000	7
Less than \$90,000	8
Less than \$100,000	9
Less than \$120,000	10
Less than \$150,000	11
\$150,000 or more	12
DO NOT READ	
Don't know/Refused	13

Z4 Can I just confirm that the first three digits of your postal code are ____ ____ ____

Z5 Finally, upon completion of this project would you like the Responsible Gambling Council to mail (or e-mail) you a summary of the research results?

Yes	1	GO TO
Z6		
No.....	2	GO TO
END		

Z6 If yes, can you please provide us with you mailing (or e-mail) address?

Do not put person's address with their results. Have a separate sheet that contains this information.

I'd like to thank you for taking the time to participate in this survey. One last thing, we are providing all individuals participating in this study with the numbers to counseling services, information about a toll free gambling help line, and the number to the Depression and Anxiety Information Resource and Education Centre (DIRECT). This is a standard practice with research that asks questions of sensitive nature.

Would you like me to give you these numbers?

Appendix C*

In order to examine the possible impact of regression towards the mean, a simulated data set was created consisting of an underlying true CPGI category score (scores of 1 – no problem to 4 – severe problem) and then created two estimates of that underlying CPGI score by adding a random error component to the original CPGI. The distributions were designed to closely mimic the skewness of the CPGI and the reliability of the CPGI.

The table below presents the results of the simulated data, the results from the real CPGI data and finally a list of the differences between the two. The CPGI data was derived from figures 4.1 to 4.4.

Table C1: the result of the simulated data, the results from the real CPGI data and a list of the differences between the two.						
CPGI at time 2						
Simulated Data	0	1	2	3	4	
CPGI at time 1	1	12.60%	74.80%	11.30%	1.40%	
	2	3.90%	56.90%	28.10%	8.80%	2.30%
	3		20.20%	35.20%	27.40%	17.20%
	4		1.70%	14.20%	37.40%	46.60%
Real Data	0	1	2	3	4	
CPGI at time 1	1	4.30%	84.80%	10.40%	0.50%	0%
	2	5.50%	53.50%	27.90%	11.50%	1.80%
	3	1.60%	26.20%	37.70%	26.20%	8.20%
	4			20%		80%
Differences between real and simulated data	0	1	2	3	4	
CPGI at time 1	1	8.30%	-10.00%	0.90%	0.90%	
	2	-1.60%	3.40%	0.20%	-2.70%	0.50%
	3	-1.60%	-6.00%	-2.50%	1.20%	9.00%
	4		1.70%	-5.80%	37.40%	-33.40%

There are some notable discrepancies between the real and the simulated data. First, more people that were non-problem gamblers (a score of zero on the CPGI) stayed at that level than is expected given the reliability of the measure. Regression to the mean would have predicted more upward movement for that

group. Second, most of the severe problem gamblers from time 1 remained severe problem gamblers at time 2. Regression to the mean would have predicted that most of these extreme scores would have regressed downwards. However, we must keep in mind the very small sample size of the time 1 CPGI data. Third, there also appears to be more movement downwards, and less movement upwards for people that score 3 on the CPGI than would be expected by regression towards the mean.

It is likely that movement to and from severe levels of problem gambling are not simply a matter of random shift. While no psychometric assessment is error free, it is unlikely that a person would score in the severe range of problem gambling simply by chance. Likewise movement to more severe levels would require more than just random shift.

It is also important to consider that it is more important to determine what predicts shift. Random shift is unlikely to be systematically related to other variables. However, this possibility cannot be ruled out meaning that it is particularly important to replicate the findings.

* Simulations conducted by Dr. Nigel Turner, Centre for Addiction and Mental Health.