

The Dynamics of Control: Exploring Sense of Control,
Illusion of Control, and Gambling Self-Efficacy among
Frequent Gamblers

by

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Abstract

Purpose: This study examines how three types of control – sense of control, illusion of control, and gambling self-efficacy – clarify the relationship between frequent gambling and gambling-related harm. Its objectives are to examine 1) how the three types of control are understood and experienced by the individual, 2) how the types of control link with each other, and 3) how the types of control help explain differences in gambling-related problems. Rationale: Central to this research is the argument that mental health and behavioural addiction theory should be integrated in order to offer a more complete understanding of health and illness. This research bridges the divide by creating and evaluating a new theoretical model. The Dynamics of Control Model incorporates types of control and relationships from the Stress Process Model of mental health and the Integrated Pathways Model of problem gambling. This study focuses on control because it is a central concept in both addiction research and the sociological study of mental health. Methods: Mixed methods are used in this research. Thirty in-depth interviews were conducted with frequent gamblers from Simcoe County, Ontario who play games of skill or chance once a week or more. These data are supplemented with secondary analysis of the 2002 Canadian Community Health Survey, a large nationally representative survey on mental health. Results: Sense of control and gambling self-efficacy help explain the relationship between gambling

frequency and problem gambling severity. Frequent gambling is accompanied by little harm when the individual has high sense of control and high gambling self-efficacy. Illusion of control does not play a role in explaining problem gambling severity but is best predicted by type of game. All three types of control are more complex than described in the literature, with internal variations, thresholds of effectiveness, and conceptual limitations. Implications: This study's findings stimulate discussion on low-risk gambling behaviours and the use of categorical diagnoses. The results support future collaborations between mental health and behavioural addictions research, and increased use of the sociological perspective to examine problem gambling. The study concludes by suggesting ways of improving the conceptualization, measurement, and study of control.

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Chapter 1

Introduction

Frequent gambling is a risky behaviour. People who place wagers once a week or more are more likely to experience harm or problems as a result of their gambling (Currie, Hodgins, Wang, el-Guebaly, Wynne, and Chen 2006; Currie, Hodgins, Wang, el-Guebaly, Wynne, and Miller 2008). Why does this happen? There are reasons to believe that it is an issue of control. After all, addiction – as indicated by meeting a certain threshold of problems – is typically about a loss of control. Consider the definition of problem gambling: “‘persistent and recurrent maladaptive gambling behaviour’ characterized by *an inability to control gambling*, leading to significant deleterious psychosocial consequences: personal, familial, financial, professional and legal” (Blaszczynski and Nower 2002: 487; emphasis added). In this description, problems are experienced because the individual has lost control of their gambling. This same reasoning can be applied to the relationship between frequent gambling and gambling-related harm.

Gamblers have different types or levels of control. At the most general level, there is sense of control, the “learned generalized expectation that outcomes are contingent on one’s own choices and actions” (Mirowsky and Ross 2003: 174). Sense of control is an important concept in mental health research. In fact, some argue that it is a main link between social status and mental health (Mirowsky and Ross 2003). At a lower level are two types of control specific to gambling. Illusion of control is “the belief that one can increase the probability of winning, and the belief that the probability of a win, having been increased, is greater than it really is” (Goodie 2005: 482). Gambling self-efficacy is “an individual’s belief as to whether or not they could resist an opportunity to gamble in a given situation” (Casey, Oei, Melville, Bourke, and Newcombe 2008: 230). While sense of control and illusion of control are about outcomes, gambling self-efficacy is about behaviours.

If gambling problems are the result of a loss of control, what *type* of control is missing? The definition of problem gambling suggests that a lack of gambling self-efficacy would explain why frequent gamblers experience more gambling-related problems. What about sense of control and illusion of control? If sense of control is so crucial for understanding mental health,

could a low level of this type of control not lead to gambling-related problems? Another possibility is that too much control leads to problems. Feeling that the odds of winning are in your favour is a strong encouragement to keep betting in the face of multiple losses. So experiencing harm from gambling might actually be the result of a combination of different types and degrees of control. Despite this reasoning, theory and research have not focused on how general and gambling-specific types of control work together.

In light of this puzzle, this study asks the following question: What are the dynamics of control among frequent gamblers? In order to answer this question, the current research builds on problem gambling literature's focus on illusion of control and gambling self-efficacy. In expanding this work, this study's main objectives are to 1) discover how the three types of control are understood and experienced by the individual, 2) look into how these three types of control correspond to each other, and 3) explore how the types of control improve the understanding of differences in gambling-related problems.

This study answers its central research question by addressing these three objectives in turn. Research on the three types of control in relation to problem gambling is lacking in several areas, as will be outlined in the next chapter. The implication of the limited literature is that research must start at the most basic level in order to accurately examine the dynamics of control. Of the research that exists on these three types of control among gamblers, very few studies are qualitative. For this reason, researchers cannot be sure that the types of control mean what they think they do to individuals. This is why the current research begins by focusing on how frequent gamblers understand and experience the types of control. The logical step from here is to see how the three types of control are related to each other. Research on this topic is also limited and there are several possibilities. The types of control may relate to each other in ways that are consistent with how they are related to problem gambling. However, there is also the possibility that control is overarching, in that feeling in control over one domain translates into control over all domains. The final step in the process is to see how the types of control and their correspondence with each other relate to the problems experienced from frequent

gambling. In order to accomplish this task, this study creates and explores a new theoretical framework called the Dynamics of Control Model.

This study's aim is to provide a narrative describing the lives of frequent gamblers. This research questions and specifies the nature of key concepts in the mental health and problem gambling fields, namely the three types of control. It seeks to move research forward and stimulate discussion on topics like the definition of problem gambling, the importance of gambling behaviours, and the role of control. Qualitative interviewing is a method well suited to these goals. To answer the central research question, information was collected from 30 frequent gamblers living in Simcoe County, Ontario using a closed-ended questionnaire and in-depth interviews. The questionnaire used standard measures for key concepts like sense of control, illusion of control, gambling self-efficacy, and problem gambling symptoms. The in-depth interview gained a deeper understanding of how individuals see their lives and understand the role of these types of control.

1 A Note on Problem Gambling

Problem gambling is a diagnosis, a category, a status. Regardless of the particular measure used, there is a cut point after which an individual is considered a problem gambler. Take the Canadian Problem Gambling Index (CPGI) for example. Nine items of the CPGI make up the Problem Gambling Severity Index. This index is a measure of problem gambling symptoms. Each item has available responses of Never (0), Sometimes (1), Most of the time (2) and Almost Always (3). Responses across the nine questions are summed to create a problem gambling severity score that ranges between zero and 27. A score of zero indicates non-problem gambling, one or two represents a low level of problems, three to seven indicates moderate problems, and eight or more represents problem gambling (Ferris and Wynne 2001a; 2001b). So using the CPGI, an individual is labeled a problem gambler if she or he scores above seven. Most gambling research and theory conceptualizes problem gambling in this way – as a dichotomy. That is, people are classified as either a ‘problem gambler’ or a ‘non-problem gambler’.

Researchers who study gambling have begun to take issue with this approach. They argue that this dichotomy is inappropriate because it prevents research from looking at the predictors and health impacts of all levels of gambling behaviour (Blaszczynski 2009; Petry 2009). To resolve this issue, they believe research should study the causes and consequences of levels of gambling behaviour and not problem gambling status (Rodgers, Caldwell, and Butterworth 2009).

These arguments are part of a larger movement in the sociological study of mental health more generally. Some researchers in this area make similar arguments, arguing that crude dichotomies may fail to measure important differences in symptoms in each category and may cause researchers to overlook the experiences of those who do not meet the criteria for diagnosis (Mirowsky and Ross 2002; Nelson, Gebauer, LaBrie, and Shaffer 2009). Most importantly, some sociologists argue that diagnoses are inappropriate because mental health does not display itself categorically, so it should not be measured in this way (Kessler 2002; Mirowsky and Ross 2002). To remedy this problem, mental health researchers study symptoms over diagnosis (Mirowsky and Ross 1989a).

A related issue is the assumption that certain gambling behaviours are inherently problematic. The actual relationships between gambling behaviours and gambling problems are rarely examined (Rodgers et al. 2009; Petry 2009). Instead, actions that seem to reflect a loss of control are assumed to be a problem: frequent gambling, spending lots of money, investing considerable time. This is because a loss of control has long been considered one of the defining features of addiction (Reith 2004; Sussman and Sussman 2011). The term addiction is applied to the individual's behaviour because it is assumed that they have lost control of their actions, typically the use of a substance (Akers 1991).

Traditionally, addiction was defined not by behaviours but by physiological changes or dependence: withdrawal and tolerance (Akers 1991; Goodman 2008). However, in order to capture substances that were viewed as social problems but not accompanied by physical dependence, *psychological* dependence was incorporated into the definition of addiction (Akers 1991). Psychological dependence is more mental than physical and involves craving and compulsive use (Akers 1991). Presently, physiological dependence is not necessary or sufficient

to indicate addiction (Akers 1991; Goodman 2008). Instead, emphasis is placed on ones inability to manage behaviours: the loss of control, continued use despite harm, high involvement or failed attempts to quit (Centre for Addiction and Mental Health 2010). In line with this trend, the DSM-5 removed the distinction between abuse (psychological dependence) and dependence (physiological dependence) that was present in earlier versions (American Psychiatric Association [APA] 2013a). Further, the most recent edition of the DSM also added craving or a strong desire to use the substance to the criteria for substance use disorder (APA 2013a).

Changes to the definition of addiction and to the DSM made room for problem gambling to be considered an addiction. In the DSM-5, problem gambling has been renamed gambling disorder and has been reclassified from an impulse control disorder to the only behavioural addiction in the substance-related and addictive disorders section (APA 2013b). Behavioural addictions are “syndromes analogous to substance addiction, but with a behavioral focus other than ingestion of a psychoactive substance” (Grant, Potenza, Weinstein, and Gorelick 2010). Gambling disorder is now placed with substance disorders because “gambling disorder is similar to substance-related disorders in clinical expression, brain origin, comorbidity, physiology, and treatment” (APA 2013b). In the DSM-5, criteria for gambling disorder include tolerance, withdrawal and loss of control, among others (APA 2013a). The assumption that certain behaviours are problematic is built into the definition of gambling disorder: “Persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress” (APA 2013a: section 312.31). In order to situate problem gambling within the definition of addiction, research must specifically examine the relationships between gambling behaviours, psychological and physiological dependence, and problem gambling symptoms.

To address the concerns of problem gambling researchers, the current study focuses on frequent gamblers and not problem gamblers, though problem gamblers are included in the sample. As mentioned above, frequent gamblers are a relevant group for study because they experience more harm as a result of their gambling. Compared to infrequent gamblers, frequent gamblers more often meet the threshold for problem gambling, have lower global physical and mental health scores, and experience more mental health disorders (Marshall and Wynne 2003;

Morasco, Pietrzak Blanco, Grant, Hasin, and Petry 2006; Petry and Weinstock 2007). Despite its association with problem gambling, gambling frequency is not a direct measure of the problems associated with gambling, unlike other behaviours such as amount of time or money spent. Of relevance for the central research question, frequent gamblers are also likely to have an interesting mix of the three types of control examined here. As suggested by past research, frequent gamblers may experience low sense of control, high illusion of control, and low gambling self-efficacy (Ladouceur, Sylvain, Boutin, Lachance, Doucet, and Leblond 2003; Kallmen, Anderson, and Andren 2008; Meyer de Stadelhofen, Aufrere, Besson, and Rossier 2009).

To further address the issue of diagnosis, this study does not focus on problem gambling as an outcome. Instead of exploring how the three forms of control are linked to problem gambling status, the current research looks at how the types of control are related to problem gambling severity – the degree of gambling problems or symptoms. By using this approach, this study examines the gambling-related harms experienced by all of those who gamble frequently and not simply those who meet the criteria for problem gambling.

Finally, to address the assumptions about addiction, this study focuses on the link between gambling frequency and problem gambling symptoms. Particular attention is paid to results and examples that contradict widely held assumptions about the link between behaviours and problems. The current research does not examine the associations between gambling frequency, psychological or physiological dependence, and gambling problems. Items included in this research that tap into tolerance and withdrawal are all self-report and perceptual. Self-report measures for tolerance among gamblers seem to actually capture increased betting because of cognitive motivations or illusion of control instead of increased excitement (Blaszczynski, Walker, Sharpe, and Nower 2008). Further, self-report measures of withdrawal cannot distinguish between withdrawal from gambling per se and withdrawal from gambling as an avoidant coping strategy (Ibid).

2 Contributions

The main motivations behind this research are three-fold. First, this study focuses on the concept of control. It narrows in on this concept and uncovers its meaning. Control is an important element of addiction, problem gambling, gambling behaviours, and mental health. Because control is widely applicable and relevant, this research hones in on what it really means, how this changes depending on the particular type of control, and how the impact of control changes across types. By focusing on control using qualitative methods, this study is able to explore the inner workings of these concepts and how they are understood by gamblers. Through this qualitative focus, this work questions and specifies these key concepts. In doing so for gambling self-efficacy, this research offers useful information for sharpening the definition of problem gambling. Further, it broadens the understanding of sense of control's stress moderating role and how illusion of control contributes to the onset of gambling problems.

Second, this study explores the black box between gambling behaviours and gambling problems. Studies that link frequent gambling and gambling related-harm rarely explain how or why this happens. Researchers are beginning to argue for the need to look specifically at the relationships between behaviours and problems, believing that this shift in focus from looking at only problem gambling status will shed light on how risk and protective factors impact problem gambling onset (Rodgers et al. 2009). The goals here are to confirm that frequent gamblers are more likely to experience gambling-related harm and to see whether control explains why this occurs.

Third, this work aims to bridge the gap between mental health and problem gambling research. Theories and concepts used in mental health research are rarely used to look at problematic gambling. By looking at how sense of control relates to gambling-specific forms of control among frequent gamblers, this study begins to close the distance between these two fields. Collaboration between these two fields could be beneficial to both, broadening the scope of mental health research and improving the understanding of problem gambling onset.

3 Organization

In order to situate the current research, the next chapter will discuss theories about why people develop mental health disorders generally and problem gambling specifically; how the individual builds each type of control; existing research on how the three types of control are related to gambling behaviours and problems; the gap between mental health and problem gambling research; and differences by the type of game played. From this discussion, a new theoretical model is created and described. The third chapter outlines the research methods used to answer the central research question and explore the theoretical model. The collection and analysis of qualitative interviews and the secondary analysis of survey data are discussed. This chapter includes descriptions of the data sources, the sampling and recruitment procedures, the data collection tools and steps, and the data analysis.

In the following chapters, the attention shifts from the procedural details of the study to the results of the analyses. The fourth chapter describes the sample of frequent gamblers – their demographic characteristics, gambling behaviours and problems, and types and degrees of control.

Chapters five through seven use the open-ended interview responses to discuss how each type of control is experienced and understood by participants in turn: sense of control, illusion of control, and gambling self-efficacy. It is through this targeted and in-depth analysis that the meaning of each type of control is examined. Chapter eight uses the closed-ended questionnaire data, supplemented by open-ended responses and the secondary data analysis, to examine how each type of control relates to other forms and how each corresponds with gambling-related problems. Chapter nine then considers the Dynamics of Control Model in its entirety. This discussion is complemented with an analysis of the link between gambling frequency and gambling problems.

After reviewing the results, the final chapter moves on to consider the implications of the current research. Chapter 10 concludes by discussing the significance of the results, the implications for studying control and avoiding gambling-related harm, the study's limitations, and directions for future research.

Chapter 2

Mental Health, Problem Gambling, and Control

Control is an important concept in both mental health and gambling research. In the field of mental health, sense of control links social status to health outcomes (Mirowsky and Ross 2003). For gambling, issues with control are part of the development and nature of problematic gambling. Illusion of control plays a role in the onset of problem gambling, while gambling self-efficacy is part of the very definition of problem gambling (Blaszczynski and Nower 2002). Before moving forward to discuss findings for these types of control, this chapter first turns back to the large body of literature – which will be argued is actually two separate bodies of literature – that lays the foundation for this research. Researchers in both the mental health and gambling fields have outlined theories that explain the origins and influence of control. Studies have been conducted in support of these theories. However, some questions and gaps remain. It is within this context that this research is situated.

1 Control in Mental Health and Problem Gambling Theory

1.1 Sense of Control and the Stress Process Model

Sense of control (Mirowsky and Ross 1989b) is a generalized belief that outcomes in life are dependent on one's own behaviours. Sense of control is distinct from self-control, which is one's ability to manage their emotions and desires, particularly in difficult situations (Oxford Dictionaries 2013). Sense of control is a belief and is focused on outcomes, while self-control is an ability and is focused on emotions and desires. People who believe that they can shape their own life have a sense of personal control. At the other end of the continuum are people who feel powerless (Ross and Sastry 1999). These individuals do not feel that their actions influence their lives and instead feel that some other force is in control. Other forces can include luck, fate, God or the stars (Ross and Sastry 1999; Mirowsky and Ross 2003). In addition to these external forces, the effectiveness of other people's behaviours can also make the individual feel powerless (Ross and Sastry 1999; Mirowsky and Ross 2003). At its most basic level, sense of control is "the cognitive awareness of a link between efforts and outcomes" (Mirowsky and

Ross 2003: 60). In contrast, powerlessness is “the cognitive awareness of a discrepancy between one’s goals and the means to achieve them” (Mirowsky and Ross 2003: 60). Sense of control refers to beliefs about one’s own ability to control outcomes and not other people’s control over their own life events (Ross and Sastry 1999). Further, sense of control is general and not realm-specific (Ross and Sastry 1999). It covers all aspects of one’s life and not just certain areas, like family or work.

Despite its psychological undertones, sense of control is a sociological concept. It is based in objective circumstances and varies across social status. Social status is a relative and socially defined position, rank, or standing in society that reflects inequities in power and material or psychosocial resources (Aneshensel and Phelan 1999). Those with higher social statuses have higher standings in society, and more power and resources. Sense of control “reflects the real constraints and opportunities of one’s ascribed and achieved statuses. When viewed in the aggregate across groups it yields an imprint of structured inequality” (Mirowsky and Ross 2007:1343). Ascribed status is social status assigned at birth while achieved status is taken voluntarily and reflects personal ability. Sense of control is developed during a lifetime of social interactions and personal experiences (Mirowsky, Ross, and Reynolds 2000). Specifically, “success in controlling past adversities is interpreted as evidence of competence in mastering current adversities” (Pearlin and Skaff 1996: 243). In other words, the individual gains a sense of confidence from past successes at problem solving, achieving a certain goal, or sidestepping misfortune. This confidence is then carried into future experiences and used to achieve similar positive ends. Conversely, failure to control past events, resolve problems, or accomplish achievements is viewed as evidence of the lack of ability to manage current problems. Among these powerless individuals, a negative cycle forms where they “suffer more and more problems, reinforcing their perceived powerlessness and thus producing escalating passivity in the face of difficulties, and more and more distress” (Ross and Sastry 1999: 385). So past success breeds future success and past failure breeds future failure.

Sense of control is a personal resource that is unevenly distributed in the population based on social status including class, ethnicity, education and gender (Aneshensel 1992). Those of

higher statuses typically have higher sense of control, while those of lower statuses have lower sense of control. These differences exist because higher status individuals are more often able to start the cycle of successes than those of low social status. This is because they typically have other personal resources like income and education or social resources like social support at their disposal. Differences in sense of control have health implications, with sense of control being the main link between social status and mental health. Namely, those of lower social status experience poorer health because they have lower levels of sense of control (Mirowsky and Ross 2003).

It is important to point out however that powerlessness or low sense of control is not uniformly bad for one's health. Feeling powerless by attributing outcomes specifically to God behaves differently than feeling powerless by believing that events are controlled by luck or other external forces. Believing in God's control does not seem to increase or decrease distress (Ross 1990). Believing that outcomes are determined by God may provide the individual with a sense of comfort and meaning that counteracts the typically negative impact of powerlessness on health (Ross and Sastry 1999).

The Stress Process Model explains how sense of control connects social status to mental health. This sociological theory argues that certain behaviours increase exposure to stressors – the conditions that give rise to stress – which can then increase the risk for mental health problems (Aneshensel 1992; Pearlin 1999). Importantly, social and personal resources influence whether behaviours trigger stressors and whether stressors lead to poor mental health (Aneshensel 1992). Personal resources are resources that reside within the individual, such as education, income, or sense of control. Social resources are resources that reside within the group or social network, like social support. Sense of control “has the capacity to hinder, prevent, or cushion the development of the stress process and its outcomes” (Pearlin 1999: 405). Sense of control plays this moderating or buffering role in two main ways. In the first stage of this process, sense of control encourages problem solving which can prevent behaviours from leading to stressors (Turner and Roszell 1994). In the second phase, sense of control helps individuals understand the outcomes of their behaviours and influences stress appraisal, which can prevent stressors from leading to mental health issues (Ibid). More specifically, sense of control is protective

because individuals with sense of control explain negative outcomes to themselves as something they have the ability to manage or adapt to (Turner and Roszell 1994). As a result, those with sense of control appraise fewer life events as being stressful (Ibid).

So those of higher social statuses have more success with problem solving, achieving goals, and avoiding disaster. This leads to confidence in their future ability to achieve success or a high sense of control. Sense of control helps these individuals avoid stressors through problem solving. It also helps with stress appraisal, reducing the likelihood that the experience of any stressors will lead to mental health problems. Experiencing fewer stressors and more positive appraisals of stressful events lead to better mental health among those of higher social status.

1.2 Illusion of Control, Gambling Self-Efficacy, and the Integrated Pathways Model

The first type of gambling-specific control is illusion of control. Illusion of control (Langer 1975) is “an expectancy of a personal success probability inappropriately higher than the objective probability would warrant” (311). As a result of this expectation, the illusion of control also includes the belief that the odds of winning are higher than they actually are (Goodie 2005). Not specific to gambling, an illusion of control is a belief in one’s ability to determine the results of uncertain events that is inappropriately higher than the probability of the uncertain event would suggest (Langer 1975; Goodie 2005). More specifically, an illusion of control is an exaggerated belief in the causal link between behaviour and outcome (Langer 1975). As a result, people often treat chance events as somehow controllable (Ibid). In a gambling-specific context, illusion of control is “a tendency to believe that there is a greater probability of obtaining a chance-determined outcome than would be dictated solely by random chance” (Toneatto 1999: 1594). A related component of the illusion of control thought process that precedes this belief in the increased odds of winning is the belief that the odds can be increased (Goodie 2005). Both of these components from the gambling-specific definition of illusion of control match up well with the description for the general illusion of control: an exaggerated belief in the link between behaviours and (gambling) outcomes, and an inflated belief in the odds of being successful (winning).

The Integrated Pathways Model explains where illusion of control comes from and how it contributes to problematic gambling. This model is one of the most recent and comprehensive theories of problem gambling onset. The Pathways theory is innovative in that it includes a range of factors in one model. Sociological, psychological, and biological factors all have a role. By combining these various strands of research, this model makes an attempt to move beyond the problem gambler/non-problem gambler dichotomy by discussing subgroups of problem gamblers. Importantly though, this model focuses on problem gambling status instead of problem gambling symptoms or gambling behaviours.

According to the Integrated Pathways Model, all pathways to problem gambling begin with the social acceptance of gambling and the availability of gambling opportunities (Blaszczynski and Nower 2002). From here, all problem gamblers develop irrational beliefs about the odds of winning during increased involvement in gambling (Ibid). In other words, illusion of control is acquired through social learning from family and friends. According to social learning theory, people learn, imitate, and maintain behaviours that they observe, find appealing, and are reinforced among their group (Gupta and Derevensky 1997; Raylu and Oei 2002). Gambling is reinforced when individuals receive group membership or praise as rewards for participating in gambling (Raylu and Oei 2002; Haroon and Derevensky 2002). When learning how to play the game, people also learn how to think about the game. During frequent play with family and friends, individuals learn to believe that using certain techniques will increase their chances of winning (Blaszczynski and Nower 2002; Oei and Raylu 2004).

After developing an illusion of control, individuals can travel along one of three pathways to problem gambling (Blaszczynski and Nower 2002). The first pathway is taken by behaviourally conditioned problem gamblers. Among these gamblers, gambling problems originate in their illusion of control over gambling outcomes. The second pathway is followed by emotionally vulnerable problem gamblers. This group experiences both sociological and biological risk factors for problem gambling. These individuals experience problems with gambling because of stress and mental health issues experienced in childhood, and their particular neurotransmitters and alleles. The final pathway is followed by the antisocial impulsivist problem gamblers. In addition to sociological and biological risk factors, this group is at psychological risk of problem

gambling. These individuals experience problems with their gambling because they are impulsive and suffer from antisocial personality disorder and/or attention deficit disorder.

The three pathways in this integrated model show how illusion of control can lead to problematic gambling. Individuals who believe in personal skill and the ability to control the outcomes of games tend to increase their gambling participation, which often persists in the face of losses (Blaszczynski and Nower 2002). In other words, illusion of control contributes to risky gambling behaviours or impaired betting performance by leading to greater overconfidence and increased betting (Goodie 2005; Miller and Currie 2008). Illusion of control is an important component of the Integrated Pathways Model – it is one of the few risk factors that is present in all three pathways.

Gambling self-efficacy is the second type of gambling-specific control. Gambling self-efficacy (Casey et al. 2008) is confidence in one's ability to resist opportunities to gamble. The main conceptual difference between this type of control and the others is that gambling self-efficacy is about behaviours while sense of control and illusion of control are about outcomes. Although the concept of gambling self-efficacy has been used by many researchers in the past, Casey et al. (2008) was the first to explicitly define the term as “an individual's belief as to whether or not they could resist an opportunity to gamble in a given situation” (230). Gambling self-efficacy is founded on the more general concept of self-efficacy, a term which was coined by Bandura (1986). Self-efficacy is a person's belief in whether or not they can effectively carry out a certain action (Ross and Sastry 1999). Self-efficacy overlaps with sense of control and both are forms of perceived personal control (Ross and Sastry 1999). In contrast to self-efficacy, sense of control is a person's belief that the actions they perform will allow them to achieve a desired outcome (Ross and Sastry 1999). So self-efficacy is about performing actions and sense of control is about achieving outcomes. This distinction is similar to the one between illusion of control and gambling self-efficacy: illusion of control is about controlling gambling *outcomes* while gambling self-efficacy is about controlling gambling *behaviours*. A further difference between self-efficacy and sense of control is that while sense of control is general, self-efficacy is realm specific (Ross and Sastry 1999). In other words, sense of control is more broadly oriented to achieving or preventing outcomes in all areas of life. In contrast, self-efficacy is

one's more narrow belief in their ability to perform actions in a certain areas of their life (Mirowsky and Ross 2003a).

Gambling self-efficacy is like the more general self-efficacy concept in that it is realm specific: it focuses on the person's gambling behaviours. Further, gambling self-efficacy is the person's belief in whether or not they can carry out a particular action: staying away from gambling. Despite these similarities, there are some severe disconnects between self-efficacy in general and gambling self-efficacy. Because it focuses on resisting, gambling self-efficacy is more about *not* performing an action than it is about carrying out an action. In this way, gambling self-efficacy is more like self-control. 'Resisting' implies that not taking advantage of gambling opportunities is difficult. Presumably, this difficulty comes from managing emotions and desires to gamble in situations that make resisting gambling difficult. So although gambling self-efficacy is about realm-specific action like general self-efficacy, it is more about resisting engaging in certain behaviours by managing urges which more closely resembles self-control.

In creating the term gambling self-efficacy, gambling researchers seem to have begun with the general concept of self-efficacy since the concept shares its name. This may be because problem gambling is considered a behavioural addiction which makes control of behaviours of particular concern. However, elements of self-control have also been incorporated into the concept. This shift was likely due to the focus on understanding gambling problems, which are defined by a lack of self-control. The exact meaning of gambling self-efficacy is complicated because it calls a mainly self-control-based concept 'self-efficacy'. This conceptual disconnect is misleading because the name of the concept suggests it is measuring something that it is not. Though gambling self-efficacy sounds like it's about achieving gambling-related actions, it's actually about resisting gambling behaviours and managing urges. This one concept tries to do the work of two: gambling self-efficacy and gambling self-control. As will be discussed when presenting the results for gambling self-efficacy in chapter seven, this conceptual muddiness does not do justice to either type of control and leaves one or both understudied. The present study attempts to do justice to both types of control.

The Integrated Pathways Model says little about the role of gambling self-efficacy, though it outlines in detail how illusion of control is created and leads to problem gambling. At most, the definition of problem gambling used by this model is founded in part on gambling self-efficacy. Problem gambling is defined as “‘persistent and recurrent maladaptive gambling behaviour’ characterized by *an inability to control gambling*, leading to significant deleterious psychosocial consequences: personal, familial, financial, professional and legal” (Blaszczynski and Nower 2002: 487; emphasis added). By this definition, gambling self-efficacy – or lack thereof – is part of one of the two key components of problem gambling, with negative consequences being the other. The definition of problem gambling also suggests how gambling self-efficacy leads to problem gambling. Gamblers are unable to refrain from gambling in tempting situations – most likely because they have low self-control and cannot manage their urges effectively – which leads to frequent and destructive gambling. As a result of these behaviours, gamblers experience negative repercussions in several areas of their lives.

As with illusion of control, gambling self-efficacy may be acquired through social learning. Individuals may be able to learn to resist gambling opportunities by learning and adopting the behaviours and beliefs of their friends and family (Hodgins, Peden, and Makarchuk 2004). Gambling self-efficacy may also be based on objective conditions, like sense of control. Gamblers may be able to develop self-efficacy through past successful experiences at resisting gambling behaviours and verbal persuasion from others (Hodgins et al. 2004). Illusion of control and gambling self-efficacy are most likely part of separate learning experiences. While illusion of control is learned through frequent play, gambling self-efficacy is learned by imitating others’ or maintaining one’s own control over gambling behaviours.

Table 1: Summary of Sense of Control, Locus of Control, Illusion of Control, and Gambling Self-Efficacy

Type of Control	General Form	Positive Extreme	Negative Extreme	Source	Application	Theoretical Foundation
Sense of Control	Perceived personal control	Sense of control	Powerlessness	Objective circumstances, social interactions	Life events	Stress Process Model
Locus of Control	Perceived personal control	Internal locus of control	External locus of control	Objective circumstances	Life events	Cognitive psychology
Illusion of Control	Illusion of control	High illusion of control	Low illusion of control	Frequent play, social learning	Gambling outcomes	Integrated Pathways Model
Gambling Self-Efficacy	Self-efficacy/ Self-control	High gambling-self efficacy	Low gambling self-efficacy	Personal experience, social learning	Gambling behaviours	Integrated Pathways Model

Both illusion of control and gambling self-efficacy are learned from family and friends. Illusion of control is a risk factor for problem gambling, playing a key role in its onset (Blaszczynski and Nower 2002). Gamblers who believe they can increase the odds of winning tend to also increase their gambling, which leads to various problems. Gambling-self efficacy is part of the very definition of problem gambling. More specifically, low gambling self-efficacy distinguishes problem gamblers from non-problem gamblers (Ricketts and MaCaskill 2004). Gamblers who cannot resist the opportunity to gamble also increase their gambling, which leads to numerous problems.

1.3 A Theoretical Disconnect

A gap exists between the mental health and problem gambling fields. At the highest level, the gap is theoretical. As will be argued below, this theoretical gap manifests itself at a lower level as a research gap. Control is an influential concept for both mental health and problem

gambling. This much is obvious from the theories developed around control in both fields. What is also evident from the above discussion is the lack of overlap between these theories of control.

Granted, there are several points of similarity between the Stress Process Model and the Integrated Pathways Model. Both consider individuals' mental health, beliefs, and level of confidence. Control is linked to behaviours and outcomes, and is rooted in objective conditions and learning experiences. However, there are important differences between these models as well. For example, while the Stress Process Model emphasizes the importance of social status and various resources, these factors are not incorporated into the Integrated Pathways Model. Most importantly, though, each model focuses on a type of control that is absent in the other. The Stress Process Model only includes one general form of control: sense of control. For its part, the Integrated Pathways Model focuses on gambling-specific types of control: illusion of control and gambling self-efficacy.

By focusing on a different level of control, both the Stress Process Model and the Integrated Pathways Model miss the opportunity to gain a full understanding of the dynamics of control that help explain mental health generally and gambling problems specifically. The Stress Process Model ignores types of control that may be specific to particular mental health issues. For example, alcoholism and substance abuse are often associated with self-efficacy or self-control issues. For its part, the Integrated Pathways Model neglects more general types of control like sense of control that may inform, work with, or overpower gambling-specific types of control.

Although control is an influential theoretical concept in both the mental health and problem gambling fields, theory to date has not incorporated both general and gambling-specific types of control into one model. The theoretical importance of each type of control in its respective field is reason enough to believe that a combination of the three types of control would be beneficial. The following sections will review research that further supports the combination of general and gambling-specific types of control.

2 Control in the Existing Literature

2.1 Control and Problem Gambling

In line with the Integrated Pathways Model and the definition of problem gambling, studies have consistently found that both illusion of control and gambling self-efficacy are related to gambling behaviours and problems. Research finds that problem gamblers have high illusion of control (Moore and Ohtsuka 1999; Steenberg, Meyers, May, and Whelan 2002; Goodie 2005; MacKillop, Anderson, Castelda, Mattson, and Donovanick 2006; Kallmen et al. 2008; Mitrovic and Brown 2009). High illusion of control is also related to frequent gambling (Moore and Ohtsuka 1999; Zhou, Tang, Sun, Huang, Rao, Liang, and Li 2012). Similarly, problem or high risk gamblers typically have low gambling self-efficacy (May, Whelan, Steenbergh, and Meyers 2003; Ricketts and MaCaskill 2004; Casey et al. 2008). Low self-efficacy is also related to a higher number of gambling problems (May et al. 2003; Hodgins et al. 2004; Casey et al. 2008). Finally, gamblers with low self-efficacy tend to exhibit higher levels of gambling behaviour, including higher frequency and higher number of days gambling (Moore and Ohtsuka 1999; Hodgins et al. 2004; Weinstock, Whelan, Meyers, and McCausland 2007).

The Stress Process Model has never been formally applied to study problem gambling. Further, sense of control is rarely studied among problem gamblers or even gamblers. A few studies have looked at sense of control from a slightly different perspective by examining a related concept – locus of control (Rotter 1966) – among gamblers. Locus of control is a concept from cognitive psychology that overlaps with sense of control. Both sense of control and locus of control are perceptions of personal control (Ross and Sastry 1999). They are both about one's own control and are general, not realm specific (Ross and Sastry 1999). While sense of control and powerlessness make up the two ends of the continuum for this concept, the two extremes for locus of control are internal and external. An external locus of control is “a *learned*, generalized expectation that outcomes of situations are determined by forces external to oneself such as powerful others, luck, fate, or chance” (Mirowsky and Ross 2003: 61; emphasis in original). In contrast, an internal locus of control is the general expectation that outcomes in life are dependent on one's own actions and decisions. So people with an internal locus of control feel they are in control and individuals with an external locus of control attribute outcomes to forces

external to themselves (Ross and Sastry 1999). In addition to sharing conceptual space, sense of control and locus of control have similar relationships with mental health. Research finds that attributing control to powerful others and luck – similar to having a low sense of control – is associated with poor mental health (Ross and Sastry 1999; Mirowsky and Ross 2003).

A handful of studies have looked at locus of control among gamblers. Some find no relationship between locus of control and problem gambling (Malkin and Syme 1986; Clarke 2004). The first study explains the lack of association by noting that the impact of locus of control on problem gambling may work through game selection (Malkin and Syme 1986). The second study concludes that personality, situational, and motivational variables are simply more important than locus of control (Clarke 2004). Other studies do report an association between locus of control and gambling problems. One study finds that individuals with an external locus of control experience more symptoms of problem gambling and are more likely to classify as problem gamblers (Meyer de Stadelhofen et al. 2009). Importantly though, the association between locus of control and gambling problems is not linear. The relationship is the strongest among those with the most severe gambling problems (Ibid). In contrast, one study reports that internal locus of control is related to problem gambling (Hopley, Dempsey, and Nicki 2012). This result is explained by the logic that because problem gamblers more often overestimate their ability to control or affect gambling outcomes, they are also more likely to also feel they control life outcomes generally (Ibid).

Overall, previous studies agree that problem gamblers tend to have high illusion of control and low gambling self-efficacy. In contrast, the research on sense of control and problem gambling is inadequate. No studies have specifically looked at sense of control and those that have studied locus of control present inconsistent results.

2.2 Relations between Types of Control

In line with the theoretical gap between the mental health and problem gambling fields, little research has focused on how different types of control relate to each other. Only one study has looked at how illusion of control and gambling self-efficacy are associated. According to this lone study, gamblers with high gambling self-efficacy have low levels of gambling-related

cognitions, which include illusion of control (Casey et al. 2008). This result is understood as a logical consequence of problem gamblers having lower gambling self-efficacy and higher illusion of control (Ibid).

The study by Casey et al. (2008) is also one of the few to see how general self-efficacy – a concept that shares conceptual space with sense of control – is related to gambling self-efficacy. It reports that a general sense of self-efficacy shows a positive but moderate correlation with gambling self-efficacy. Similarly, results from Tang and Wu (2010) support a relationship between fate control and low gambling self-efficacy. Fate control is “a belief that life events are predetermined and that there are ways to influence these fated outcomes”, which resembles low sense of control (Tang and Wu 2010: 534). Gamblers who believe in fate control tend to also have low gambling self-efficacy (Tang and Wu 2010). The relationships between these two cousins of sense of control and gambling self-efficacy suggest that the two forms of control are distinct but related concepts (Casey et al. 2008). More specifically, a person’s general beliefs about the self and the social environment appear to influence their beliefs about specific contexts, such as gambling, which guides their behaviour in those situations (Tang and Wu 2010).

Only one study reports on the relationship between locus of control and illusion of control. It finds that problem gamblers are more likely than non-problem gamblers to have both an internal locus of control and illusion of control (Carroll and Huxley 1994). This finding follows the logic that because problem gamblers are known to develop exaggerated beliefs in their level of control over gambling games, they should also tend to believe in their own control over life events (Carroll and Huxley 1994; Meyer de Stadelhofen et al. 2009).

So, although there is limited research in this area, these few studies suggest how the types of control may be associated. According to these three studies, illusion of control is negatively associated with gambling self-efficacy, sense of control is positively linked with gambling self-efficacy, and sense of control is positively related to illusion of control.

2.3 Differences by Type of Game

There are several reasons to believe that the relationships between the types of control and their impact on gambling problems will differ depending on the type of game played. Type of game refers to the difference between skill and chance-based games. Games of skill are games where the gambler has a degree of control over the game – games “in which there are steps the gambler could take to improve the odds of winning” (Goodie 2005: 498). Games of skill include card or board games, live horse racing, sports lotteries, speculative investments, and games of skill (pool, golf). Games of chance include instant win scratch tickets, daily or weekly lotteries, raffles, Bingo, and video lottery terminals (slot machines).

The first reason to suspect variability by type of game is that there are differences in the frequency of play across games. The nature of the particular game implies different possibilities for the rate of play. For example, scratch tickets are available for purchase at outlets that are typically open most days of the week and most times of the day. So theoretically, scratch tickets could be played in succession all day, every day. In contrast, horse races only take place in certain locations, on certain days of the week, at certain times of the day. In this case, there are physical and temporal limits on the number of bets that can be made in a given time frame.

Second, certain games come with higher risks of experiencing problems from gambling. Video lottery terminals and casino gambling are more frequently and significantly related with problem gambling (Cox, Kwong, Michaud, and Enns 2000; Dorion and Nicki 2001). Bingo and instant win tickets are more moderately associated with problem gambling (Holtgraves 2009; Papoff and Norris 2009). In contrast, lottery play is most frequently associated with non-problem gambling (Cox et al. 2000; Dorion and Nicki 2001).

Third, some types of control differ depending on the type of game played. For example, gamblers with an external locus of control prefer games of chance (Lester 1980). Further, gamblers who prefer skill games tend to have higher illusion of control (Toneatto, Blitz-Miller, Calderwood, Dragonetti, and Tsanos 1997; Myrseth, Brunborg, and Eidem 2010). Though sense and illusion of control differ by type of game, gambling self-efficacy may not. Research finds that skill and chance gamblers do not differ in their impaired control over gambling

behaviour – which includes being able to resist gambling opportunities or control behaviours while gambling, the first being part of the definition of gambling self-efficacy (O'Connor and Dickerson 2003).

It is unclear from these various findings exactly how type of game should impact the relationships between the types of control or their effects on problem gambling symptoms. However, the above type-of-game differences suggest the need to consider this possibility.

3 A New Theoretical Model

3.1 Conclusions from Theory and Literature

Theories about control in mental health and problem gambling literature outline how each type of control should be related to gambling problems. According to the Stress Process Model, individuals with a high sense of control experience better mental health than those with a low sense of control. Through problem solving and stress appraisal, they are able to avoid stressors and the adverse mental health impact of those stressors. The Integrated Pathways Model argues that people with an illusion of control over gambling outcomes more often suffer from gambling-related problems. Destructive gambling behaviours are fueled by an exaggerated belief in winning. These behaviours then negatively impact their lives. The definition of problem gambling is centered on gambling self-efficacy. A loss of control over gambling behaviours is one of the two indicators of problematic gambling. Here, destructive behaviours are encouraged by an inability to resist temptation.

In line with the Stress Process Model, some research on locus of control finds that an external locus of control – similar to low sense of control – is associated with problem gambling symptoms and status. However, only one study finds this relationship. Two others find no relationship with problem gambling and one finds a positive relationship with gambling behaviours. So findings for how locus (sense) of control is related to gambling problems are inconclusive. In support of the Integrated Pathways Model, research repeatedly finds that individuals with a high illusion of control are more likely to be problem gamblers. Further,

numerous studies find that those with low gambling self-efficacy experience more symptoms of problem gambling and are more likely to be classified as problem gamblers.

Mental health and problem gambling theories about control do not specify how the types of control should be related to each other. However, these relationships can be deduced from the ways that each type of control relates to problem gambling. According to theory and research, low sense of control, high illusion of control, and low gambling self-efficacy lead to problem gambling. By extension, sense of control should be negatively related to illusion of control and positively associated with gambling self-efficacy, while illusion of control and gambling self-efficacy should be negatively related.

The limited research on the relationships between the types of control provides minimal support for the associations suggested by the above theories. Most surprisingly, the lone study of the relationship between locus of control and illusion of control finds a positive – not negative – association. The two studies that look at the link between locus of control and gambling self-efficacy find only moderate support for the positive relationship between the two types of control. Finally, one singular study finds a negative relationship between illusion of control and gambling self-efficacy.

So theory and research on control in mental health and problem gambling provide suggestions for how the various types of control may relate to each other and problem gambling. Theory and research tend to agree that low sense of control, high illusion of control, and low gambling self-efficacy lead to gambling problems. Research (in the absence of theory) on the relationships between the types of control finds that sense of control is positively related to illusion of control and gambling self-efficacy, while illusion of control is negatively associated with gambling self-efficacy.

3.2 The Dynamics of Control Model

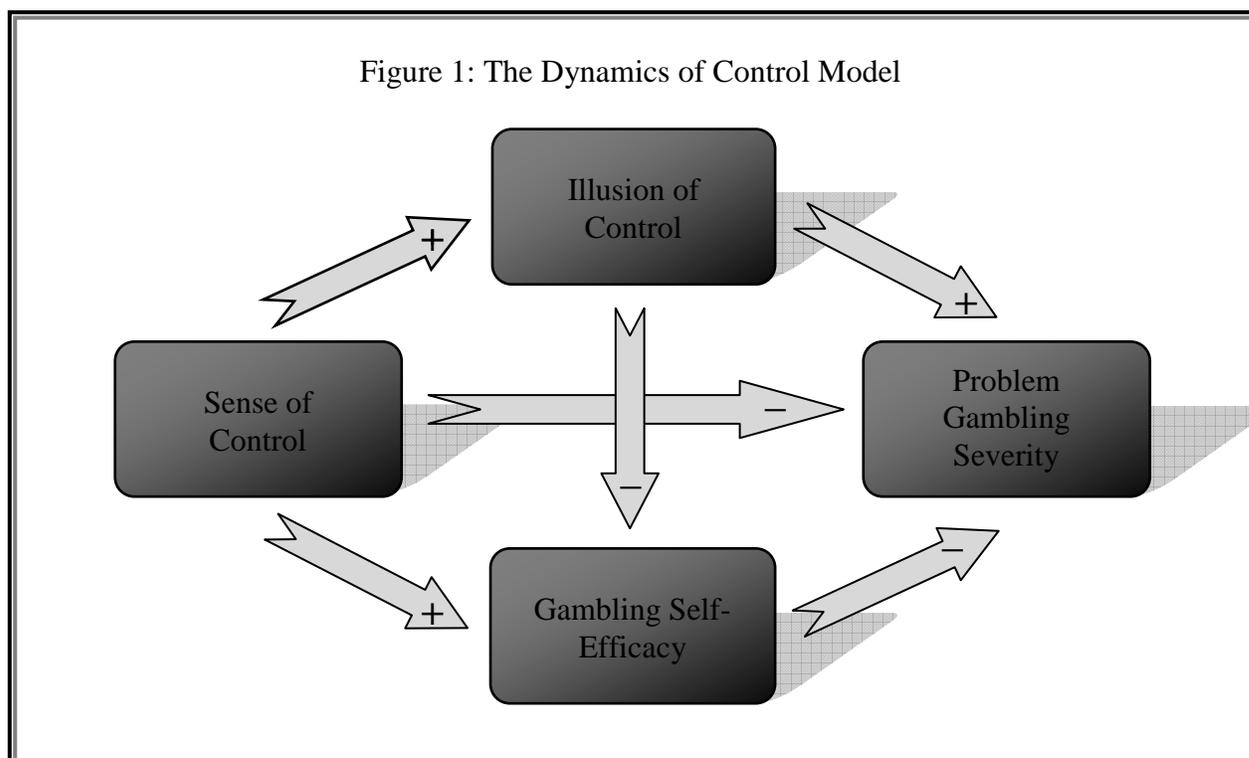
In order to answer the central research question – what are the dynamics of control among frequent gamblers? – this study creates and explores the Dynamics of Control Model. The Stress Process Model and the Integrated Pathways Model provide overarching frameworks for this new

conceptual model and how it describes the links between gambling behaviours and problems. In the Stress Process Model, sense of control is a very important personal resource. The Dynamics of Control Model draws upon this framework to interrogate the importance of sense of control in the gambling context. In the Integrated Pathways Model, illusion of control and gambling self-efficacy are central for understanding the onset and development of gambling problems. The Dynamics of Control Model draws upon this framework to elaborate on illusion of control and gambling self-efficacy in relation to sense of control – a more general type of control – and frequent gambling.

More specifically, this conceptual framework brings elements of the Stress Process Model and the Integrated Pathways Model together in one framework. The Dynamics of Control Model incorporates the relationships between control and mental health found in these models. It incorporates the association between low sense of control and mental health from the Stress Process Model, and the relationships between high illusion of control, low gambling self-efficacy, and problem gambling from the Integrated Pathways Model. The Dynamics of Control Model also builds in findings from previous research on control and gambling to suggest links between the three types of control. Finally, this theoretical framework is based on the premise that frequent gambling leads to gambling-related harm and it offers an explanation as to why this occurs.

This conceptual model bridges the theoretical gap between the mental health and problem gambling fields. It is the first theoretical framework to consider sense of control, illusion of control, and gambling self-efficacy in the same model, thereby incorporating a piece from the Stress Process Model and a few elements from the Integrated Pathways Model. The Dynamics of Control Model builds off of these other models by suggesting how the types of control relate to each other. By combining all of this knowledge into one framework, the Dynamics of Control Model offers a thorough description of how control can help explain the link between gambling behaviours and gambling problems. In examining this framework, the current study also bridges the research gap between the mental health and problem gambling fields by describing how control is experienced by and influences frequent gamblers.

A graphical representation of the Dynamics of Control Model can be found in Figure 1.



Sense of Control. According to the Dynamics of Control Model, frequent gamblers with a low sense of control experience more problems as a result of their gambling. These individuals have difficulties problem solving and understanding the outcomes of their behaviours (Turner and Roszell 1994). For these reasons, gambling behaviours are more likely to lead to gambling problems. This model further argues that sense of control is positively related to both gambling-specific forms of control: illusion of control and gambling self-efficacy. Frequent gamblers with a high sense of control typically also have a high level of illusion of control. For these individuals, feeling in control over gambling outcomes develops as a specification of an expectation of control over general outcomes in life (Meyer de Stadelhofen et al. 2009). In other words, a generalized belief that outcomes in life are dependent on one's own behaviours translates into a learned *specialized* belief that *gambling* outcomes are dependent on one's own choices and actions. Because frequent gamblers more often overestimate their ability to control gambling outcomes, they also tend to believe they have control over their life events (Carroll and Huxley 1994; Hopley et al. 2012). Similarly, frequent gamblers with a high sense of control

typically also have a high level of gambling self-efficacy since the two forms of control are related concepts (Casey et al. 2008). General beliefs about the self and the social environment influence beliefs about specific contexts, such as gambling, which guide behaviour in those situations (Tang and Wu 2010).

Illusion of Control. According to this model, frequent gamblers with high illusion of control experience more gambling-related harm from their gambling behaviours. These gamblers believe that their personal skill grants them the ability to control or more accurately predict the outcomes of games (Blaszczynski and Nower 2002). Because these gamblers are overconfident in their ability to win, they increase their betting and engage in risky gambling behaviours which ultimately lead to a downward spiral of losses (Goodie 2005; Miller and Currie 2008). The Dynamics of Control Model further argues that frequent gamblers with high illusion of control also typically have low gambling-self efficacy. Gamblers develop their illusion of control and their gambling self-efficacy by imitating family and friends or from personal experience. Frequent gamblers will develop an illusion of control if they are encouraged to gamble through frequent play with family and friends (Blaszczynski and Nower 2002). In contrast, frequent gamblers will develop gambling self-efficacy if they are exposed to and imitate others' restraining behaviours or experience past successes at maintaining their own control over gambling (Hodgins et al. 2004).

Gambling Self-Efficacy. Finally, the Dynamics of Control Model argues that frequent gamblers with low gambling self-efficacy experience more gambling problems. These gamblers are unable to stop themselves from gambling when faced with a tempting opportunity (Blaszczynski and Nower 2002). Because they cannot resist opportunities to gamble, these frequent gamblers engage in destructive gambling, spending lots of time and money gambling, which leads to negative consequences.

Conundrum. The Dynamics of Control Model contains an interesting conundrum. The puzzle stems from the difference between how the types of control relate to problem gambling and how they relate to each other. The issue lies in the relationships between sense of control, illusion of control, and problem gambling. The model suggests that sense of control is negatively related to

gambling problems, while illusion of control is positively related to gambling problems. By extension, these relationships suggest that sense of control and illusion of control should be negatively associated. However, according to the model, the relationship is positive – high sense of control goes with high illusion of control. There is an interaction between sense of control and illusion of control: the simultaneous influence of sense of control and illusion of control on gambling problems is not additive of their individual impact on problematic gambling. The size and direction of the relationship between sense of control and gambling problems may depend on the value of illusion of control and vice versa. Existing theory and literature does not shed much light on this possibility. It will, however, be explored in the analyses below.

Hypotheses. These individual relationships captured in the Dynamics of Control Model between the types of control and between each type of control and problem gambling severity suggest different possibilities for how the three types of control combine to influence gambling problems. The first prediction is based on how each type of control relates to problem gambling.

Hypothesis 1: If a frequent gambler has low sense of control, high illusion of control, and low gambling self-efficacy then they will have gambling problems. If a frequent gambler has high sense of control, low illusion of control, and high gambling self-efficacy then they will not have gambling problems.

The second possibility is based on how the types of control relate to each other.

Hypothesis 2: If a frequent gambler has high sense of control, high illusion of control, and low gambling-self efficacy then they will have gambling problems. If a frequent gambler has low sense of control, low illusion of control, and high gambling self-efficacy then they will not have gambling problems.

The final prediction is not incorporated into the Dynamics of Control Model but is found in the literature on control. Control may be overarching. Individuals may either feel all three types of control or none (Casey et al. 2008; Meyer de Stadelhofen et al. 2009).

Hypothesis 3: If a frequent gambler has low levels of all three types of control then they will have gambling problems. If a frequent gambler has high levels of all three types of control then they will not have gambling problems.

4 Conclusions

Theory and research in each field show that control is an important concept for both mental health and problem gambling. Sense of control links social status to mental health. Illusion of control is a key step on the pathway to problem gambling. Gambling self-efficacy is an indicator of problematic gambling. The three types of control share similar foundations in social interactions and experiences. Objective conditions shape both sense of control and gambling self-efficacy. Individuals feel in control of outcomes in life and their ability to resist gambling temptations when they have past successes in these areas to fuel their confidence. Social learning shapes illusion of control and gambling self-efficacy. People develop beliefs about the odds of winning and tools to fight gambling urges by learning and adopting the thoughts and behaviours of their family and friends.

The Stress Process Model explains how the most general form of control impacts mental health. Sense of control influences whether behaviours trigger stressors and whether stressors generate poor mental health. Studies of locus of control among gamblers find only moderate support for this relationship. For its part, the Integrated Pathways Model outlines the importance of gambling-specific control. Gamblers with an illusion of control over outcomes tend to increase their gambling in the face of losses because they are overconfident. Gamblers with difficulties resisting the urge to gamble also engage in frequent and destructive gambling because they cannot resist opportunities to gamble. Both types of behaviours lead to negative consequences. Research provides strong support for the role played by illusion of control and gambling self-efficacy in problem gambling.

Though support for the relationships between the types of control and problem gambling is relatively strong, research on the relationships between the types of control is limited. Studies find a positive – not negative – relationship between sense of control and illusion of control. Further, the positive relationship between sense of control and gambling self-efficacy, and the negative association between illusion of control and gambling self-efficacy only receive moderate support.

The Dynamics of Control Model is developed using the Stress Process Model and the Integrated Pathways Model as frameworks. This new conceptual model is also based on the most prominent trends from research on control. According to this model, low sense of control, high illusion of control, and low gambling self-efficacy lead to gambling problems. Further, sense of control is positively related to illusion of control and gambling self-efficacy, while illusion of control is negatively associated with gambling self-efficacy.

By combining research from relatively disparate fields, this model includes an interaction between sense of control and illusion of control. The impact of sense of control on problematic gambling may vary depending on the level of illusion of control and vice versa. It is unclear from the existing research exactly how this interaction works. So beyond studying the Dynamics of Control Model, this study also works to untangle this interaction by analyzing questionnaire responses. In the next chapter, the details of the research project conducted to accomplish these goals are reviewed.

Chapter 3

The Research Project

The goal of this research is to examine the dynamics of control among frequent gamblers. It aims to provide a narrative of the lives of frequent gamblers and to clarify what is meant by sense of control, illusion of control, and gambling self-efficacy. In doing so, this study tests a theory – the Dynamics of Control Model – in a preliminary way, pending a larger unbiased sample. The best approach for accomplishing these objectives is in-depth qualitative analysis of a small sample. By studying a limited number of frequent gamblers, this research gains a rich understanding of their beliefs and experiences. The bulk of the analysis is based on 30 in-depth qualitative interviews with frequent gamblers from Simcoe County, Ontario. The open-ended interview responses are used to meet the study’s first objective: discuss how the types of control are experienced by the individual. The close-ended questionnaire answers are used to achieve the study’s second and third objectives: determine how the types of control correspond to each other and how they help understand gambling-related problems. Where possible, the closed-ended results are complimented with open-ended responses.

A secondary data analysis of a large nationally representative survey, the 2002 Canadian Community Health Survey, was also performed to supplement results for two particular relationships: the associations between sense of control and gambling problems, and between gambling frequency and gambling problems. Other relationships from the Dynamics of Control Model were not examined because relevant measures were not included in the survey. Beyond these two uses of survey data, this is a mainly qualitative study. It uses the triangulation of three data sources – the open-ended interview, the closed-ended questionnaire, and the secondary data analysis – to identify the dynamics of control among frequent gamblers.

1 In-Depth Interviews

1.1 Participants

In-depth interviews were conducted with 30 frequent gamblers from Simcoe County, Ontario. For the purpose of these interviews, someone was considered a frequent gambler if they

gambled four or more times a month over the past year. This cut point was selected because the risk of experiencing gambling-related harm rises sharply past the threshold of two to three times a month (Currie et al. 2006; 2008). Because the relationships of interest may differ depending on the type of game played, the sample is stratified by type of game: 15 gamblers who play skill games most frequently and 15 who play chance games most frequently. Each group was limited to 15 individuals because theoretical saturation typically occurs after roughly 12 interviews (Guest, Bunce, and Johnson 2006). After speaking with 12 people about a similar topic, further interviews rarely provide any new information or themes (Ibid).

Simcoe County is located just north of Toronto, between Georgian Bay and Lake Simcoe, and is one of Ontario and Canada's fastest growing areas. Simcoe County was selected as the recruitment area for two reasons. First, most studies of problem gambling use samples from metropolitan areas. This focus leaves more rural populations understudied. The current study addresses this oversight by sampling from a mainly rural population. Second, gambling outlets are abundant in the area. Ontario Lottery and Gaming (OLG) Bingo Centers are located in Barrie and Penetanguishene. OLG Casinos are located on the outskirts of Barrie and in Orillia. The availability of gambling in Simcoe County lends itself to frequent gambling. Proximity to gambling establishments has been linked with increased gambling behaviours and problem gambling status (LaPlante and Shaffer 2007; Sevigny, Ladouceur, Jacques, and Cantinotti 2008).

1.2 Procedures

The 30 participants were recruited using convenience sampling and snowball sampling. A random sampling technique would have been cumbersome and costly for the current project. The sample size is small and frequent gamblers are a small section of the general population. More importantly, the mainly qualitative nature of this study is more suited to non-probability sampling (Marshall 1996). Convenience and other non-random sampling methods are more commonly used to recruit participants for interviews (Toneatto, Skinner, and Dragonetti 2002; Hodgins and el-Guebaly 2004; Tepperman, Albanese, Stark, and Zahlan 2013). Although non-probability sampling does not yield a representative sample, this approach is more suited for in-

depth research that seeks to understand complex social phenomenon and build or modify theory (Marshall 1996; Goodwin and Horowitz 2002). Because this study's aim is uncovering the meanings of control concepts and exploring a new theoretical model, representativeness is not as large of a concern as it would be in a more confirmatory study.

After receiving ethics approval from the University of Toronto's Research Ethics Board, participants were recruited and interviewed over a six month period from May to October 2011. Multiple recruitment techniques were used simultaneously throughout this period. This study used word of mouth referral among local networks and snowball sampling with interviewees. Also, colourful posters were strategically placed at transit depots, in convenience stores, and on community message boards. Finally, online classified advertisements were placed on the Barrie Craigslist and Kijiji sites, and advertisements were placed in Barrie, Midland, Orillia and Collingwood newspapers. All of the advertisements included a request for participants, the title of the research – The Simcoe County Gambling Study – the requirements for participation (gamble at least once a week, Simcoe County resident, at least 18 years of age, English speaking), a guarantee of confidentiality, the details of the study (length, compensation), and contact information (phone and email). Poster versions of the advertisement were equipped with pull tabs that included the name of the study and contact information. A copy of the recruitment poster can be found in Appendix A.

Interested persons were guided through a screening tool. First, they were thanked for their interest in participating and then told the topics that would be covered in the interview. Next, they were informed of the duration of the study, their right to refuse to answer questions, and the limits of confidentiality. Then, each person was screened to determine whether they were over 18 years of age, if they were a frequent gambler, and what type of game they most frequently played. Finally, if the person agreed to participate, they chose an interview time and quiet public meeting place, and their contact information was obtained. All contact information was stored in a password protected Excel file. Based on their game of choice, each participant was assigned an ID number that was used from that point on to identify them. This ID number is used to assure the confidentiality of the participants. A copy of the screening tool can be found in Appendix B.

Once participants arrived at the meeting location, they were presented with two copies of a consent form. The form was verbally explained and each person was asked to sign both copies. The participant kept one copy and the other was securely stored. The consent form included contact information, details on the purpose of the study, a description of questions to be asked, the study procedures, the risks and benefits of the study, the steps taken to maintain confidentiality, and the incentives to participate. A list of general and gambling-specific resources for the local area was also attached to each consent form so that all participants would have access to this information if they needed it. A copy of the consent form can be found in Appendix C.

Each participant began the interview by filling out a closed-ended questionnaire. They were able to skip questions, fill in answers if they selected 'other', and ask for clarification. All responses were coded and entered into a password protected Excel database. Once they were done filling out the questionnaire, the participant was thanked for completing this portion and offered to take a break before beginning the second half of the interview. When the participant was ready to continue, the tape recorders were turned on and the participant was guided through a series of open-ended semi-structured interview questions. The semi-structured approach allowed the interviews to be conversational, and enabled respondents to introduce new themes and express their views in personally meaningful ways. Once the open-ended questions were answered, each participant was thanked again for taking part in the study. They were given the choice between one of two \$25 gift cards (Tim Horton's or Loblaws). Finally, each person was given a small version of the recruitment poster with a business card attached and they were asked to pass it along if they knew of anyone else who would be interested in participating. If someone expressed interest in knowing the results of the study, their email address was noted so they could be provided with a summary of the key findings. The interview recordings were saved with the respondent's ID number on a password protected computer. After each interview, a few minutes were used to write down fieldnotes of how the interview went, what worked and what didn't, and preliminary ideas about the data such as evolving themes and initial findings. Interview recordings were later transcribed verbatim and also saved with the respondent's ID number on a password protected computer.

1.3 Closed- and Open-Ended Questions

The closed-ended questionnaire focused on demographics, the three types of control – sense of control, illusion of control, and gambling self-efficacy – gambling behaviours, and problem gambling severity. In the questionnaire, standard instruments were used to measure these concepts in ways that are consistent with previous studies. This allows the findings to be situated in and compared with those in the literature. On average, it took most participants 20 minutes to complete the questionnaire. A copy of the questionnaire can be found in Appendix D.

To gather information on the respondents' demographics, questions from the 2002 Canadian Community Health Survey (CCHS) 1.2 were included. The questionnaire asked about age, gender, ethnicity, marital status, job status, highest level of education, and personal income.

Questions from the Canadian Problem Gambling Index (CPGI) were used to measure gambling behaviours and problem gambling severity. The CPGI has high internal consistency reliability (0.84) and test-retest reliability (0.78) (Ferris and Wynne 2001a; 2001b). The CPGI is also a valid instrument, differentiating between problem gamblers and non-problem gamblers (Ibid). The gambling behaviours examined were type of game, gambling frequency, duration of play, total amount wagered, and largest wager. Type of game distinguishes between skill- and chance-based games. Games of skill include card/board games, live horse racing, sports lotteries, speculative investments, and games of skill (pool, golf). Games of chance include instant win scratch tickets/daily lotteries, weekly lotteries/raffles, Bingo, VLTs inside casinos and VLTs outside casinos. To measure duration of play, participants were asked how many hours a month they normally spent gambling over the past year. Responses ranged from under an hour to over 40 hours. To assess total expenditure, participants were asked how much money they spent on all of their gambling activity over the past year. For largest wager, participants were asked what the largest amount wagered in one day was over the past year. Responses to both questions ranged from under \$50 to over \$1,000.

Gambling frequency was measured using a combined gambling frequency scale that summed the responses to 13 gambling frequency questions, each of which asked about a different type of gambling (Cunningham 2006). Consistent with previous research, all 13 items were included in

the frequency scale despite their low alpha (.44) (Papoff and Norris 2009; Afifi, Cox, Martens, Sareen, and Enns 2010). The reasoning behind including all 13 items is that certain individuals prefer certain games (Petry 2003; Holtgraves 2009). In the CCHS 1.2, men are more likely to gamble on the lottery, casinos, VLTs outside of casinos, and horse racing. Conversely, women are more likely to gamble on instant win tickets and bingo (Marshall and Wynne 2003).

Therefore, including only certain types of gambling in the frequency scale would ignore certain groups. By including all 13 games, this measure evens out individual differences on type of game and captures a more complete picture of gambling frequency.

Each question began with “In the past 12 months, how often have you bet or spent money on...”. The 13 questions ask about instant win/scratch tickets or daily lottery tickets (Keno, Pick 3); lottery tickets such as 6/49 and Super 7, raffles or fund-raising tickets; Bingo; playing cards or board games with family or friends; video lottery terminals (VLTs) outside of casinos; coin slots or VLTs at a casino; casino games other than coin slots or VLTs (poker, roulette); Internet or arcade gambling; live horse racing on or off the track; sports such as sports lotteries (Sport Select, Pro-Line), sports pool or sporting events; speculative investments (stocks or commodities); games of skill (pool or golf); and any other forms of gambling such as gambling at casino nights or gambling pools at work. The available responses ranged from never to daily. The available responses were recoded into number of days per year. Where ranges were given, the middle number of days in the category was used. The minimum value on this scale is zero and the maximum score is 4,745.

Problem gambling severity was measured using the Problem Gambling Severity Index (PGSI) of the CPGI. The PGSI is made up of nine questions that ask about problematic gambling behaviours (i.e. chasing losses) and gambling-related consequences (i.e. financial troubles). The questions ask about the frequency in the past 12 months of 1) needing to gamble with larger amounts of money to get the same feeling of excitement, 2) going back another day to win back money lost, 3) borrowing money or selling anything to get money to gamble, 4) feeling that they might have a problem with gambling, 5) gambling causing any health problems, including stress or anxiety, 6) people criticizing the individual’s betting or telling them they have a gambling problem, regardless of whether or not the individual thought it was true, 7) gambling causing

financial problems for the individual or their family, 8) feeling guilty about the way they gamble or what happens when they gamble, and 9) betting more than they can afford to lose. The available responses were Never (0), Sometimes (1), Most of the time (2) and Almost Always (3). Responses across all nine questions were summed to create a problem gambling severity score that ranges between zero and 27.

The three types of control were assessed using four sets of questions. For completeness, the two most prominent measures of sense of control were included in the questionnaire. Pearlin, Menaghan, Lieberman, and Mullan's (1981) Mastery Scale includes seven questions that measure the degree to which people feel they are in control of the forces that affect their lives. It has good internal consistency reliability (.77; Marshall and Lang 1990). The questions ask respondents to indicate their level of agreement with seven statements that ask about 1) solving problems, 2) feeling pushed around, 3) control over events, 4) ability to achieve goals, 5) feeling helpless, 6) influence over the future, and 7) changing important circumstances. Available responses range from strongly agree to strongly disagree. These responses were coded so that one corresponds to low sense of control and four to high sense of control. Two of the seven items were reverse coded. Responses were summed to indicate the overall level of sense of control. This scale ranges from zero to 28.

Mirowsky and Ross's (1990) two-by-two measure of sense of control is made up of eight questions that assess instrumental and fatalistic understandings of success or failure and has good reliability (.68; Ross and Wu 1995). The questions ask the respondents how they feel about eight statements that ask about 1) personal responsibility for success, 2) ability to achieve goals, 3) role of mistakes in failures, 4) personal responsibility for failures, 5) role of bad luck in negative events, 6) control over bad events, 7) role of luck in good events, and 8) fate in good events. Available responses range from strongly agree to strongly disagree, which are coded from two to minus two. Responses were summed and divided based on instrumental and fatalistic understandings of success or failure (Mirowsky and Ross 1990). The maximum score on this scale is two and the minimum score is minus two.

Illusion of control was measured using the Beliefs about Gambling Questionnaire (Kallmen et al. 2008). The 14 items of this scale measure superstition, skill, belief in randomness, and expectation (Ibid). The internal consistency for the whole scale is acceptable (0.65; Ibid). For each question, respondents selected from two available answers. Answers that do not reflect illusion of control were coded as zero and responses that indicate illusion of control were coded as one (see Table 2). The responses to each question were summed to create the scale that ranges from zero to 14.

Table 2: Questionnaire Items for Illusion of Control in the Simcoe County Gambling Study

Illusion of Control Subscale	Item	Available Responses*
Skill	Imagine a win in your favourite game. What are your thoughts afterwards?	1 It was mainly due to luck 2 It was mainly due to skill
	Imagine that you were near to win on your favourite game, how do you think thereafter?	1 It was mainly due to bad luck 2 It was mainly due to poor skill
	Imagine that you gamble regularly during several years. How do you think?	1 Gambling will probably make me poorer 2 Gambling will probably make me richer
	On which factors to you base your gambling?	1 Chance or nothing in particular 2 Knowledge and experience
	How do you think about your favourite game?	1 I can probably not affect my chances to earn money on it 2 Skill increases the chances to earn money on it
Belief in randomness	Imagine playing Roulette or any other games where you can play on certain numbers or colours. What would you do?	1 I would play on any numbers or colours 2 I would play on certain numbers or colours to increase my chances to win

Illusion of Control Subscale	Item	Available Responses*
Belief in randomness (cont.)	Consider the following numbers: 11, 12, 13, 14, 15, 16 and 17.	1 I would play on them as well as on other numbers 2 I would prefer numbers that are more dispersed to increase my chances to win
	Imagine you are buying a lottery ticket. The salesman asks if you or he will choose the ticket.	1 It does not matter who will choose 2 I want to choose myself to increase my chances to win
	Imagine that you toss a coin. Crown has been up four times in a row. On what outcome would you bet the next time?	1 I would bet on tail as well as on crown 2 I would bet on tail
Superstition	Some days I can feel that I will win on gambling.	1 Disagree 2 Agree
	I have things (a seat, a number, a certain pen, etc.) that bring me luck.	1 Disagree 2 Agree
Expectations	Imagine four consecutive losses. How do you think about the next bet?	1 My chances to win are the same as before 2 My chances to win have increased
	Imagine that you had been gambling for a while. How do you think?	1 I think that my chances to win are the same 2 I think that my chances to win have increased
	Imagine a win at a place you have never been before. Where do you play your next game?	1 Where I usually gamble 2 Where I played last

*Bolded responses indicate high illusion of control

© *Beliefs about Gambling Questionnaire* – Springer Science and Business Media, *Journal of Gambling Studies*, 24, 2008, pages 445-446, “Are Irrational Beliefs and Depressive Mood More Common Among Problem Gamblers than Non-Gamblers? A Survey Study of Swedish Problem Gamblers and Controls”, Kallmen, H., Andersson, P. and Andren, A., Table 2, with kind permission from Springer Science and Business Media.

The Gambling Abstinence Self-Efficacy Scale (GASS) was used to measure gambling self-efficacy (Hodgins et al. 2004). The 21 questions make up four subscales: winning/external situations, negative emotions, positive mood/testing/urges, and social factors (see Table 3). This scale has good internal (0.93) and retest reliability (.86; Hodgins et al. 2004). Participants rated their confidence on a scale where five indicates confidence in abstaining from gambling and zero indicates lack of confidence. The responses were summed to create a scale that ranges from zero to 105.

Table 3: Questionnaire Items for Gambling Self-Efficacy in the Simcoe County Gambling Study

Gambling Self-Efficacy Subscale	Item
Winning/External Situations	I wanted to win
	I needed to win back past losses
	When I am in a situation in which I am in the habit of gambling
	An opportunity to gamble happened out of the blue
	I felt lucky
	I just felt tempted to gamble out of the blue
Negative Emotions	When I didn't care anymore
	I felt worried or tense because of my relationship with someone else
	I felt angry or frustrated because of my relationship with someone else
	I felt sad
	I felt frustrated or angry either with myself or because things were not going my way
	When I wanted to escape from my thoughts and feelings
	I felt others were being critical of me
	I felt anxious or tense
	I felt pressured by financial debts
Positive Mood/Testing/Urges	I was in a good mood
	I wanted to see what would happen if I gambled just a little
	I felt physically uncomfortable because I wanted to gamble
Social Factors	I was with others having a good time and we felt like gambling together
	Someone invited me to gamble
	I saw others gambling

[© Gambling Abstinence Self-Efficacy Scale – Hodgins, D.C., Peden, N. and Makarchuk, K. 2004. "Self-Efficacy in Pathological Gambling Treatment Outcome: Development of a Gambling Abstinence Self-efficacy Scale (GASS)", *International Gambling Studies*, 4, 2, pg. 99, Taylor and Francis Ltd. Reprinted with the permission of the publisher, <http://www.informaworld.com>]

The open-ended portion of the interview focused on in-depth discussions of the three types of control. These questions did not revisit demographic characteristics but did follow up about

gambling behaviours and problems. The open-ended portion of the interview was used to confirm and gather more detail on the responses given to the closed-ended questions. The open-ended questions took between 20 and 90 minutes to complete. The open-ended interview schedule can be found in Appendix E.

The open-ended interview began by discussing the participants past experiences then shifted to focus on future goals. To assess sense of control, participants were asked to describe how they understand the positive and negative events from their past. By way of probe, they were asked whether personal choices, fate, or a powerful other played a role. Participants were also asked to describe what forces they believe will help them achieve their goals for the future. Finally, participants discussed who they believe is writing the script of their life.

To measure illusion of control, participants were asked to explain how they understand their gambling wins and losses. As a probe, they were asked what role if any they saw for skill and chance in both outcomes. Participants were also asked how they would achieve a particular gambling goal in the future, namely what forces would be involved.

To assess gambling self-efficacy, participants were asked whether and how they were able to manage their gambling behaviours in the past. Next, they discussed whether and how they would be able to do so in the future. Participants were also asked what factors impacted their ability to control their gambling in the past and which factors could play a similar role in the future.

After this thorough discussion of control, the interview moved on to ask about how their gambling behaviours impacted their lives and how they feel their gambling will continue in the future. The open-ended interview ended with a reflective question about whether and how their understandings of life events, their beliefs about gambling outcomes, and their ability to control their gambling are related. To conclude, participants were asked if they had anything else to add to the discussion.

1.4 Data Analysis

The closed-ended questionnaire responses were analyzed using Excel. Because the Simcoe County Gambling Study sample is small, multivariate analysis is not feasible. Instead, descriptive (frequencies and crosstabulations) and bivariate analyses (chi-squares, correlations, and t-tests) were used. Because the sample is non-random, the results of the bivariate analyses should be interpreted with caution. In particular, some analyses do not meet two of the assumptions for chi-square analysis: the independence of cases and the expected value of at least five cases in each cell. Because some analyses do not meet the formal requirements for a chi-square test, the bivariate analyses are only suggestive and should be considered as supplemental to the qualitative analyses. Descriptive and bivariate analyses are used to explore differences between skill and chance gamblers, the correspondence between the types of control, how types of control match up with problem gambling severity, and the link between gambling frequency and gambling problems. Where possible, these results are supplemented with interview responses and findings from the secondary data analysis. Results from the descriptive and bivariate questionnaire analyses can be found in Appendix F.

In order to perform a wider variety of bivariate analyses, the scales from the questionnaire were converted into high/low dichotomies. According to the PGSI, a score of eight or more represents problem gambling (Ferris and Wynne 2001a; 2001b). Participants who scored eight or higher were categorized as having high problem gambling severity and those who scored seven or below as low severity. For sense of control, the average score on Pearlin et al.'s (1981) Mastery Scale in the 2010 CCHS was used as a benchmark. In this recent nationally representative sample, the average level of sense of control is 19.53. Scores of 20 or more on the Mastery Scale were coded as high sense of control and scores of 19 or less as low sense of control. Because it serves as the benchmark here, the Pearlin et al. (1981) Mastery Scale is used as the measure of sense of control throughout the questionnaire analysis. For illusion of control, the median level among a sample of non-problem gamblers is three (Kallmen et al. 2008). Scores of three or below were classified as low illusion of control and four or above as high illusion. For gambling self-efficacy, the mean levels among a stratified sample of problem gamblers are 58

and 68 (Hodgins et al. 2004). A score of 68 or below was considered a low level of gambling self-efficacy and a score of 69 or above was high efficacy.

The open-ended interview responses were analyzed with NVivo 9 using both deductive and inductive methods. The main focus of the qualitative analysis was to search for consistent themes to help understand frequent gamblers' experience of the three types of control. First, focused coding was used, where the data is analyzed using pre-determined themes (Emerson, Fretz, and Shaw 1995). Themes were taken from the background literature and the central research question. The three forms of control, gambling behaviours, and gambling problems were used as the foundations for the conceptual framework for the systematic analysis of the qualitative material (Brazil, Bainbridge, and Rodriguez 2010). Sub-themes were also taken from the existing literature and from the initial themes outlined in the fieldnotes. Second, open coding was used to identify additional emerging themes while reading the transcriptions line-by-line (Emerson et al. 1995; Brazil et al. 2010). Using the entire list of themes, each transcription was analyzed using line-by-line coding. Relevant passages were drag-and-dropped into the appropriate theme, where they were grouped and presented together for ease of analysis. Themes that were repeated in the transcriptions were kept for the final coding scheme and those that appeared sparsely in the data were omitted (Kleinman, Copp, and Henderson 1997). A copy of the final coding scheme can be found in Appendix G. Descriptive and bivariate analyses of the interview responses were also performed for comparison with the questionnaire analyses. Results from the descriptive and bivariate interview analyses can be found in Appendix H.

2 Secondary Survey Analysis

2.1 Participants

This study also includes a secondary data analysis of the 2002 Canadian Community Health Survey (CCHS) – Mental Health and Well-Being 1.2. This analysis only examines the relationships between sense of control and problem gambling severity, and between gambling frequency and gambling problems. The CCHS 1.2 is a large, cross-sectional general population health survey that gives information on the determinants of mental health, mental health status, and mental health system utilization in Canada (CCHS 2003). Computer-assisted interviewing

was used to collect the data between May and December of 2002 in all 10 provinces (Ibid). The survey excluded armed forces bases, Aboriginal reserves, health care institutions, and remote northern regions of Ontario and Quebec (Ibid). The sample includes over 36,000 participants over the age of 15. For the purposes of the current analysis, 11,773 cases are valid. The survey selected households using a multistage stratified cluster design and picked one person over 15 randomly from each household. The sample over-represents young people (15-24 years) and seniors (65+ years; Ibid). The survey has response rates of 87% at the household level and 77% at the individual level (Ibid). Topics covered in the CCHS 1.2 include psychological well-being, gambling, and mental disorders, such as depression, anxiety, and substance use disorders. The CCHS 1.2 is one of the largest surveys to include detailed questioning on gambling behaviours, problem gambling, and psychological well-being/sense of control.

2.2 Measurement

The variables of interest from the CCHS 1.2 are gambling frequency, problem gambling severity, type of game, sense of control, and demographics. Illusion of control and gambling self-efficacy are not measured in the CCHS 1.2.

The CCHS 1.2 gathered data on gambling frequency using the Canadian Problem Gambling Index (Ferris and Wynne 2001a; 2001b). The same 13 gambling frequency questions used in the questionnaire are found in the CCHS. Gambling frequency is measured in the same way in both data sources, using a composite measure of number of days per year. Only gamblers who bet once a week or more are included in the analysis. The CCHS 1.2 measured problem gambling severity using the PGSI. Problem gambling severity is assessed using the same procedure for both the questionnaire and the CCHS, by summing responses to yield a score on a 27 point scale. Type of game is measured using the 13 gambling frequency questions. Gamblers were classified as skill or chance gamblers based on the types of games they most frequently bet on.

Though the CCHS 1.2 does not specifically measure sense of control, it includes several self-concept questions that capture core aspects of sense of control. Sense of control is measured using seven questions from the psychological well-being manifestation scale: Frequency in the last month of 1) feeling self-confident, 2) feeling satisfied with what they accomplished/proud

of themselves, 3) feeling useful, 4) being able to clearly sort things out when faced with complicated situations, 5) being able to easily find answers to their problems, 6) being able to face difficult situations in a positive way, and 7) having good morale. The available responses were Almost always (4), Frequently (3), Half the time (2), Rarely (1) and Never (0). Since these items are highly correlated ($\alpha=.86$), they are summed to create a scale of sense of control. The sense of control scale ranges from zero to 28. It is important to note, however, that these items are highly correlated precisely because they are part of the same scale or construct already – psychological well-being. For this reason, the face validity of this measure of sense of control is reduced. Though these questions were selected because they capture important parts of sense of control, they are still measures of psychological well-being.

Because there are social status differences in sense of control, gambling frequency, and problem gambling severity, several demographic differences are controlled for in the analysis: age, gender, marital status, immigrant status, income, employment status, and education. To assess whether any observed associations varies by type of game, type of gambling game is also controlled. The types of games are again the 13 items included in the gambling frequency scale.

2.3 Data Analysis

The secondary data analysis was performed using Statistical Analysis Software (SAS) 9.2. Multiple linear regression is used to assess how sense of control is related to problem gambling severity among frequent gamblers. The analysis begins by limiting the sample to gamblers who wagered once a week or more over the past year. Next, it examines whether sense of control is negatively associated with problem gambling severity, as predicted by the Dynamics of Control Model. Then, the analysis controls for demographics to ensure that a relationship from the first step is not spurious for these differences. Finally, type of game is controlled to see whether the association varies by this variable. If an observed relationship disappears in this step, it is concluded that the association varies by type of game. In order to allow for comparison with the interview sample, this analysis was also conducted separately for chance and skill gamblers, omitting the last step of controlling for type of game. Since the association between gambling frequency and problem gambling severity is not a focus of this study, this relationship is only

subjected to correlation analyses. Results from the secondary analysis of the CCHS 1.2 can be found in Appendix I.

3 The Presentation of Findings

The responses from the open-ended portion of the interviews will be the focus in the coming chapters. The next chapter – chapter four describing the Simcoe County Gambling Study group of frequent gamblers – contains the most numerical material of the results chapters. In the rest of the chapters, respondents’ open-ended answers are used to describe and explain the findings. Passages are all identified with the participant’s ID number to maintain confidentiality. Quotes have been edited (‘um’s removed) and clarified (using bracketed insertions) for easy reading. Open-ended responses are also used to complement and enhance the results from the closed-ended questionnaire. Finally, the closed-ended results for the association between sense of control and problem gambling severity are supplemented by similar analyses in the CCHS 1.2. In the following chapters, the triangulation of the three sources of data – the open-ended interview, the closed-ended questionnaire, and the CCHS survey – is used to examine the Dynamics of Control Model among the 30 frequent gamblers from Simcoe County, Ontario.

Chapter 4

The Frequent Gamblers

The Simcoe County Gambling Study (SCGS) includes a non-random group of 30 frequent gamblers. Individuals who were interested in participating, were available, and met the eligibility criteria were included in the study. The purpose of this chapter is to describe who these people are. Knowing more about these individuals will provide context for the results presented in the chapters to follow.

1 Demographics

The SCGS sample of 30 frequent gamblers is a diverse group of people (see Table 4). The two largest age categories are the 55-59 age group and the 25-29 age group. Of the 30 participants, 63.33% are male and 36.67% are female. A third of the group is married and just under a quarter is single. Among these gamblers, 30.0% are employed full time. In terms of education, 26.67% completed their high school training and 23.33% completed their Bachelor degree. In this group, 46.67% of respondents have personal incomes between \$20,000 and \$40,000. Though the frequent gamblers in this sample are diverse in terms of most demographic characteristics, diversity is limited in terms of cultural or racial backgrounds. The majority of the SCGS sample self-identifies as Caucasian.

Table 4: Demographic Characteristics of the Simcoe County Gambling Study Sample

Variable	Categories	Frequency	Percent
Age	18-19	0	0
	20-24	2	6.67
	25-29	5	16.67
	30-34	1	3.33
	35-39	1	3.33
	40-44	1	3.33
	45-49	4	13.33
	50-54	3	10.0
	55-59	7	23.33
	60-64	4	13.33
	65-69	1	3.33
	70-74	1	3.33
	75+	0	0
Gender	Male	19	63.33
	Female	11	36.67
Cultural/Racial Background	White	26	86.67
	First Nations	2	6.67
	Métis	2	6.67
Marital Status	Married	10	33.33
	Common Law	5	16.67
	Widowed	2	6.67
	Separated	2	6.67
	Divorced	4	13.33
	Single	7	23.33
Job Status	Employed Full Time	9	30.0
	Employed Part Time	5	16.67
	Unemployed	2	6.67
	Student Employed	1	3.33
	Student Not Employed	1	3.33

Variable	Categories	Frequency	Percent
Job Status (cont.)	Retired	5	16.67
	Homemaker	1	3.33
	Disability	3	10.0
	Self Employed	2	6.67
	Other	1	3.33
Education	Some High School	2	6.67
	High School	8	26.67
	Some College	5	16.67
	College	4	13.33
	Some University	4	13.33
	Bachelor's Degree	7	23.33
Income	Under 20K	7	23.33
	20-40K	14	46.67
	40-60K	4	13.33
	60-80K	3	10.0
	80-100K	1	3.33
	Over 100K	0	0
	Don't Know	1	3.33

2 Gambling and Control

With this improved idea of who the frequent gamblers in the SCGS sample are, this section discusses their gambling behaviours, problem gambling severity, and levels of control (see Table 5). On average, participants gambled 433.73 times in the last year or 1.19 times a day. This is well above the required once a week for inclusion in the study. Among this group of frequent gamblers, the mean level of problem gambling severity is 6.43, which reflects a moderate level of problem gambling symptoms (Ferris and Wynne 2001a; 2001b). The mean level of sense of control in this sample is 21.6, which is a high level of sense of control. This group also has high illusion of control, with a mean score of 4.17. Finally, this sample has a low level of gambling self-efficacy, with an average score of 67.

Table 5: Gambling and Control Characteristics of the Simcoe County Gambling Study Sample

Measure	Mean	Median	Maximum	Minimum
Gambling Frequency	433.73	381.5	1155	55
Problem Gambling Severity	6.43	5	23	0
Sense of Control	21.6	22	27	15
Illusion of Control	4.17	4	11	0
Gambling Self-Efficacy	67	61.5	105	23

3 Skill and Chance Gamblers

The current sample of frequent gamblers was stratified based on whether each participant played skill games or chance games more often¹. This decision was made because the literature suggests that gambling frequency, problem gambling severity, sense of control, and illusion of control (though not gambling self-efficacy) vary depending on the type of game played. Here, the skill and chance gamblers are compared in order to get a better idea of how these gamblers differ (see Tables 6 and 7).

In the SCGS sample, skill and chance gamblers do not differ in age ($\chi^2=9.4$, $p=0.40$). Both groups are also similar in their marital status, where a third of each is married ($\chi^2=4.34$, $p=0.50$). Skill and chance gamblers do not differ in terms of racial or cultural background, job status, or income ($\chi^2=4.62$, $p=0.10$; $\chi^2=11.11$, $p=0.27$; $\chi^2=6.57$, $p=0.26$). Most gamblers in both groups self-identify as Caucasian, roughly a third are employed full time, and the majority have incomes between \$20,000 and \$40,000. However, skill gamblers are more often male and chance gamblers are more often female ($\chi^2=7.03$, $p=0.01$). Skill gamblers are also more educated than chance gamblers ($\chi^2=11.77$, $p=0.04$). Most skill gamblers have completed their Bachelor degree, while most chance gamblers have completed their high school diploma.

¹ All 15 skill gamblers in the SCGS sample selected a skill game as their game of choice. All but one chance gambler picked a chance game as their favourite. So there is a good correspondence between the most frequently played game and the preferred game. It is unlikely that the current findings would have been much different had the sample been classified based on preferred game instead of most frequently played game.

Table 6: Demographic Differences between Skill and Chance Gamblers in the Simcoe County Gambling Study

Variable	Categories	Skill Gamblers		Chance Gamblers		Chi-Square Tests	
		Frequency	Percentage	Frequency	Percentage	Value	Sign.
Age	18-19	0	0	0	0	9.40	0.40
	20-24	0	0	2	13.33		
	25-29	4	26.67	1	6.67		
	30-34	1	6.67	0	0		
	35-39	1	6.67	0	0		
	40-44	1	6.67	0	0		
	45-49	2	13.33	2	13.33		
	50-54	1	6.67	2	13.33		
	55-59	2	13.33	5	33.33		
	60-64	2	13.33	2	13.33		
	65-69	1	6.67	0	0		
	70-74	0	0	1	6.67		
75+	0	0	0	0			
Gender	Male	13	86.67	6	40.0	7.03	0.01
	Female	2	13.33	9	60.0		
Racial or Cultural Background	White	15	100.0	11	73.33	4.62	0.10
	First Nations	0	0	2	13.33		
	Métis	0	0	2	13.33		
Marital Status	Married	5	33.33	5	33.33	4.34	0.50
	Common Law	2	13.33	3	20.0		
	Widowed	0	0	2	13.33		
	Separated	2	13.33	0	0		
	Divorced	2	13.33	2	13.33		
	Single	4	26.67	3	20.0		
Job Status	Employed Full Time	5	33.33	4	26.67	11.11	0.27

Variable	Categories	Skill Gamblers		Chance Gamblers		Chi-Square	
		Frequency	Percentage	Frequency	Percentage	Value	Sign.
Job Status (cont.)	Employed	4	26.67	1	6.67		
	Part Time						
	Unemployed	2	13.33	0	0		
	Student Employed	0	0	1	6.67		
	Student Not Employed	0	0	1	6.67		
	Retired	2	13.33	3	20.0		
	Homemaker	0	0	1	6.67		
	Disability	0	0	3	20.0		
	Self Employed	1	6.67	1	6.67		
Other	1	6.67	0	0			
Education	Some High School	2	13.33	0	0	11.77	0.04
	High School	2	13.33	6	40.0		
	Some College	3	20.0	2	13.33		
	College	2	13.33	2	13.33		
	Some University	0	0	4	26.67		
	Bachelor's Degree	6	40.0	1	6.67		
Income	Under 20K	2	13.33	5	33.33	6.57	0.26
	20-40K	6	40.0	8	53.33		
	40-60K	2	13.33	2	13.33		
	60-80K	3	20.0	0	0		
	80-100K	1	6.67	0	0		
	Over 100K	0	0	0	0		
	Don't Know	1	6.67	0	0		

Skill gamblers bet more frequently than chance gamblers ($t= 2.10$, $p= 0.04$). The average frequency is 1.51 times a day among skill gamblers and 6.12 times a week among chance gamblers. Skill gamblers also have higher problem gambling severity scores on average, though this difference is not statistically significant ($t=1.64$, $p=0.11$).

Skill gamblers have higher sense of control than chance gamblers ($t=2.55$, $p=0.02$), which is consistent with previous findings for locus of control (Lester 1980). Skill gamblers also have higher illusion of control than chance gamblers ($t=3.56$, $p=0.001$). In fact, the average score for skill gamblers is a high level of illusion of control and the average for chance gamblers is a low level. The higher level of illusion of control among skill gamblers is consistent with previous findings (Toneatto et al. 1997; Myrseth et al. 2010). In contrast, skill and chance gamblers do not have different levels of gambling self-efficacy ($t=-0.89$, $p=0.38$). This result is also consistent with previous literature (O'Connor and Dickerson 2003).

Table 7: Gambling and Control Differences between Skill and Chance Gamblers in the Simcoe County Gambling Study

Measure	Skill Gamblers				Chance Gamblers				T Tests	
	Mean	Median	Max.	Min.	Mean	Median	Max.	Min.	Value	Sign.
Gambling Frequency	549.2	482	1155	124	318.27	214	1019	55	2.10	0.04
Problem Gambling Severity	8.33	5	23	0	4.53	2	15	0	1.64	0.11
Sense of Control	23	22	27	16	20.2	21	24	15	2.55	0.02
Illusion of Control	5.73	6	11	1	2.6	2	7	0	3.56	0.001
Gambling Self-Efficacy	63.27	59	96	23	64	105	28	64	-0.89	0.38

In the SCGS sample, skill and chance gamblers do not significantly differ in terms of age, marital status, racial or cultural background, job status, or income. Skill gamblers are more often

male and have completed a higher level of education than chance gamblers. Though skill gamblers bet more frequently than chance gamblers, they do not differ significantly in their problem gambling severity scores. Finally, skill gamblers have higher sense and illusion of control than chance gamblers, but similar levels of gambling self-efficacy.

4 Conclusions

This chapter provides a profile of the 30 frequent gamblers that were interviewed as part of the Simcoe County Gambling Study. Most of the participants are male, employed, and have personal incomes below \$40,000. The two largest age categories are 25-29 and 55-59 years. The largest marital status category is married and most participants completed either high school or post-secondary education. On average, this sample gambles 1.19 times a day and experiences a moderate level of problems with their gambling. Overall, these frequent gamblers have high sense of control, high illusion of control, and low gambling self-efficacy. The skill and chance gamblers are similar in terms of age, marital status, racial or cultural background, job status, and income. However, skill gamblers are more often male and are more educated than chance gamblers. Skill and chance gamblers do not differ in problem gambling severity scores, but skill gamblers bet more frequently. Finally, skill gamblers have higher sense and illusion of control than chance gamblers, but similar levels of gambling self-efficacy. The Simcoe County Gambling Study is diverse and this profile provides a backdrop for the results in the chapters to follow.

Chapter 5

Sense of Control

Sense of control is the generalized belief that outcomes in life are dependent on one's own behaviours. But what does this really mean for people? How do people make sense of this belief? How does it play out in their everyday lives? Before studying how the types of control relate to each other and to gambling problems, the next three chapters address this study's first objective: discuss how the types of control are experienced by the individual. These three chapters provide a strong foundation of improved understanding on which to base the quantitative results to come. The present chapter examines how frequent gamblers understand and experience sense of control. The open-ended responses reveal that frequent gamblers understand control over life events as something that differs for positive and negative events, involves differing combinations of various forces, and doesn't apply uniformly to all positive and negative events. Frequent gamblers experience their sense of control as something that changes over time and can be influenced by other people's actions. In discussing sense of control, participants rarely mentioned gambling specifically, which supports the definition of sense of control as a general (not realm specific) belief.

1 Sense of Control Groups

Sense of control varies in two main ways. First, the degree to which outcomes are dependent on individual decisions and actions varies (Mirowsky and Ross 2003). Some people believe that outcomes are minimally dependent on personal decisions and are instead dependent on God, luck, or fate. Others believe that outcomes largely depend on personal choices. Second, the degree to which outcomes are dependent on individual decisions and actions varies by the type of outcome: positive or negative. Some people feel that both positive and negative events are dependent on personal decisions. These people are called instrumentalists (Mirowsky and Ross 1990). In contrast, people who feel that personal choices have little importance for both types of events are considered fatalists (Ibid). In between these two extremes are those who only feel in control of negative events (self-blamers) and those who feel personal decisions are only important for positive events (self-defenders; Ibid).

These two types of variation are important because they have health consequences. The stronger and more generalizable a person's belief in the power of personal decisions and actions, the better their health (Mirowsky and Ross 1990). Self-blamers, self-defenders, and fatalists all have worse mental health than instrumentalists (Ibid). Below, the open-ended interview responses are examined using these four sense of control categories because they thoroughly capture both types of variation in dependence. Though a high/low dichotomy is used in the analysis of the questionnaire responses, a dichotomous ranking of sense of control based on interview responses would be rather cumbersome and somewhat arbitrary. More importantly, these four sense of control groupings do a good job of distinguishing between different understandings of sense of control. In the following sections, the open-ended responses are used to describe how each sense of control group makes sense of their successes and failures.

1.1 Instrumentalists

Of the 30 frequent gamblers, 17 are instrumentalists – they feel that their personal choices play a major role in both the positive and negative events in their lives. The high proportion of instrumentalists comes as no surprise, since the questionnaire results discussed above find a high level of sense of control in this sample². The high number of instrumentalists here – and in the general population – is likely due in part to our culture's idealization of instrumentalism (Mirowsky and Ross 1990).

Instrumentalists generally believe “what you put into something is what you get out of it” (104). What you put in includes many things, such as “hard work, dedication and courage, confidence and just not giving up” (104). What you get out is success. Instrumentalists articulate this understanding by taking full responsibility for their achievements:

² The quantitative measure and qualitative classifications of sense of control match up quite well. Of the 17 instrumentalists, 14 are classified as instrumentalists based on their questionnaire responses. Similarly, 15 of the 17 have high levels of control (based on the Pearlin et al. (1981) Mastery scale) in the questionnaire.

I didn't graduate university at 37 years old based on luck. I hadn't been in school for 20 years and had no idea how to even write an essay. I did it based on skill and drive of my own ambitions, not because I got lucky, and I graduated with a 90 average (116).

Effort – skill, drive, ambition – is the key to success for instrumentalists. Just like this individual does, many instrumentalists explicitly denounce a role for luck or any other external force. As comes through in this quote, instrumentalists are often confident in their abilities. Such confidence stems from a positive cycle of past successes (Ross and Sastry 1999). It also comes from overcoming obstacles – like academic inexperience or being a middle aged person among young adults – and excelling – not only graduating but achieving a high average mark.

The mantra 'what you put in is what you get out' also applies to negative events.

Instrumentalists take responsibility for past failures and poor decisions. One individual explained how he understands the dissolution of his marriage:

I was divorced. If I had my time to do it again, that would probably – I don't know, it may of still ended the same way but I think we didn't really put in a fight there, neither of us. We kind of allowed ourselves to kind of just, I don't know, drift. I really think it could have been done differently. That's not to say that something couldn't have gone wrong at some point in our lives or something like that. I think at the time, you know, I didn't put my foot down. You know? That always bugs me (101).

Instead of placing all of the blame on his wife – which can be so easy when it comes to relationship issues – this person admits that his divorce was the result of a *lack* of effort on his (and her) part. Because he did not put enough into the marriage – time, fight, devotion – he did not get success out of it – a long lasting relationship. His concluding remark 'That always bugs me' shows how a negative experience can contribute to the positive cycle of success. By reflecting on this negative experience, this individual learned a valuable lesson that can be applied to future relationships: 'put your foot down' by making a conscious effort.

Instrumentalists also take ownership of their near death experiences – a particularly negative type of life event. One individual had two such experiences, both of which he took responsibility for:

Almost drowning, that was sheer stupidity. I was out and about with [...] friends and we tried to make it up a falls and the boat tipped and I almost drowned. We were stranded

on an island, and we had to strip down to our gotchies. It was September and very cold. We almost lost one of the guys that was in the boat, it was all we could do to get him to shore. [...] I could have said no to [him], you know ‘Don’t try and go up the chute because it ain’t going to work’. My heart attack, that was due to my lifestyle because I smoked three packs a day and drank about 20 cups of coffee a day and I drank hard for a lot of years so, those things were basically in my control (204).

This person could easily blame his near-drowning on bad luck or being in the wrong place at the wrong time. He could also blame his heart attack on genetic predisposition. Instead, he takes responsibility for both events. Like relationship troubles, these near death experiences are also caused by not putting enough into the situation. Instead of a lack of effort, these negative experiences were the result of a lack of forethought – stupidity or poor decisions.

So instrumentalists believe that their successes and failures are determined by how much effort and thought is put into a situation. They also feel that outcomes are influenced by solving problems when they are encountered. For example, one participant discussed how he made the best of a bad situation – getting laid off:

It was down to me just directing myself basically. I had to do something, I was young enough to do it at the time. I knew I couldn’t just sit on my backside and do nothing. You know, ‘You go and wait’, you know. So it wasn’t fate, it was a combination of sitting down and thinking about it, doing something, and putting the time and effort in (101).

This person made the decision to turn this loss into an opportunity. He put in the time and the effort needed to make an insightful decision and follow through on it, later finishing his university education. If this individual had interpreted being let go as fate, he likely would not have engaged in such rigorous problem solving and may have suffered a lot of stress as a result.

Over half of the frequent gamblers take ownership of both their positive and negative experiences. The interview responses reveal the foundations of this belief. As instrumentalists, these people understand their control over life events as an equation: ‘what you put in is what you get out’ of any particular situation. The most influential factors in this equation are effort and decision making. Positive events are the result of putting in the required effort and making smart informed decisions. Bad situations can be turned around in the same ways through active

problem solving. In contrast, negative events are caused by a lack of effort and poorly thought-out decisions.

1.2 Self-Blamers

Five of the 30 frequent gamblers are self-blamers – they take responsibility for the negative experiences they've had but attribute positive events to some external force³. Interestingly, none of the participants are self-defenders, who feel in control of their positive events but not their negative ones.

Self-blamers generally believe that positive (not negative) external forces are at work in their lives. One person explained their understanding of this disconnect as follows: “Why would something good assist you in doing something bad?” (201). Self-blamers feel that positive external forces help steer you towards success. ‘Something good’ can be God, luck, fate, or what one individual called circumstances:

I think that circumstances always play a part, you know? Sitting at the right seat in university, at school, I now know the Health Minister of Ontario. That's where I met my ex-wife's roommate. Had I not taken economics at 33 I would never have met either one of those people. So fate always plays a part in circumstances. Had I not gone to [that university] I would have not met either one of those (102).

So fate plays a role in positive events by shaping the situations that make up everyday life – where you go to school, what classes you take, and where you sit. Although these choices can be attributed to personal decisions, self-blamers view them as guided or at least given meaning by external forces. Without that particular set of circumstances, the positive outcome may not have come about – this person would not have met his wife or the Health Minister of Ontario. The power of these external forces for good is exemplified by their ability to overcome obstacles, like taking a particular university course when you are no longer the age of a typically student.

³ Of the five self-blamers, all are classified as instrumentalists in the questionnaire. Similarly, none of the five score a low level of sense of control in the questionnaire, as would be expected. So there is a disconnect between Pearlin et al.'s (1981) Mastery scale from the questionnaire, the categorical classifications of Mirowsky and Ross (1990) in the questionnaire, and the categorical classifications based on the qualitative interview.

Most self-blamers see external forces as guiding powers – forces that steer them in a particular (positive) direction. Occasionally though, self-blamers attribute positive events to divine control. One person described how angels have helped keep her safe in the past:

I've been in lots of situations where I swear angels were driving the car. I had nothing to do with it. I could not have driven that well and I've come through without being in an accident. I mean really bad situations with the road and it wasn't me that was driving the car. I've had a lot of scrapes with death and I've lived. (109)

This person attributes her survival during these near death experiences entirely to a higher power. External forces did not simply play a guiding role in these situations, suggesting where she should go. Further, she takes no ownership of her decisions or behaviours during these situations. Instead, an external force – angels – took control of the situation and made sure it ended safely.

Beliefs in divine control are quite infrequent among this group of frequent gamblers. Instead, self-blamers tend to view God as a source of support. When asked why he thinks that God is the most important in explaining his positive experiences, one person replied:

Because religion's always in the back of my mind even though I don't go to church every week. I still do have a couple times a week where I do pray and whatever, and I do believe. [...] I don't go home and thank him for my day every day and some people do, but I am aware of him being there (115).

Like this individual, most self-blamers do not think that God is in complete control of their lives. Instead, God is an ever present force that seems to provide a sense of comfort to these individuals. They know that someone is looking out for them. It is this feeling of comfort that can dampen the typically negative effect on mental health of believing in external forces (Ross 1990).

So self-blamers believe in being at “the right place and the right time” (102). However, these individuals do not believe in being in the wrong place at the wrong time. As with instrumentalists, self-blamers take ownership of the negative events from their past. They do not feel that there is a negative force that steers them in the wrong direction or punishes them for wrongdoings. One self-blamer explained how he takes responsibility for his divorce:

Well certainly the marriage breakup was a result of a number of factors initiated by myself, and so I don't think fate had anything to do with those negative outcomes. It was all my doing, I have to take responsibility. [...] I believe that everyone has their ability to make better choices. Hindsight's always perfect. [...] If I knew she was going to react in that way I would have done something different. (102).

This story echoes the one told above by an instrumentalist. This person takes (partial) responsibility for the dissolution of his marriage and explicitly denies the role of fate. Further, he doesn't place full blame on his ex-partner, which is often easy to do when it comes to relationship troubles. Instead, he acknowledges that his decisions to act in certain ways compromised his relationship. So, as is the case for the instrumentalists above, the key factor for understanding negative events among self-blamers is not some external force – it is poor personal decisions.

Five of the 30 frequent gamblers are self-blamers. They feel that (only) positive external forces are at work in their lives. The interview responses show that self-blamers do not believe in menacing external forces that punish or hurt people. Positive life events come from being in the right place at the right time. Interestingly though, there is no such thing as being in the wrong place at the wrong time. Self-blamers share a similar understanding of their control over negative experiences with instrumentalists: negative events are the result of poorly thought-out decisions and actions.

1.3 Fatalists

Eight of the 30 frequent gamblers are fatalists. They do not take ownership of the positive or negative experiences from their past. Instead, they understand both types of events as determined by some external force, like God or fate⁴. Fatalists generally believe that “There is no coincidence, everything happens for a reason” (209). The reasons behind both positive and negative experiences are determined or at least known by the powerful force at work.

⁴ Of the eight fatalists, all are classified as instrumentalists in the questionnaire. In contrast, five score low on sense of control in the questionnaire. So results based on the interview responses and the questionnaire responses to the Pearlin et al. (1981) Mastery scale match up to some degree. However, there is a disconnect between these two measures and the Mirowsky and Ross (1990) measure in the questionnaire.

One participant discussed at length how an external force played a key role in both his greatest successes and biggest failures. He believes that God helped him survive his addiction by preventing certain life-changing events: “I never killed nobody for drinking and driving and I thank God for that many times” (105). He knows that he was behaving recklessly and believes God prevented the worst from happening in these situations. He does not attribute these relatively positive outcomes to his own actions. On a larger scale, God was a key part of his addiction recovery: “That’s when I started to put some faith in God and asking God every day to help me do this back then I was asking for help every day and I was seeing that the help came” (105). After he made the decision to get sober, God helped him achieve this goal. He has been able to stay clean for a period of time and has begun to put his life back together – successes he attributes to God’s support.

While this person credits God with his successes, he also blames God for his failures. This individual described how he came to an understanding of his most important negative experience – a substance addiction – as follows:

You gotta hit a pretty low spot in your life I guess to go admit you’ve got a problem with drugs or alcohol. When they are a part of your life – when they were a part of mine for so many years and when I started discovering some of these things, then I started thinking maybe there is something to this God thing. You know, you put me through all of this, whatever, and here I am now, I still survived it all (105).

This person believes that God subjected him to the addiction and the negative experiences that came with it. Coming to this realization was a process. This individual now uses God and religion to make sense of his life, namely his addiction problems. By understanding his addiction as a test from God, he gains some clarity and purpose for his experiences. Like most fatalists, God played a role in this person’s (addiction) story from beginning to end. Though God put him through the addiction, God also helped him come out the other side.

The previous quote shows that in addition to being the driving force behind positive and negative events, God can help people cope with their problems. God helped the individual above cope with the negative experiences that resulted from his addiction and progress with recovery. Another individual told a similar story, where God helped her cope with her gambling problems. She described her understanding of God’s influence as follows: “He always watches over me,

and if I fall down he's going to help me, but now he's helped me in a way that I realize I have a problem" (220). This person believes that God actively helps her recover when she falls on hard times. In this particular case, he has helped her to begin to cope with her uncontrolled gambling behaviours by making her see that she has a problem that needs to be addressed. God has also helped this individual cope with the death of her husband. At first, she was angry at God and blamed him for taking her husband away from her. Over time, she came to a new realisation: "Now I know that he had a very hard time breathing – he got CODP [chronic obstructive pulmonary disease] – and then when you get that your body starts breaking down, your organs literally start breaking down. I looked to the fact that the angels had taken him so he can breathe again" (220). Her belief in God allows her to gain a sense of understanding and purpose for her husband's death. He is now at peace. This sense of meaning allows this person to feel some comfort in coping with her loss.

Like the self-blamers discussed in the previous section, some fatalists understand God as an ever-present force that provides a sense of comfort or support. The fatalist above described God as always watching over her, providing her with reassurance that someone is always looking out for her best interest. Another fatalist shared a similar understanding and described God's presence in this way:

A few lines in one of the books that I read said your needs will always be provided for. Not your wants but your needs, and you have to remember that. What do you need? It will always be provided for if you live a life that's trying to improve and get better and I started to believe that. Things started happening and things started to get a little better. (105)

One of the first quotes in this section showed how God helped this individual cope with his addiction by giving it meaning. This quote illustrates how God further helped him cope by serving as a source of support. Believing that his attempts to improve himself would bring about additional help gave this person a sense of emotional comfort. Further, seeing positive things start to happen for him – like success in keeping his family home – gave him support and encouragement in his recovery process.

As the quotes in this section have illustrated, there are different reasons behind the positive and negative events that fatalists experience. Fatalists generally believe that positive events are

rewards for following an external force's direction. In some cases, negative events have a positive side in that they convey a message to the individual. In contrast, most fatalists believe that negative events are something that the external force allows or puts them through. Often the reason behind negative events is punishment for not following the path set out by the external force or "God was punishing my bad decisions" (114). One fatalist also understands her negative experiences as lessons. When asked if God was writing the script of her life, she replied:

Well I'm not that heavy a church go-er to say 100%. But I will say that everything that happens to me I believe – I classify it as a challenge. What is this suppose to mean and what lesson am I suppose to learn from this? And I do believe as long as I believe in God things will happen. Maybe not for the better, but there's a reason for it. (220)

This person strongly believes that everything, good and bad, happens for a reason. Unlike most of the fatalists in this study, this individual does not believe that God punishes wrong decisions. Instead, she believes that negative events are challenges that are meant to teach important life lessons.

Eight of the 30 frequent gamblers are fatalists. These people feel they have minimal control over the events in their lives. Instead, they understand both their positive and negative events as caused by a powerful external force, believing that all things happen for a reason. This belief allows fatalists to make sense of their experiences, both good and bad. Instead of feeling helpless against the external force in their lives, fatalists are comforted because they know particular events happen for some bigger purpose. Like self-blamers, fatalists believe in external forces that work for good. However, unlike self-blamers, fatalists do believe that external forces can also influence negative events by punishing the individual for wrongdoings, for example.

2 Within-Category Variation

Instrumentalists, self-blamers, and fatalists have general understandings of the forces involved in their life experiences. However, there are two types of variation in understanding *within* these groups. First, people vary in the degree of control they attribute to different forces. Second, people's beliefs do not apply uniformly to all positive and negative events. Within-group differences are often overlooked when sense of control is examined categorically and

quantitatively. In the qualitative interviews conducted for this study, these differences were apparent.

In terms of the first type of variation, some instrumentalists understand their positive and negative events as being influenced by something other than just their own personal choices and actions. One gambler contextualizes the importance of effort within his belief in Buddha and the power of attitude:

I believe in Buddha, if you think positive and you are positive then what you do in your life controls what happens. If you have the attitude nothing good is going to happen well nothing good is going to happen. If you go around with the attitude that if I put my effort into this, if this is what I want to do and I invest my time and my effort and my skills into it, then it will happen (107).

For this person, successes and failures are determined by whether or not you make the decision and take the steps to invest effort and time. However, personal choices and actions will only be successful if you have a positive attitude – a belief this gambler gained from Buddhism. In other words, personal decisions and actions are facilitated by a powerful external force. As another person explained, external forces can help by “positioning yourself in the position to open your own doors” (116). These responses support the claim that sense of control is about confidence in one’s effectiveness, since the positivity fostered by Buddhism seems to encourage active steps to pursue a goal or open your own doors.

Self-blamers also vary in the degree of influence they attribute to different forces. Though individuals in this group generally understand their positive experiences as being influenced by an external force, not a single one of them says that their positive events are determined entirely by this force. Self-blamers believe that personal decisions work within the circumstances or path presented by the external forces. One person explained how they understand fate’s role in their life in this way:

It’s what you do with it and how you use it – fate can be good. It’s not predetermined. It’s a set of - it’s a situation, and then you take the situation and you do what you need to do with it. Or you don’t use it, you know? (102)

For this individual, personal decisions do play an important role in positive events in taking advantage of the situation. A person can achieve a positive outcome if they make decisions that capitalize on the circumstances set up by fate. If the wrong decisions are made, the positive experience will not materialize.

Self-blamers who believe God or another powerful other influences their positive events tell a similar story. Personal decisions work alongside the direction or path provided by the powerful other: “Some of the cultures, especially the First Nations, the spirit is there to guide you because it already knows but the body has to learn it, has to experience it. So sometimes those two come together” (201). The powerful other offers or encourages a direction to go in, but personal decisions ultimately determine whether the individual follows or veers off the path. Although self-blamers believe these forces work together, external forces come before personal choices in time and importance. Most significantly, external forces do not determine positive events but allow or encourage them – they are a guiding force.

Fatalists agree with self-blamers that external forces play a guiding instead of a determining role in their lives, leaving room for personal choice. For this group, the external forces guide both positive and negative outcomes. Like self-blamers, fatalists believe that personal decisions work with or against the external force’s direction or path. As one person explained:

The opportunities are always there and it’s God that puts those opportunities there, so whether you take advantage of them or not. I’ve had lots of flashes where I should have done that and it was right there in front of me and I know that’s God. That’s not fate or anything like that. Following in his direction is always a good thing, maybe sometimes you’re blind to it. (115)

Fatalists believe that God or other external forces set out paths to follow or opportunities to take advantage of. However, it is ultimately the person’s decision about whether to follow the path or take advantage of the opportunity. When a person goes against the guidance, they often encounter negative experiences as a result. One person summarized the fatalists’ understanding in this way: “There’s always room for personal choice. God gave people, men and women, a brain so they can make their own decision. We have the free will” (209). Although God provides guidance and punishes poor choices, God also gives everyone the ability to make their own decisions and direct their own lives.

So some people believe that internal and external forces combine to produce their positive and negative experiences. Others feel that certain forces are only responsible for particular events they have experienced. In other words, the general understanding of control does not apply to all situations. For example, two instrumentalists feel that something other than personal choice brought about particular negative events from their past. One participant provided a striking example and description of this belief. As a child, he chose to live with a family friend during his parents' divorce. Unfortunately, he suffered sexual abuse at the hand of this person. On one level, he takes a degree of responsibility for those events:

You know, once I first discovered I put myself in a bad situation I did have a chance to get out, but at the same time, I didn't have knowledge of the game. I didn't know how to play the situation so I just folded. I just said 'Ah, you know what, whatever. This will all be over in a little while and we can move forward' (107).

This person acknowledges that his decision of where to stay contributed to the situation and that he could have made the decision to leave. However, he qualifies this statement by pointing out that as a child he did not know how to deal with the situation and decided to just wait for it to be over. Interestingly, this participant talks about this experience using poker terminology – his game of choice. He calls the situation a *game* that he didn't know how to *play* so he *folded*. The consistency between his beliefs about this event and his beliefs about poker continues in his discussion of what he feels is the main factor explaining this experience – variance:

When you're a kid and you go to stay with a family friend, there are pedophiles out there and they are going to find a child. It's going to happen, and it's unfortunately going to be a child, and it's just, you know. My number happened to be pulled. I was that kid, you know, that he finally found (107).

Though his decisions got him into the situation, he believes he is neither to blame nor was he destined for this experience. Instead, "the odds just weren't in my favour" (107). That family friend was going to abuse a child at some point and this individual happened to be in the wrong place at the wrong time. It was a matter of numbers or an unhappy coincidence that he ended up in that home.

The other instrumentalist went a step further than this individual in explaining his understanding of a particular negative event from his past. This person explained the circumstances around his parents' death as follows:

The house fire, the death of my parents – I was 14. I was going babysitting for my sister and my mother was outside the door yelling at me 'Don't go, don't go, stay home', and I went anyway. That bothered me, still does, but other than that I don't think I could have controlled it because they were both drinking at the time of their death, when the fire started. [...] If I hadn't left, my mother probably wouldn't have fallen asleep with the cigarette in her hand and they wouldn't have died (204).

As with the individual above, this person takes a degree of responsibility for this tragedy: had he listened to his mother and made the decision to stay home he could have saved them. Unlike the other instrumentalist, this individual does not attribute the fire or the deaths to odds or timing. Instead, he believes that the fire and deaths were mainly the result of his parents' poor judgement – their own personal choices to drink and smoke. Similarly, poor personal decisions on the part of the family friend above could also be blamed for that negative event.

For both of these instrumentalists, their personal choices contributed to the negative event but some other force played a more important role in it actually occurring. One participant offered an articulate explanation for how internal and external forces can work together in this way. He recounted this story:

Some freak accident occurs and somebody gets killed – there's nothing they can do about it, you know, it's fate, it happens. So you look at the kid that climbed over to get his hat at Six Flags there. He climbed over two fences to get his hat and he got hit by a woman's leg on a suspended roller coaster. But you know what? It was his choice to climb those two fences, but it was probably just fate that it happened, you know? A second earlier or a second later you know, would it have happened? (112).

So personal choices play a role in setting up the situation – making the decision not to climb the fence, live with the family friend, or leave to babysit could have changed the outcomes. Within the situations created by personal decisions, some external force – variance, odds, fate, poor judgement, bad luck, timing – is ultimately responsible for the one-time tragedy occurring.

One fatalist described the opposite understanding from these instrumentalists. He generally believes that positive and negative events are under God's control. However, he takes some

personal responsibility for particular successes and failures from his past. Though he believes God 'put him through' his addiction, he blames himself for the time he spent in jail:

When I ended up in jail more than once, it was usually three or four people out at the bars and the next day it was always, 'Oh if I hadn't went to the bar with that guy'. It was never what I did, it was always – but I look back now and it was me that put me in those [situations]. [...] I never looked into why is this happening in my life, why am I having this type of trouble. But I know it's me because I'm creating all this trouble (105).

Instead of blaming others or thinking that God is punishing him, this person takes responsibility for his jail time – his bad decisions got him there. Similarly, though he credits God with helping him recover from his addiction, he takes ownership of particular successes, like providing a stable home for his son: "That was my goal in the beginning, when all this stuff started happening, to provide a stable home for my son, and I did that" (105). Through his addictions and marital issues, this person fought hard and was able to provide a loving home for his child through his own actions and determination. Though God is powerful for this individual, he acknowledges that some situations come down to personal decisions and effort.

The open-ended responses show that the four sense of control categories are not discrete or uniform. Members of all three groups represented here see a role for both personal decisions and external forces for understanding their life events, though one is typically more influential. Generally, these people feel that personal choices work with or against the circumstances laid out by the external force. In a similar vein, some frequent gamblers understand their sense of control as something that does not apply uniformly to all events. Particular events, like child abuse and accidental deaths, cannot be attributed entirely to personal choice. Similarly, there is no denying the role of personal actions in other events, like addiction or jail time. In other words, there is a threshold for sense of control. More specifically, its health benefits peak around the 80th percentile, after which point they decline (Wheaton 1985; Mirowsky and Ross 1990; Mirowsky and Ross 2003). This is because feeling in control of situations that are actually out of your control – positive or negative – is bad for your health. For example, by not blaming themselves for being abused as a child or their parents passing in a house fire, the two instrumentalists avoid spending their entire lives (wrongly) feeling accountable for these events.

3 Changes over Time

Frequent gamblers understand sense of control as something that varies in many ways. As already discussed, it differs across positive and negative events, in degrees of influence for powerful forces and personal actions, and for particular experiences. The open-ended interview responses also reveal that there is a change in the understanding of control over time. Some people change how they make sense of the positive and negative events in their lives across the years, likely moving between groups. This finding supports the claim that sense of control is developed during a lifetime of experiences (Mirowsky et al. 2000).

Four individuals – three fatalists and one instrumentalist – described a lack of stability in sense of control over different phases of their lives. In adulthood, the fatalists begin to understand their past experiences not as the result of personal choices but as the work of external forces. One person described the shift she experienced in this way:

I had gone through a really, really hard life and I realized later that everything happens for a purpose - that's my motto in life. I say it every day, you know, everything happens for a purpose, so if it's bad you turn it into something positive. It opens up a new door. I didn't quite think that way when I was 19 years old, when I went through nursing and that. That was a battle and I had to keep pushing to get through that. [...] That was an achievement I had to work really hard at. (207).

As a young adult, this person felt that personal decisions and effort influenced outcomes, like finishing nursing school. However, a series of blessings and traumas in adulthood – including having a son, miscarrying, and experiencing abuse – changed her views. She cannot or will not attribute these events to personal choice and instead sees them as signs of external forces. By believing that everything happens for a reason, this person gains a sense of clarity or purpose for the events from her past.

The instrumentalist experienced the opposite change in sense of control compared to the fatalists. In the past, he placed blame for his troubles on anyone but himself. Now, he takes responsibility for his mistakes:

Ultimately you make the decisions and what you do is going to affect the rest of your life. I'm a strong believer in that now. Used to play the blame game. 'My mom died

when I was a kid, my dad didn't raise me properly', this and that. But you learn that, you know what, you made your choice to do this, so. I wasn't the one who selected my mom was going to die, so there's a little bit of fate eh? But anything else that happened after the fact, well I mean, you do it yourself. Somebody else isn't pouring the liquor into your mouth, you're doing it (112).

There are two types of variation in this quote. First, there is the within-category variability discussed at length above. Although this person takes responsibility for his actions including his drinking, he acknowledges the role of fate in certain circumstances like the passing of his mother while he was still a child. Second, there is a shift in understanding over time, namely the increase in personal responsibility. Where he used to blame others or pity himself, he now takes ownership of his own actions and their effect on his life. This individual's change in perception was brought on by his treatment for and recovery from addiction, when he was forced to closely examine his past actions and their consequences.

For four participants, the expectation of sense of control is not stable over time. Some come to attribute their life events to external forces, like God or fate. Others start to take personal responsibility for their past experiences. These changes suggest that sense of control is not a static concept. Though it is based largely on past experiences of success and failure (Mirowsky et al. 2000), new experiences – addiction recovery or treatment, the birth of a child, abuse – or even the passing of time have the power to shift the understanding of these past events. This shift happens when the meaning of the experiences or the lessons learned from them change as time passes or new events take place.

4 Other People's Actions

In addition to experiencing sense of control as something that is influenced by new experiences, frequent gamblers also experience their control over life events as something that is influenced by other people's actions. Members of all three sense of control categories – 11 people in all – feel that their ability to reach certain goals is often influenced by other people, in support of the claim that sense of control is developed through social interaction (Mirowsky et al. 2000). For some, significant others have a positive influence on their ability to achieve goals, serving as support systems. This is an example of additional resources, specifically social support, helping create a cycle of success (Aneshensel 1992). For several others, personal decisions are

negatively influenced by the interference of important people in their lives, potentially fostering a cycle of failures.

A few people talked about how their family and friends help them achieve their goals. Sometimes family and friends provide the encouragement needed to stay on course. Other times these people can help with taking the initial step. For example, one person explained how support from a co-worker was the push he needed to finally seek treatment for his alcoholism. He explained his decision as follows:

I actually worked with another guy that was in the program [Alcoholics Anonymous] and he kind of – he was talking to me for months about the drinking and stuff. He didn't lecture me but he gave me the book and over the next few weeks I went to that guy and I told him 'I think I need help, you're telling me I need it'. That started it for me but one of the main reasons at that time was where my life was. You know, I had to get my life together. My wife and I had a house together and a kid to raise and we weren't doing a very good job on either one of those (105).

This individual was in control of making the decision that started him on the path to recovery – *he* decided he had to get his life back together. This choice was facilitated by the co-worker's encouragement and the information he provided. The combination of gentle outside guidance, a personal acknowledgement of an issue, and the choice to take action all helped this person achieve their goal. In this way, the social support provided by his co-worker helped this person begin a cycle of successes and potentially increased his sense of control.

The influence of family and friends is quite different for negative experiences. Instead of providing kind encouragement towards success, many significant others interfere with good decisions or enable bad ones. Often, this makes the individual feel like they have little control over the situation. For example, one person described the interplay between his own and others' actions in this way:

I think up to this point I've been my own demon but I've had some help along the way, you know. So if I hadn't had business partners that were not that determined to crush me, and an ex-wife and her family. There were business issues with my ex-wife's father, he was involved in the business. He always felt hard done by, and there were other problems. So that hurt. When it started hurting the kids, I backed off a bit where I shouldn't have, you know, when I should have hung strong. So everything I did, I took

full responsibility for it but I did get some assistance along the way that kept pushing the grind even more (102).

This person takes most of the responsibility for the negative events in his life, namely the collapse of his business and marriage. He made poor decisions, including succumbing to his family's attempts to hurt him and his business. However, he is not the sole cause of these issues. His business partners, wife, and in-laws all helped sabotage the business. Instead of helping his situation, his family and friends added to the damage caused by his poor personal decisions, furthering a series of negative experiences.

Beyond worsening a bad situation, the interference of family and friends can also create negative experiences by counteracting the individual's decisions and actions. When asked what causes negative events in his life, one person answered: "Mostly always the result of other people's decisions. I do have control over what happens to me directly, but I can't control the things around me that are decided by other people" (116). This individual takes responsibility for his actions, but attributes a large part of his negative experiences including lost jobs and relationships to the efforts of others. For example, he explained his divorce as follows: "Our family had no choice, so based on my partners decision to leave there was nothing I could do about that. It was out of my control" (116). This person does not take any responsibility for the breakup of his marriage, because the ultimate decision to end it was his wife's. He went on to explain that, because he tries to avoid negative situations or correct them with the decisions he makes, when bad things do happen they must be the result of other people's behaviours.

Several other people qualified statements about their own control by remarking that they cannot control what other people do. Importantly though, feeling in control is not unattainable. As one person explained: "I'm responsible for everything I do in my life [...] except for things that people do to you. Either you react in a positive way or negative way, and either you grow and you learn or I guess you stay in the mud" (109). The impact of other people's actions can be a matter of perception and reaction. It is not always what others do to you that determines the outcome of a situation, but how you respond. If you respond proactively by problem solving, the outcome can still be positive. If you abandon your course of action, then you will fail to achieve

your goal. This explanation builds on the stress buffering or moderating role of sense of control, where problem solving can prevent behaviours from leading to stressors.

People who discuss the importance of other people's behaviours and instrumentalists who attribute some influence to an external force are tapping into the same concept: the threshold of sense of control. Just as it is necessary to acknowledge that some circumstances are about being in the right or wrong place at the right or wrong time, it is necessary to admit that some situations are the result of other people's behaviour which cannot be controlled. However, the latter must be approached with caution. In some cases, attributing influence to other people is just a way of denying personal responsibility.

Further, people who discuss the negative influence of others' behaviours are different from those who believe in the power of external forces. When fatalists talk about their negative experiences, they say that everything happens for a reason. Overall, the tone is positive. Fatalists believe that negative experiences are useful in some way: opening a new door, surviving a hardship, or punishing bad decisions. In contrast, individuals who talk about the negative impact of other people's decisions express discontent about this limit on their control. The key distinction is about intent: God or fate acts in ways that will help or teach the individual, while family and friends seem to act maliciously to hurt the person.

Frequent gamblers experience their control over life events as something that is positively or negatively influenced by family and friends. Other people can encourage attempts to exert control, interfere with the pursuit of goals, and fuel bad situations. These social interactions with friends and family help build sense of control or powerlessness by providing support for achieving success or contributing to a series of failures. The ability of friends and family to influence sense of control is another example of the threshold of sense of control. In some situations, personal decisions and actions are minimally effective because someone else has control. People who are limited by others' behaviours often speak in hostile ways about these restrictions, likely because they feel their own sense of control is being purposely and maliciously infringed upon. For some, these limits lead to animosity. For others, they encourage perseverance through problem solving.

5 Conclusions

Sense of control is a complex concept. Its categories are not distinct or without internal variation. In the lives of frequent gamblers, control over life events involves much more nuance than what is described in the definition of sense of control. People can feel in control or not in control. Control can vary for positive and negative events. Various forces can be given differing degrees of importance and can work together in different ways. Views can change over time. Despite these variations, there are some consistencies across groups. Personal decisions are always at least somewhat influential. External forces are always guiding not determining forces. External forces and others' behaviours are important for members of all groups. Overall, the interview responses show that frequent gamblers understand sense of control as something that works differently for positive and negative events, typically involves different combinations of numerous forces, and does not apply in the same way across all experiences. Sense of control is experienced as something that changes over time with new experiences and understandings, and can be encouraged or limited by the people they interact with.

Some of these results are supported by existing sense of control theory and research. The definition of sense of control captures the two variations of dependence. According to the definition and supporting research, the degree to which outcomes are dependent on personal choices and actions varies across individuals and types of events – positive or negative (Mirowsky and Ross 2003). Further, some work has looked at how sense of control rises and falls over the life course or with age (Schieman 2001; Mirowsky and Ross 2007). Studies also find that sense of control is encouraged by supportive relationships with family and significant others (Gerstorf, Rocke, and Lachman 2010; Surjadi, Lorenz, Wickrama, and Conger 2011). In contrast, research finds that sense of control is reduced by negative experiences (Schieman 2001; Pearlin, Nguyen, Schieman, and Milkie 2007; Jang, Chiriboga, Lee, and Cho 2009). Finally, research shows that there are limits to the generality of sense of control. The health benefits of sense of control peak at the 80th percentile after which point they decline (Wheaton 1985; Mirowsky and Ross 1990; Mirowsky and Ross 2003).

Importantly though, few studies have looked at sense of control qualitatively. In speaking with frequent gamblers, this study finds that not only are there variations between sense of control groups but there are differences within them as well. Most people understand control as involving more than one force and understandings do not apply to all experiences. This research also uncovers *how* sense of control changes over time: increasing age or new experiences change the interpretation of the forces involved in past and present experiences. In addition, the interviews show that the threshold can take at least two forms: admitting that some circumstances are the result of timing or odds, and acknowledging that some situations are the result of other people's behaviour which cannot be controlled. The key to high sense of control is being realistic about your abilities (Mirowsky and Ross 1990).

By focusing on the concept, this study also uncovers inconsistencies between different assessments of sense of control. The Mirowsky and Ross (1990) measure in the questionnaire overestimates the number of instrumentalists compared with classifications based on the open-ended interview responses (27 versus 17). Further, the Mirowsky and Ross measure underestimates the number of individuals with low control compared with the Pearlin et al. (1981) Mastery dichotomy (three versus seven). In contrast, the Pearlin et al. Mastery dichotomy matches up relatively well with the interview-based groupings. As expected, most instrumentalists score high (15 of 17) while most fatalists score low (five of eight). Although the Mirowsky and Ross categories are useful conceptually, the quantitative measure does not reflect open-ended responses. It may be that the closed-ended Mirowsky and Ross questions miss important nuances captured in the Pearlin et al. Mastery scale. The disconnect may also stem from the two-by-two nature of the Mirowsky and Ross measure compared to the continuous Pearlin et al. scale. The within-category differences reported above also support the use of a continuous measure of sense of control.

This in-depth analysis also broadens the understanding of the stress buffering role played by sense of control. Previous research shows that sense of control moderates stress by encouraging problem solving and influencing stress appraisal. Problem solving moderates stress by preventing certain behaviours from leading to stressors (Turner and Roszell 1994). The interviews show that problem solving is also useful for preventing other people's actions from

limiting the individual's sense of control. By responding in a proactive way to other people's behaviours, the individual can retain their sense of control and continue to pursue their goal.

Chapter 6

Illusion of Control

There are two key elements to the illusion of control. First, there is the idea that the odds of winning can be increased. Second, there is the belief that, as a result, the odds of winning are higher than they actually are. These beliefs are considered an illusion because by definition gambling involves wagering money on a game of chance and the odds of winning at chance games cannot be increased. This chapter continues to address this study's first objective by examining how illusion of control is understood and experienced by frequent gamblers using the open-ended interview responses. It looks at what an illusion of control means to these individuals, paying particular attention to how it differs for skill gamblers who play games that presumably involve opportunities to improve the odds of winning. The open-ended responses reveal that frequent gamblers understand control over gambling outcomes as something that differs for wins and losses and involves different amounts of skill and chance. As will be apparent in the quotes, frequent gamblers do not see their understandings of gambling outcomes as illusions. Instead, they feel knowledgeable about their preferred games and their ability to influence them (or not). Some experience a disconnect between their understanding of control and their experience of it. Beliefs about the importance of chance do not always translate into behaviours around increasing the odds of winning.

1 Different Levels of Illusion

According to the above definition, frequent gamblers who attribute all gambling outcomes to skill have a high illusion of control. In contrast, those who feel chance or luck explains their wins and losses have low illusion of control. Gamblers who believe that a combination of these forces determines their gambling outcomes find themselves in between these two extremes. However, anything short of understanding all gambling outcomes as based on chance is considered an illusion. Interestingly, the illusion of control concept does not make any real distinctions about *how* gamblers understand their wins and losses. As will be shown below, gamblers differ in how they understand their wins and losses just as they differ in how they understand their positive and negative life events.

1.1 Chance for Wins and Losses

Of the 30 frequent gamblers, 20 have low levels of (or no) illusion of control. In other words, two-thirds of the participants believe luck or chance explains both their wins and losses at gambling. This result is not unexpected, since all gambling games are chance-based to some degree⁵.

Also not surprisingly, all 15 chance gamblers attribute both their wins and losses to chance. These people understand winning as luck or timing. When asked what explains his wins, one person replied: “There’s not much skill in putting money in a slot machine and pulling a lever. If anything, it’s chance – how many times that thing’s rolled before it coughs up some more” (201). Winning is less about technique and more about the odds of winning at a particular game and where you fall within them. Just like this individual, many other chance gamblers explicitly deny the role of skill for wins. One individual even mocked those who believe they have control over games: “There’s no skill to any of it! You can say you have, like, a system, but yeah okay, why do you think [Casino] Rama’s still in business and you’re not?” (220). This person makes a particularly poignant point about the gambling industry – if it were possible to consistently beat the system with skill, the gambling industry would not make the enormous profits it does. Chance gamblers also believe that skill (or a lack thereof) is not important for explaining losses: “Not much skill in losing, but you can get good at it. I do very well at losing. I don’t see that there’s much skill” (201). This person emphasises their beliefs about the unimportance of skill by joking about it. Because losses are so frequent and inevitable, he talks as if he excels at losing.

It is not surprising that all of the chance gamblers feel that wins and losses at their preferred game are based on luck, chance, or odds. After all, lotteries, slot machines, and bingo are generally regarded as games of luck. Interestingly though, five skill gamblers also understand

⁵ The low level of illusion of control in the interview responses does not fit particularly well with the findings from the questionnaire. According to the questionnaire responses, only 13 gamblers have low illusion of control.

their wins and losses as due to chance. Sports gambling is typically considered a game of skill because there are abundant records available to help determine the outcome of future games or improve the odds of winning. Despite this fact, three sports gamblers believe that chance explains their gambling outcomes. One sports better believes his wins are flukes and his losses are bad luck. He explained his understanding as follows:

You know who your teams are and you know who's not. And even then, you're not even guaranteed to win because even the bad teams win, so, it's got a lot to do with luck, you know. I don't think it [skill] has much to do with – knowing the teams is one thing but it doesn't even matter. You could know the teams and their whole history, but you know what, just because you know their whole history doesn't mean they're going to win. That's what it boils down to really (103).

This person acknowledges the abundant information available to help with placing informed sports bets. However, he also notes that the outcome of a particular game or bet will not necessarily match the records. Each game is a separate event which introduces a substantial amount of luck into the outcome of the bet. If you follow the statistics and win, it's because you had good luck which makes your win a fluke. If you follow the statistics and lose, you just had bad luck.

One of the reasons why records don't necessarily translate into wins is also part of what makes sports so entertaining to watch: "It's a sport and there's a human element involved so anything can happen" (104). As suggested by the individual above, 'anything' can include the favoured team losing the game. In that case, losses are the result of bad luck because the bet was placed in line with the past records for the sport. 'Anything' can also be winning a bet you didn't really expect to. As one person said: "Sometimes you take an underdog and you take a chance. You might have reasons for it, but sometimes a guy fumbled the ball or something like that and you just end up getting lucky" (110). Under these circumstances, wins are about good luck because the bet was placed against the past results for the sport. Although some information may have encouraged a bet that is unlikely to be won, a lucky play is ultimately what brings about the win.

Sports betters are not the only skill gamblers that believe there is luck involved in their game of choice. Card players share these thoughts. One blackjack player described how she understands her wins as follows: "I think it's luck, I'm sorry. Unfortunately, statistically it's random, let's go

with that. It really is random, but you just hope you're the one when the luck is flowing" (113). As with slot machines, there are odds in card games: odds of getting certain cards and odds of winning with certain hands. Also like slot machines, the deck of cards is random. Winning at card games is about where you fall within the odds or whether the randomness is in your favour. If you are lucky enough to get a needed card and to make a hand that beats the opponent, you'll win.

Some skill and all chance gamblers understand both their wins and losses at gambling as determined by chance. Skill and chance gamblers' beliefs differ in two key ways. First, they have different understandings of chance. Both skill and chance gamblers see luck as odds and timing. However, some skill gamblers understand chance as the human element in sports. Second, skill and chance gamblers differ in the degree of importance they attribute to luck. Chance gamblers who believe luck explains their wins and losses think it is the only force at work. In fact, they explicitly deny a role for skill. In contrast, skill gamblers who attribute their gambling outcomes to chance still see a small role for skill. They make a point of studying team records or knowing the odds of winning certain hands and try to make informed wagers, even if they don't think it will help them win.

1.2 Skill for Wins and Losses

Only one of the 30 gamblers feels that skill is responsible for both his wins and losses. Not surprisingly, this person is a skill gambler. In contrast to those in the above group, this individual has high illusion of control because he feels some degree of control over all gambling outcomes.

This skill gambler's preferred game is sports betting. He attributes wins at this game to researching the players, the teams, and the matchups:

I just attribute it [winning] to the amount of resources. I mean I look at baseball and the starting pitchers, and what his percentage is against the team that he's playing, you know, and almost to the point of the time of day he's pitching. When was the last time he pitched and when was that? I'm pretty thorough when it comes to that (112).

For this person, winning is all about skill. He uses extensive research on past outcomes to make informed bets which he believes increase his odds of winning. By considering all of the factors that could influence the outcome of the game, this individual believes he can better predict the outcome.

Interestingly, this individual also attributes his losses to skill or a lack thereof – his own poor technique. When asked how he understands his losses, he explained:

Maybe I didn't look far enough into it, like in a football game. Maybe the starters were suppose to be playing, they were scratched at 10 o'clock in the morning and I bet at 12, so if I would have been paying attention to the Sports Center I would have known and maybe wouldn't have went with what I did. I chalk that up as laziness. If I had done what I was suppose to during game time, it might have been different, but that's fate right? Who would've known someone was going to stub their toe two hours before their game and not be able to start? (112)

This person concedes that bad luck plays a minor role in some losses, in the form of last minute or unknown lineup changes. However, he takes responsibility for his lack of attention, thoroughness, and dedication. Despite the human element of the game, this individual believes quality research will counteract bad luck, lead to an informed bet, and ultimately produce a win. It appears as though this gambler's judgment of the quality of his research is post hoc – it is based on the outcome of his bet. If he wins, his research was adequate. If he loses, there is something he should have known about beforehand that would have suggested a different bet.

Only one participant feels that good skill accounts for wins and bad skill explains losses. For this individual, wins are the result of thorough research. In contrast, losses are due to laziness and poor research. This gambler does however acknowledge that chance – or the human element in sports – plays a small role in explaining his losses.

1.3 Skill for Wins and Chance for Losses

The second most popular understanding among frequent gamblers is that wins are the result of good skill and losses are due to bad luck. Nine of the 30 gamblers feel this way, displaying a

high illusion of control⁶. Interestingly, only skill gamblers hold this belief about their gambling outcomes. All chance gamblers share a similar understanding of their wins and losses: both are due to luck. In contrast, skill gamblers have greater variability in their beliefs, finding themselves in all three groups.

The gamblers in this group share similar understandings with those of the other two groups. Like the person who believes all outcomes are based on skill, individuals in this group believe that research and knowledge improve their chances of winning. These people understand their control over gambling wins as something that is based on information and decision making. Like those who believe all outcomes are based on chance, individuals in this group blame the human element in sports, timing, or odds for their losses.

Just like the sports better in the previous section, sports gamblers in this group believe that skill helps them win because making informed bets increases their odds of success. One gambler explained his views in this way: “I think a gambler in sports events has to have some kind of knowledge of the game if he wants to have some chance of winning. I think it does increase your odds” (115). As noted above, knowledge of the game can include win records, recent matchups, and injuries. Other factors like location and weather are also important: “I’m watching the stats and you know who’s injured, where they’re playing, what the weather is – you control a lot of it if you want to” (116). For sports betters, knowledge increases the odds of winning because information means control. By taking every possible factor into consideration, they feel they can reduce the impact of chance on the outcome of the game or bet by making educated and strategic wagers. More knowledge means a more accurate, reliable, and winnable bet. For many skill gamblers, the proof is in their wins. When asked what accounted for his \$6,800 win, one sports better answered: “I’ll never attribute that one to luck. You had to pick 15 football teams and you can’t just guess at that stuff” (115). The odds were not in this person’s favour to pick the winner in 15 consecutive games. For that reason, he does not believe he won

⁶ Of these nine, only seven are considered to have high illusion of control based on their questionnaire responses.

because he was lucky. Beating the odds shows his skill: he gathered the necessary information, analyzed it, made his bets accordingly, and was ultimately successful.

Skill gamblers who bet on other games share a similar understanding of their wins. One gambler who bets on horse races described his betting strategy as follows:

You manipulate the [odds] such that it doesn't matter if you win or lose. If [the horse] wins you're going to win \$10, if he loses you're going to win \$5. [...] Basically we take the horses and we bet them to lose. If the numbers work out, you can either go for it or say, call it quits, you can use a bit of common sense as well. So that's what we used to do. I got meticulous book keeping records (101).

This individual uses two techniques to improve his chances of winning: researching previous outcomes and considering the odds. He keeps a record of previous bets and their outcomes so he knows how to bet in the future. This person also learns the odds, interprets them using common sense, and places his bets in a way that is most favourable to him. So just like sports betters, this horse gambler uses knowledge of the game to make informed bets that he believes will be more likely to produce a win.

Card players also feel that more knowledge means more winning. As one poker player explained, information is gathered during play: "With poker it's minute to minute, each hand, each hand reading people and reading the cards" (104). Poker players compare the information they gain from watching the players and cards with what they know about the game, namely the odds of winning with certain hands. From there, they make informed choices that will more likely lead to a win. For Blackjack, counting cards has the same effect:

You keep track of the big ones [cards], not the little ones, and it's more skill. [...] It's work to play Blackjack. It's very – a lot of brainwork. You got to watch every card laid on every position, and it's a lot of memory work, it's very hard. I've played 48 hours before. It's very hard, and then you're wiped for days after that, you're totally wiped out (109).

Blackjack players also combine information gathered during play – what cards have been laid and where – with knowledge of the game – the cards in a deck and the rules of Blackjack – to make informed decisions in hopes of a win. This individual supports her claim that Blackjack requires skill by describing her play as exhausting brain and memory work.

Though individuals in this group attribute their wins to skill, they blame bad luck for their losses. Just like the sports betters in the first group, sports gamblers here blame the human element in sports for their losses. When asked what explains his losses, one person answered:

That's gotta go under the luck category, maybe because sometimes you'll have five long shots and favourites - it's the favourite that loses. But statistically it shouldn't happen when you're talking sports, but it does occasionally happen, but the odds are better it doesn't happen (115).

This person believes that when you bet with the odds and lose, it's just bad luck. Previous games suggest a certain outcome shouldn't happen, but the human element in sports makes it a possibility.

Card gamblers believe the odds of winning or the randomness of the cards is to blame for their losses. As one poker player explained, playing a hand correctly does not guarantee a win. For him, wins and losses are two parts of the same phenomenon – mathematics:

It's not always luck, it's variance. Luck is just what suckers people – 'If I'm unlucky today or if I have luck today'. It's all just mathematical equations. [...] Variance is going to end on the underdog's side sometimes. So like those 90/10s, the 10% is going to get there and that 90% isn't always going to win. You would assume nine out of 10 times but it might come that 10% 300 times in a row before it flips and then averages itself out so that the 90 then goes on a run of 2,700. So there's no guarantees (107).

For this individual, both wins and losses are about variance. Each hand has a particular chance of producing a win. If you know those odds and bet accordingly, your wins will be based on skill. However, if you bet on a hand with high odds of winning and lose, it's simply variance – you fell on the wrong side of those odds. In this way, there are no guaranteed wins – the randomness of the cards will ultimately determine the outcome of the bet.

Sometimes losses are blamed on something other than chance: corruption. Two skill gamblers understand their losses as at least partially due to cheating. Both agree that horse races are particularly corrupt. One individual explained why he no longer bets on horses by describing the cheating as follows:

I don't ride the horse; I don't know what that horse has been up to hours before the race. I don't know if he has poor sight or who's fed him a sugar lump with some Nyquil in it -

I have no idea, you know. There's a lot of trust placed by people who place bets, the ordinary people, the people that aren't close to the sport. They aren't insiders and things like that. There's a hell of a lot of trust that they give up, and on the other side of the fence there's an equal measure of cheating that goes on by people who are inside this pool, a hell of a lot of cheating that goes on (101).

Because horse racing involves people and animals instead of machines (like slots), there are several ways that other people's behaviours can influence the outcomes of races. This external influence makes races more unpredictable and taints the odds of winning. Knowing this, gamblers blame corruption when they bet according to the odds and lose. Just like those who blame chance for their losses, gamblers who blame cheating for their losses do not believe that poor skill or wrong decisions caused them to lose.

The corruption does not end with horse racing. International soccer, another skill game influenced by other people's behaviours, is also plagued by cheating. One person described the corruption and his way of dealing with it:

In that whole world of world club football, there's a very small slice of that pie who are actually any good. By that I mean, they can play the game, they're not corrupt, they're not being paid to fall over or the ref's not being paid, the officials aren't paid, the team's not paid. Because the rest of it, there's so much corruption, again it's massively corrupt, and this is just the way the world works these days. Someone somewhere is paying someone to do something for them, you know, to influence a result, and the key to being successful [in gambling] is weeding out that crap, sticking to that small slice of the pie where you're actually going to get a fair game, and they've tried, the refs aren't bent (101).

Cheating in international soccer is widespread, touching all facets of the sport – the players, the administration, and the referees. No amount of game statistics will help predict how the games will turn out, which means an increased number of losses for those who use this information to place their bets. The only way to deal with the corruption is to avoid betting on these games all together. Because other people's behaviours corrupt the outcomes of certain events, like sport matches or horse races, it is almost impossible to predict who will win.

Nine of the 15 skill gamblers attribute their wins to skill and their losses to bad luck. These individuals understand skill as an attempt to control the chance element in gambling and increase the odds of winning through knowledge and educated bets. Wins are successful

attempts at gaining control while losses are failed attempts. Techniques to gain control include knowing the game, keeping betting records, researching statistics, playing the odds, gathering information during play, and counting cards. The energy expended to make informed bets supports the claim that illusion of control is developed through increased gambling involvement (Blaszczynski and Nower 2002). Members of this group rarely question the quality of their research or their betting decisions. Instead, they blame bad luck or cheating for their losses. They believe that losses are caused by human error, the odds of winning, the luck of the (card) draw, and even corruption. As with sense of control, there appears to be a threshold for the effectiveness of skill. As explained by one sports bettor: “That many games, even with all the skills, it’s still going to be luck to get that many right. [...] The odds are not in your favour” (116). Despite the most informed betting strategy, skill is limited by the chance aspect built into every game – understood by this group as the bad luck that leads to losses – and other people’s ability to influence the outcome of the match.

2 Combinations of Skill and Chance

In the three previous sections, all 30 gamblers are classified based on what force they believe is the most important for understanding their wins and losses – skill or chance. These categorizations were made to determine whether each gambler has a high or low level of illusion of control and to facilitate discussion of the open-ended interview responses. However, it is important to acknowledge that frequent gamblers’ understandings of their wins and losses are not always clear cut. Just like the understandings of sense of control, sometimes beliefs about gambling outcomes are a matter of degree. Luck may be the main factor with skill playing a minor role or vice versa. In a way, this variation is taken into account in the measurement of illusion of control – it is, after all, a continuous scale. However, the interplay between various forces is lost in this scale and the definition of illusion of control to some degree. It is highlighted here.

Most frequent gamblers are able to identify one main force that explains their wins and losses. However, five individuals experienced some difficulty picking only one. Instead, these people understand their gambling outcomes as something that includes a combination of both skill and

chance. One card gambler understands his wins in this way: “Well, it’s like half and half because in a game of poker you have to have luck as well, right. Otherwise skill is not going to make you win all the time. [...] Well, it’s the way the cards come, right?” (108). For this gambler, neither skill nor chance is the most important factor for wins – both are equally important. Skill will get you part way by helping you make the right decisions – what cards to keep and what hands to play – but chance will get you the win by giving you the right cards when you need them. This belief echoes the one above for card players who attribute their wins to skill and their losses to luck. However, this individual sees a much larger role for chance.

Similarly, one sport betters’ nuanced understanding resembles the belief outlined above by sports betters who attribute their wins and losses to chance. When asked whether skill or chance explains his wins, this individual said:

I’d say a combination of both because you have to research on who you think is going to win. [...] I guess it [research] doesn’t change anything because you can – anyone can win on any given day. I just feel more confident betting on something that I feel like I have an idea of what I’m doing. It doesn’t mean I’m going to win it just means you know, you have a better understanding, like I feel more confident betting on hockey because I know hockey versus basketball which I don’t know anything of (110).

Like the sports betters who believe in chance, this person believes that the outcome of any given game will not necessarily match the statistics. The human element in sports makes outcomes less predictable. However, this individual does see a role for skill or research in his gambling. For this person, attempts at gaining control are less about increasing the odds of winning and more about making him feel secure in his decisions. He feels better about his bets and more confident in his chances of winning when he gambles on games or even teams that he knows something about.

Illusion of control is a continuum. At the low end, people generally believe in luck. At the high end, they believe in skill. Buried in the definition and measurement of illusion of control is the understanding that both skill and chance explain gambling wins and losses. Though individuals with this belief have a place in the continuous measurement of illusion of control, their unique understandings are often ignored. Here, the open-ended interview responses reveal that beliefs in skill and chance are a matter of degree. Often there are similarities among those who play

similar games, but the level and type of importance attached to skill and chance differs between individuals.

3 Increasing the Odds

So far this chapter has discussed how frequent gamblers understand their gambling outcomes and their level of control over them. This section moves on to review how these people experience these understandings and their control over gambling wins and losses. As detailed in the introduction to this chapter, the first element of illusion of control is the belief that the odds of winning can be increased. As discussed above, most skill gamblers but no chance gamblers hold this belief. However, skill gamblers are not the only people to take steps to increase their odds of winning. This means that there is a disconnect between how people understand and how they experience their illusion of control.

Not surprisingly, four skill gamblers outlined their strategies for winning. Interestingly though, five chance gamblers also detailed the steps they take to increase the odds of a win, even though they all believe that luck explains their wins and losses. As outlined in previous sections, skill gamblers typically increase their odds of winning by improving their knowledge of the game. One card gambler described the thorough nature of this process as follows:

Reading some books and reading a bunch of articles and getting advice from friends and what not, and just like generally when you play the game more you tend to like pick up on things and know how to play it better. [...] I always try to improve my game, always look at mistakes that you've made when you play and make sure you don't do them again (108).

Card gamblers like this one use all of the information at their disposal – the odds of winning for each hand, others' suggestions, past experiences, the current state of the game – to make the most educated gambling decisions. The learning process is ongoing. By factoring all of the knowledge into their bets, these individuals believe they are reducing the impact of all of these factors and increasing their odds of winning.

Sports gamblers also believe that incorporating as much information as possible into their bets will improve their chances of winning. As one gambler explains, statistics are particularly

important: “I’m a stats guy. Next Sunday’s football game - I’m already studying stats, that’s how I do it. You know, keeps me out of trouble studying stats. I’m right into it and study my own stats and skill. As far as I’m concerned, I’m able to pick up stats and follow players and whatever” (115). Just like card gamblers, sports betters are continually gathering more information that will help them better predict the outcomes of future games. For these gamblers, knowledge *is* skill. Skill keeps them ‘out of trouble’ – it keeps them from making ill-informed bets and losing needlessly.

Chance gamblers also make attempts to increase the probability of winning. Even though their games involve poorer odds and less decision making, chance gamblers like skill gamblers believe that knowledge will help them placed informed bets. They use whatever information they have to make decisions about their gambling, namely where to play. One person uses the following technique to decide where to buy lottery tickets:

I never buy a ticket from a gas station, like a Wal-Mart or any store like that, because when I read up I never see one [lottery jackpot] that was ever won there at a Wal-Mart or Superstore, it always seems to be the corner store. [...] And if I was lucky with another ticket at another place two or three times, [win] another ticket, or \$5 or \$3, I’ll go back to that place (207).

This person believes that buying tickets from places that are lucky – where other people have won or she has won before – will increase her odds of winning or being lucky too. She gets her information in the same ways as skill gamblers do – by researching previous outcomes and keeping track of her own wins and losses. Because chance gamblers like this one see previous wins as indicators of luck, they feel that gambling at lucky locations is a smart choice since their chances of also being lucky and winning should be higher.

This individual uses a similar strategy to pick out which slot machines to play. She described how she and a friend used keen observation to single out a lucky or more productive slot machine:

My girlfriend and I were playing it [slot machine] and we noticed – we watched people and we noticed when the three red sevens would come up you’d win a 150 quarters, and then when they’d come up the second time you’d win a 150 quarters, and the next time would be the blue sevens [and a bigger payout] (207).

These two women felt that the odds of winning on that one slot machine were higher because they had figured out its pay schedule. They had knowledge of that machine that no one else had and that they didn't have for any other machines. They felt their odds were better with this machine because they knew it would pay out – it was lucky like the locations discussed above – and they knew when it would pay out. These women believed they could almost guarantee themselves a win – all they had to do was use that slot machine at the right time.

Almost a third of the gamblers interviewed make attempts to improve the probability of a win on their favourite games. Both skill and chance gamblers try to increase their odds of winning by gathering information about the game and using it to place bets. Skill gamblers improve their knowledge of the game by learning the rules of the game, researching statistics, reading literature, or studying live betting. Chance gamblers identify lucky games, locations, or machines by focusing on their own or other's previous wins. Skill gamblers would be expected to try to increase their odds of winning, since they believe that skill explains their wins. It is surprising that chance gamblers make similar attempts, since they believe that luck explains all their gambling outcomes. So frequent gamblers, particularly chance gamblers, experience their control over gambling outcomes as something that is disconnected from their understandings of these outcomes.

4 Conclusions

Illusion of control is more complex than its definition would suggest, as was the case for sense of control in the previous chapter. Frequent gamblers do not see their understandings of wins and losses as illusions – they are based in knowledge of and experiences with the game.

Understandings are often different for wins and losses, just as understandings differ for positive and negative life events. Skill and chance vary in importance depending on the gambling outcome. For some people, both forces are important. For others, one force stands out. This variation is reminiscent of the difference in the importance of internal and external forces for positive and negative life events discussed in the previous chapter. The role of skill and chance also differs depending on the type of game the person prefers to play. Skill gamblers tend to understand their gambling outcomes as skill-based while chance gamblers always believe in

luck. Skill gamblers acknowledge a limit to the power of the skill they work so hard to cultivate. They also tend to blame their losses on bad luck. So just like sense of control, illusion of control has a threshold of effectiveness. Overall, the interview responses show that frequent gamblers understand illusion of control as something that works differently for wins and losses, and that typically entails different amounts of skill and chance. Illusion of control is experienced as something that is sometimes disconnected from understandings of gambling outcomes. People who believe that chance explains wins and losses still make efforts to improve their odds of winning by making informed wagers.

Some of these findings are supported by previous illusion of control research. According to its definition and existing research, illusion of control can be high or low (Langer 1975; Goodie 2005). Some people believe they can increase the probability of winning and others do not. Some work has also looked at how illusion of control varies by the type of game played. Studies find that gamblers who prefer skill games have a higher illusion of control or more often believe in the importance of skill for explaining gambling outcomes (Toneatto et al. 1997; Myrseth et al. 2010).

This study expands on previous research by looking at illusion of control qualitatively. It finds that not only do some people believe in skill and others chance, some believe that both are important for explaining gambling outcomes. In addition, the interviews show that there is a threshold for the power of skill. The ability of skill to increase the odds of winning is limited by the odds of winning, bad luck, human error, and cheating. The only limit to illusion of control discussed in the literature is high stakes, where the involvement required to play such games is an intrusion of reality that overrides illusion of control (Dunn and Wilson 1990). Finally, the current analysis shows that beliefs about the ability to increase the probability of a win do not necessarily translate into actions. All skill gamblers see at least some role for skill and most make some attempt to place informed bets. However, chance gamblers also try to increase their odds of winning, despite attributing all gambling outcomes to chance.

By focusing on the concept, this study also identifies issues with the quantitative measurement of illusion of control. The questionnaire measure overestimates the number of individuals with

high illusion of control as compared with classifications based on the open-ended interview responses (17 versus 10). Importantly, the majority of the SCGS sample has high illusion of control based on the questionnaire responses (17/30), but low illusion of control based on the interview answers (20/30). So just like with sense of control, the quantitative measure does not reflect the open-ended responses. This discrepancy is probably due to differences between the two assessments. In the questionnaire, gamblers were asked about their beliefs about various gambling games, with a low cut point for high illusion of control. In the interview, they were asked mainly about their game of choice, with no quantitative threshold. A consensus about which games involve more skill seems to suggest that the high/low threshold is responsible for the disconnect.

One important issue remains. Is the illusion of control really an illusion? Gambling involves wagering money on a game of chance. But don't some games involve more chance than others? Findings from the gambling literature say the answer is yes. Studies show that poker is the primary game of skill (Hannum and Cabot 2009; Griffiths, Parke, Wood, and Ribye 2010; Bjerg 2010). While skilled or experienced poker players are more successful than unskilled players, expertise does not improve betting skills for soccer, horse racing, or hockey (Ladouceur, Giroux, and Jacques 1998; Cantinotti, Ladouceur, and Jacques 2004; Khazall, Chatton, Billieux, Bizzini, Monney, Fresard et al. 2012; Huberfeld, Gersner, Rosenberg, Kotler, and Dannon 2013). Because of the distinct nature of poker, the same concepts applied to other gamblers cannot be applied to poker players (Bjerg 2010). Since poker is predominantly a skill game, poker players who believe in the power of skill do not have a high illusion of control. These gamblers actually do have more control over their games, which makes their beliefs fact rather than illusion. By extension, chance gamblers who make attempts to increase their odds of winning probably have higher illusion of control than poker players who do the same. We could even conceptualize beliefs in or attempts to increase the odds of winning by poker players as rational and those by chance gamblers as irrational.

The implications of this discussion are quite important. If believing in the role of skill is not an illusion, then what is currently considered high illusion of control may not really be a risk factor for problematic gambling for poker players or even other skill gamblers. In fact, one study finds

that self-perceived skill among poker players is not a predictor of problem gambling (Griffiths et al. 2010). Another study reports that illusion of control may not be a key part of the development of problem gambling among poker players (Mitrovic and Brown 2009). A third finds that there are no differences in illusion of control between skill gamblers with or without a gambling problem (Myrseth et al. 2010). However, poker players may suffer from different or more specific illusions. First, they may underestimate how much chance is involved in poker (Shead, Hodgins, and Scharf 2008; Bjerg 2010). Second, and more importantly, poker players may have misperceptions about their own level of skill, believing they have more control over gambling outcomes than they actually do (Ibid). Illusion of control measured in these ways may actually be related to problem gambling.

Chapter 7

Gambling Self-Efficacy

Gambling self-efficacy is about a person's confidence in their ability to not gamble when presented with a situation in which they would be tempted to or would normally gamble. People who are confident that they can resist opportunities to gamble have high gambling self-efficacy, while those who feel they cannot pass up chances to gamble have low gambling self-efficacy. Rounding out the last two chapters, this chapter completes this study's first objective by exploring how gambling self-efficacy is understood and experienced by frequent gamblers using the interview responses. The open-ended responses reveal that frequent gamblers understand their resisting of gambling opportunities as the ability or inability to make conscious decisions about gambling and adhere to spending limits. They experience their control over gambling as a two-part process: the ability to refrain from gambling and the ability to control behaviours while gambling. Frequent gamblers are encouraged to seek gambling opportunities when they are bored, are in good moods, have disposable income, have interactions with family and friends, and have easy access to gambling. They experience difficulties resisting gambling opportunities when they use gambling as a way to cope with negative emotions or financial troubles.

1 High Gambling-Self Efficacy

Of the 30 frequent gamblers, 12 people have a high level of gambling self-efficacy⁷. These people understand their ability to resist the urge to gamble in certain situations as based on making conscious decisions and considering their financial situation.

Some individuals are able to resist gambling opportunities by making conscious decisions about whether and when to gamble. One gambler put it simply: "If you want to doesn't mean you have to" (110). For these people, desire doesn't automatically translate into action – the decision about whether or not to gamble is a conscious one. One person described his decision making

⁷ The quantitative and qualitative assessments of gambling self-efficacy match up quite well. Of these 12 gamblers, 11 also have high gambling self-efficacy based on their responses to the questionnaire items. This suggests that the questionnaire and interview questions tap into a similar concept.

process in this way: “Just because it’s up to me. I’m the one who decides if I’m going to go in a [poker] tournament this weekend or go and play in a cash game. If I feel that I can manage it as far as finance and stuff then I do it. I love it” (104). Some gamblers are able to resist gambling opportunities by balancing their urges – like their love of the game – with their responsibilities – like financial commitments. The importance of urges and desires in the decision making process suggests the importance of self-control for understanding gambling self-efficacy. Overall, by making and sticking to conscious and informed decisions about whether and when to gamble, individuals with high gambling self-efficacy are able to feel in control of their gambling.

Several other people mentioned money when explaining how they are able to refrain from taking advantage of gambling opportunities. Instead of weighing urges and responsibilities in order to make decisions, some people balance their value of money with the odds of winning. When asked why she feels in control of her gambling, one individual replied: “Because I am a very cheap person, I don’t go overboard. Yeah it’s fun now and then, but nothing serious” (212). This person’s high value of money – her ‘cheapness’ – limits her gambling more than her financial responsibilities. She is only willing to spend a small amount on gambling since it is a form of entertainment. This type of entertainment is not a worthwhile investment because it is risky and can be costly. As one person explained: “I don’t like spending a lot of money just gambling. I believe that if you’re going to win it’ll happen. If you’re not going to win, that’s gonna happen. Don’t go overboard and put out like \$500 on a scratch ticket. That’s insanity, right?” (211). Because the odds of winning are low, this person thinks that putting up big sums of hard earned money on games of chance is not logical. For these gamblers, resisting gambling opportunities boils down to one thing: “I just value money” (113). Money is too valuable to risk losing large sums of it on games of chance.

All but one of the people with high gambling self-efficacy use monetary limits to maintain control of their gambling behaviours. One gambler explained her approach as follows: “I always set myself with 50 bucks. That’s all I can afford. I don’t care if I win or lose on it. It’s extra money. I didn’t use a credit card to use more chips or anything like that – 50 bucks win or lose. It don’t matter, I have fun” (209). As this quote shows, some financial limits are specific dollar

amounts that do not change across betting occasions. These limits do not increase if the person's financial situation improves or if they win at gambling and they are often influenced by how much the person values money. Other gambling limits are determined by what the gambler can afford to spend based on their income and expenses. This person uses both techniques to control her gambling, limiting how much money and by extension how much time she spends gambling. Because she stays within her set limits, she is able to enjoy herself while gambling.

Many frequent gamblers are able to resist opportunities to gamble. Some believe that their control over gambling behaviours is rooted in self-control: making conscious decisions about whether to gamble, weighing their desires against their responsibilities. Others reign in their gambling by balancing their value for money against the odds of winning. Most frequent gamblers understand their ability to resist gambling opportunities as a commitment to sticking to financial gambling limits, which are based on their value of money or financial responsibilities. By taking into account their financial situations, these people are able to limit how much time and money they spend gambling.

2 Low Gambling-Self Efficacy

Of the 30 frequent gamblers, 18 people have a low level of gambling self-efficacy⁸. These individuals do not feel in control of their gambling behaviours. The strategies used by the gamblers in the previous section for resisting gambling opportunities do not work for these individuals. Instead, these people understand their inability to resist gambling opportunities as an inability to make conscious decisions about gambling or stick to spending limits. These individuals experience their low control over gambling behaviours as a two stage process: an inability to resist opportunities to gamble and an inability to control their behaviours while gambling.

People with low gambling self-efficacy cannot make conscious decisions about gambling. While the gamblers above matter-of-factly attribute their control to conscious choices, gamblers with

⁸ All 18 of these gamblers – and one extra – have low gambling self-efficacy based on their questionnaire responses.

low control feel that individuals with a gambling problem simply cannot resist gambling opportunities. When asked whether he can control his gambling, one person replied: “No, there’s no managing gambling. You know what I mean? You either have a problem [or you don’t]” (103). For this gambler and many others, it feels like there is little hope for controlling their gambling precisely because they have a gambling problem. This lack of hope is due in part to their thinking process:

Compulsive gamblers never manage it well. You know, you go because you can’t see your way clear not to go and today’s another day. It’s funny how you wake up the next day and yesterday is way in the past, and today’s a new day. And it’s funny, a sleep and a new day creates a different feeling. So I can say ‘The tables will be lucky, today something more positive will happen’ (102).

Some gamblers find it very hard or almost impossible to control their gambling because their hopes of winning are rejuvenated each day, as negative outcomes from the day before are erased by a night’s sleep. These gamblers are unable to balance their very strong urges, fueled by positive feelings about gambling, with their other responsibilities in order to make a conscious decision about whether or not to gamble. In other words, these gamblers have low self-control when it comes to gambling. They cannot manage their emotions and desires in gambling situations.

People with low gambling self-efficacy are also unable to stick to financial limits while gambling. One slot machine player explained his difficulties as follows: “I would get into ‘Oh, just a little bit more. I’ve got a lead’. I would sit at that one machine. I wouldn’t go all over the place, I would sit and think ‘It’s gotta be close, it’s going to turn’. That hope that it’s the next hundred that’s going to make it sing” (201). As this quote shows, the faulty thought process that prevents these people from making conscious decisions about gambling also encourages continued gambling in the face of repeated losses and poor odds. Even though they have set and reached a money limit, they have hope that they will get lucky and win at any moment. Individuals with low gambling self-efficacy are not restrained by a high value of money or financial responsibilities. Instead, they are fueled by the desire to win.

In part because these strategies do not work for them, people with low gambling self-efficacy experience several types of control issues. These individuals are unable to refrain from

gambling, suffer escalating losses, spend large amounts of time gambling, and disregard their responsibilities. By definition, people with low gambling self-efficacy have troubles resisting opportunities to gamble. One individual described his most important struggle in this way:

I have to be very careful. I like to say that, you know, I have a little control over it, but I also know if you were to drop me off a half a mile from a casino and I had \$500 in my pocket I would be there in a flash. No matter what. So I have to be careful. I work close to the casino, I have to be very careful. It seems like once or twice a year I have gone and usually lose a grand or whatever. I had no intention of going there (115).

Simply staying away from gambling is an ongoing struggle for this person, in both his personal and professional life. Like for many other gamblers, this primary control issue typically leads to additional control difficulties, like being unable to control how much he spends when he does end up gambling.

Many people experience difficulties controlling their behaviours when gambling. As discussed above, individuals with low gambling self-efficacy also have troubles sticking to spending limits. Often, this results in escalating losses. One person described how she thwarts her own attempts to stick to a spending limit: “I would take my bank card in with me knowing that, yeah right, I’m going to spend just a \$100. And then I’m there for four or five hours and I’m coming home and thinking ‘Why am I doing that? Why did I do that?’ \$5,000 could have done so much more for me, instead of having me feel this way” (202). What is supposed to be a maximum of a \$100 loss can easily escalate into a \$5,000 loss for those with low gambling self-efficacy (and low self-control). On some level, this person had no intention of sticking to her limit, since she decided to bring along her bank card. This decision allowed her to lose control and suffer large losses – an experience shared by several other frequent gamblers.

When people have trouble limiting the money they spend gambling, they also tend to have issues controlling the amount of time they put in. Beyond losing \$5,000, the individual above also lost several hours of her day to an unplanned gambling binge. Another gambler described how the time can quickly get away from you while gambling: “When we were going up on Sunday for breakfast we’d always say ‘We’ll be home by noon, because that gives us lots of time’. Then noon became two, and then four, and then you’re spending the whole day at the casino and you don’t even know what the weather is” (220). As this quote illustrates, a few

hours of gambling can easily turn into a whole day. Gambling can be all consuming, often leaving the gambler unaware of their surroundings like the time of day or the weather outside.

When people spend lots of time and money gambling, they end up with little time for the other important things in their lives. Some gamblers ignore their own personal needs. One individual described losing a whole day to gambling: “I stayed 24 hours straight playing, no food, only went to the bathroom when they shuffled, and I won \$18,600” (109). As a price for this sizable win, this person’s health and hygiene suffered for an extended period of time. Individuals with low gambling self-efficacy also disregard their responsibilities towards other people. One person spoke about a particular night when she took a friend along to the casino:

I’ve taken a friend and said ‘It’s a \$10,000 night tonight, I want to stay’, and she was furious, ‘You brought me here, you take me home’. So I arranged for the casino, a limousine to take her – ‘I’m not going home in that, are you crazy?’ ‘I’m taking you out for supper, I’m giving you a limo ride home, come on!’ (109).

This individual cared more about her potential winnings than she cared about her friend. She wanted to spend her time and money at the casino, not fulfilling her friendship responsibilities. When people have difficulties controlling their gambling, other areas of their life suffer. They show a lack of concern for themselves and for others because they are caught up in their gambling.

Most frequent gamblers experience issues resisting gambling opportunities and controlling their gambling. Techniques for resisting gambling that are successful for people with high gambling self-efficacy are ineffective for individuals with low self-efficacy. These people believe that conscious decisions and spending limits are futile efforts for them. The primary issue for many frequent gamblers is staying away from gambling all together. When people cannot resist opportunities to gamble, they often experience difficulties controlling their behaviours while gambling. They spend too much time and money. As a result, they ignore their own basic needs and neglect their personal responsibilities. Frequent gamblers experience these control issues because they have poor self-control, believe they can win if they keep playing, or they completely dissociate from their surroundings while playing.

2.1 Gambling Opportunities

Low gambling self-efficacy is an inability to resist opportunities to gamble. But what type of opportunities do frequent gamblers experience? Where do they come from? Frequent gamblers with difficulties resisting gambling described several situations in which they are encouraged to gamble. Circumstances that encourage gamblers to seek out opportunities include being bored, being in a good mood, having disposable income, experiencing peer pressure, and having easy access to gambling.

Boredom leads nine people to look for opportunities to gamble. When asked why they gamble, these people gave an answer similar to this one: “I just go when I need something to do” (108). These people have time that needs filling and they use gambling to do so. One person described how the free time provided by his unemployment facilitates his sports betting:

It’s excitement, extra money and boredom. Well boredom too because that’s all I do is put on my TV and watch sports. [...] I’m not afraid to admit that, I do wake up in the morning and I go and look at the Proline sheet. That shouldn’t be the first thing I’m thinking about, it’s probably wrong but what else do I do? It’d be different if I had a full time job (103).

Because this individual has no job, he has plenty of time to fill by studying and betting on his favourite sports. Gambling allows this person to fill time, all while following the sports he loves and getting excitement from potentially winning some money. His gambling is fueled by more than his boredom though, since betting is a priority in his daily life.

Positive emotions encourage three people to seek out gambling opportunities. One gambler described how positive emotions can make him want to gamble: “If I feel happy, then I’ll be happy about gambling stuff. [...] I think when I’m happy I definitely gamble more. It’s probably why I gamble more with friends than anyone else. [...] I just am like happy and I’m like ‘Alright I’ll spend some money today’” (206). Positive emotions encourage gambling because this individual believes that his gambling experience will also be positive. Some gamblers like this one use gambling as a way to take advantage of or build on a good mood. They want to have fun with friends and win money.

Positive emotions alone rarely lead to uncontrolled gambling. They contribute to low gambling self-efficacy because people who gamble when they are in good moods tend to gamble regardless of their mood. One gambler explained how emotions impact his gambling in this way: “I’ve gone when I’ve been happy as hell, or sad, broke, rich. If you’re a gambler you can go any time, it doesn’t matter” (115). For some people, gambling is the go-to activity. Because they generally want to spend their time gambling, these individuals will gamble to hide from negative emotions *and* celebrate positive ones. This reliance on gambling then leads to uncontrolled behaviours. The impact of positive and negative emotions explicitly shows how low self-control can contribute to low gambling self-efficacy. As will be discussed in the next section, gamblers who cannot manage these emotions have difficulties resisting opportunities to gamble.

Having access to money leads 10 people to seek out gambling opportunities. These people see the money left over after paying for living expenses as free money. That money is not earmarked for any important purpose, so they are allowed to gamble with it. In other words, having money can be like a “get out of jail free card” (220). Having money means having the opportunity to use it to gamble. Some gamblers have a stable source of good income, which means they regularly have access to disposable money. One person explained how his well-paying job gave him the financial freedom to gamble: “I was in a position at one point where I had access to more funds than I do now because of the job I was working at. I was getting paid better. The slush fund was there so I’d spend a few hundred and then that ended up a few hundred more than the few hundred” (201). This individual used his disposable income as a justification for going gambling – he had extra money that he could spend and gambling was how he was going to spend it. However, having access to this money encouraged him to gamble more and led to higher losses.

Other people come into their disposable income rather suddenly. When this happens, gamblers feel a heightened sense of freedom because the money is unexpected. Sometimes this money comes from gambling wins: “Let’s say I go to bingo like I did yesterday and I win \$500. Well that encourages me to want to try and win more so I’d go to the casino, which I did” (204).

While gamblers most often chase losses, this individual also chases wins. Winning at gambling

encourages more gambling for two reasons. First, the person wants to feel the excitement of the win again. Second, they see the money won while gambling as disposable income that can be put back into gambling at no harm to their financial situation.

Friends and family provide gambling opportunities for 15 individuals. Most often, family and friends encourage gambling by extending invitations to gamble. As one person explained: “If I have nothing going on and somebody calls me and says ‘Hey, you know, I’m having a game at my house’ I’ll be over there in a minute. Or if they’re like ‘Yeah, we’re goin’ to [Casino] Rama’” (104). Invitations such as these are typically friendly social requests. However, for people who have trouble controlling their gambling behaviours, they are gambling opportunities that are hard to resist.

Another way that friends and family encourage gambling is by exerting peer pressure. Sometimes people are forced to go gambling when they don’t want to or can’t afford it. Other times, people are pressured into gambling more than they want to. One individual described how this can happen: “If you’re with your friend or something like that you might be pushed into something. [...] Especially too if someone’s winning and they want to stick around. So then you end up feeling like you have to stick around and I think that’s where some people get caught up” (110). When gambling with other people, some individuals are pushed to gamble longer than expected or to spend more money than intended because the people they are with want to keep gambling or want them to keep gambling. In these situations, gambling is almost forced on the frequent gamblers, many of whom have a hard time resisting.

A particularly influential type of friend is the gambling friend – someone who is only socialized with while gambling. Gambling friends encourage betting because they serve as yet another reason to go gambling: to socialize. Some games are appealing for this reason: “Whereas when you’re playing the slot machine you’re a zombie, you know, like there’s no social part of that part of it. But whereas the racing, I go there and everybody knows me and I know everybody there and you talk and whatever. It’s a social and gets you out of home staring at the walls” (105). Gambling opportunities are particularly appealing when they are also opportunities for socializing – opportunities that are sometimes rare for frequent gamblers. Each opportunity

reinforces the other, where people may go to gamble and stay for the socializing or go to socialize and stay for the gambling.

The widespread availability of gambling encourages 10 gamblers to take advantage of opportunities to bet. For nine of these people, physical proximity to gambling opportunities gives them the chance or even encouragement to bet. When games are close by, gambling opportunities are easy to come by. One individual explained how easy access to gambling can lead to frequent betting: “On the carnie [carnival] tour the last 10 years or so there were casinos on our route, like the Calgary Stampede. They have an actual casino on the walk, so I could sneak there at two in the morning, you know, after we closed down and stuff. So it was a gradual thing that just got worse and worse and worse” (115). This person had close and extended access to gambling, which made it easy for him to spend increasing amounts of time there. His proximity to gambling both sparked his betting and encouraged it to continue and increase in frequency.

For the four individuals whose game of choice is online gambling, sports betting, or scratch tickets, the general accessibility of gambling (not just its physical proximity) provides ample opportunities to wager. That’s because these games are available at every corner store or on every mobile device. For example, a 24-hour Internet connection means that online gambling is always available. One poker player discussed how often he gambles as follows: “Like once a week live games, either at a casino or locally. And then maybe two, Jesus – two, three times a week online just because the access is there. I don’t need to invite my friends over, or I don’t have to drive an hour to get to the casino. So, it’s just the convenience of it” (104). Online gambling is available anytime, anywhere. This means that the opportunities to gamble are endless. For its part, sports gambling is accessible for two similar reasons. First, there are games at all times of day: “You can bet on a football [soccer] match any time of day, you know it doesn’t matter. What time is it? Nine o’clock, there’s matches going on in South America, they kicked off at eight” (101). Second, a bet can be placed close by at any time of day, because convenience stores are abundant and open long hours. Scratch tickets are the same way: available almost any time, almost anywhere. For widely available games like Internet gambling, sports betting, and scratch tickets, gambling opportunities are abundant and easily accessible.

Beyond the proximity and availability of gambling, three people talked about how active recruitment by casinos encourages their gambling. Casinos mail out perks to their loyal (most frequent or high-spending) customers, offering free concert tickets, dinners, or hotel rooms. One person described the effect these perks have on her gambling: “They sent me these coupons to go for dinner for two and I realized I’m spending more money to get there and be there, rather than what they’re giving me for dinner. [...] I’ve caught on to how they’re getting me there. Just for me to go spend money that I really didn’t have” (202). Casinos give perks to their best customers to get them back in the building in the hopes they will gamble while they are there. As this quote illustrates, many people have a hard time saying no to things that are free. More importantly, these people do exactly what the casinos hope they will: they take advantage of the opportunity to gamble.

Frequent gamblers who have difficulties resisting gambling opportunities routinely experience situations that allow or encourage them to gamble. Some people are encouraged to gamble when they are bored, using betting as a way to fill time and gain a sense of excitement. Being in a good mood also leads gamblers to seek out opportunities to gamble. For some people, gambling is the preferred way to enjoy themselves or escape negative emotions. Some frequent gamblers are encouraged to gamble when they have disposable income to spare. This money gives them a sense of financial freedom, which permits and encourages gambling. Friends and family can also provide and encourage opportunities to gamble, extending invitation to gamble and exerting peer pressure to participate or continue participating. Frequent gamblers are also encouraged to gamble because opportunities are physically close, easily accessible, and actively promoted by casinos.

2.2 Gambling as Coping

There are several reasons why frequent gamblers experience difficulties resisting gambling opportunities and controlling their gambling behaviours. Some of these have already been discussed: an inability to make conscious decisions about gambling or stick to spending limits. Another key reason why some frequent gamblers have low gambling self-efficacy is because they use gambling as a way to cope with their stress. In other words, gamblers with low gambling self-efficacy often have low self-control. They cannot manage their feelings on their

own, so they use gambling to do so. Participants talked about how they experience difficulties resisting gambling opportunities when they use gambling as a way to cope with negative emotions or financial troubles.

Negative emotions – anger, disappointment, depression, anxiety – make gambling opportunities hard to resist for 10 people. These negative feelings lead to different kinds of uncontrolled gambling. Some individuals put a lot more money into gambling when they are upset: “The angrier I was the more I spent” (203). Other people spend more time gambling when dealing with negative feelings: “I don’t bet more but I sure want to get there so I don’t have to think. And I might stay – well I do stay longer because I don’t want to go home, you know?” (220). Other gamblers below also discuss spending more time gambling to hide from having to think about or experience negative feelings. One gambler makes riskier bets when dealing with his feelings: “But as far as emotions, if I’m having a bad day, I’m not going to say ‘Oh I should gamble more than I can afford’, you know. I’m just going to do something crazy because maybe that will make me feel better” (107). Though he may not spend more money, this person does place bets he normally wouldn’t to get a rush that will hopefully take away from his negative emotions. When their feelings are hurt, some people will increase their gambling in various ways in hopes of feeling better – spending more money, spending more time, or taking more risks.

Some people offered explanations for *why* hurt feelings make gambling hard to resist. As the person above notes, individuals with low gambling self-efficacy increase their gambling in order to feel better or to cope with negative emotions. Feeling better can take several forms. For some, it’s physically escaping from the problem or their feelings. One person uses the casino as his escape:

[The casino] would be my escape. That’s the one place I’ve found, especially in Ontario with the number of casinos and horse tracks and all that stuff. If I ever wanted not to be found and to disappear for a couple days, it’d be very easy to do that. And if I’m stressed out or something, that’s what I would do I’d just disappear (115).

To escape his negative feelings and the sources of those emotions, this individual removes himself from the situation and seeks refuge at the casino. Because casinos are widely available,

they are a convenient place to retreat. For other people, feeling better is not about physical distance from the problem but mental distraction from it. As one person explained:

You don't have a problem in the world when your mind is that occupied. So it's like going to an opium den and smoking opium – you're getting away from life. It's not for money – you can't make money, not really, no. I have my kids, they hurt me so bad and I want to go over and lick my wounds because I don't care when I'm there. I don't care about them, I'm having a good time – it's a chemical boost (109).

As this quote illustrates, gambling serves as a distraction in two ways. First, it is a form of entertainment that can help improve someone's mood. Second, gambling requires a degree of concentration that helps block out the other thoughts running through a person's mind. People feel better when they gamble because it encourages a good mood and helps distract from their bad mood. In this way, it can serve the same purpose as taking mind-altering drugs. When individuals are dealing with negative emotions, they can lose control of their gambling because it provides both a mental and physical escape – it is their primary way of coping. For many, the coping function of gambling is the most important, since winning is rarely a motive or a realistic possibility.

Negative emotions can make gambling opportunities particularly hard to resist when they are combined with other factors discussed in the previous section that lead the gamblers to seek out opportunities: money or time. In terms of money, two women experienced a negative life event that provided them with access to a large sum of money. Because of the circumstances under which they received the money, these women felt negatively towards it. One of them got a large sum of money in her divorce from her abusive husband: "I got a good settlement from the divorce, the court, because of what he did. And I didn't want it. I wanted nothing from him, I wanted to be cleansed and the money was such a big thing of that" (109). In order to free herself from the negative emotions towards her husband, this person felt the need to also free herself from the emotionally-tainted money she received because of her husband's actions. To cleanse herself from the past, she began gambling excessively to rid herself of the money and ultimately lost control.

A second woman received a substantial inheritance when her husband passed away. She also chose to gamble away the money to free herself from negative feelings and the money that was

associated with them: “Sometimes I can’t wait to get that money fast enough because I just want to spend it. I’m not even worried about winning I just want to spend it. Go to be with [my husband], that’s how I was” (220). This woman was angry at the money because it was a constant reminder that her husband had passed. Because she resented the money and believed that getting rid of it would get her closer to her late husband, she increased and eventually lost control of her gambling. For both women, gambling was made accessible and encouraged by the large sum of money, and made hard to resist by the negative feelings attached to it. Both women coped with their troubles by gambling away their money and their feelings.

Negative emotions also combine with excess time to make gambling opportunities hard to pass up. Unemployment can leave people with negative feelings and lots of free time. One person described how losing his job encouraged his gambling: “Before I lost my business, [my gambling] was fine, I thought. After I lost my business, I had more time on my hands, and I was in the middle of the divorce, and I had other issues that were always on top of me so it would increase the frequency of going because I wasn't working either” (102). Being unemployed and single gave this individual the free time to visit the casino. Negative feelings from losing his business and his wife fueled his gambling which eventually spun out of control. He bet as a way to deal with his negative emotions.

While some people gamble to get rid of money they feel negatively towards, others find gambling opportunities hard to resist when they are in need of money. One individual described how struggling financially influences his gambling in this way: “I don’t think I could go back to something [gambling] as long as I kind of stayed financially within the realms of living, you know? As long as my bills are paid and everything, as long as I don’t get myself into trouble. [...] I wouldn’t gamble if I had money” (112). Unlike the gamblers above, this person does not gamble when he is financially comfortable or when he has excess money. Instead, he turns to gambling as a way to cope with his financial trouble. Instead of dealing with money problems by getting another job or using a tighter budget, this person uses gambling as a source of income to pay bills when he is having financial issues.

Some frequent gamblers experience difficulties resisting opportunities to bet because they have low self-control: they use gambling as a means to cope with their troubles and emotions. Most often, these individuals gamble as a way to physically remove themselves or mentally distract themselves from negative emotions. As a result, they spend more money gambling, spend more time gambling, and make riskier bets. Often negative emotions combine with other factors, such as excess time or money, to fuel gambling. In these cases, gambling is made accessible by the free time or extra money and is encouraged as a way to cope with bad feelings. In addition to coping with emotional issues, some people use gambling as a way to cope with financial troubles, gambling as a way to make extra money.

3 Conclusions

Just like for sense of control and illusion of control, frequent gamblers experience gambling self-efficacy in a way that includes more intricacies than what is outlined in the definition of the concept. People with high gambling self-efficacy are able to resist gambling opportunities by making conscious decisions, placing a high value on their money, and sticking to spending limits. These techniques do not work for people with low gambling self-efficacy, in part because they believe persistence will pay off and they dissociate while playing. Individuals with low gambling self-efficacy have troubles resisting opportunities to gamble, spend too much time and money gambling, and neglect their health and responsibilities. Gambling opportunities are encouraged by boredom, good moods, disposable income, peer and family influence, and accessible gambling. Resisting gambling opportunities is made more difficult when people have low self-control, like when they use gambling to cope with negative emotions and financial issues. Overall, the interview responses show that frequent gamblers understand gambling self-efficacy as whether or not they can make conscious decision about gambling and stick to financial limits. Control over gambling behaviours is experienced as a two-step process that begins with resisting gambling opportunities and continues to controlling gambling behaviours. Frequent gamblers experience various circumstances that make gambling opportunities appealing. They experience great difficulty resisting these opportunities when they rely on gambling as a way to escape their negative emotions or as a source of additional income.

Some of these results are supported by existing gambling self-efficacy research and theory. The measure of gambling self-efficacy acknowledges and assesses the influence of positive and negative emotions, financial difficulties, peer and family influence, and the accessibility of gambling on resisting gambling opportunities (Hodgins et al. 2004). Other measures of gambling self-efficacy go beyond resisting opportunities to include the gambler's attempts to limit the time and money spent gambling (May et al. 2003). Additionally, Dickerson and O'Connor's (2006) model of impaired control argues that people will gamble to escape negative emotions. Research also finds that casino proximity is related to increased gambling participation and expenditure (Sevigny et al. 2008).

Some of the current findings are also echoed by studies of problem gambling. One study found that problem gamblers more often experience peer and parental influence and the proximity and accessibility of gambling, while non-problem gamblers more often place a high value on money earned (Tepperman et al. 2013). Previous research also shows that illusion of control and dissociation lead to problematic gambling (Jacobs 1986; Casey et al. 2008; McCormick, Delfabbro, and Denson 2012). Further, problem gambling is associated with boredom, decision making deficits, and failure to set gambling limits (Goudriaan, Oosterlaan, de Beurs, and van den Brink 2005; Lawrence, Luty, Bogdan, Sahakian, and Clark 2009; Mercer and Eastwood 2010; Nower and Blaszczynski 2010). Finally, the Integrated Pathways Model shows how accessible gambling opportunities, boredom, and using gambling as an escape from negative emotions can lead to problem gambling (Blaszczynski and Nower 2002).

This study expands on previous research by looking at gambling self-efficacy specifically and qualitatively. It specifies that control over gambling behaviours involves more than just resisting the opportunity to gamble. It also includes controlling the amount of time and money spent gambling. Further, the interviews show that factors not currently included in the gambling self-efficacy measure can also encourage gamblers to see our gambling opportunities or make resisting them more difficult, namely boredom, disposable income, online access, and casino incentives. Finally, though most research examines how these factors link to problem gambling, this analysis shows that these factors are important for gambling self-efficacy in particular.

By focusing on gambling self-efficacy, this study finds that the quantitative assessment of gambling self-efficacy matches quite well with the responses given to the interview questions. All but one individual receives the same classification using both assessments. Of the 30 frequent gamblers, 11 people have high gambling self-efficacy according to both measures and 18 have low self-efficacy according to both. Only one person has low self-efficacy based on their questionnaire answers but high self-efficacy according to their interview responses. The consistency between the two assessments suggests that the questionnaire items accurately reflect how people experiences gambling self-efficacy.

Discrepancies between the definition of self-efficacy, the definition of gambling self-efficacy, the questionnaire items, and the interview responses raise questions about what exactly is gambling self-efficacy. First, is gambling self-efficacy merely about resisting gambling opportunities, as its definition and questionnaire items would suggest? The interview responses say the answer is no. Frequent gamblers also want to be able to resist spending too much time and money while gambling.

A second question raised by the discrepancies is whether gambling self-efficacy is about resisting opportunities or controlling impulses? The definition of gambling self-efficacy refers specifically to resisting gambling opportunities, but there are underlying issues of self-control in this definition. Further, only three of the 21 questionnaire items ask specifically about a gambling opportunity: gambling in a social environment, being invited to gamble, and seeing other people gambling. The remaining items are about situations in which a gambler may have the urge to gamble. Examples of gambling triggers include feeling lucky, wanting to win, feeling pressured by debts, or feeling sad. So the assessment of gambling self-efficacy asks more about controlling gambling impulses or triggers – self-control – than it does about resisting gambling opportunities or carrying out particular actions – self-efficacy.

These discrepancies have important implications for understanding problem gambling. Previous research and the above results show that gambling self-efficacy is both a risk factor for and indicator of gambling problems. However, it is unclear which element or combination of elements is important: resisting opportunities, limiting gambling behaviours, or managing

impulses. By focusing on these factors individually or simultaneously, it would be possible to gain a clearer understanding of what problem gambling is and how it comes about.

Chapter 8

Control and Gambling Problems

The last three chapters answered the first part of this study's research question: how are the three types of control understood and experienced by the individual? Analysis of the open-ended interview responses revealed that all three types of control are more complex than their respective definitions would suggest. Control varies for positive and negative events, and for gambling wins and losses. The importance of forces differs depending on the particular outcome and level of control: external versus internal forces, skill versus chance, decision making versus emotional urges. There is a threshold of effectiveness for control over life events and gambling outcomes. Other people's behaviours can impact control over life events and gambling behaviours. Sense of control changes over time and does not apply equally to all situations. Illusion of control beliefs differ by type of preferred game and are sometimes disconnected from attempts to increase the odds of winning. Gambling self-efficacy involves resisting gambling opportunities, managing excessive gambling, and self-control.

With this clear understanding of what control means to frequent gamblers, the current chapter moves on to address the two other parts of the main research question: how do the types of control correspond to each other and how do the types of control relate to gambling-related problems? According to the Dynamics of Control Model, sense of control is positively related to illusion of control and gambling self-efficacy, while illusion of control is negatively associated with gambling self-efficacy. Further, the model suggests that low sense of control, high illusion of control, and low gambling self-efficacy lead to gambling problems. Finally, the model includes a potential interaction between sense of control and illusion of control. Bivariate analyses of the questionnaire responses are used to assess these relationships. Where appropriate, results are supplemented with open-ended interview responses. The results for sense of control and problem gambling severity are supplemented with secondary data analysis of a large nationally representative survey, the Canadian Community Health Survey 1.2.

1 Links between Types of Control

1.1 Sense of Control and Illusion of Control

According to the questionnaire results, sense of control is positively correlated with illusion of control (Pearson's $R=0.37$, $p=0.04$). This result is consistent with the Dynamics of Control Model. However, when the analysis is broken down by type of preferred game, the correlation is not significant⁹. Of the 30 frequent gamblers, 15 have high levels of both types of control and five gamblers have low levels of both (see Table 8). The correspondence between the categories for these two variables is not significant ($\chi^2=2.94$, $p=0.09$).¹⁰ It remains non-significant when examined separately for skill and chance gamblers.

Table 8: Sense of Control and Illusion of Control in the Simcoe County Gambling Study

Type of Gambler	Level of Sense of Control	High Illusion of Control	Low Illusion of Control	Chi-Square Tests	
				Value	Sign.
All	High	15	8	2.94	0.09
	Low	2	5		
Skill	High	11	2	0.36	0.55
	Low	2	0		
Chance	High	4	6	2.73	0.10
	Low	0	5		

The Dynamics of Control Model predicts a positive relationship between sense of control and illusion of control because some researchers suggest that a generalized belief that outcomes in life can be controlled translates into a specialized belief that gambling outcomes can be controlled (Meyer de Stadelhofen et al. 2009). The open-ended interview responses are useful for examining this possibility. Of the 30 frequent gamblers, 14 spoke about how their

⁹ In the questionnaire results, sense of control is not correlated with illusion of control when broken down by skill and chance gamblers (0.05, $p=0.86$; 0.33, $p=0.22$).

¹⁰ Similarly, sense of control does not correspond with illusion of control in the analysis of interview responses ($\chi^2=1.09$, $p=0.297$).

understanding of life events relates to their views on gambling outcomes. Eight have similar levels of sense of control and illusion of control, while six have different levels.

Three (skill) gamblers feel in control of both their life events and their gambling outcomes. For these people, a generalized expectation of control over life outcomes does translate into an expectation of control over gambling outcomes. For some, the understanding that is extended is a general belief in or preference for control. One person explained her feelings in this way: “I’m a true believer that you can be the master of your own destiny. If there’s some way I can control my own fate, then I want to know that I lost because I did something wrong” (109). This person’s belief in her ability to control her future leads her to believe that she can also control or at least improve her chances of winning at certain games. This belief then translates into her preference for games of skill. She likes to feel in control of both her future and her betting outcomes. More specifically, she prefers it when her life and gambling choices have an impact on the outcome.

For other people, the expectation that is translated is a belief in the importance of effort or hard work. As one person put it, gambling is “another skill you can learn if you put your mind to it” (107). Gambling is simply another ability that can be mastered by putting in the time and effort, just like problem solving, riding a bike, or learning a language. This individual goes on to explain how to cultivate this skill: “You need to educate yourself on what you’re getting in and what the risks are, and what skills and the math behind. So it’s not only just a positive attitude, it’s also I look for games where I have the mathematical and intellectual edge” (107). So a person can become good at gambling in the same ways they can succeed in life: through effort, education, and thoughtful decision making. Being positive and making informed choices lead to success in life and in gambling.

Five participants have low levels of both sense and illusion of control. Of these five, four are chance gamblers. Some of these people believe that the same external force that influences their life also determines whether or not they win at gambling. One gambler who believes in fate explained her gambling beliefs in this way:

When I look at 649 tickets, because I know it's thousands and thousands to one we're going to win and it's less for the jackpot, but I just figure if it's destiny, meant to be, that it'll- it may happen. [...] Because of fate, I figure one day I'll hit it, I'll probably hit it, when the time is right. Every time I lose I think well the timing's not right. You'll only win when it you can handle it. My husband says he can handle it, I said 'You know, I don't think so, because we argue because I want to give some to my mother and my sister' (207).

Because the odds of winning the lottery are so low, this person believes that destiny and not the odds of winning determines whether or not she hits the jackpot, even though she generally believes that chance explains her wins and losses. For people who share this belief, winning and losing is not only meant to be, but meant to be for a reason – whether the time is right or whether you can handle it. This person has not won yet because the timing isn't right and she can't handle it. She would just fight with her husband over any large winnings because she would want to share it with her family and he would not. Not winning prevents them from experiencing this unpleasantness.

Other gamblers with low sense of control and low illusion of control think that different external forces are responsible for their life events and their gambling outcomes. These people tend to believe that while God plays a role in their life experiences, he does not influence gambling. Instead, luck explains whether they win or lose at gambling. As one person explained:

God is involved in everything, big time. [...] You can't decide to win on a slot machine, that's just sort of where it's lined up, how many times it wins, supposedly 40% of the time. If you hit in that position you win, I call that an open window. If you hit an open window, you're going to win, if you don't, you're not going to win. I don't think fate has anything to do with that. (109)

Although this person believes that God is 'involved in everything' she draws the line at gambling. Gambling wins and losses are instead influenced by whether she is lucky enough to be playing the game when it pays out. For individuals who share this belief, God does not play a role in luck by making someone win. Compared to the individuals who believe they can control gambling outcomes, those who believe in external forces seem to have a more accurate assessment of the chances of winning. However, attributing outcomes to external forces like fate and not the odds of the game may have hidden implications for gamblers' health or their gambling self-efficacy.

Six people, including four chance gamblers, explained how their general beliefs about life events relate to but do not translate into their understandings of gambling outcomes. Five of them have high sense of control but low illusion of control. For these people, effort makes a difference for life events but not for gambling outcomes. As one gambler said: “If you put nothing into something you’re going to get nothing out of it. With gambling it’s a little bit different. You can put a lot into it and still get nothing. You can put a little into it and get a lot out of it. Those chances are really high” (211). Despite his belief that hard work is needed to succeed in life, he acknowledges that gambling is not about hard work but about chance. The amount of work you put into life will increase your chances of success, but the amount of work you put into gambling will not increase the chances of winning. Unlike the individuals with high sense of control discussed above, this group factors the odds of winning into their beliefs about gambling. They make realistic assessments of how effective they can be in their own lives and at gambling.

Correlation analysis of the questionnaire responses finds that people with high sense of control tend to have high illusion of control and those with low sense of control goes tend to have low illusion of control. This result is not surprising. Because problem gamblers (who often gamble frequently) are known for developing exaggerated beliefs about their control over gambling outcomes, it follows that they would also be more likely to feel in control of their life outcomes (Carroll and Huxley 1994; Meyer de Stadelhofen et al. 2009; Hopley et al. 2012). The interview responses reveal how this occurs: beliefs about life outcomes are extended to inform beliefs about gambling outcomes. For gamblers with high sense of control, expectations for both life events and gambling outcomes centre on the importance of effort or a preference for control. For some of those with low sense of control, understandings for both are based on the belief that everything happens for a reason.

1.2 Sense of Control and Gambling Self-Efficacy

The questionnaire results find that sense of control does not correspond with gambling self-efficacy (Pearson’s $R=0.14$, $p=0.45$; $\chi^2=0.26$, $p=0.61$). These analyses are also non-significant

when broken down by skill and chance gamblers¹¹. Roughly half of the frequent gamblers have similar levels on both types of control while the other half has different levels (see Table 9)¹².

These findings are not consistent with the Dynamics of Control Model.

Table 9: Sense of Control and Gambling Self-Efficacy in the Simcoe County Gambling Study

Type of Gambler	Level of Sense of Control	High Gambling Self-Efficacy	Low Gambling Self-Efficacy	Chi-Square Tests	
				Value	Sign.
All	High	9	14	0.26	0.61
	Low	2	5		
Skill	High	5	8	1.15	0.28
	Low	0	2		
Chance	High	4	6	0	1
	Low	2	3		

The Dynamics of Control Model predicts a positive relationship between sense of control and gambling self-efficacy because general beliefs about life may influence gambling-specific beliefs and behaviours (Tang and Wu 2010). The open-ended interview responses are useful for examining this possibility and further exploring the lack of correspondence between sense of control and gambling self-efficacy found here. Of the 30 participations, 15 people spoke about the link between their understanding of life events and their ability to control their gambling. Eight have similar levels of sense of control and illusion of control, while seven have different levels.

Five people, four of which are skill gamblers, have low sense of control and low gambling self-efficacy. For these individuals, the two types of control are related concepts: a lack of control over life outcomes is linked with an inability to control gambling behaviours. These people

¹¹ In the questionnaire, sense of control is not correlated with gambling self-efficacy when broken down by skill and chance gamblers (0.30, $p=0.27$; 0.01, $p=0.96$).

¹² Based on the interview responses, sense of control matches up with gambling-self efficacy, but only among skill gamblers ($\chi^2=5$, $p=0.03$). Skill gamblers with low sense of control also typically have low gambling self-efficacy, and skill gamblers with high sense of control typically have high gambling self-efficacy.

generally feel out of control: “I don’t have control over my life right now or my gambling. I wish I had more control over it” (220). Interestingly though, these individuals do not blame their inability to control their gambling on the external force that controls their lives. One gambler explained:

It’s not what God wants me to do with my life, gambling away all the stuff that he’s providing me with. If I sit down and say ‘God provided me with a job, and God provided me with a home, and God provided me with this, that and he provided me with a brain to make good choices but I’m making bad ones’. Why am I doing this? I know this isn’t what he wants me to do (105).

This person feels that God has helped him with his successes in life – a job, a home, his intellect – and provides a direction for him to go in. However, he does not blame God for his gambling problem. Instead, people in this group blame themselves for their inability to control their gambling behaviours – for making poor decisions that go against what God wants them to do with their lives, namely stay away from gambling. As comes through in this quote, gamblers who feel responsible for their uncontrolled gambling behaviours feel badly about their gambling decisions. One individual explained his feelings in this way: “Trying to be responsible. God’s given me a certain amount of money he’s blessed me with, so I feel guilty if I squander that on something” (114). These individuals feel guilty for compromising what God has given them or for not following his direction by engaging in uncontrolled gambling. Ultimately, though God helps these people direct their lives, their own poor decisions account for their inability to limit their gambling.

Three gamblers, including two chance gamblers, feel in control of both their lives and their gambling behaviours. In contrast to the people in the previous group, these individuals generally feel in control of all aspects of their lives. One person described her ability to stay in control in this way: “Because I know myself, I know I’m not a follower, I’m a leader and I know when to say no, like when I spend enough on tickets” (212). She feels that taking charge of her life – being a leader – allows her to take control of her gambling too, by knowing when to stop and sticking to her limits. Her confidence permeates her life and her gambling. Another person described her expectation of control as follows:

I think yeah there's a connection. I control what happens in my life, I control where I'm going and what I'm doing and it's the same thing with gambling. I control how much I spend, I control if I spend. I don't control if I win, but I can control how much I lose – that's 100% within my power 'Ok well I lose \$3 and that's it'. Winning – that's out of my control, but losing is 100% within my control, you don't lose what you don't spend (205).

Confidence comes through in this quote as well. For this individual, control over life events and control over gambling are one in the same – it's simply a matter of making a conscious decision and sticking to it. She decides what she's going to do and how she's going to do it, and she follows through on this plan. This individual acknowledges that control is limited for winning at gambling, but she smartly points out that she control how much she loses by not spending more than she can afford. She controls what she can and avoids situations where control is limited.

Seven people, including four chance gamblers, explained how their general beliefs about life events relate to but do not translate into their control over their gambling behaviours. Six of them have high sense of control but low gambling self-efficacy. For these individuals, continued gambling is a personal choice in line with other life decisions. They make conscious decisions about what to do with their lives and how they want to gamble. One person explained his reasons for gambling as follows: “[Gambling is] a personal choice, but it's the idea that I live one day at a time that says to me ‘The heck with it, I'm going to enjoy myself’. The heart attack, that did a number on me and I have a strong attitude as to one day at a time. I live for today, to hell with tomorrow, and come what may. In that sense it affects my gambling” (204). Although this person takes responsibility for his life's successes and failures, he uses his brush with death and poor health as justifications for his gambling indulgences. He might only have so much time to live and he wants to enjoy it in the way he chooses, and that way is gambling.

People justify their choice to gamble in many other ways too. One person explained how gambling matches his general outlook on life:

And personal choices - gambling, why did I do it? Why did I spend so much money? I wanted to benefit from something easy in my life. So my wife said to me ‘You know, you just can't be happy with what you have in life now, you know and work towards that goal of getting that big screen TV, you always look for the easy way out'. I'm the type of person that thinks bigger, faster, better, stronger. Get it done, let's do it now (112).

For this individual, gambling is a way to satisfy a general desire: getting something quick with little effort. Gamblers in this group make the conscious decision to continue gambling because it fills a need for them. They have troubles resisting opportunities to gamble because they don't want to resist them – they want to take advantage of them. In this way, their general beliefs about life and their specific beliefs about gambling are similar – they make decisions and follow through on them in both areas.

Bivariate analyses of the questionnaire responses find that sense of control and gambling self-efficacy are not connected. Looking closely at the interview responses provides some possible explanations for this disconnect. First, believing in the power of personal decisions does not lead to controlled gambling when the individual *wants* to gamble and makes the conscious choice to do so. Second, gamblers who believe in the power of external forces do not blame these same forces for their lack of control over gambling. They instead take personal responsibility for it.

1.3 Illusion of Control and Gambling Self-Efficacy

The questionnaire results show that illusion of control is not correlated with gambling self-efficacy (-0.05 , $p=0.79$). The two remain uncorrelated when examined separately for skill and chance gamblers¹³. Of the 30 frequent gamblers, 18 have different levels of illusion of control and gambling self-efficacy (see Table 10). Of these 18 gamblers, 12 have high illusion and low self-efficacy, and six have low illusion and high self-efficacy. However, the correspondence between the two types of control is not significant ($\chi^2=0.89$, $p=0.35$). It remains non-significant when examines separately by type of game. These findings are not consistent with the Dynamics of Control Model¹⁴.

¹³ In the questionnaire analysis, illusion of control and gambling self-efficacy are not correlated when broken down by skill and chance gamblers (0.39 , $p=0.15$; -0.32 , $p=0.25$).

¹⁴ In analyses based on the interview responses, the correspondence between illusion of control and gambling self-efficacy categories is not significant ($\chi^2=0.63$, $p=0.43$). Illusion of control categories and gambling self-efficacy categories are also not related when broken down by skill and chance gamblers ($\chi^2=0.15$, $p=0.70$; $\chi^2=0$, $p=1$).

Table 10: Illusion of Control and Gambling Self-Efficacy in the Simcoe County Gambling Study

Type of Gambler	Level of Illusion of Control	High Gambling Self-Efficacy	Low Gambling Self-Efficacy	Chi-Square Tests	
				Value	Sign.
All	High	5	12	0.89	0.35
	Low	6	7		
Skill	High	5	8	1.15	0.28
	Low	0	2		
Chance	High	0	4	3.64	0.06
	Low	6	5		

The Dynamics of Control Model predicts a negative relationship between illusion of control and gambling self-efficacy because the two are part of different learning experiences (Blaszczynski and Nower 2002; Hodgins et al. 2004). The open-ended interview responses provide some insight into this possibility and the lack of relationship between illusion of control and gambling self-efficacy found here. Only two (chance) gamblers feel there is a link between their control over gambling outcomes and their control over gambling behaviours. Most frequent gamblers do not see a connection between these two types of gambling-specific control.

Consistent with the Dynamics of Control Model, both gamblers discussed how low illusion of control contributes to high gambling self-efficacy. One person explained the relationship in this way: “You know you’re going to lose so you kind of limit yourself a little bit more. If it’s a constant, you’re losing, you’re losing, you’re losing, then you’re not going to go back on a regular basis” (203). This person has a low illusion of control because she has a realistic understanding of her poor odds of winning: she knows she’s going to lose. When this understanding is reinforced by a series of losses, it further encourages limited gambling. When gamblers know they are unlikely to win, they will limit their betting to avoid needlessly losing money. Although two people say they limit their gambling, both of them actually have low levels of gambling self-efficacy. For these individuals, illusion of control does not match up negatively with gambling self-efficacy because thoughts do not translate into actions. Despite good intentions, these people are not actually able to control their gambling.

Bivariate analyses of the questionnaire responses find that illusion of control and gambling-self efficacy are not connected. The open-ended interview responses suggest why this relationship is absent. Most gamblers do not see a relationship between their control over gambling outcomes and their control over gambling behaviours. For a few, rational thoughts about the odds of winning and the need to limit gambling do not translate into controlled gambling behaviour.

2 Links between Control and Problem Gambling Severity

2.1 Sense of Control

Of the 30 frequent gamblers, 19 experience different levels of sense of control and problem gambling severity (see Table 11). Of the 19 gamblers, 15 have a high sense of control and a low level of problem gambling severity. Four gamblers have low sense of control and high severity. However, the correspondence between sense of control and problem gambling severity categories is not significant and the two variables are not correlated ($\chi^2=1.12$, $p=0.29$; Pearson's $R=-0.18$, $p=0.34$)¹⁵. These variables remain unrelated when broken down by skill and chance gamblers¹⁶.

¹⁵ In the in-depth interviews, problem gambling is measured as the discussion of at least one symptom of problem gambling. Consistent with the questionnaire results, sense of control does not significantly match up with problem gambling ($\chi^2=1.82$, $p=0.18$). Sense of control categories and problem gambling are not related when broken down by skill and chance gamblers ($\chi^2= 3.64$, $p= 0.06$; $\chi^2=0.08$, $p= 0.78$).

¹⁶ The two variables are also not correlated when broken down by skill and chance gamblers (Pearson's $R=-0.46$, $p=0.08$; Pearson's $R=-0.10$, $p=0.72$).

Table 11: Sense of Control and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Level of Sense of Control	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High	8	15	1.12	0.29
	Low	4	3		
Skill	High	5	8	2.64	0.10
	Low	2	0		
Chance	High	3	7	0.15	0.70
	Low	2	3		

In order to contextualize these results, the relationship between sense of control and problem gambling severity is examined in the Canadian Community Health Survey 1.2. Bivariate analyses find that sense of control is negatively correlated with problem gambling severity among frequent gamblers ($-0.16, p < .0001$). More significantly, regression analyses controlling for demographics reveal that sense of control is negatively related to problem gambling severity among both skill and chance gamblers ($-0.11, p < .001$; $-0.06, p < .001$).

Bivariate analyses of the questionnaire responses do not show a link between sense of control and problem gambling severity. This finding does not support the Dynamics of Control Model. It seems that difficulties problem solving and understanding the effect of their actions does not lead frequent gamblers to experience problems. It may be that the impact of sense of control on problem gambling works through game selection or simply that other factors are more important for predicting problem gambling among this group (Malkin and Syme 1986; Clarke 2004). However, findings from the CCHS do show a connection. In that survey, there is a negative relationship between the two variables among both skill and chance gamblers.

2.2 Illusion of Control

The questionnaire analysis shows that illusion of control and problem gambling severity are not correlated ($0.27, p = 0.15$). However, when chance gamblers are examined separately, illusion of control is positively correlated with problem gambling severity among this group ($0.53, p =$

0.04)¹⁷. This result is (partially) consistent with the Dynamics of Control Model¹⁸. Of the 30 frequent gamblers, 17 have similar levels of illusion of control and problem gambling severity, 10 of which are chance gamblers (see Table 12). Eight have high illusion of control and high problem gambling severity, and nine have low illusion and low severity. Despite the appearance of a pattern, this correspondence is not significant ($\chi^2 = 0.81$, $p = 0.37$). This relation remains absent when examined separately among skill and chance gamblers.

Table 12: Illusion of Control and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Level of Illusion of Control	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High	8	9	0.81	0.37
	Low	4	9		
Skill	High	6	7	0.01	0.92
	Low	1	1		
Chance	High	2	2	0.68	0.41
	Low	3	8		

Correlation analysis of the questionnaire responses finds that people with high illusion of control tend to have high problem gambling severity and those with low illusion of control tend to have low problem gambling severity, but only among chance gamblers. It seems that an exaggerated belief in one's ability to control or more accurately predict the outcomes of games only leads to increased gambling, impaired betting performance, and negative psychosocial consequences for chance gamblers. This is despite the fact that skill gamblers in this study and others have higher levels of illusion of control (Toneatto et al. 1997; Myrseth et al. 2010). Illusion of control may lead to problematic gambling only among chance gamblers because, as

¹⁷ In the questionnaire analysis, illusion of control and problem gambling severity are not correlated among skill gamblers ($r = -0.11$, $p = 0.70$).

¹⁸ In analyses based on the interview responses, the correspondence between illusion of control and problem gambling categories is not significant ($\chi^2 = 1.79$, $p = 0.18$). Illusion of control categories and problem gambling categories are not related when broken down by skill and chance gamblers ($\chi^2 = 0.68$, $p = 0.41$; $\chi^2 = 0$, $p = 1$).

discussed in the conclusion of Chapter six, a belief in the link between behaviours and gambling outcomes is only an illusion for chance gamblers and not for skill (namely poker) gamblers. In other words, believing they can influence their chances of winning does not lead to impaired betting performance among skill (poker) gamblers – it leads to improved betting performance. Overconfidence in the ability to increase the chance of winning only leads to destructive gambling behaviours for those who play games of chance whose odds cannot be manipulated.

2.3 Gambling Self-Efficacy

The questionnaire analysis finds that gambling self-efficacy is negatively correlated with problem gambling severity (-0.64 , $p < 0.001$). This correlation remains when broken down by skill and chance gamblers¹⁹. Of the 30 frequent gamblers, 23 experience different levels of gambling self-efficacy and problem gambling severity (see Table 13). Of the 23 participants, 12 have low gambling self-efficacy and high problem gambling severity, and 11 have high efficacy and low severity. The correspondence between gambling self-efficacy and problem gambling severity is significant, such that people with low self-efficacy tend to have high severity and those with high self-efficacy tend to have low severity ($\chi^2 = 11.58$, $p < 0.001$)²⁰. This link remains when examined separately among skill and chance gamblers.

¹⁹ Gambling self-efficacy is negatively correlated with problem gambling severity when broken down by skill and chance gamblers (-0.45 , $p = 0.04$; -0.76 , $p < 0.001$).

²⁰ In analyses based on the interview responses, the correspondence between gambling self-efficacy and problem gambling categories is also significant ($\chi^2 = 26.05$, $p < 0.001$). Gambling self-efficacy categories and problem gambling categories are still related when broken down by skill and chance gamblers ($\chi^2 = 10.91$, $p < 0.001$; $\chi^2 = 15$, $p < 0.001$).

Table 13: Gambling Self-Efficacy and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Level of Gambling Self-Efficacy	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High	0	11	11.58	<.001
	Low	12	7		
Skill	High	0	5	6.56	0.01
	Low	7	3		
Chance	High	0	6	5	0.03
	Low	5	4		

Both findings support the prediction made in the Dynamics of Control Model: gambling self-efficacy is negatively linked with problem gambling severity. It seems that both skill and chance gamblers who are unable to resist gambling opportunities tend to spend more time and money than intended gambling, which leads to other negative consequences.

3 The Interaction

The Dynamics of Control Model includes an interaction between sense of control and illusion of control. The simultaneous influence of sense of control and illusion of control on problem gambling severity is not additive of their individual impacts on gambling problems. It may be that the relationship between sense of control and problem gambling severity depends on the value of illusion of control. Alternatively, the relationship between illusion of control and gambling problems may depend on the level of sense of control. This interaction stems from inconsistencies between how the types of control relate to problem gambling severity and how they relate to each other. According to the model, sense of control is negatively related to problem gambling severity and illusion of control is positively related. By extension, sense of control should be negatively related to illusion of control. However, this relationship is positive in the model.

This interaction cannot be tested using multivariate analysis because of this study's small sample. Instead, two bivariate approaches are used to examine this interaction. First, the

bivariate results for each of the three separate relationships are reviewed. Next, analyses examine how one type of control matches up with problem gambling severity depending on the level of the other type of control

The above bivariate analyses of the questionnaire responses show that sense of control is positively correlated with illusion of control. Further, the analyses find that illusion of control is positively correlated with problem gambling severity, but only among chance gamblers. Finally, the bivariate analyses show that sense of control is not linked with problem gambling severity. These results suggest that there is no interaction. In addition to not being negative, the relationship between sense of control and problem gambling severity is absent.

To assess the interaction more closely, chi-square analyses are used to examine how one type of control matches up with problem gambling severity depending on the level of the other type of control (see Table 14). Among those with high sense of control, levels of illusion of control and problem gambling severity match up positively for 12 gamblers and negatively for 11 gamblers. Among those with low sense of control, levels of illusion of control and problem gambling severity match up positively for five gamblers and negatively for two gamblers. Chi-square analysis of these results also finds that the interaction is not significant. Illusion of control and problem gambling severity are not linked in different ways depending on the level of sense of control ($\chi^2=0.81, p=0.37$)²¹. Among those with high illusion of control, levels of sense of control and problem gambling severity match up positively for six gamblers and negatively for 11 gamblers. Among those with low illusion of control, levels of sense of control and problem gambling severity match up positively for five gamblers and negatively for eight gamblers. When this information is entered into a chi-square analysis, the results show that the interaction is not significant. Sense of control and problem gambling severity do not match up in different ways depending on the level of illusion of control ($\chi^2= 0.03, p=0.86$)²².

²¹The association is also absent in analyses using the interview responses ($\chi^2=1.03, p=0.31$).

²²The association is also absent in analyses using the interview responses ($\chi^2=0.63, p=0.43$).

Table 14: Interaction between Sense of Control and Illusion of Control for Problem Gambling Severity in the Simcoe County Gambling Study

Type of Control	Level of Control	Nature of Relationship between other Form of Control and Problem Gambling Severity	Number of Gamblers	Chi-Square Tests	
				Value	Sign.
Sense of Control	High	Positive link between Illusion and PG	12	0.81	0.37
		Negative link between Illusion and PG	11		
	Low	Positive link between Illusion and PG	5		
		Negative link between Illusion and PG	2		
Illusion of Control	High	Positive link between Sense and PG	6	0.03	0.86
		Negative link between Sense and PG	11		
	Low	Positive link between Sense and PG	5		
		Negative link between Sense and PG	8		

No support is found for an interaction between sense of control and illusion of control. First, individual bivariate analyses find that one of the individual relationships that is part of the interaction is missing: sense of control is not (negatively) linked with problem gambling severity. Second, there is no support for the interaction when examining how one type of control matches up with problem gambling severity depending on the level of the other type of control. The link between sense of control and gambling problems does not depend on the value of illusion of control, and the connection between illusion of control and problem gambling severity does not differ based on sense of control.

4 Conclusions

Among the 30 frequent gamblers, sense of control is positively linked with illusion of control. As predicted by the Dynamics of Control Model, those with high sense of control tend to have high illusion of control as well. However, in contrast to the model, sense of control does not match up positively or at all with gambling self-efficacy. Further, illusion of control is not negatively or at all linked with gambling self-efficacy.

Gamblers with high sense of control do not tend to have low problem gambling severity. In part because of this finding, no support is found for the interaction between sense of control and illusion of control. As suggested by the model, illusion of control matches up in a positive way with problem gambling severity. Those with high illusion tend to also have high problem gambling severity. However, this is only the case among chance gamblers. Finally, as predicted, gambling self-efficacy is negatively linked with problem gambling severity. Frequent gamblers with high levels of gambling self-efficacy typically have low problem gambling severity.

Importantly, most of these relationships are the same for both skill and chance gamblers. Of the 12 bivariate analyses, only two reveal different results when looking at skill and chance gamblers separately as compared to examining the entire sample together. Specifically, sense of control and illusion of control are not correlated among skill and chance gamblers, and illusion of control and problem gambling severity are only correlated among chance gamblers. These results suggest two things. First, most of the individual relationships in the Dynamics of Control Model tend to work the same way regardless of type of game. Second, it is still important to consider type of game in analyses of control, since the positive correlation between illusion of control and problem gambling severity would have been missed otherwise.

These bivariate findings suggest a revised narrative for the links between frequent gambling, control, and problem gambling severity. According to these results and the open-ended interview responses, individuals' understandings about life in general extend to inform their beliefs about gambling wins and losses. When people believe that putting in effort will lead to success, they also tend to feel in control of their gambling outcomes. They believe that knowledge and commitment can lead to success both in life and in gambling. When people believe that events are influenced by an external force, they also tend to believe that gambling outcomes are based on an external force: fate or luck. Both life events and gambling wins happen for a reason.

Feeling in control of life events and rational thoughts about the odds of winning do not typically translate into controlled gambling behaviours. Feeling in control of life events also does not lead to fewer gambling-related problems. However, believing that gambling outcomes are

determined by luck does translate into fewer gambling-related problems, but only for people who play chance games. When people believe in luck they are less overconfident in their betting, make less risky wagers, and avoid serious negative consequences from excessive betting. Further, an individual's control over whether and how much they gamble influences whether or not they experience gambling-related problems. People who have control over their gambling use conscious decisions, spending limits, and a high value for money to limit their gambling, which helps them avoid destructive behaviours and the resulting problems. People who have difficulties controlling their gambling are unable to stick to spending limits, believe in the benefits of persistence, and dissociate while gambling. Because they tend to use gambling as a way to cope with emotional and financial issues, these individuals experience more gambling-related problems.

The bivariate analyses of each of the individual relationships find support for only half of the links in the Dynamics of Control Model. These results suggest a modified account of the relationship between frequent gambling and problem gambling severity that does not include connections between sense of control and gambling self-efficacy, illusion of control and gambling self-efficacy, or sense of control and problem gambling severity.

Chapter 9

Revising the Theoretical Model

The Dynamics of Control Model was created using previous theory and research in order to answer this study's main research question: what are the dynamics of control that explain the link between frequent gambling and gambling problems? Chapters five through seven covered this study's first objective and explained how frequent gamblers experience and understand sense of control, illusion of control, and gambling self-efficacy. Chapter eight addressed the last two study objectives by examining the links between the three types of control and how each type of control matches up with problem gambling severity. Now that all three study objectives have been met, this chapter examines the Dynamics of Control Model in its entirety to provide a direct answer to the main research question. Bivariate analyses are used to look at how the three types of control taken together match up with levels of problem gambling severity. Once this task is complete, the chapter moves on to briefly consider a key issue in problem gambling research that provided impetus for the current study: examining the link between gambling behaviours and gambling problems.

1 Exploring the Model: Correspondence between the Dynamics of Control and Problem Gambling Severity

The Dynamics of Control Model makes two predictions about how the three forms of control should coordinate with each other to lead to problematic gambling. An alternative hypothesis is also suggested in the literature. In order to examine these predictions, the participants were categorized based on their levels of all three types of control. Then bivariate analyses were used to determine how these classifications match up with the level of problem gambling symptoms.

The first prediction made by the Dynamics of Control Model is based on how each type of control relates to problem gambling. According to this hypothesis, low sense of control, high illusion of control, and low gambling self-efficacy should lead to gambling problems. Based on these relationships, these people can be called 'unhealthy'. According to the questionnaire responses, two (skill) gamblers match this description. 'Healthy' gamblers who do not experience problems should have high sense of control, low illusion of control, and high

gambling self-efficacy. Four (chance) gamblers fit into this group, for a total of six people. This first prediction is supported among the 30 frequent gamblers (see Table 15). ‘Healthy’ people tend to have low levels of problem gambling severity, while ‘unhealthy’ individuals have high levels of severity ($\chi^2=6$, $p= 0.01$)²³. This association does not hold when broken down by type of game because all unhealthy individuals are skill gamblers and all healthy individuals are chance gamblers.

Table 15: The First Hypothesis of the Dynamics of Control Model and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Hypothesis 1	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	Healthy	0	4	6	0.01
	Unhealthy	2	0		
Skill	Healthy	0	0	0	1
	Unhealthy	2	0		
Chance	Healthy	0	4	0	1
	Unhealthy	0	0		

The second prediction made by the Dynamics of Control Model is based on how the types of control relate to each other. According to this hypothesis, frequent gamblers who do not experience problems should have low sense of control, low illusion of control, and high gambling self-efficacy. Two (chance) gamblers match this description. In contrast, high sense of control, high illusion of control, and low gambling-self efficacy should lead to gambling problems. Of the 30 frequent gamblers, 10 fit into this group, six of which are skill gamblers, for a total of 12 people. This prediction is not supported in the SCGS sample (see Table 16). The two classifications do not distinguish well between high and low problem gambling severity

²³ Based on the interview results, three (skill) gamblers are considered ‘healthy’. Six gamblers are considered ‘unhealthy’, four of which are chance gamblers. More gamblers fit into these categories based on their interview answers than the questionnaire responses – nine versus six. Consistent with the results from questionnaire, ‘healthy’ frequent gamblers do not experience gambling-related problems while ‘unhealthy’ gamblers do ($\chi^2=9$, $p=0.003$).

($\chi^2=2.4$, $p=0.12$)²⁴. This association is also absent when examined separately among skill and chance gamblers.

Table 16: The Second Hypothesis of the Dynamics of Control Model and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Hypothesis 2	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High Sense, High Illusion, Low Efficacy	6	4	2.4	0.12
	Low Sense, Low Illusion, High Efficacy	0	2		
Skill	High Sense, High Illusion, Low Efficacy	4	2	0	1
	Low Sense, Low Illusion, High Efficacy	0	0		
Chance	High Sense, High Illusion, Low Efficacy	2	2	1.5	0.2
	Low Sense, Low Illusion, High Efficacy	0	2		

A third prediction not incorporated into the model but found in the literature is that control is overarching – individuals either feel in control over all three domains or none (Casey et al. 2008; Meyer de Stadelhofen et al. 2009). According to this third hypothesis, frequent gamblers with all high levels of control should not experience gambling problems, while those with all low levels will have troubles. Three (chance) gamblers have all low levels of control, and five

²⁴ Based on the interview results, three (chance) gamblers have levels of control that should predict non-problem gambling. Four (skill) gamblers have levels of control that should predict problematic gambling. Fewer gamblers are classified using these groups using the interview results than the questionnaire responses – seven versus 12. In contrast to the results for the questionnaire, the two classifications do distinguish between those with and without gambling problems ($\chi^2=7$, $p=0.008$). (Skill) gamblers with high sense of control, high illusion of control, and low gambling-self-efficacy experience problems from their gambling. In contrast, (chance) gamblers with low sense of control, low illusion of control, and high gambling-self efficacy do not experience problems as a result of their gambling.

(skill) gamblers have all high levels, for a total of eight people. This hypothesis is supported in the SCGS sample (see Table 17). Frequent gamblers with all high levels of control tend to have low problem gambling severity, while those with low levels of control have high severity ($\chi^2=4.44, p=0.04$)²⁵. This association does not hold when broken down by type of game because all of the all high individuals are skill gamblers and all of the all low individuals are chance gamblers.

Table 17: The Third Hypothesis of the Dynamics of Control Model and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Alternative Hypothesis	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	All High Levels of Control	0	5	4.44	0.04
	All Low Levels of Control	2	1		
Skill	All High Levels of Control	0	5	0	1
	All Low Levels of Control	0	0		
Chance	All High Levels of Control	0	0	0	1
	All Low Levels of Control	2	1		

So the second prediction based on the Dynamics of Control Model does the best job of representing the dynamics of control among the frequent gamblers, classifying 12 of these

²⁵ Based on the interview results, three (skill) gamblers have all high levels of control. Seven frequent gamblers, four of which are chance gamblers, have low levels of all three types of control. More gamblers are classified into these groups based on the interview results than the questionnaire responses – 10 versus eight. Consistent with the results for the questionnaire, gamblers with high levels of control do not experience gambling problems, while those with low levels of control experience gambling related-problems ($\chi^2=5.83, p=0.02$).

individuals. However, the first prediction based on the model and the alternative hypothesis help explain the link between frequent gambling and problem gambling severity. One commonality between these two hypotheses is that sense of control and gambling self-efficacy are negatively matched with problem gambling severity. Individuals with high levels of sense of control and gambling self-efficacy ('healthy' and 'all high' respondents) have low levels of problem gambling severity. Conversely, gamblers with low levels sense of control and gambling self-efficacy ('unhealthy' and 'all low' individuals) have high levels of problem gambling severity. So sense of control and gambling self-efficacy are particularly important for understanding the link between frequent gambling and gambling problems.

A second similarity between these two hypotheses is that, among the people categorized using these predictions, skill gamblers have high illusion of control while chance gamblers have low illusion of control, regardless of the level of problem gambling severity. In other words, illusion of control does not help distinguish between levels of problem gambling severity among skill or chance gamblers.

When these results are compared with the Dynamics of Control Model, some of the predicted relationships are supported while others are not. As predicted, sense of control and gambling self-efficacy are negatively matched with problem gambling severity. By extension, sense of control and gambling self-efficacy are positively linked, which is also consistent with the model. In contrast to the Dynamics of Control Model, this analysis does not find a positive relationship between sense of control and illusion of control, a negative relationship between illusion of control and gambling self-efficacy, or a positive relationship between illusion of control and problem gambling severity. Instead, illusion of control matches up more consistently with type of game.

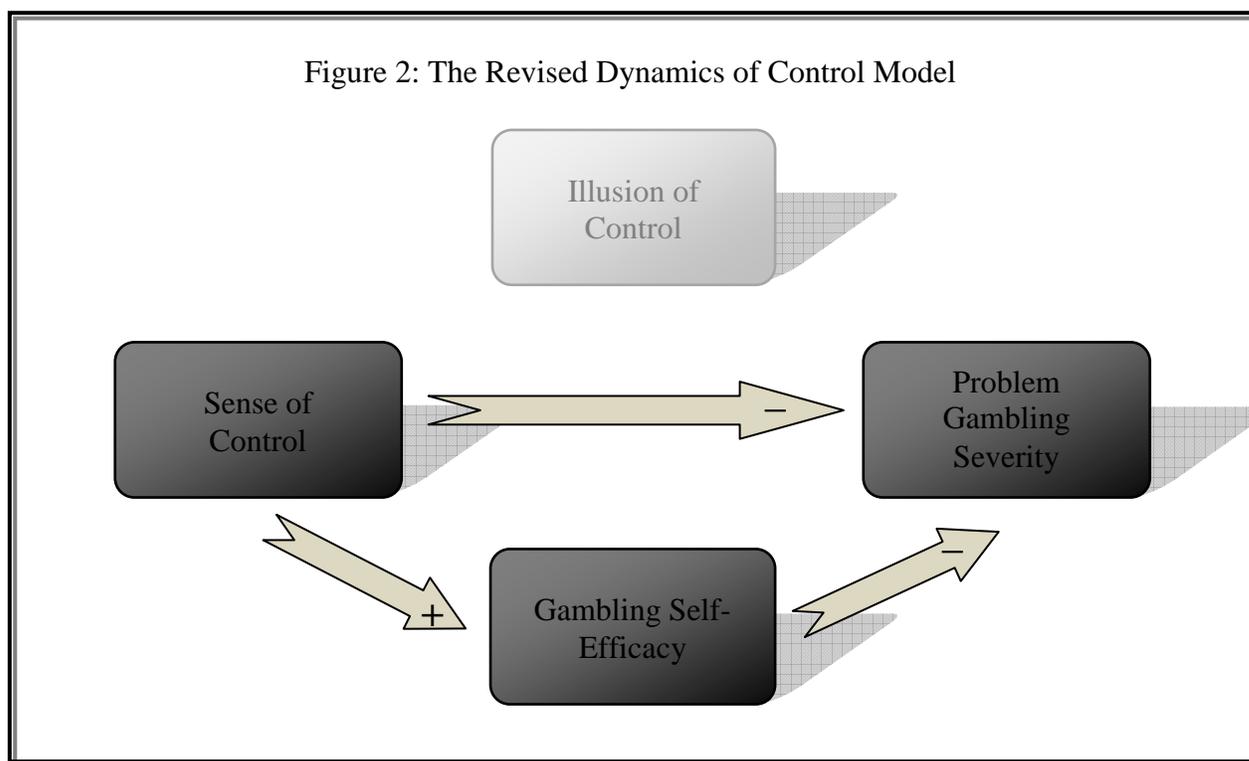
The results from this examination of the full model suggest a new modified narrative for the links between frequent gambling, control, and problem gambling severity. According to this analysis, frequent gamblers do not experience gambling-related harm when they feel accountable for their own successes and failures, and are confident in their ability to manage their gambling behaviours. People who take responsibility for the events in their lives believe

that investing time, effort, and energy will lead to success. This general feeling of control translates into a confidence in managing gambling behaviours, because beliefs about the social world guide behaviour in gambling situations. These individuals are able to control whether and how much they gamble by making conscious decisions, valuing their money, and using spending limits. Because they limit their gambling, these people do not spend too much time or money and are able to avoid gambling-related issues. These individuals also avoid the negative consequences of gambling by problem solving. Because they feel in control of their lives, they make efforts to resolve and prevent issues. In doing so, these people limit the amount of stress they experience and reduce their destructive gambling behaviours, which lead to fewer problems from their frequent gambling.

In contrast, frequent gamblers experience gambling-related harm when they do not take responsibility for their own successes and failures, and are insecure in their ability to manage their gambling behaviours. Gamblers who are not accountable for the events in their lives feel that everything happens for a reason. This general lack of control translates into an inability to manage gambling behaviours. These individuals are unable to control whether and how much they gamble because they cannot stick to spending limits, believe persistence will pay off, and dissociate while playing. Gambling opportunities are encouraged under various circumstances. These opportunities are hard to resist because these individuals use gambling as a way to escape negative emotions and resolve financial difficulties. As a result, these people spend more time and money than intended, leading to various other issues. These individuals also experience negative consequences because they are inept at problem solving. Because they do not feel in control of their lives, they are inexperienced at resolving or preventing problems. These people are unable to avoid stress or reduce their destructive gambling, while lead to related difficulties.

Just like the individual analyses reviewed in the previous chapter, bivariate analyses of three predictions for how control explains problem gambling severity find support for only half of the relationships present in the Dynamics of Control Model. As predicted, sense of control and gambling self-efficacy are negatively linked with problem gambling severity, and sense of control matches positively with gambling self-efficacy. For its part, illusion of control is

predicted by type of game and does not differentiate between levels of problem gambling symptoms. A revised Dynamics of Control Model is presented in Figure 2.



2 Gambling Behaviours and Problem Gambling Severity

The underlying question of the Dynamics of Control Model is why does frequent gambling lead to gambling-related harm? This question is part of an emerging research agenda, where researchers have begun to question the relationship between gambling behaviours and problem gambling symptoms (Rodgers et al. 2009; Petry 2009). In the exploration of the Dynamics of Control Model, variations in gambling behaviour are ignored in favour of placing the focus specifically on frequent gamblers. This decision allowed the analysis to concentrate on the three forms of control. To offer a more direct answer to the underlying question, this section uses bivariate analyses of the questionnaire responses to specifically examine the relationship

between frequent gambling and gambling-related harm. These results are supplemented with open-ended interview responses and a secondary data analysis of the Canadian Community Health Survey (CCHS).

Analysis of the questionnaire responses finds that gambling frequency and problem gambling severity are positively correlated (0.42, $p=0.02$). This correlation does not hold when examined separately by type of preferred game²⁶. Gambling frequency and problem gambling severity are also positively correlated in the CCHS (0.22, $p<.001$) and the correlation remains when examined separately by type of game²⁷. When gambling frequency increases, so does problem gambling severity.

All of the interview participants are considered high frequency gamblers, betting at least once a week. In order to further examine the link between frequency and problem gambling severity, gambling frequency was dichotomized into high – more than once a day – and low – less than once a day. Using this cut point, 15 people are high frequency gamblers, 10 of which play skill games (see Table 18). The other 15 individuals are low frequency gamblers, 10 of which play chance games. In total, 17 people have similar levels of gambling frequency and problem gambling severity. Of these 17 individuals, 10 people, seven of which are chance gamblers, have low frequency and low severity. Another seven gamblers, including five skill gamblers, have high frequency and high severity. The correspondence between these two variables is not significant ($\chi^2=0.56$, $p=0.46$)²⁸. This relationship remains absent when examined separately among skill and chance gamblers.

²⁶ In the questionnaire results, gambling frequency is not correlated with problem gambling severity when broken down by skill and chance gamblers (0.33, $p=0.22$; 0.37, $p=0.17$).

²⁷ In the CCHS, gambling frequency is positively correlated with problem gambling severity when broken down by skill and chance gamblers (0.14, $p=0.001$; 0.25, $p<.001$).

²⁸ Based on the interview responses, only eight gamblers are high frequency, seven of which are skill gamblers. The remaining 22 gamblers are low frequency, 14 of which are chance gamblers. So in the interviews, several gamblers described betting less frequently than they actually do. This is likely because they were not taking into consideration all types of gambling and focused instead on their preferred game(s). In total, 19 gamblers have similar levels of gambling frequency and problem gambling severity. Specifically, 11 gamblers, seven of which are chance gamblers, have low frequency and low severity. Another eight gamblers – including seven skill gamblers – have high frequency and high severity. The correspondence between gambling frequency and problem gambling

Table 18: Gambling Frequency and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Level of Gambling Frequency	High Problem Gambling Severity	Low Problem Gambling Severity	Chi- Square Tests	
				Value	Sign.
All	High	7	8	0.56	0.46
	Low	5	10		
Skill	High	5	5	0.13	0.71
	Low	2	3		
Chance	High	2	3	0.15	0.70
	Low	3	7		

The open-ended interview responses further explain the link between gambling frequency and problem gambling severity. In their interviews, 19 people talked about problems they had experienced as a result of their gambling. Eight of these people are very frequent gamblers, betting more than once a day. The most obvious way that frequent gambling leads to problems is by consuming large amounts of time. One sports gambler explained his Sunday ritual as follows:

I would only bet on Sundays, my NFL days and that. I would go first thing in the morning, after I did my research, and I'd bet 12 o'clock games, the four o'clock games and throw in the evening and Monday night game, and if stuff didn't work out in the 12 o'clock game and I lost something, then I'd probably go back and reconfigure my four o'clock game. You know, to try to get back into the swing of things. Sunday was a big day. That was my biggest day, Sundays (112).

This person used to spend at least one entire day a week gambling, between researching the games, placing bets, watching the games, and revising the bets. Devoting one day a week or

severity is positive and significant ($\chi^2=6.32$, $p=0.01$). However, when examined separately by type of game, gambling frequency and problem gambling severity only match up among skill gamblers ($\chi^2= 4.77$, $p= 0.03$). Gambling frequency categories and problem gambling severity categories are not related among chance gamblers ($\chi^2=0.94$, $p= 0.33$).

more to gambling can be problematic for people when they ignore their responsibilities – jobs, families, housework – as a result.

Frequent gambling not only takes time away from fulfilling responsibilities, it also reduces the amount of quality time the person spends with their family and friends. One person explained how his gambling interfered with his home life in this way:

Once and a while my wife and I get into it because she says I go too often, I should stay home more. Other than that I don't think there is any problem. You know, we've always paid the bills, I make sure of that. I guess just between my wife and I she'd like me home more often than I am, especially when it comes to bingo because like I said I go about five days a week, right? Play cards Monday, play cards Wednesday, out to bingo Tuesday, Thursday, Friday, Saturday. It gets pretty monotonous for her. She does come once and a while but she doesn't come very often (204).

This person's betting schedule poses a problem for his wife, because it means he is away gambling almost every day of the week. Because she doesn't really gamble, she spends most of her time at home alone instead of connecting with her husband. When quality time and household responsibilities suffer because of time spent gambling, the gambler often ends up experiencing relationship problems with significant others who are unhappy with their long and frequent absences.

Because gambling involves the wagering of money, financial issues are another important negative repercussion of frequent gambling. Gambling can get expensive quickly. As one individual described: "Before, I would go to bingo every day. That's like three grand. I don't even make that a month" (103). When people spend more than their monthly income on their daily gambling habit, they often experience troubles paying their bills. Issues can also arise when individuals use money that is not set aside specifically for gambling. For example, one person said: "I used to be addicted to bingo every night. Every night I would go to bingo and I don't know where I got the money to go but I would go and the same with the casino" (202). Since this individual didn't know where his money was coming from, it probably wasn't part of a gambling budget. Instead, he was most likely taking money reserved for other purposes, like groceries or rent, which would cause troubles down the line.

Despite the quantitative and qualitative findings on how frequent gambling leads to gambling-related harm, the SCGS sample includes several individuals who bet frequently without experiencing substantial problems as a result. In fact, 18 people have low levels of problem gambling severity despite gambling once a week or more. Moreover, eight of the 15 individuals who bet once a day or more are not considered problem gamblers. As outlined in the previous section, people are able to gamble frequently without experiencing extensive harm when they have high sense of control and high gambling self-efficacy. They feel in control of their lives and their gambling behaviours.

Correlation analysis of the questionnaire responses finds that as the frequency of gambling increases, so does the number of problem gambling symptoms. This is because frequent gambling requires lots of time and money, which leads to financial and relationship troubles – symptoms of problematic gambling. However, it is important to note that gambling behaviours, even extensive ones, do not necessarily lead to problems. Despite gambling at a level that is related with an increase in gambling problems, 18 of the frequent gamblers do not meet the criteria for problem gambling. Further, more than half of the very frequent gamblers who bet once a day or more are not classified as problem gamblers. For these reasons, it cannot be assumed that extensive gambling behaviours necessarily lead to gambling problems.

3 Conclusions

Bivariate analyses of the individual relationships in the Dynamics of Control Model find support for half of them: sense of control matches positively with illusion of control, illusion of control corresponds positively with problem gambling severity among chance gamblers, and gambling self-efficacy is negatively linked with problem gambling severity. Bivariate analyses of the entire Dynamics of Control Model also find support for half of the relationships in the model, though different relationships are supported: sense of control matches positively with gambling self-efficacy, sense of control corresponds negatively with problem gambling severity, and gambling self-efficacy is negatively linked with problem gambling severity.

Both analyses agree on one key point: frequent gamblers who are unable to resist gambling opportunities suffer more gambling-related problems, while those who can resist gambling

experience fewer difficulties. This finding is consistent with theories that argue that loss of control is the key element of addiction (Blaszczynski and Nower 2002; Dickerson and O'Connor 2006; Goodman 2008).

The full examination of the Dynamics of Control Model does not find a role for illusion of control in explaining problem gambling severity, though support for this relationship is found in the individual bivariate analyses. Instead, analysis of the full model reveals that illusion of control is best predicted by type of game. Skill gamblers have high illusion, while chance gamblers have low illusion. This finding is consistent with other studies that report a relationship between illusion of control and type of game (Toneatto et al. 1997; Myrseth et al. 2010). It is possible that the importance of illusion of control in the individual analyses is due entirely to differences by type of game. The bivariate analyses of the individual relationships find that illusion of control is linked with sense of control and problem gambling severity, both of which differ by type of game (Lester 1980; Cox et al. 2000; Dorion and Nicki 2001).

Analysis of the entire Dynamics of Control Model finds support for the importance of sense of control in explaining problem gambling severity, even though this support is absent in the bivariate analyses of individual relationships. The full examination of the model reveals that sense of control is linked with both gambling self-efficacy and problem gambling severity. These results confirm and extend previous findings showing that locus of control is related with gambling self-efficacy and problem gambling (Casey et al. 2008; Meyer de Stadelhofen et al. 2009; Tang and Wu 2010). It seems that the full model analysis captures an indirect effect of sense of control that is missed by the individual analyses. As suggested by another study, it looks as though gambling-self efficacy mediates the effect of sense of control on problem gambling severity (Tang and Wu 2010).

The results from the full examination of the Dynamics of Control Model are most valuable in that they provide a detailed, authentic, and valuable account of how gamblers move through their lives. Namely, this study is able to describe how some frequent gamblers avoid gambling-related harm while others suffer from it. Whether an individual feels effective in their life will determine whether they feel effective in managing their gambling behaviours. Feeling powerful

or powerless over life and gambling then influences stress levels, destructive gambling behaviours, and ultimately gambling-related problems. Believing that gambling outcomes are based on luck or skill plays a limited role in understanding gambling-related harm. Instead, these beliefs are largely based on the type of game played – skill or chance.

Chapter 10

Future Directions

This study began with a puzzle: why does frequent gambling lead to gambling-related harm? To explore the black box between gambling behaviours and gambling problems, this research asked the following question: What are the dynamics of control among frequent gamblers? This research question was answered by using existing theory and research to create the Dynamics of Control Model. To explore this model, 30 in-depth interviews were conducted with frequent gamblers from Simcoe County, Ontario. The study's first objective was addressed by using the open-ended interview responses to show the meaning of sense of control, illusion of control, and gambling self-efficacy. Bivariate analyses of the questionnaire responses were used to achieve the study's second and third objectives: explore how the three types of control correspond to each other and how each type of control links with gambling problems. Bivariate analyses were also used to explore the association between gambling frequency and gambling problems. A secondary data analysis of the 2002 Canadian Community Health Survey was used to supplement the interview results for the relationship between sense of control and problem gambling severity, and between gambling behaviours and problems. This concluding chapter reviews the key findings and discusses their significance. It then outlines the study's limitations and the implications of its results. This chapter finishes by providing directions for future research.

1 Discussion

By focusing on individuals who meet the criteria for diagnosis, problem gambling research is unable to examine the causes and consequences of all levels of gambling behaviour (Blaszczynski 2009; Petry 2009). By studying frequent gamblers instead of just problem gamblers, the current study addresses this oversight. The first contribution of this research is that it provides information on the levels of control and problem gambling severity of a particular level of gambling behaviour – frequent gambling. In doing so, this research extends problem gambling literature by uncovering the relationship between gambling behaviours and gambling problems (Rodgers et al. 2009). Specifically, this study finds that sense of control and gambling

self-efficacy help explain the association between frequent gambling and gambling-related harm, as predicted by the Dynamics of Control Model. Importantly, by focusing on gambling behaviours, this study reveals that frequent gambling does not always result in gambling-related harm. When people gamble frequently while maintaining control over their life and gambling behaviours, they experience few problems from their betting.

In addition to building on problem gambling research, this study extends the mental health literature by exploring sense of control among (problem) gamblers. This study's second contribution is showing that a general type of control – sense of control – *and* a gambling-specific type of control – gambling self-efficacy – help explain differences in problem gambling severity. Sense of control and gambling self-efficacy are related but distinct concepts (Casey et al. 2008). A person's beliefs about who controls life events influence their beliefs and actions in gambling situations which then influence the number and severity of gambling problems they experience (Tang and Wu 2010). In uncovering this finding, the current research bridges the gap between the mental health and problem gambling fields by showing that concepts from both are necessary for understanding gambling problems. In fact, the types of control from each field appear to work together, as gambling self-efficacy seems to mediate the relationship between sense of control and problem gambling severity (Tang and Wu 2010). By spanning this theoretical gap, this research also puts into question the importance of illusion of control for understanding problem gambling severity. The importance of both a general and gambling-specific type of control and the lack of importance of a previously supported type of control suggest that studies that do not bridge the divide between mental health and problem gambling research are missing the full understanding of the dynamics of control.

This research further improves on both problem gambling and mental health literature by focusing on the concept of control and offering qualitative accounts of how each type of control is experienced and understood by frequent gamblers. This study's third and arguably most important contribution is describing and specifying the meaning of the three types of control. In doing so, this study provides an increased level of precision in our understanding and

conceptualization of general and gambling-specific control. The key strength of this study is providing a nuanced, complex, and diachronic account of control.

For sense of control, this study finds that most people see some role for personal choices and external forces, such that feeling in control is a matter of degrees. The interviews also show that understandings of control can change with the passing of time and with new experiences. Finally, this study finds that sense of control is not beneficial after a certain threshold, because some situations are the result of other people's behaviours or circumstances that are beyond the individual's control.

For illusion of control, this research finds that some people believe both skill and chance help explain their gambling behaviours. The results also show that there is a threshold for skill's ability to increase the odds of winning. Finally, this study finds that people who believe in randomness and the low odds of winning still make attempts to increase their chances of a win.

For gambling self-efficacy, this study finds that control over gambling behaviours involves not only resisting the opportunity to gamble, but also limiting the amount of time and money spent. The results also show that people who are unable to resist gambling have a low value for money, have troubles making conscious decisions, and cannot stick to spending limits. Further, the interviews reveal that boredom, disposable income, online access, and casino incentives make gambling opportunities accessible and appealing. These opportunities are hard to resist when the individual has low self-control and uses gambling to cope with negative emotions and financial issues.

The three main contributions of this research are in line with the study's three key goals: explore the black box between gambling behaviours and gambling problems; bridge the gap between mental health and problem gambling research; and focus on the concept of control. In achieving all three goals, this research makes important contributions to both the mental health and addiction fields of research, and brings the two areas closer together.

2 Limitations

Though this research makes several important contributions, this mainly qualitative small-scale study suffers some limitations. The non-random sample, cross-sectional method, data collection tools and procedures, and quantitative dataset suffer some deficiencies which dampen the generalizability and accuracy of the results.

Like all studies using a non-probability sampling technique, there is most likely some bias in these results due to the self-selection of participants. Certain types of individuals are likely to have seen the advertisements, just like certain types of people are interested in participating in research studies. Further, some individuals do not acknowledge the frequency at which they gamble or do not consider what they do to be gambling (i.e. some bingo or scratch card players), which would cause them to self-select out of the study. The size of the sample is also limiting. Though the interviews reach theoretical saturation, 30 people is a small sample on which to base any conclusive findings. In particular, the bivariate analyses are only suggestive because they do not meet the requirements for independence of cases or expected cell values in call cases. In addition, because the sample is rural, the results may not be reflective of urban individuals. Finally, this study cannot speak to self-defenders when discussing sense of control because the sample did not include any. So the generalizability of the findings is limited by the non-probability sampling technique, the sample size, its rural location, and the absence of self-defenders.

The representativeness of the sample and the generalizability of the results are best judged by comparing the SCGS sample to frequent gamblers in the larger population from the Canadian Community Health Survey 1.2. Full results from this comparison can be found in Appendix J. The SGCS sample is reasonably representative in terms of demographic characteristics – differing mostly in age and education – and sense of control. However, the SGCS sample gambles more frequently and has higher problem gambling severity than frequent gamblers in the general population. So it is possible that the findings here are not representative of people who gamble less frequently and suffer fewer gambling-related problems. The results may be an overestimation of the importance of control for linking gambling frequency and problem

gambling severity. However, an overestimation is preferable to an underestimation which would miss important relationships. The largest discrepancies between the SCGS sample and the CCHS sample are around type of game differences. The skill and chance gamblers in the SCGS sample do not differ on demographics, sense of control, and gambling problems in the same ways as people in the CCHS. For this reason, the type of game results may not be generalizable to the wider population. In particular, illusion of control may in fact help explain the relationship between frequent gambling and gambling-related harm in the general population, instead of being predicted by type of game as in the SCGS sample.

To address the limitations of a small potentially biased sample, this study uses the triangulation of three sources of data: open-ended interview questions, a closed-ended questionnaire, and a secondary analysis of a nationally representative survey. The combination and comparison of these three data sources strengthens the credibility of this study's findings. In particular, the secondary data analysis supports the results for sense of control found in this small sample.

Because this study is cross-sectional, it is unable to address the causal ordering issues involved in studying the associations between gambling frequency, control, and problem gambling severity. The Stress Process Model suggests that (gambling) behaviours lead to stressors, such as financial and personal difficulties, through sense of control (Pearlin 1999). For its part, the Integrated Pathways Model argues that gambling behaviours foster illusion of control, which then leads to (low) gambling self-efficacy, culminating in gambling-related problems (Blaszczynski and Nower 2002). This study has used these two models as frameworks for the Dynamics of Control Model. It has proceeded as though gambling behaviours lead to gambling-related harm through the three types of control. In doing so, it finds some support for the Dynamics of Control Model. However, the links documented by this analysis may actually reflect any number of other causal orders, such as control influencing gambling behaviours or problem gambling severity affecting control. It remains for studies with longitudinal data to determine the exact causal directions of these relationships.

The data collection tools and procedures also pose limitations for this study. The questionnaire items for gambling self-efficacy were hard for participants to understand and answer correctly.

The lead up to the questions asked the person to indicate their degree of confidence that they would NOT gamble in a particular situation. However, many respondents answered the questions in terms of their level of confidence that they WOULD gamble. Based on their responses to the open-ended questions, it was determined that the responses for seven of the 30 participants needed to be reverse coded. For an additional four individuals, it was unclear whether they had answered the questions correctly or not. These responses were left unchanged. Similarly, the questionnaire items for illusion of control posed problems for several individuals. There were a lot of missing responses on these items, likely because people were mainly thinking of their game of choice when answering these questions. This is because the first question in the series asks the participant a question in relation to their preferred game. Because of these two issues, the quantitative measures of illusion of control and gambling self-efficacy may not accurately reflect these two forms of control. This limitation is addressed by supplementing the questionnaire results with the in-depth interview responses.

In terms of the in-depth interview portion of the study, most of the questions were retrospective in nature which may have reduced the accuracy of the responses. However, since this study is mainly interested in how these people experience control, how they remember and interpret their experiences is highly important. Also, because the interviews were face-to-face and audio taped, it is possible that some participants underreported symptoms or negative experiences in order to avoid perceived stigma. This misreporting was reduced as much as possible by using open-ended questions to probe and follow-up on answers given in the closed-ended questionnaire. Most participants spoke openly about their lives, so misreporting should not have been a serious issue in this research.

In using the CCHS 1.2, this study was faced with the usual limitations that come with conducting secondary data analysis. Mainly, the sample could not be focused and relevant questions could not be asked. First, although it would have been preferable to exclude respondents who were not of legal gambling age, the CCHS's lowest age category is 15-19 year olds. In order to retain the 18-19 year olds, it was necessary to keep the 15-17 year olds as well. Second, in order to measure sense of control, a scale had to be created out of available questions for psychological well-being. Though this scale captures the core elements of sense of control, it

does not allow for a direct comparison with the questionnaire results which use standard instruments for measuring sense of control. Further, the face validity of this measure is limited because all of the items are part of a scale used to measure a different concept – psychological well being. Finally, the Dynamics of Control Model could not be fully tested because the CCHS does not include questions on illusion of control and gambling self-efficacy. Despite these limitations, the results of this secondary data analysis offer useful comparisons for the findings from the interview sample for sense of control and gambling frequency.

This study is limited by the non-probability sampling technique, the sample size, the unrepresentativeness of the sample, its cross-sectional nature, certain questionnaire items, some interview procedures, and the secondary analysis dataset. Despite these limitations, this study has generated interesting findings that shed light on neglected topics and that have implications for future research.

3 Implications

Despite the limitations of this small-scale mainly qualitative study, this research has several important implications. The findings suggest directions for future work in the addiction, problem gambling, and mental health fields. This study's implications are theoretical, conceptual, and methodological in nature.

First, this study finds that frequent gambling does not always result in gambling-related harm. Interestingly, this finding is in line with one of the most fundamental assumptions of responsible gambling from the gambling industry's perspective: people can participate in gambling without experiencing any harm (Blaszczynski, Ladouceur, and Shaffer 2004). However, the theoretical implications of this assumption are rarely considered. Though the Integrated Pathways Model attempts to move beyond the problem gambler/non-problem gambler dichotomy by discussing subgroups of problem gamblers, it neglects levels of gambling behaviour and problem gambling severity in favour of problem gambling status. If this model considered levels of behaviours and problems, it would capture variations in the predictors and consequences of each. For example, a shift in focus could further identify the conditions under which frequent gambling or other

types of gambling behaviour do or do not lead to harm. A focus on gambling behaviours could also uncover whether and how frequent gambling can go from harmless to harmful over time.

Next, this study begins to bridge the gap between mental health and problem gambling research by testing a model based on theories and research from both fields. Most importantly, the results show that sense of control *and* gambling self-efficacy help explain problem gambling severity among frequent gamblers. In other words, problem gambling is in fact about control as suggested by its definition and the contemporary definition of addiction. The success of this attempt suggests that research and theory on behavioural addiction, substance addiction, and mental health should work together. Collaboration would be beneficial for all involved. It would broaden the scope of mental health research by encouraging the study of behavioural addictions like problem gambling. Collaboration between fields would also improve the understanding of addiction onset. First, problem gambling research would benefit from the application of the Stress Process Model. This theoretical model has the potential to increase the sociological understanding of problem gambling, by explaining and emphasizing the importance of social status, stress, and resources – factors already known to be important for problem gambling onset. Second, mental health research would benefit from including addiction-specific types of control in their studies, namely self-efficacy or self-control. Self-efficacy and self-control may be important for understanding other behavioural or substance addictions. Further, sense of control and self-efficacy may work together for these other addictions as they do for problem gambling. Overall, central findings from other fields can be used to avoid needlessly conducting similar exploratory research in each area, propelling research forward at an increased pace.

This research also illustrates how a sociological perspective can improve the understanding of problem gambling. First, sociological concepts, namely sense of control, help explain problem gambling and its link with frequent gambling. Second, sociological theories, like the Stress Process Model and social learning theory, provide insights into how types of control are built and how they influence an individual's health. Finally, social context, including the accessibility of gambling and personal interactions, shapes the various types of control. The importance of sociological concepts and theories in this study suggests that sociological research into problem gambling should and will continue to make important contributions to the field.

Additionally, this work highlights the importance of type of game for understanding control, gambling behaviours, and gambling problems. The skill gamblers in this study differ from the chance gamblers in their backgrounds, frequency of gambling, levels of control, and level of gambling problems. Likely in part because of these differences, illusion of control is not influential in the Dynamics of Control Model and is instead linked with the preferred type of game. The reoccurring differences by type of game found here suggest that future attention should be paid to differences in experiences and beliefs among skill and chance gamblers.

By showing the meaning of the three types of control, this study also suggests specifications for each concept. For sense of control, this research broadens the understanding of its stress buffering role. It finds that problem solving – in addition to moderating stress by preventing one's own behaviours from leading to stressors – can help prevent other people's actions from limiting the individual's sense of control and ultimately resulting in stress. Further, the variations in sense of control uncovered here suggest the concept should be understood as a continuum and its threshold should be elaborated to include the influence of family and friends. These changes would better capture variations in the degree of control people feel and could unearth important health differences.

For illusion of control, this research improves the understanding of how this type of control contributes to the onset of gambling problems. In contrast to the Integrated Pathways Model, the results here do not find that all problem gamblers learn irrational beliefs from family and friends. Instead, the findings show that illusion of control is linked more strongly with the type of game played – skill or chance – than with gambling problems. Type of game should be factored into considerations of illusion of control for this reason and because illusion of control among poker players may not actually be an illusion. This study also finds variations in illusion of control beliefs which suggest the concept should be understood as a continuum and should incorporate a threshold for the role of skill. Finally, the results suggest that beliefs about the odds of winning and attempts to increase those odds should be measured separately and compared. These changes would lead to a more accurate assessment of illusion of control and a better understanding of how this concept contributes to problem gambling.

For gambling self-efficacy, this study uncovers useful information for sharpening the definition of problem gambling. It finds that a lack of control over gambling behaviours does not always translate into gambling problems. As a result, the definition of problem gambling should not assume that an inability to control gambling is synonymous with experiencing gambling-related problems. The results also suggest that gambling self-efficacy should be understood as both resisting opportunities to gamble and resisting spending too much time or money. Whether or not a person can resist gambling urges should be conceptualized separately as gambling impulse or self-control. The link between gambling self-control and gambling self-efficacy should be further explored. Finally, assessments of gambling self-efficacy should incorporate the influence of social context, namely friends and family, access, and cultural acceptance. These changes would clarify which factors actually lead to problematic gambling – resisting opportunities, controlling behaviours while gambling, or managing gambling impulses – and under what conditions.

Although each type of control examined in this study is clearly defined as distinct, the concepts are quite similar at face value and there are interval variations that are not currently captured in each label. In order to make the types of control more easily distinguishable and comprehensible, the modified labels outlined in Table 19 should be implemented.

Table 19: Modified Labels for the Different Types of Control

Original Concept Label	Modified Concept Label
Sense of Control	Generalized Life Control
Illusion of Control	Gambling Outcome Control
Beliefs about Outcome Control	Belief in Control Over Gambling Outcomes
Attempts to Control Outcomes	Attempts to Control Gambling Outcomes
Gambling Self-Efficacy	Control Over Gambling Behaviours
Resisting Gambling Opportunities	Control Over Decisions to Gamble
Controlling Gambling Behaviours	Control Over Behaviours while Gambling
Managing Gambling Urges	Control Over Gambling Urges

Finally, by looking at control quantitatively and qualitatively, the results suggest improvements for the tools used to assess the three forms of control. For sense of control, this study finds that the Mirowsky and Ross (1990) Mastery scale underestimates low sense of control, while the Pearlin et al. (1981) sense of control measure captures the qualitative responses more closely. As a result, future attempts to measure sense of control quantitatively should use the Pearlin et al. (1981) measure. Qualitative assessments should address nuances identified through the in-depth interviews such as the importance of other people's decisions and change over time. These changes could reduce the overestimation of high sense of control and better capture variations in understandings of life events.

For illusion of control, this study finds that the Beliefs about Gambling Questionnaire (Kallmen et al. 2008) overestimates high illusion of control compared to the qualitative responses. In order to address this disconnect, quantitative assessments of illusion of control should establish a benchmark for high illusion of control based on the gambler's preferred game. The measure should also include a threshold for the role of skill. Finally, questions should separately assess beliefs about the odds of winning and attempts to increase the odds of winning. These changes may reduce the overestimation of high illusion of control and more accurately identify how illusion of control is linked with problem gambling.

For gambling self-efficacy, this research finds that assessments based on the Gambling Abstinence Self-Efficacy Scale (Hodgins et al. 2004) are consistent with the open-ended responses. This suggests that the questionnaire items accurately reflect how people experiences gambling self-efficacy. However, the quantitative questions should be amended to include important variations uncovered during the interviews. Mainly, items should touch on both resisting gambling opportunities and limiting the time and money spent (May et al. 2003). Further, the importance of external factors like proximity, availability, and peer influence should also be assessed. Finally, questions about managing gambling impulses should be measured separately. These changes should lead to more accurate measurements of gambling self-efficacy and gambling self-control respectively. These adjustments would also allow research to determine how each may be differently associated with gambling-related problems.

The results generated from this research have several important practical and conceptual implications for addiction, problem gambling, and mental health research. Future work should consider the various types of control important for addiction, additional ways to bridge the gap between mental health and gambling research, the potential contributions of the sociological perspective, and the improved conceptualizations of the types of control offered here.

4 Future Research

The implications and limitations of this study suggest several fruitful avenues for future research. These branches of research build on the main contributions of this work and would further improve the understanding of problem gambling and control.

Future research should test the Dynamics of Control Model more decisively in a larger more representative sample to confirm and expand on the results found in the current research. The Dynamics of Control Model and its interaction should be tested in a longitudinal study using prospective questions in order to address the causal ordering issues outlined above. The tools used to assess the three types of control should be reformulated based on the recommendations also detailed above. Analysis should focus on specifying how and why the three types of control relate to each other and to gambling problems.

A qualitative component should be used to verify the conceptual findings for the three types of control reported here. Attempts should be made to understand how sense of control varies over time and the implications of these changes for health. The sources and health consequences of the threshold for sense of control and for illusion of control should be explored. Research should explore the link between type of game, illusion of control, and problem gambling severity more thoroughly. Attempts to increase the odds of winning should be separated from beliefs about the odds of winning to clarify the relationship of each with problem gambling onset. Similarly, attention should be given to disentangling the relationships between resisting gambling opportunities, controlling behaviours while gambling, managing gambling urges, and problem gambling severity.

Future studies should focus on further specifying the conditions under which extensive gambling behaviours do or do not lead to gambling problems. Also, links between other gambling behaviours – such as time or money spent – and problem gambling severity should be studied to further uncover the black box between behaviours and problems. Studies on these topics would greatly improve the understanding of problem gambling and its onset.

Further attempts should be made to bridge the theoretical and research gap between the problem gambling and mental health fields. For example, research should continue to explore the role of sense of control for understanding the link between other gambling behaviours and gambling-related harm. Studies could also attempt to apply the entire Stress Process Model to problem gambling to clarify the importance of social status, stressors, and personal and social resources. More sociological research is also needed. Studies should further consider how the social context – childhood experiences, culture, and social networks, for example – influences gambling behaviours, control, problem gambling severity, and their interrelationships.

Finally, type of game should be factored into future research on frequent gamblers and gambling-related harm. This research and other studies find that skill and chance gamblers differ in terms of demographics, frequency of play across games, problem gambling behaviours, illusion of control, and gambling self-efficacy (Lester 1980; Myrseth et al. 2010). Most importantly, this study finds that illusion of control is predicted by type of game and does not help explain the relationship between gambling frequency and problem gambling severity. These differences may have implications for the relationships between other gambling behaviours and problem gambling, and for the various risk factors for problem gambling onset.

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Appendices

Appendix A – Recruitment Poster

Research Participants Needed!

The Simcoe County Gambling Study



***Do you live in Simcoe County?**

***Do you gamble once a week or more?**



If you answered yes to both questions, researchers from the University of Toronto want to talk to you.

Some topics are of a sensitive nature; but confidentiality is maintained to the full extent permitted by law.

***Each interview lasts about 90 minutes**

***\$25 gift certificate for each interview**

***Must be 18 years of age**

***Must be fluent in English**



For more information, please contact Sasha at:

XXX.XXX.XXXX or xxx.xxxx@utoronto.ca

Simcoe Gambling Study xxx.xxx.xxxx or xxxx.xxxx@utoronto.ca

Appendix B – Screening Tool

Simcoe County Gambling Study - Screening Script

Hi, this is Sasha Stark, research coordinator for the Simcoe County Gambling Study. Thank you for your interest in being involved. As you may know, we are conducting a study on the gambling experiences and attitudes of adults in Simcoe County and would like to include your views.

You may find that some of the questions are of a sensitive nature. For example, I will ask you questions about:

- Your background, such as level of education and marital status;
- Important positive and negative experiences in your past;
- What you envision for your future; and
- Your experiences with and attitudes towards gambling.

The study will take about 90 minutes to complete. You can quit at any time or refuse to answer any question. We will maintain complete confidentiality, except where there is a serious risk of you harming yourself or someone else, or where there is reasonable suspicion of ongoing child abuse.

The questions asked today are being used strictly to determine what type of experiences you have had with gambling, and whether you are eligible for inclusion in the study. All information about excluded respondents will be destroyed immediately.

Are you at least 18 years of age? Yes_____ No_____

[If Yes go to next question; if No the respondent is not eligible]

A: Gambling Behaviour

In the past 12 months, have you bet or spent money on any type of gambling once a week or more?

Yes _____ No _____

[Note: Gambling is any activity that you play in which you are putting money, or something of monetary value, at risk since winning and/or losing is based on chance. Gambling includes lottery tickets, scratch tickets, bingo, betting at casinos, sports betting, speculative investments, cards with friends, games of skill, etc]

[If Yes go to next question; if No the respondent is not eligible]

What type(s) of gambling game(s) do you play most often? _____

[Is this a game of skill or chance? Skill _____ Chance _____]

[Games of skill include card/board games, live horse racing, sports lotteries, speculative investments, and games of skill (pool, golf). Games of chance include instant win scratch tickets/daily lotteries, weekly lotteries/raffles, Bingo, VLTs inside casinos and VLTs outside casinos.]

B: Interview Setup

Remember, if you participate in this study, your name will never appear publicly in any form, nor will any identifying details about you be attached to any comment you make. If you like, you can review the general results of the study when they become available.

Knowing all this, do you agree to participate in this study? Yes _____ No _____

When would be a convenient time for us to conduct the interview? _____

Where would be a convenient place to meet? _____

Contact Information:

1. Name:

2. Phone:

3. Email

Thank you for phoning.

[Into which category does the respondent fit?]

Group 1 (game of skill): _____ Group 2 (game of chance): _____

ID number: _____

Appendix C – Consent Form

[U of T Letter Head]

Letter of Consent – Simcoe County Gambling Study

Dear Madam/Sir:

You are being asked to participate in a research study. Before you give your consent to be a volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

Principal Investigator:

Dr. Lorne Tepperman, Department of Sociology, University of Toronto, 15 Kings College Circle, XXX.XXX.XXXX

Research Coordinator:

Sasha Stark, PhD Candidate, Department of Sociology, University of Toronto, 725 Spadina Ave., XXX.XXX.XXXX

Purpose of the Study:

The purpose of this study is to gain a better understanding of how various aspects of people's lives are connected. We would like to examine how people's *general* attitudes and life experiences are related to their *gambling* attitudes and experiences.

To learn more about these connections, we will interview 30 people who are over the age of 18. You have been asked to participate in this study because you have gambling and life experiences that we'd like to know more about. Your participation in this study will help researchers better understand the links between people's general experiences and gambling experiences, and how people become involved in gambling.

Description of the Study:

If you decide to participate in the study, you will be asked a series of questions about your thoughts and experiences. Some of the questions may be sensitive. The study will ask you questions about:

- Your background, such as level of education and marital status;
- Important positive and negative experiences in your past;
- Your thoughts about these experiences;
- What you envision for your future; and
- Your experiences with and attitudes towards gambling.

Each interview should take approximately 90 minutes. The first part will involve the completion of a paper survey. The second part will include open-ended questions in an interview format. The interviews will be audio taped but the recorder can be turned off at any point throughout the interview. For both the questionnaire and the interview, you can skip any questions that you feel are not applicable or you don't feel comfortable answering. None of this information will be published about specific individuals but instead will be summarized for the entire group, for comparison purposes. For example, results would appear as follows: "14 out of 30 respondents were currently married..."

The findings of the study will be used for publication and instructional purposes. Nonetheless, your name will not appear in any form, nor will any identifying details about you be attached to any comment you make. The data, without any information that could be used to identify you personally, may be used by other researchers in the future. Should you like, you will be given the opportunity to have access to general results of the study when they are available.

What is Experimental in this Study:

None of the procedures (interview and questionnaire) are experimental in nature. This study is gathering information for analysis and comparison, for the purpose described above.

Risks or Discomforts:

Because of the personal nature of the questions asked, you may feel uncomfortable in responding. If you feel uncomfortable, you may discontinue participation, either temporarily or permanently, at any time. You can refuse to answer (skip) any questions that make you feel uncomfortable in any way.

Benefits of the Study:

The goal of this project is to collect valuable information about the links between various aspects of people's lives. Scholars, students, policy-makers, service providers and practitioners can learn a great deal from your experiences. By sharing your experiences, you are likely assisting others in understanding the links between people's experiences, and their impact on gambling behaviours. We cannot guarantee, however, that you will receive any personal benefits from participating in the study, beyond the \$25 gift certificate for completing the study.

Confidentiality:

Due to the personal nature of this study and your responses, a series of steps will be followed to ensure confidentiality, to the extent allowed by law.

- First, your name will not appear anywhere on the questionnaire, recording, or transcript of the interview. You will be assigned an identification number that will be used to identify all of your files.
- The recordings and transcripts will be stored, for five years, in a password protected computer separate from your signed consent forms. All the signed consent forms will be stored in a binder, in a locked filing cabinet. After five years, the consent forms will be shredded and the electronic files will be erased.
- When results are written in report form, any references to your name, children's names, town's name, etc. will be removed or changed. Responses will appear in aggregate form, meaning results will be reported as trends or patterns. Furthermore,

when examples of individual responses are given, they will not include your name in any way (sample statement: ‘Six out of ten expressed the view that...For example, one study participant said “....”’).

- We will maintain complete confidentiality, except where there is a serious risk the respondent will cause harm to himself/herself or to a clearly identifiable third party; or where there is reasonable suspicion of ongoing child abuse.

Incentives to Participants:

An incentive will be offered to participants. Immediately, upon completing the interview, you will receive a \$25 gift certificate. If you only complete part of the study, you will receive a \$10 gift certificate.

Voluntary Nature of Participation:

Participation in this study is voluntary. Your choice of whether or not to participate will not influence your future relations with the University of Toronto. If you decide to participate, you are free to withdraw your consent and to stop your participation at any time without penalty.

You may refuse to answer any question or stop participating altogether at any point in the study.

Questions about the Study:

If you have any questions about the research now, please ask. If you have questions later about the research, you may contact Lorne Tepperman, principal investigator, by e-mail at:

xxxx.xxxxxx@utoronto.ca.

If you have questions regarding your rights as a human subject and participant in this study, you may contact the University of Toronto Research Ethics Board for information, at: Office of Research Ethics, McMurrich Building, 2nd Floor, 12 Queen's Park Cres. West, Toronto, Ontario M5S 1S8

Agreement:

Your signature below indicates that you have read the information in this agreement and have had a chance to ask any questions you have about the study. Your signature also indicates that you agree to be in the study and have been told that you can change your mind and withdraw your consent to participate at any time. You have been given a copy of this agreement.

You have been told that by signing this consent agreement you are not giving up any of your legal rights.

Name of Participant (please print)

Signature of Participant

Date

Signature of Investigator

Date

Audio Tape Consent Agreement:

Your signature below indicates that you are aware of and agree to the audio taping of your responses. You can, of course, still change your mind and withdraw your consent to audio tape your responses at any time. You have been given a copy of this agreement.

You have been told that by signing this consent agreement you are not giving up any of your legal rights.

Name of Participant (please print)

Signature of Participant

Date

Signature of Investigator

Date

Appendix D – Closed-Ended Questionnaire

Simcoe County Gambling Study - Questionnaire

ID number: _____

Date: _____

We will uphold the privacy and confidentiality of all those who participate in this research, to the extent allowed by law. This means that should you reveal to me that you are at high risk of seriously harming yourself or others, or that there is reasonable suspicion of ongoing child abuse, I am obliged to have the information that is of concern, and only this information, reviewed by a third party. That said, only myself and my supervisor will have access to all of the information collected. If the data is shared with other researchers in the future, all identifiers will be removed. However, if you still do not feel comfortable answering a question, please skip it and move on to the next. When you have completed this questionnaire and in-depth interview, you will receive a \$25 gift certificate in appreciation for your time.

Thank you for your participation!

DEMOGRAPHICS

We have a few questions to ask you about yourself, before starting on questions about the topic of the interview. These questions are asked of most people in research studies, and are used to classify answers into group responses. All your answers will be kept confidential. For this section, please check off the ONE box that corresponds with the best answer.

1. What age category do you fit into?

- 01 18-19
- 02 20-24
- 03 25-29
- 04 30-34
- 05 35-39
- 06 40-44
- 07 45-49
- 08 50-54
- 09 55-59
- 10 60-64
- 11 65-69
- 12 70-74
- 13 75+
- 98 Don't Know
- 99 Refuse

2. Are you male or female?

- 01 Male
- 02 Female
- 98 Don't Know
- 99 Refuse

3. People living in Canada come from many different cultural and racial backgrounds. Are you:

- 01 White?
- 02 Chinese?
- 03 South Asian (e.g., East Indian, Pakistani, Sri Lankan)?
- 04 Black?
- 05 Filipino?
- 06 Latin American?
- 07 Southeast Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese)?
- 08 Arab?
- 09 West Asian (e.g., Afghan, Iranian)?
- 10 Japanese?
- 11 Korean?
- 12 First Nations?
- 13 Other – Specify: _____
- 98 Don't Know
- 99 Refuse

4. What is your marital status?

- 01 Married
- 02 Living common-law
- 03 Widowed
- 04 Separated
- 05 Divorced
- 06 Single, never married
- 98 Don't Know
- 99 Refuse

5. What is your present job status?

- 01 Employed full-time (30 or more hrs/week)
- 02 Employed part-time (less than 30hrs/week)
- 03 Unemployed (out of work but looking for work)
- 04 Student--employed part-time or full-time
- 05 Student--not employed
- 06 Retired
- 07 Homemaker
- 08 Other (Specify): _____
- 98 Don't Know
- 99 Refuse

6. What is the highest level of education you have completed?

- 01 No schooling
- 02 Some elementary school
- 03 Completed elementary school
- 04 Some high school/junior high
- 05 Completed high school
- 06 Some community college/technical school
- 07 Completed community college/technical school
- 08 Some University
- 09 Completed Bachelor's Degree (Arts, Science, Engineering, etc.)
- 10 Completed Master's degree: MA, MSc, MLS, MSW, etc.
- 11 Completed Doctoral Degree: PhD, "doctorate"
- 12 Professional Degree (Law, Medicine, Dentistry)
- 98 Don't Know
- 99 Refuse

7. What is your best estimate of your total personal income from all sources, before taxes and deductions, in the past 12 months? Was it:

- 01 Less than \$20,000
- 02 Between \$20,000 and \$40,000 (\$39,999.99)
- 03 Between \$40,000 and \$60,000
- 04 Between \$60,000 and \$80,000
- 05 Between \$80,000 and \$100,000
- 06 Or more than \$100,000?
- 98 Don't Know
- 99 Refuse

GENERAL THOUGHTS AND ATTITUDES

Before we move on to questions about gambling, we'd like to learn about your general outlook on life.

1. *[Copyright permission was not obtained to reprint the questionnaire items for sense of control from Mirowsky, J. and Ross, C.E. 1990. "Control or Defense? Depression and the Sense of Control over Good and Bad Outcomes", Journal of Health and Social Behavior, 31, 1, pg. 71. These questionnaire items have been omitted]*

2. *[Copyright permission was not obtained to reprint the questionnaire items for mastery from Pearlin, L.I., Menaghan, E.G., Lieberman, M.A. and Mullan, J.T. 1981. "The Stress Process", Journal of Health and Social Behavior, 22, pg. 337. These questionnaire items have been omitted]*

GAMBLING ACTIVITIES AND EXPERIENCES

Gambling is any activity that you play in which you are putting money, or something of monetary value, at risk since winning and/or losing is based on chance.

We would like to know about your gambling activities. With the above definition of gambling in mind, please answer each of the following questions. Please check off the ONE box that corresponds with the best answer.

	Daily (07)	2-6 times a week (06)	Once a week (05)	2-3 times a month (04)	Once a month (03)	6-11 times a year (02)	1-5 times a year (01)	Never (0)	Don't Know	Refuse
k) Speculative investments (stocks, options, or commodities)										
l) Games of skill (pool, golf, bowling or darts)										
m) Other forms of gambling (dog races, gambling at casino nights/ country fairs, bet on sports with a bookie or gambling pools at work) Please specify: _____ _____										

2. In the past 12 months, how much money, not including winnings, did you spend on all of your gambling activities?

- 01 Between 1 dollar and 50 dollars
- 02 Between 51 dollars and 100 dollars
- 03 Between 101 dollars and 250 dollars
- 04 Between 251 dollars and 500 dollars
- 05 Between 501 dollars and 1000 dollars
- 06 More than 1000 dollars
- 97 Not applicable
- 98 Don't Know
- 99 Refuse

3. In the past 12 months, what is the largest amount of money you ever gambled in one day?

- 01 Between 1 dollar and 50 dollars
- 02 Between 51 dollars and 100 dollars
- 03 Between 101 dollars and 250 dollars
- 04 Between 251 dollars and 500 dollars
- 05 Between 501 dollars and 1000 dollars
- 06 More than 1000 dollars
- 97 Not applicable
- 98 Don't Know
- 99 Refuse

4. Over the past 12 month, how many minutes or hours did you normally spend each month on your gambling activities?

- 01 Between 0 minutes and 60 minutes
- 02 Between 60 minutes and 3 hours
- 03 Between 3 hours and 5 hours
- 04 Between 5 hours and 10 hours
- 05 Between 10 hours and 20 hours
- 06 Between 20 hours and 40 hours
- 07 More than 40 hours
- 97 Not applicable
- 98 Don't Know
- 99 Refuse

5. Please check off the ONE box that corresponds with the best answer. In the past 12 months, how often:

	Never (0)	Sometimes (01)	Most of the time (02)	Almost Always (03)	Don't Know	Refuse
a) Have you needed to gamble with larger amounts of money to get the same feeling of excitement?						
b) Did you go back another day to try to win back the money you lost?						
c) Have you borrowed money or sold anything to get money to gamble?						
d) Have you felt that you might have a problem with gambling?						
e) Has gambling caused you any health problems, including stress or anxiety?						
f) Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?						
g) Has your gambling caused financial problems for you or your family?						
h) Have you felt guilty about the way you gamble or what happens when you gamble?						
i) Have you bet more than you could really afford to lose?						

GAMBLING THOUGHTS AND ATTITUDES

[© Beliefs about Gambling Questionnaire – Springer Science and Business Media, Journal of Gambling Studies, 24, 2008, pages 445-446 , “Are Irrational Beliefs and Depressive Mood More Common Among Problem Gamblers than Non-Gamblers? A Survey Study of Swedish Problem Gamblers and Controls”, Kallmen, H., Andersson, P. and Andren, A., Table 2, with kind permission from Springer Science and Business Media.]

Now we would like to ask you about some of your thoughts around gambling. Please check off the ONE box that corresponds with the best answer.

1. What is your favourite gambling game? _____

2. Imagine a win in your favourite game. What are your thoughts afterwards?01 It was mainly due to luck02 It was mainly due to skill**3. Imagine four consecutive losses. How do you think about the next bet?**01 My chances to win are the same as before02 My chances to win have increased**4. Imagine that you had been gambling for a while. How do you think?**01 I think that my chances to win are the same02 I think that my chances to win have increased**5. Imagine that you were near to win on your favourite game, how do you think thereafter?**01 It was mainly due to bad luck02 It was mainly due to poor skill**6. Imagine a win at a place you have never been before. Where do you play your next game?**01 Where I usually gamble02 Where I played last**7. Imagine playing Roulette or any other games where you can play on certain numbers or colours. What would you do?**01 I would play on any numbers or colours02 I would play on certain numbers or colours to increase my chances to win**8. Some days I can feel that I will win on gambling.**01 Disagree02 Agree

9. Imagine that you gamble regularly during several years. How do you think?01 Gambling will probably make me poorer02 Gambling will probably make me richer**10. I have things (a seat, a number, a certain pen, etc.) that bring me luck.**01 Disagree02 Agree**11. On which factors do you base your gambling?**01 Chance or nothing in particular02 Knowledge and experience**12. Consider the following numbers: 11, 12, 13, 14, 15, 16 and 17.**01 I would play on them as well as on other numbers02 I would prefer numbers that are more dispersed to increase my chances to win**13. Imagine you are buying a lottery ticket. The salesman asks if you or he will choose the ticket.**01 It does not matter who will choose02 I want to choose myself to increase my chances to win**14. Imagine that you toss a coin. Crown has been up four times in a row. On what outcome would you bet the next time?**01 I would bet on tail as well as on crown02 I would bet on tail**15. How do you think about your favourite game?**01 I can probably not affect my chances to earn money on it02 Skill increases the chances to earn money on it

16. [© Gambling Abstinence Self-Efficacy Scale – Hodgins, D.C., Peden, N. and Makarchuk, K. 2004. “Self-Efficacy in Pathological Gambling Treatment Outcome: Development of a Gambling Abstinence Self-efficacy Scale (GASS)”, *International Gambling Studies*, 4, 2, pg. 99, Taylor and Francis Ltd. Reprinted with the permission of the publisher, <http://www.informaworld.com>]

Below is a list of reasons why people may decide to gamble. Please rate these on how confident you are that you will NOT gamble in that situation. Zero means that you are not at all confident and five means that you are extremely confident.

	0 Not Confident	1	2	3	4	5 Extremely Confident
a) I wanted to win						
b) I needed to win back past losses						
c) I felt lucky						
d) I felt pressured by financial debts						
e) An opportunity to gamble happened out of the blue						
f) When I am in a situation in which I am in the habit of gambling						
g) When I didn't care anymore						
h) I felt worried or tense because of my relationship with someone else						
i) I felt angry or frustrated because of my relationship with someone else						
j) I felt sad						
k) I felt frustrated or angry either with myself or because things were not going my way						
l) When I wanted to escape from my thoughts and feelings						
m) I felt others were being critical of me						
n) I felt anxious or tense						
o) I felt physically uncomfortable because I wanted to gamble						
p) I was in a good mood						
q) I just felt tempted to gamble out of the blue						

	0 Not Confident	1	2	3	4	5 Extremely Confident
r) I wanted to see what would happen if I gambled just a little						
s) I was with others having a good time and we felt like gambling together						
t) Someone invited me to gamble						
u) I saw others gambling						

Thank you for completing this lengthy questionnaire. Your answers are very important.

Appendix E – Open-Ended Interview Schedule

Simcoe County Gambling Study - Open-Ended Questions

[Ask for permission to turn on the recorder]

Thank you for completing the questionnaire portion of the study. Now I'd like to ask you a few questions that will let you share some of your experiences, in your own words. Remember that, if you ever feel uncomfortable answering a question, let me know and we can move on to the next.

Before we begin, I want to repeat that your responses will be kept confidential, to the extent allowed by law; and that your name and any other identifying information will never appear anywhere connected to your responses.

However, if you reveal that you are likely to seriously harm yourself or others, or that there is ongoing child abuse, I am obliged to stop the interview and have the information that is of concern reviewed by a third party. Are you okay with this? *[Get verbal agreement]*

Shall we proceed?

Opening

What brought you here today – why were you interested in participating in this study? *(Probes: Interested in research? The incentive? Experiences with gambling?)*

Past Experiences and Gambling Behaviours

I'd like to start by asking you to think of three positive and three negative events from your past. Examples may include moving, graduating, getting married, having a baby, a breakup, getting fired, financial problems, etc.

Tell me about one of the most influential positive experiences. What was it? What happened?

- Do you feel that this experience was largely the result of your previous personal choices and actions? Was it fate? A powerful other? Why is that?

- Do you feel this way about most of the positive experiences that have happened to you? Why do you feel this way? How does that make you feel?

Tell me about one of the most influential negative experiences. What was it? What happened?

- Do you feel that this experience was largely the result of your previous personal choices and actions? Was it fate? A powerful other? Why is that?
- Do you feel this way about most of the negative experiences that have happened to you? Why do you feel this way? How does that make you feel?

Now, I'd like for you to think of important positive and negative gambling experiences.

Examples may include a big win, a big loss, arguments, a gambling trip, etc.

Tell me about one of the most influential positive experiences.

- Do you feel that this experience or the win was largely the result of skill or chance? Why is that?
- Do you feel this way about most of your positive gambling experiences? Why do you feel this way? How does that make you feel?

Tell me about one of the most influential negative experiences.

- Do you feel that this experience or the loss was largely the result of skill or chance? Why is that?
- Do you feel this way about most of your negative gambling experiences? Why do you feel this way? How does that make you feel?

In the past, do you feel that you've been successfully able to manage your gambling behaviours or resist the desire to gamble?

- Why do you feel this way? How do you manage your desire to gamble? What helps or hinders your efforts?

Future Goals and Expectations

Next, I'd like to discuss your future. What are your expectations and hopes for the future?.

Again, simply a few examples will suffice.

Tell me about one of the most important events or goals.

- How confident are you that you will be able to achieve this goal? Why do you feel this way? How does that make you feel? How will you achieve it? Do you feel the same way about all of your goals?
- Who would you say is writing the script of your life? You? Other People? Luck? God? If God, does God provide you guidance on choices that you make, or is life written by God? Why do you feel this way? How does it make you feel?

Now I'd like for you to think of important gambling expectations or hopes.

Tell me about one of the most important gambling goals.

- How confident are you that you will achieve this goal? Why do you feel this way? How does that make you feel? How will you achieve it? Do you feel this way about all of your goals?
- What will determine whether you reach your gambling expectations? Skill? Chance? Strategy?

How confident are you that you'll be able to successfully manage your gambling behaviours or resist the desire to gamble in the future?

- Why do you feel this way? How will you manage your desire to gamble? Will certain things help or hinder your efforts?

Gambling Behaviours and Consequences

Now that we've discussed important gambling events and expectations, I'd like to get even more details about your gambling behaviours.

Let's talk about your favourite game – what is it?

- How often do you play it? How much money do you spend every time? What is the most you've ever spent at once?
- Why do you like to play this game or gambling in general? Escape? Excitement? Money? Entertainment?

- What game do you play most frequently? How often? Why do you like it?
- Does your gambling cause problems for you or loved ones? How so? How does this make you feel?
- Do you think you gamble too much? Would you like to cut down? Why is that?

Interrelationships

I'd like to encourage you to consider the links between some of the things we've been talking about – mainly, the way you view the events in your life, the way you think about gambling wins and losses, and your ability to resist gambling.

Do you think there are any relationships between them, and if so, what are they?

Wrap Up

Do you have comments that you want to add? Do you have any questions that have come into your mind during this interview?

I want to thank you for taking part in this lengthy interview. Your answers are very important. We think that the results of this study will be useful in helping people with their problems. And once again, I want to assure you that everything you have said will remain strictly confidential and will not be seen by anyone but the researchers on this project.

Appendix F – Questionnaire Analysis: Descriptive and Bivariate Results

Table F – 1: Demographic Differences between Skill and Chance Gamblers in the Simcoe County Gambling Study

Variable	Categories	All Gamblers		Skill Gamblers		Chance Gamblers		Chi-Square Tests	
		N	%	N	%	N	%	Value	Sign.
Age	18-19	0	0	0	0	0	0	9.40	0.40
	20-24	2	6.67	0	0	2	13.33		
	25-29	5	16.67	4	26.67	1	6.67		
	30-34	1	3.33	1	6.67	0	0		
	35-39	1	3.33	1	6.67	0	0		
	40-44	1	3.33	1	6.67	0	0		
	45-49	4	13.33	2	13.33	2	13.33		
	50-54	3	10.0	1	6.67	2	13.33		
	55-59	7	23.33	2	13.33	5	33.33		
	60-64	4	13.33	2	13.33	2	13.33		
	65-69	1	3.33	1	6.67	0	0		
	70-74	1	3.33	0	0	1	6.67		
75+	0	0	0	0	0	0			
Gender	Male	19	63.33	13	86.67	6	40.0	7.03	0.01
	Female	11	36.67	2	13.33	9	60.0		
Racial or Cultural Background	White	26	86.67	15	100.0	11	73.33	4.62	0.10
	First Nations	2	6.67	0	0	2	13.33		
	Métis	2	6.67	0	0	2	13.33		

Variable	Categories	All Gamblers		Skill Gamblers		Chance Gamblers		Chi-Square Tests	
		N	%	N	%	N	%	Value	Sign.
		Marital Status	Married	10	33.33	5	33.3 3	5	33.33
Common Law	5		16.67	2	13.3 3	3	20.0		
Widowed	2		6.67	0	0	2	13.33		
Separated	2		6.67	2	13.3 3	0	0		
Divorced	4		13.33	2	13.3 3	2	13.33		
Single	7		23.33	4	26.6 7	3	20.0		
Job Status	Employed Full Time	9	30.0	5	33.3 3	4	26.67	11.11	0.27
	Employed Part Time	5	16.67	4	26.6 7	1	6.67		
	Unemployed	2	6.67	2	13.3 3	0	0		
	Student Employed	1	3.33	0	0	1	6.67		
	Student Not Employed	1	3.33	0	0	1	6.67		
	Retired	5	16.67	2	13.3 3	3	20.0		
	Homemaker	1	3.33	0	0	1	6.67		
	Disability	3	10.0	0	0	3	20.0		
	Self Employed	2	6.67	1	6.67	1	6.67		
	Other	1	3.33	1	6.67	0	0		

Variable	Categories	All		Skill		Chance		Chi-Square	
		Gamblers		Gamblers		Gamblers		Tests	
		N	%	N	%	N	%	Value	Sign.
Education	Some High School	2	6.67	2	13.3 3	0	0	11.77	0.04
	High School	8	26.67	2	13.3 3	6	40.0		
	Some College	5	16.67	3	20.0	2	13.33		
	College	4	13.33	2	13.3 3	2	13.33		
	Some University	4	13.33	0	0	4	26.67		
	Bachelor's Degree	7	23.33	6	40.0	1	6.67		
Income	Under 20K	7	23.33	2	13.3 3	5	33.33	6.57	0.26
	20-40K	14	46.67	6	40.0	8	53.33		
	40-60K	4	13.33	2	13.3 3	2	13.33		
	60-80K	3	10.0	3	20.0	0	0		
	80-100K	1	3.33	1	6.67	0	0		
	Over 100K	0	0	0	0	0	0		
	Don't Know	1	3.33	1	6.67	0	0		

Table F – 2: Gambling Games Played in the Simcoe County Gambling Study

Games Played	All	Skill	Chance
Instant Win/Daily Lotto	23	9	14
Weekly Lottery	29	14	15
Bingo	9	3	6
Cards/Board Games	21	13	8
VLTs Outside of Casinos	2	2	0
VLTs in Casinos	20	11	9
Other Casino Games	15	12	3
Internet/Arcade Gambling	10	8	2
Horse Racing	10	8	2
Sports Lotteries	10	9	1
Speculative Investments	6	5	1
Games of Skill	16	10	6
Other	17	11	6

Table F – 3: Favourite Gambling Game in the Simcoe County Gambling Study

Favourite Game	All	Skill	Chance
Blackjack	2	2	0
Craps	1	1	0
Horse Racing	1	1	0
Lottery	5	0	5
Poker	6	5	1
Scratch Tickets	5	0	5
Slots	4	0	4
Sports	6	6	0

Table F – 4: Total Amount of Money Spent Gambling in Past 12 Months in the Simcoe County Gambling Study

Total Amount Spent	All	Skill	Chance
Between 1 dollar and 50 dollars	2	0	2
Between 51 dollars and 100 dollars	2	0	2
Between 101 dollars and 250 dollars	4	0	4
Between 251 dollars and 500 dollars	3	2	1
Between 501 dollars and 1000 dollars	4	0	4
More than 1000 dollars	15	13	2

Table F – 5: Largest Amount of Money Spent Gambling in Last 12 Months in the Simcoe County Gambling Study

Largest Amount Spent	All	Skill	Chance
Between 1 dollar and 50 dollars	13	2	11
Between 51 dollars and 100 dollars	0	0	0
Between 101 dollars and 250 dollars	2	1	1
Between 251 dollars and 500 dollars	5	3	2
Between 501 dollars and 1000 dollars	3	3	0
More than 1000 dollars	7	6	1

Table F – 6: Total Amount of Time Spent a Month on Gambling in Past 12 Months in the Simcoe County Gambling Study

Total Time Spent	All	Skill	Chance
Between 0 minutes and 60 minutes	9	2	7
Between 60 minutes and 3 hours	3	0	3
Between 3 hours and 5 hours	1	1	0
Between 5 hours and 10 hours	2	1	1
Between 10 hours and 20 hours	4	4	0
Between 20 hours and 40 hours	2	1	1
More than 40 hours	7	5	2
Don't know	2	1	1

Table F – 7: Dichotomized Measures of Control and Gambling in the Simcoe County Gambling Study

Measure	Level	All	Skill	Chance
Pearlin et al. - Mastery	High	23	13	10
	Low	7	2	5
Illusion of Control	High	17	13	4
	Low	13	2	11
Gambling Self- Efficacy	High	11	5	6
	Low	19	10	9
Gambling Frequency	High	15	10	5
	Low	15	5	10
Problem Gambling Severity	High	12	7	5
	Low	18	8	10

Table F – 8: Correlations between the Three Types of Control, Gambling Frequency, and Problem Gambling Severity for All Gamblers in the Simcoe County Gambling Study

Pearson's R/ Probability	Sense of Control	Illusion of Control	Gambling Self-Efficacy	Gambling Frequency	Problem Gambling Severity
Sense of Control (Pearlin et al.)		0.37 p=0.04	0.14 p= 0.45	0.26 p=0.16	-0.18 p=0.34
Illusion of Control	0.37 p=0.04		-0.05 p=0.79	0.41 p=0.03	0.27 p= 0.15
Gambling Self- Efficacy	0.14 p= 0.45	-0.05 p=0.79		-0.07 p=0.72	-0.64 p<.001
Gambling Frequency	0.26 p=0.16	0.41 p=0.03	-0.07 p=0.72		0.42 p= 0.02
Problem Gambling Severity	-0.18 p=0.34	0.27 p= 0.15	-0.64 p<.001	0.42 p= 0.02	

Table F – 9: Correlations between the Three Types of Control, Gambling Frequency, and Problem Gambling Severity for Skill Gamblers in the Simcoe County Gambling Study

Pearson's R/ Probability	Sense of Control	Illusion of Control	Gambling Self-Efficacy	Gambling Frequency	Problem Gambling Severity
Sense of Control (Pearlin et al.)		0.05 p= 0.86	0.30 p= 0.27	0.16 p=0.57	-0.46 p=0.08
Illusion of Control	0.05 p= 0.86		0.39 p= 0.15	0.27 p=0.33	-0.11 p= 0.70
Gambling Self- Efficacy	0.30 p= 0.27	0.39 p= 0.15		0.08 p=0.79	-0.54 p= 0.04
Gambling Frequency	0.16 p=0.57	0.27 p=0.33	0.08 p=0.79		0.34 p= 0.22
Problem Gambling Severity	-0.46 p=0.08	-0.11 p= 0.70	-0.54 p= 0.04	0.34 p= 0.22	

Table F – 10: Correlations between the Three Types of Control, Gambling Frequency, and Problem Gambling Severity for Chance Gamblers in the Simcoe County Gambling Study

Pearson's R/ Probability	Sense of Control	Illusion of Control	Gambling Self-Efficacy	Gambling Frequency	Problem Gambling Severity
Sense of Control (Pearlin et al.)		0.33 p= 0.22	0.01 p= 0.96	0.03, p=0.91	-0.10 p=0.72
Illusion of Control	0.33 p= 0.22		-0.32 p=0.25	0.19 p=0.49	0.53 p= 0.04
Gambling Self- Efficacy	0.01 p= 0.96	-0.32 p=0.25		-0.10 p=0.73	-0.76 p<.001
Gambling Frequency	0.03, p=0.91	0.19 p=0.49	-0.10 p=0.73		0.37 p= 0.17
Problem Gambling Severity	-0.10 p=0.72	0.53 p= 0.04	-0.76 p<.001	0.37 p= 0.17	

Table F – 11: Gambling and Control Differences between Skill and Chance Gamblers in the Simcoe County Gambling Study

Measure	Type of Gambler	Mean	Median	Maximum	Minimum	T	Sign
Mirowsky and Ross – Sense of Control	All	0.92	0.94	2	-0.25	2.95	0.01
	Skill	1.14	1.13	2	0.63		
	Chance	0.7	0.63	0.63	0.63		
Pearlin et al. - Mastery	All	21.6	22	27	15	2.55	0.02
	Skill	23	22	27	16		
	Chance	20.2	21	24	15		
Illusion of Control	All	4.17	4	11	0	3.56	0.001
	Skill	5.73	6	11	1		
	Chance	2.6	2	7	0		
Gambling Self-Efficacy	All	67	61.5	105	23	-0.89	0.38
	Skill	63.27	59	96	23		
	Chance	64	105	28	64		
Gambling Frequency	All	433.73	381.5	1155	55	2.10	0.04
	Skill	549.2	482	1155	124		
	Chance	318.27	214	1019	55		
Problem Gambling Severity	All	6.43	5	23	0	1.64	0.11
	Skill	8.33	5	23	0		
	Chance	4.53	2	15	0		

Table F – 12: Sense of Control and Illusion of Control in the Simcoe County Gambling Study

Type of Gambler	Level of Sense of Control	High Illusion of Control	Low Illusion of Control	Chi-Square Tests	
				Value	Sign.
All	High	15	8	2.94	0.09
	Low	2	5		
Skill	High	11	2	0.36	0.55
	Low	2	0		
Chance	High	4	6	2.73	0.10
	Low	0	5		

Table F – 13: Sense of Control and Gambling Self-Efficacy in the Simcoe County Gambling Study

Type of Gambler	Level of Sense of Control	High Gambling Self-Efficacy	Low Gambling Self-Efficacy	Chi-Square Tests	
				Value	Sign.
All	High	9	14	0.26	0.61
	Low	2	5		
Skill	High	5	8	1.15	0.28
	Low	0	2		
Chance	High	4	6	0	1
	Low	2	3		

Table F – 14: Illusion of Control and Gambling Self-Efficacy in the Simcoe County Gambling Study

Type of Gambler	Level of Illusion of Control	High Gambling Self-Efficacy	Low Gambling Self-Efficacy	Chi-Square Tests	
				Value	Sign.
All	High	5	12	0.89	0.35
	Low	6	7		
Skill	High	5	8	1.15	0.28
	Low	0	2		
Chance	High	0	4	3.64	0.06
	Low	6	5		

Table F – 15: Sense of Control and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Level of Sense of Control	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High	8	15	1.12	0.29
	Low	4	3		
Skill	High	5	8	2.64	0.10
	Low	2	0		
Chance	High	3	7	0.15	0.70
	Low	2	3		

Table F – 16: Illusion of Control and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Level of Illusion of Control	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High	8	9	0.81	0.37
	Low	4	9		
Skill	High	6	7	0.01	0.92
	Low	1	1		
Chance	High	2	2	0.68	0.41
	Low	3	8		

Table F – 17: Gambling Self-Efficacy and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Level of Gambling Self-Efficacy	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High	0	11	11.58	<.001
	Low	12	7		
Skill	High	0	5	6.56	0.01
	Low	7	3		
Chance	High	0	6	5	0.03
	Low	5	4		

Table F – 18: Interaction between Sense of Control and Illusion of Control for Problem Gambling Severity in the Simcoe County Gambling Study

Type of Control	Level of Control	Nature of Relationship between other Form of Control and Problem Gambling Severity	Number of Gamblers	Chi-Square Tests	
				Value	Sign.
Sense of Control	High	Positive link between Illusion and PG	12	0.81	0.37
		Negative link between Illusion and PG	11		
	Low	Positive link between Illusion and PG	5		
		Negative link between Illusion and PG	2		
Illusion of Control	High	Positive link between Sense and PG	6	0.03	0.86
		Negative link between Sense and PG	11		
	Low	Positive link between Sense and PG	5		
		Negative link between Sense and PG	8		

Table F – 19: Hypothesized Combinations between the Three Types of Dichotomized Control in the Simcoe County Gambling Study

Hypothesis	Combinations	All	Skill	Chance
Relationships to Problem Gambling	Healthy	4	0	4
	Unhealthy	2	2	0
Relationships to Other Types of Control	High Sense, High Illusion, Low Efficacy	10	6	4
	Low Sense, Low Illusion, High Efficacy	2	0	2
Control is Overarching	All High Levels of Control	5	5	0
	All Low Levels of Control	3	0	3

Table F – 20: The First Hypothesis of the Dynamics of Control Model and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Hypothesis 1	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	Healthy	0	4	6	0.01
	Unhealthy	2	0		
Skill	Healthy	0	0	0	1
	Unhealthy	2	0		
Chance	Healthy	0	4	0	1
	Unhealthy	0	0		

Table F – 21: The Second Hypothesis of the Dynamics of Control Model and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Hypothesis 2	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High Sense, High Illusion, Low Efficacy	6	4	2.4	0.12
	Low Sense, Low Illusion, High Efficacy	0	2		
Skill	High Sense, High Illusion, Low Efficacy	4	2	0	1
	Low Sense, Low Illusion, High Efficacy	0	0		
Chance	High Sense, High Illusion, Low Efficacy	2	2	1.5	0.2
	Low Sense, Low Illusion, High Efficacy	0	2		

Table F – 22: The Third Hypothesis of the Dynamics of Control Model and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Alternative Hypothesis	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	All High Levels of Control	0	5	4.44	0.04
	All Low Levels of Control	2	1		
Skill	All High Levels of Control	0	5	0	1
	All Low Levels of Control	0	0		
Chance	All High Levels of Control	0	0	0	1
	All Low Levels of Control	2	1		

Table F – 23: Gambling Frequency and Problem Gambling Severity in the Simcoe County Gambling Study

Type of Gambler	Level of Gambling Frequency	High Problem Gambling Severity	Low Problem Gambling Severity	Chi- Square Tests	
				Value	Sign.
All	High	7	8	0.56	0.46
	Low	5	10		
Skill	High	5	5	0.13	0.71
	Low	2	3		
Chance	High	2	3	0.15	0.70
	Low	3	7		

Appendix G – Interview Analysis: Coding Scheme

Sense of Control

- Fate and self
- God and self
- Mainly fate
- Mainly god
- Mainly self

Illusion of Control

- Luck for losses
- Luck for wins
- Skill for losses
- Skill for wins
- Discipline
- Learning or past illusion
- Probabilities

Gambling Self-Efficacy

- Boredom
- Control
- Lack of control
- Learning or past self-efficacy
- More money constrains
- More money permits
- Negative emotions
- Peers and family
- Positive emotions
- Proximity and availability
- Setting Limits
- Stress

Links between Types of Control

Gambling Behaviours

- Frequency
- Money
- Reasons for gambling
- Time

Gambling Problems

- Employment
- Financial
- Health
- Legal
- Relationship

Additional Variables

- Adulthood mental health
- Adulthood stressors
- Childhood learning of gambling behaviour
- Childhood learning of gambling beliefs
- Childhood stress
- Game/personality match
- Impulsivity/attention deficit
- Rural location

Appendix H – Interview Analysis: Descriptive and Bivariate Results

Table H – 1: Control and Gambling Behaviours in the Simcoe County Gambling Study Interviews

Measure	Level	Category	All	Skill	Chance
Sense of Control	High	Instrumentalist	17	9	8
	Low	Self-Blamer	5	4	1
		Fatalist	8	2	6
Illusion of Control	High	Luck for Wins and Losses	20	5	15
	Low	Skill for Wins and Luck for Losses	9	9	0
		Skill for Wins and Losses	1	1	0
Gambling Self-Efficacy	High	High Efficacy	12	5	7
	Low	Low Efficacy	18	10	8
Problem Gambling Severity	High	Experienced Problems	19	11	8
	Low	Experienced No Problems	11	4	7
Gambling Frequency	High	High Frequency	8	7	1
	Low	Low Frequency	22	8	14

Table H – 2: Sense of Control and Illusion of Control in the Simcoe County Gambling Study Interviews

Type of Gambler	Level of Sense of Control	High Illusion of Control	Low Illusion of Control	Chi-Square Tests	
				Value	Sign.
All	High	7	10	1.09	0.30
	Low	10	3		
Skill	High	7	2	1.25	0.26
	Low	3	3		
Chance	High	0	8	0	1
	Low	0	7		

Table H – 3: Sense of Control and Gambling Self-Efficacy in the Simcoe County Gambling Study Interviews

Type of Gambler	Level of Sense of Control	High Gambling Self-Efficacy	Low Gambling Self-Efficacy	Chi-Square Tests	
				Value	Sign.
All	High	9	8	2.74	0.10
	Low	3	10		
Skill	High	5	4	5	0.03
	Low	0	6		
Chance	High	4	4	0.08	0.78
	Low	3	4		

Table H – 4: Illusion of Control and Gambling Self-Efficacy in the Simcoe County Gambling Study Interviews

Type of Gambler	Level of Illusion of Control	High Gambling Self-Efficacy	Low Gambling Self-Efficacy	Chi-Square Tests	
				Value	Sign.
All	High	3	7	0.63	0.43
	Low	9	11		
Skill	High	3	7	0.15	0.70
	Low	2	3		
Chance	High	0	0	0	1
	Low	7	8		

Table H – 5: Sense of Control and Problem Gambling Severity in the Simcoe County Gambling Study Interviews

Type of Gambler	Level of Sense of Control	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High	9	8	1.82	0.18
	Low	10	3		
Skill	High	5	4	3.64	0.06
	Low	6	0		
Chance	High	4	4	0.08	0.78
	Low	4	3		

Table H – 6: Illusion of Control and Problem Gambling Severity in the Simcoe County
Gambling Study Interviews

Type of Gambler	Level of Illusion of Control	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High	8	2	1.79	0.18
	Low	11	9		
Skill	High	8	2	0.68	0.41
	Low	3	2		
Chance	High	0	0	0	1
	Low	8	7		

Table H – 7: Gambling Self-Efficacy and Problem Gambling Severity in the Simcoe County
Gambling Study Interviews

Type of Gambler	Level of Gambling Self-Efficacy	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High	1	11	26.05	<.001
	Low	18	0		
Skill	High	1	4	10.91	<.001
	Low	10	0		
Chance	High	0	7	15	<.001
	Low	8	0		

Table H – 8: Interaction between Sense of Control and Illusion of Control for Problem Gambling Severity in the Simcoe County Gambling Study Interviews

Type of Control	Level of Control	Nature of Relationship between other Form of Control and Problem Gambling Severity	Number of Gamblers	Chi-Square Tests	
				Value	Sign.
Sense of Control	High	Positive link between Illusion and PG	11	1.03	0.31
		Negative link between Illusion and PG	6		
	Low	Positive link between Illusion and PG	6		
		Negative link between Illusion and PG	7		
Illusion of Control	High	Positive link between Sense and PG	5	0.63	0.43
		Negative link between Sense and PG	5		
	Low	Positive link between Sense and PG	7		
		Negative link between Sense and PG	13		

Table H – 9: Hypothesized Combinations between the Three Types of Control in the Simcoe County Gambling Study Interviews

Hypothesis	Combinations	All	Skill	Chance
Relationships to Problem Gambling	Healthy	6	2	4
	Unhealthy	3	3	0
Relationships to Other Types of Control	High Sense, High Illusion, Low Efficacy	4	4	0
	Low Sense, Low Illusion, High Efficacy	3	0	3
Control is Overarching	All High Levels of Control	3	3	0
	All Low Levels of Control	7	3	4

Table H – 10: The First Hypothesis of the Dynamics of Control Model and Problem Gambling Severity in the Simcoe County Gambling Study Interviews

Type of Gambler	Hypothesis 1	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	Healthy	0	6	9	0.003
	Unhealthy	3	0		
Skill	Healthy	0	2	5	0.03
	Unhealthy	3	0		
Chance	Healthy	0	4	0	1
	Unhealthy	0	0		

Table H – 11: The Second Hypothesis of the Dynamics of Control Model and Problem Gambling Severity in the Simcoe County Gambling Study Interviews

Type of Gambler	Hypothesis 2	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	High Sense, High Illusion, Low Efficacy	4	0	7	0.01
	Low Sense, Low Illusion, High Efficacy	0	3		
Skill	High Sense, High Illusion, Low Efficacy	4	0	0	1
	Low Sense, Low Illusion, High Efficacy	0	0		
Chance	High Sense, High Illusion, Low Efficacy	0	0	0	1
	Low Sense, Low Illusion, High Efficacy	0	3		

Table H – 12: The Third Hypothesis of the Dynamics of Control Model and Problem Gambling Severity in the Simcoe County Gambling Study Interviews

Type of Gambler	Alternative Hypothesis	High Problem Gambling Severity	Low Problem Gambling Severity	Chi-Square Tests	
				Value	Sign.
All	All High Levels of Control	1	2	5.83	0.02
	All Low Levels of Control	7	0		
Skill	All High Levels of Control	1	2	3	0.08
	All Low Levels of Control	3	0		
Chance	All High Levels of Control	0	0	0	1
	All Low Levels of Control	4	0		

Table H – 13: Gambling Frequency and Gambling Problems in the Simcoe County Gambling Study Interviews

Type of Gambler	Level of Gambling Frequency	Gambling Problems	No Gambling Problems	Chi-Square Tests	
				Value	Sign.
All	High	8	0	6.32	0.01
	Low	11	11		
Skill	High	7	0	4.77	0.03
	Low	4	4		
Chance	High	1	0	0.94	0.33
	Low	7	7		

Appendix I – Secondary Survey Analysis: Results from the CCHS 1.2

Table I – 1: Canadian Community Health Survey 1.2 2002: Demographic Characteristics

Measure	Category	Type of Gambler			Chi-Square Test	
		All	Skill	Chance	Value	Sign.
Age	15-19	303	107	152	642.89	<.001
	20-24	539	87	385		
	25-29	587	64	483		
	30-34	893	54	793		
	35-39	1117	70	100		
	40-44	1262	66	114		
	45-49	1156	44	108		
	50-54	1138	41	107		
	55-59	1153	46	108		
	60-64	969	45	905		
	65-69	852	51	781		
	70-74	779	43	723		
	75-79	554	51	497		
	80+	471	45	420		
Total	11349	814	1053			
Gender	Male	6079	558	5253	105.62	<.001
	Female	5676	256	5282		
	Total	11349	814	10535		
Immigrant Status	Native Born	10186	695	9122	0.94	0.33
	Immigrant	1532	775	1364		
	Total	11296	810	10486		
Marital Status	Single	2242	295	1778	192.97	<.001
	Widowed/Separated/Divorced	2776	169	2536		
	Common Law	1076	47	1001		
	Married	5646	303	5208		
	Total	11337	814	10523		
Employment Status	Not Employed	2981	194	2705	0.41	0.52
	Employed	7684	516	6829		

Measure	Category	Type of Gambler			Chi-Square Test	
		All	Skill	Chance	Value	Sign.
Employment Status (cont.)	Total	10254	710	9544		
Education	Less than Secondary	3557	244	3223	30.23	<.001
	Secondary Graduate	2366	168	2100		
	Some Post-Secondary	887	83	751		
	Diploma	3517	194	3196		
	University/Certificate	1375	124	1197		
	Total	11280	813	10467		
Income	Under 15K	3028	238	2681	22.09	<.001
	15-29.9K	3116	174	2864		
	30-49.9K	2867	172	2582		
	50K or more	1964	158	1707		
	Total	10576	742	9834		

Table I – 2: Canadian Community Health Survey 1.2 2002: Sense of Control, Gambling Frequency, and Problem Gambling Severity

Measure	Type of Gambler	N	Mean	Maximum	Minimum	T	Sign.
Sense of Control	All	11676	23.09	28	0	-3.11	0.002
	Skill	808	22.65	28	7		
	Chance	10445	23.14	28	0		
Gambling Frequency	All	11773	163.13	4383	52	6.12	<.001
	Skill	814	221.50	4383	52		
	Chance	10535	161.10	2972	52		
Problem Gambling Severity	All	7103	0.71	25	0	3.57	<.001
	Skill	554	1.01	0	17		
	Chance	6276	0.67	0	25		

Table I – 3: Canadian Community Health Survey 1.2 2002: Correlations between Sense of Control, Gambling Frequency, and Problem Gambling Severity for All Gamblers

Pearson's R/ Probability	Sense of Control	Gambling Frequency	Problem Gambling Severity
Sense of Control		-0.02 p=0.03	-0.16 p=<.001
Gambling Frequency	-0.02 p=0.03		0.21 p=<.001
Problem Gambling Severity	-0.16 p=<.001	0.21 p=<.001	

Table I – 4: Canadian Community Health Survey 1.2 2002: Correlations between Sense of Control, Gambling Frequency, and Problem Gambling Severity for Skill Gamblers

Pearson's R/ Probability	Sense of Control	Gambling Frequency	Problem Gambling Severity
Sense of Control		0.001 p=0.97	-0.25 p=<.001
Gambling Frequency	0.001 p=0.97		0.14 p=0.001
Problem Gambling Severity	-0.25 p=<.001	0.14 p=0.001	

Table I – 5: Canadian Community Health Survey 1.2 2002: Correlations between Sense of Control, Gambling Frequency, and Problem Gambling Severity for Chance Gamblers

Pearson's R/ Probability	Sense of Control	Gambling Frequency	Problem Gambling Severity
Sense of Control		-0.02 p=0.01	-0.15 p=<.001
Gambling Frequency	-0.02 p=0.01		0.25 p=<.001
Problem Gambling Severity	-0.15 p=<.001	0.25 p=<.001	

Table I – 6: Canadian Community Health Survey 1.2 2002: Multiple Linear Regression Estimates for Sense of Control and Problem Gambling Severity among All Gamblers

	Model 1	Model 2	Model 3
R ²	0.03	0.05	0.05
N	7063	6095	5842
Sense of Control	-0.08**	-0.07**	-0.06**
Demographics			
Age		-0.05**	-0.03*
Female		-0.10(ns)	-0.04(ns)
Marital Status		-0.18**	-0.16**
Immigrant Status		0.09(ns)	0.10(ns)
Income		-0.05(ns)	-0.07*
Employment Status		0.12(ns)	0.18*
Education		-0.06*	-0.05*
Type of Gambler			-0.35*

**=p<.0001 * =p<.05 (ns)=not significant

Table I – 7: Canadian Community Health Survey 1.2 2002: Multiple Linear Regression Estimates for Sense of Control and Problem Gambling Severity among Skill Gamblers

	Model 1	Model 2
R²	0.06	0.13
N	551	454
Sense of Control	-0.12**	-0.11**
Demographics		
Age		0.02(ns)
Female		-0.67*
Marital Status		-0.27*
Immigrant Status		0.63*
Income		-0.02(ns)
Employment Status		0.11(ns)
Education		0.08(ns)

**=p<.0001 *=p<.05 (ns)=not significant

Table I – 8: Canadian Community Health Survey 1.2 2002: Multiple Linear Regression Estimates for Sense of Control and Problem Gambling Severity among Chance Gamblers

	Model 1	Model 2
R²	0.02	0.04
N	6239	5388
Sense of Control	-0.07**	-0.06**
Demographics		
Age		-0.04*
Female		-0.008(ns)
Marital Status		-0.15**
Immigrant Status		0.05(ns)
Income		-0.08*
Employment Status		0.17*
Education		-0.06*

**=p<.0001 *=p<.05 (ns)=not significant

Appendix J – Representativeness of the SCGS Sample: Comparisons with CCHS 1.2

In order to assess the representativeness of the Simcoe County Gambling Study sample, its participants were compared to frequent gamblers in the Canadian Community Health Survey 1.2.

Demographics

The two largest age categories in the SCGS sample are 55-59 years and 25-29 years. These groups fall on either side of the largest groups in the CCHS: 40-44 years and 45-49 years. Both groups of frequent gamblers are mostly male, employed, and make less than \$40,000 a year. In both the SCGS and the CCHS samples, the largest marital status category is married. The frequent gamblers in the current study have completed higher levels of education compared to those in the CCHS. In the SCGS sample, the two largest education groups are those who completed their high school education and those who completed their Bachelor degree. In the CCHS, the two largest groups are those who have less than a secondary school education and those with a post-secondary diploma.

Table J – 1: Comparison of Demographic Characteristics for the SCGS Sample and Frequent Gamblers in the CCHS 1.2

Variable	Simcoe County Gambling Study		Canadian Community Health Survey 1.2	
	Largest Category	Percentage	Largest Category	Percentage
Age	55-59 & 25-29	23.33% & 16.67%	40-44 & 45-49	10.72% & 9.82%
Gender	Male	63.33%	Male	51.79%
Marital Status	Married	33.33%	Married	48.01%
Job Status	Employed	46.67%	Employed	72.05%
Education	High School & Bachelor Degree	26.67% & 23.33%	Less than High School & Post-Secondary Diploma	30.40% & 30.05%
Income	Below 40k	70.0%	Below 40k	55.98%

Gambling and Control

The frequent gamblers in the SCGS gamble two and a half times more frequently than those in the CCHS. The SCGS sample also has higher PGSI than frequent gamblers in the general population. The 30 frequent gamblers in the present study experience moderate problems, while those in the CCHS are generally non-problem gamblers. The two samples are similar in their high levels of sense of control. Because the CCHS 1.2 does not include questions about illusion of control or gambling self-efficacy, the representativeness of the SCGS sample on these characteristics cannot be judged.

Table J – 2: Comparison of Gambling and Control Characteristics for the SCGS Sample and Frequent Gamblers in the CCHS 1.2

Variable	Average in Simcoe County Gambling Study	Average in Canadian Community Health Survey
Gambling Frequency	433.73	163.13
Problem Gambling Severity	6.43	0.71
Sense of Control	21.6	23.09

Skill and Chance Gamblers

On several dimensions, the differences between skill and chance gamblers in the SCGS sample are similar to the differences found in the general population. As for the SCGS sample, skill gamblers in the CCHS 1.2 are more likely to be male ($\chi^2=105.62$, $p<.001$), are more educated ($\chi^2=30.23$, $p<.001$), are equally likely to be employed ($\chi^2=0.41$, $p=0.52$), and gamble more frequently than chance gamblers ($t=6.12$, $p<.001$). Skill and chance gamblers in the CCHS also differ in ways not found in the SCGS. Unlike in the SCGS, skill gamblers in the CCHS are younger ($\chi^2=642.89$, $p<.001$), are more likely to be single ($\chi^2=192.99$, $p<.001$), and make less money than chance gamblers ($\chi^2=30.23$, $p<.001$). Skill gamblers in the CCHS also have higher problem gambling severity than chance gamblers ($t=3.57$, $p<.001$) and chance gamblers (not skill gamblers) have higher sense of control ($t=3.11$, $p=0.002$).

Table J – 3: Comparison of Skill and Chance Gambler Differences for the SCGS Sample and Frequent Gamblers in the CCHS 1.2

Variable	Simcoe County Gambling Study			Canadian Community Health Survey		
	Skill/Chance Difference	Chi Square/T Tests		Skill/Chance Difference	Chi Square/T Tests	
		Value	Sign.		Value	Sign.
Age	None	9.40	0.40	Skill (younger)	642.89	<.001
Gender	Skill (male)	7.03	0.01	Skill (male)	105.62	<.001
Marital Status	None	4.34	0.50	Skill (single)	192.99	<.001
Education	Skill (higher)	11.77	0.04	Skill (higher)	30.23	<.001
Job Status	None	11.11	0.27	None	0.41	0.52
Income	None	6.57	0.26	Chance (higher)	30.23	<.001
Gambling Frequency	Skill (higher)	2.10	0.04	Skill (higher)	6.12	<.001
Problem Gambling Severity	None	1.64	0.11	Skill (higher)	3.57	<.001
Sense of Control	Skill (higher)	2.55	0.02	Chance (higher)	3.11	0.002

Summary

The frequent gamblers in the Simcoe County Gambling Study are similar to those in the wider population on several dimensions. Frequent gamblers are most often male, married, employed, make less than \$40,000 a year, and have high sense of control. Frequent gamblers who prefer skill games are more often male, more educated, and gamble more frequently than chance gamblers.

The frequent gamblers in the SCGS also differ from those in the general population on certain characteristics. In the current sample, frequent gamblers are older or younger, more educated, gamble more frequently, and have higher problem gambling severity than those in the CCHS 1.2. Further, some of the differences between the skill and chance gamblers in the SCGS are not the same as those found in the CCHS. Skill gamblers in the SCGS do not differ in age, marital

status, income, or problem gambling severity as they do in the CCHS. Unlike in the CCHS, the skill gamblers in the SCGS have the higher sense of control, not the chance gamblers.

For a non-random sample, the group of frequent gamblers that took part in the Simcoe County Gambling Study is reasonably representative of the larger population in demographic characteristics, differing mainly in age and education. Further, these 30 frequent gamblers are similar to those in CCHS 1.2 in their high level of sense of control. These similarities encourage confidence in the findings of this study, namely those on sense of control. Importantly though, the SCGS sample gambles more frequently and suffers more gambling problems than frequent gamblers in the wider population. It is possible then that this study's findings and conclusions will not be reflective of people who gamble less frequently and suffer fewer problems as a result of their gambling. The SCGS sample of frequent gamblers is most unrepresentative in the differences between skill and chance gamblers. As a result, caution should be exercised when interpreting differences based on type of game since they may not reflect those found in the wider population.

Copyright Acknowledgements

Beliefs about Gambling Questionnaire – Springer Science and Business Media, *Journal of Gambling Studies*, 24, 2008, pages 445-446 , “Are Irrational Beliefs and Depressive Mood More Common Among Problem Gamblers than Non-Gamblers? A Survey Study of Swedish Problem Gamblers and Controls”, Kallmen, H., Andersson, P. and Andren, A., Table 2, with kind permission from Springer Science and Business Media.

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