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General and Gambling-Specific Types of Control: Extending Mental Health Theory and Concepts to Problem Gambling

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Abstract: *Rationale:* A key factor in our understanding of problem gambling is control: over gambling outcomes (illusion of control) and behaviours (gambling self-efficacy). Research in the gambling field rarely looks beyond these gambling-specific types of control to more general types when identifying predictors of gambling problems. This work begins to integrate control concepts from the mental health and problem gambling fields by examining the importance of a more general type of control from the Stress Process Model: sense of control over life events. *Methods:* Closed-ended questionnaire and open-ended interview responses from 30 frequent (weekly or more) gamblers were used to examine whether general and gambling-specific types of control are linked as predicted in a conceptual model of control. *Results:* For some people, beliefs about one type of control are extended to inform beliefs about another type of control. In many cases, understandings of outcomes in life inform beliefs about controlling gambling outcomes and behaviours. *Conclusions:* Different types of control work together, and general understandings can translate into gambling-specific beliefs. Future work is needed to confirm and specify these relationships and clarify their importance to understanding the development of gambling problems.

Keywords: sense of control; illusion of control; gambling self-efficacy; Stress Process Model

Introduction

A key factor in our understanding of substance and behavioural issues is control. Consider the definition of problem gambling: “persistent and recurrent maladaptive gambling behaviour” characterized by *an inability to control gambling* [emphasis added], leading to significant deleterious psychosocial consequences: personal, familial, financial, professional and legal’ (APA 1994, as cited in Blaszczynski & Nower, 2002, p. 487). The concept of problem gambling is largely defined through a loss of control, and problems are experienced because the person has lost control of their gambling. Loss of control is the guiding principle behind screening tools (Reith, 2007) and is central to the public stigma perceived by those experiencing gambling problems (Hing et al., 2016).

Part of the lack of control is gambling self-efficacy: ‘an individual’s belief as to whether or not they could resist an opportunity to gamble in a given situation’ (Casey et al., 2008, p. 230). Another type of control frequently implicated in the development of gambling problems is illusion of control: ‘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, p. 482). Research repeatedly finds that low gambling self-efficacy and high illusion of control are related to gambling harm, as will be reviewed below.

Gambling research rarely looks beyond these gambling-specific types of control to more general types when identifying predictors of gambling problems. This may be due in part to the limited use of broad mental health theories to understand gambling behaviours and harm. Sense of control is the ‘learned generalized expectation that outcomes are contingent on one’s own choices and actions’ (Mirowsky & Ross, 2003, p. 174) and is an important concept in mental health research. While gambling self-efficacy is about (gambling) behaviours, sense of control and illusion of control are about (general and gambling-specific) outcomes.

Could sense of control help us understand the development of gambling-related problems? Because it is generalized, sense of control might influence both illusion of control and gambling self-efficacy. If so,

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experiencing harm from gambling might be the result of a combination of different levels of general and gambling-specific types of control. To date, limited theory and research has focused on how these types of control might work together. Further, although control is a defining aspect of problem gambling, relatively few researchers have examined the various types of control qualitatively, meaning the presence or loss of control is understood as one universal experience across gamblers (Fu & Yu, 2015; Tang & Wu, 2010).

This work aims to integrate control concepts found in mental health and problem gambling theory and research by articulating the relationships between the more general sense of control and the gambling-specific illusion of control and gambling self-efficacy. This integration can be beneficial to both areas: broadening the scope of mental health research to include problem gambling and improving the understanding of problem gambling onset. This study advocates for the use of mental health theory and concepts in the examination of gambling harm by examining how general and gambling-specific types of control correspond to each other using in-depth interviews. In considering these types of control together and qualitatively, this study shows the diversity in how frequent gamblers experience and understand control.

Control in Gambling and Mental Health Theory and Research

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

Illusion of control (Langer, 1975) is a person's belief that they can influence and thereby increase their odds of winning at gambling. According to the Integrated Pathways Model, all people with gambling problems develop irrational beliefs about the odds of winning during increased gambling involvement (Blaszczynski & Nower, 2002). Through frequent play with family and friends, people learn to believe that using certain techniques will increase their chances of winning (Blaszczynski & Nower, 2002; Oei & Raylu, 2004). Illusion of control can also be increased by certain game features, like the near miss (Clark et al., 2013). Illusion of control contributes to risky gambling behaviours by leading to greater overconfidence and increased betting (Blaszczynski & Nower, 2002; Goodie, 2005; Miller & Currie, 2008).

Gambling self-efficacy (Casey et al., 2008) is a person's belief in their ability to resist gambling in various situations. According to the definition of problem gambling used by the Integrated Pathways Model, when gamblers are unable to refrain from gambling in tempting situations, it leads to frequent and destructive gambling (Blaszczynski & Nower, 2002). People may learn to resist gambling opportunities by learning and adopting the behaviours and beliefs of their friends and family or

through past successful experiences at resisting opportunities and verbal persuasion from others (Hodgins et al., 2004).

Gambling self-efficacy is founded on the general concept of self-efficacy (Bandura, 1986), which is a person's belief in whether or not they can effectively carry out a particular action (Ross & Sastry, 1999). Self-efficacy and sense of control are both forms of perceived personal control—beliefs about a person's control over their own life outcomes (Ross & Sastry, 1999). However, while self-efficacy is about performing actions and is focused on a particular realm like gambling, sense of control is about achieving outcomes and is broadly oriented to all life areas (Mirowsky & Ross, 2003; Ross & Sastry, 1999).

Studies have consistently found that both illusion of control and gambling self-efficacy are related to gambling behaviours and gambling problems. Those with gambling problems tend to have high illusion of control (Fu & Yu, 2015; Goodie & Fortune, 2013; Källmén et al., 2008; Leonard & Williams, 2016; Orgaz et al., 2013; Steenberg et al., 2002). High risk gamblers also typically have low gambling self-efficacy (Casey et al., 2008; Fu & Yu, 2015; May et al., 2003; St-Pierre et al., 2015; Winfree et al., 2014; Wu et al., 2013).

Sense of Control and the Stress Process Model

Sense of control (Mirowsky & Ross, 1989) is a belief that outcomes in life are dependent on one's own behaviours. It is stable across life domains and focuses on the person's control over their own life. People who believe that they can shape their own life have a high sense of control. People that feel like some other force is in control, like luck, fate, or God, feel powerless and have a low sense of control (Mirowsky & Ross, 2003; Ross & Sastry, 1999). Powerlessness is 'the cognitive awareness of a discrepancy between one's goals and the means to achieve them' (Mirowsky & Ross, 2003, p. 60).

Sense of control is a sociological concept that varies across social status and is based in objective circumstances—a lifetime of social interactions and personal experiences (Mirowsky & Ross, 2007; Mirowsky et al., 2000). Specifically, 'success in controlling past adversities is interpreted as evidence of competence in mastering current adversities' (Pearlin & Skaff, 1996, p. 243). This feeling of competence is carried into future experiences and is used to achieve similar positive ends, which over time translates into a generalized belief in a sense of control. Conversely, past failures are viewed as evidence of a lack of ability to manage current problems, which can lead to feelings of powerlessness, 'escalating passivity in the face of difficulties, and more and more distress' (Ross & Sastry, 1999, p. 385).

The Stress Process Model explains how sense of control impacts mental health. Certain behaviours increase exposure to stressors, which can increase the

risk for mental health problems (Aneshensel, 1992; Pearlin, 1999). Social and personal resources influence whether behaviours trigger stressors and whether stressors lead to poor mental health (Aneshensel, 1992). As a personal resource, sense of control plays this buffering role in two ways. First, sense of control encourages problem solving, which can prevent behaviours from leading to stressors (Turner & Roszell, 1994). Second, sense of control allows people to understand negative outcomes as something they can manage or to which they can adapt (Turner & Roszell, 1994). As a result, those with high sense of control appraise fewer life events as being stressful, which can prevent stressors from leading to mental health issues (Turner & Roszell, 1994).

To the author's knowledge, the Stress Process Model and sense of control have not been used to study problem gambling. Some studies have looked at the related concept of locus of control (Rotter, 1966), which is a cognitive psychology concept. While sense of control focuses on personal control and remains stable across all life domains, locus of control focuses on universal control—beliefs about the control others have over their lives—and can vary across life events or areas (Ross & Sastry, 1999). People with an internal locus of control feel in control of outcomes in life and those with an external locus of control attribute outcomes to forces external to themselves, like powerful others, luck, or chance (Mirowsky & Ross, 2003; Ross & Sastry, 1999). An external locus of control—like low sense of control—is associated with poor mental health (Mirowsky & Ross, 2003; Ross & Sastry, 1999).

A few studies find that people with an external locus of control experience problems with their gambling (Capri et al., 2017; Meyer de Stadelhofen et al., 2009; Pace et al., 2015; Shumlich et al., 2018). This may be the result of an association between external locus of control and illusion of control (Capri et al., 2017; Meyer de Stadelhofen et al., 2009). In contrast, one study reports a relationship between internal locus of control and problem gambling (Hopley et al., 2012), while others find no relationship (Clarke, 2004; Malkin & Syme, 1986).

A Theoretical and Research Disconnect

Although there are similarities between the Integrated Pathways Model and the Stress Process Model—they both focus on mental health, include people's beliefs, and view control as rooted in personal and social learning experiences—there is an important difference: each model includes concepts of control that are absent in the other. In doing so, these models miss the opportunity to gain a full understanding of how control can help explain mental health generally and gambling problems specifically.

The Stress Process Model misses types of control that may be specific to particular mental health issues, like illusion of control and self-efficacy. For its part, the Integrated Pathways Model misses more general types of control, like sense of control, that may inform, work with, or be more influential than gambling-specific types of control.

In line with this theoretical gap, limited research has focused on how these types of control relate to each other. The lone study of illusion of control and gambling self-efficacy finds that gamblers with high gambling self-efficacy have low illusion of control (Casey et al., 2008). The authors argue that this is a logical consequence of those with gambling problems having both high illusion of control and low gambling self-efficacy.

One study examining the link between locus and illusion of control finds that external locus of control correlates positively with illusion of control (Chan et al., 1986). This suggests that locus of control influences gambling behaviour through illusion of control (Hong & Chiu, 1988). In contrast, another study reports that those with gambling problems are more likely to have both illusion of control and an internal locus of control (Carroll & Huxley, 1994). It is possible that because those with gambling problems are known to develop exaggerated beliefs of their level of control over gambling games, they should also tend to believe in their control over life events (Carroll & Huxley, 1994; Meyer de Stadelhofen et al., 2009).

Only two studies have examined the link between concepts like sense of control and gambling self-efficacy. One finds that self-efficacy is positively correlated with gambling self-efficacy (Casey et al., 2008). Similarly, gamblers who believe in fate control—that life events are predetermined but can be influenced—tend to have low gambling self-efficacy (Tang & Wu, 2010). A person's general beliefs about life events can influence their beliefs about specific contexts, such as gambling, which guides their behaviour in those situations (Tang & Wu, 2010).

These few studies support the notion that the various types of control might be associated. According to these four studies, illusion of control is negatively associated with gambling self-efficacy, it is unclear how sense of control is related to illusion of control, and sense of control is positively linked with gambling self-efficacy.

A Conceptual Model of Control

A conceptual model of how general and gambling-specific types of control might work together is outlined in Fig. 1. This model is informed by the Stress Process Model, the Integrated Pathways Model, and the research on control referenced above.

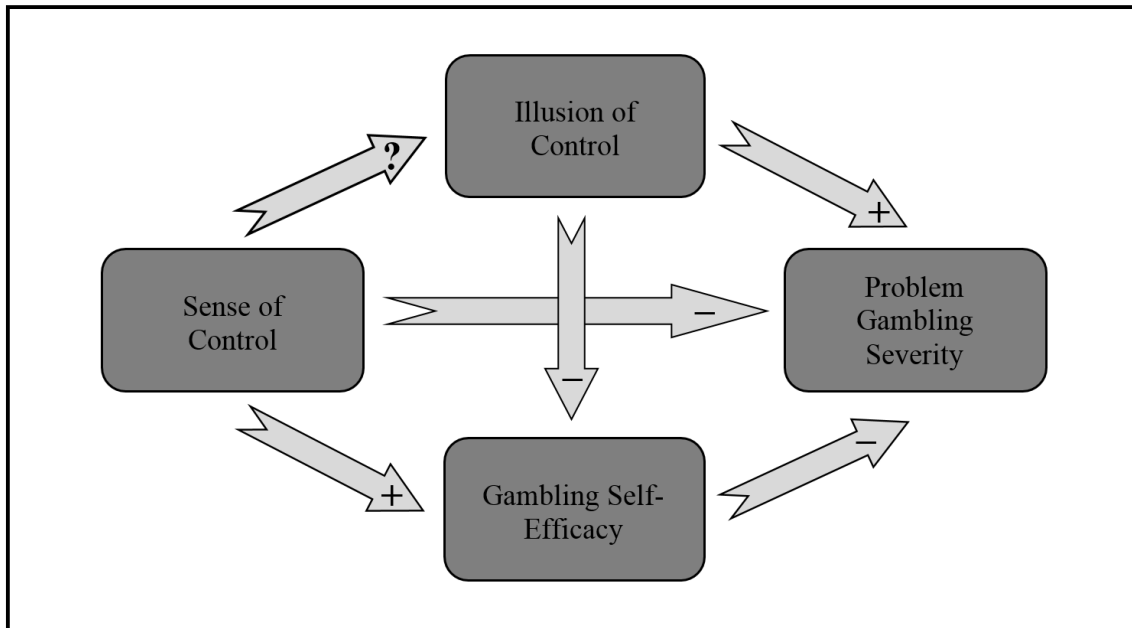


Fig. 1. A Conceptual Model of Control for Gambling Problems

Sense of Control. Gamblers with a low sense of control have less confidence in their abilities to prevent stressors or overcome them and experience more gambling-related difficulties as a result (Turner & Roszell, 1994). Gamblers with a high sense of control typically have high gambling self-efficacy. General beliefs about life events extend to inform beliefs about one's ability to control gambling behaviours (Tang & Wu, 2010).

Illusion of Control. Because gamblers with high illusion of control are overconfident in their ability to win, they engage in risky gambling behaviours that lead to a downward spiral of losses (Goodie, 2005; Miller & Currie, 2008). Gamblers with high illusion of control also typically have low gambling-self efficacy. Gamblers develop both through their own experiences and learning from others (Blaszczynski & Nower, 2002; Clark et al., 2013; Hodgins et al., 2004).

Gambling Self-Efficacy. Gamblers with low gambling self-efficacy experience more gambling problems. They are unable to stop themselves from gambling when faced with tempting opportunities, which leads to excessive play (Blaszczynski & Nower, 2002).

Study Aim

The current paper uses open-ended interview responses to examine whether general and gambling-specific types of control are linked as predicted in the conceptual model (Fig. 1).

Methods

Participants

In-depth interviews were conducted with 30 frequent gamblers (weekly or more). Most are 55–59 years old (23.3%) or 25–29 years (16.7%), male (63.3%), and self-identify as Caucasian (86.7%). Frequent

gamblers are a relevant group for study because they more often meet the threshold for problem gambling (Currie et al., 2006; Currie et al., 2008). The sample is evenly split by most frequent type of game: skill or chance. Among skill gamblers, most played sports lotteries (5/15) or poker (3/15). Among chance gamblers, most played the lottery (7/15) or scratch tickets (6/15). Over the past year, skill gamblers played on average 7.67 games/person and chance gamblers played 4.87 games/person.

Procedures

Participants were recruited using convenience sampling (posters, print and electronic classified advertisements) and snowball sampling. Participants completed a closed-ended questionnaire followed by an in-depth semi-structured interview. Ethics approval was obtained from the University of Toronto's Research Ethics Board.

Closed-Ended Questionnaire

In order to determine each participant's levels of control, scales from the closed-ended questionnaire were converted into high/low dichotomies. Scale results are included to provide context for the qualitative results presented below, which are the focus of this study.

Sense of Control. The Mastery Scale's (Pearlin et al., 1981) seven items measure the degree to which people feel they are in control of the forces that affect their lives, using a scale from zero to 28. It has good internal consistency reliability (.77; Marshall & Lang, 1990). The average score in the 2010 Canadian Community Health Survey, a nationally representative survey, is 19.53. As such, scores of 20 or more were coded as high sense of control, and lower scores as low sense of control. The

average score in this sample is 21.6 and the median is 22, with 23 participants classified as having a high sense of control.

Illusion of Control: The Beliefs about Gambling Questionnaire (Jonsson et al., 2002) is a compact measure with 14 items focusing on various aspects of illusion of control—superstition, skill, belief in randomness, and expectation—using a scale from zero to 14. The internal consistency for the scale is acceptable (0.65; Källmén et al., 2008). Results on the average score in the general population are unavailable, though the median level among a sample of gamblers without problems is three (Källmén et al., 2008). As such, scores of three or below were classified as low illusion of control, and four or above as high illusion. The average score in this sample is 4.2 and the median is four, with 17 participants classified as having a high illusion of control.

Gambling Self-Efficacy: The Gambling Abstinence Self-Efficacy Scale's (Hodgins et al., 2004) 21 items ask participants to rate their confidence in abstaining from gambling in certain situations, resulting in a scale from zero to 105. This scale has good internal consistency (0.93) and retest reliability (.86; Hodgins et al., 2004). Results on the average score in the general population or non-problem gambling samples are limited. The mean levels among a stratified sample of people with gambling problems who recently quit are 58 and 68 (Hodgins et al., 2004). The higher mean level is used here to reflect the use of a sample of frequent gamblers and not those experiencing gambling problems. A score of 68 or below was considered a low level of gambling self-efficacy, and 69 or above as high efficacy. The average score in this sample is 67.0 and the median is 62, with 19 participants classified as having a low gambling self-efficacy.

In-Depth Interview

The open-ended interview focused on in-depth discussions of the three types of control, and lasted 20–90 minutes. For sense of control, participants were asked how they understand past events, and what forces will help them achieve future goals. For illusion of control, respondents discussed how they understand their past and will understand their future gambling outcomes. For gambling self-efficacy, participants were asked whether and how they were and will be able to manage their gambling behaviours. The interview ended by discussing whether and how their understandings in these three areas are related.

Analysis

Interview responses were analyzed deductively and inductively with NVivo. The main focus was searching for themes to understand frequent gamblers' experience of the three types of control. First, focused coding was conducted using core and sub-themes from the literature and study aim (Emerson et al., 1995). The conceptual framework in Fig. 1 was used as the

foundation for the systematic analysis (Brazil et al., 2010). Open coding was then used to identify additional emerging themes (Emerson et al., 1995; Brazil et al., 2010). Using the entire list of repeated themes, each transcription was analyzed using line-by-line coding. The theme 'links between types of control' occurred 54 times. Within these, discussion of sense and illusion of control made up 61.8% of the coded text, sense of control and gambling self-efficacy made up 28.1%, and illusion of control and gambling self-efficacy made up 10.1%.

Results

As the focus of this research is to improve our understanding of the interrelationships between general and gambling-specific types of control, each individual relationship between the three types of control will be examined in the sections below.

Sense of Control and Illusion of Control

Fourteen respondents spoke about the relationship between their understanding of life events and their views on gambling outcomes. Six have different levels of sense of control and illusion of control. Eight have similar levels of each. For some of these people, a generalized belief of control over life outcomes translates into a belief in control over gambling outcomes (Meyer de Stadelhofen et al., 2009).

Three gamblers have high sense and illusion of control. There are two types of beliefs that are translated among this group, both of which are focused on the person's own influence. One 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.' 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. She prefers skill games because she feels they offer her this control.

A second belief that is translated is the importance of hard work. As one participant put it, gambling is 'another skill you can learn if you put your mind to it.' A person can become a more adept gambler by putting in the time and effort. Specifically:

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.

This person believes they can become more successful at gambling in the same ways they can succeed in life: through effort, education, and thoughtful decision-making.

Five participants have low sense and illusion of control. Some believe that the same external force that

influences their lives also influences their gambling outcomes. One person who believes in fate explained her gambling beliefs in this way:

When I look at 6/49 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 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.

Because the odds of winning the lottery are so low, this person believes that fate and not chance determines whether or not she hits the jackpot. Winning and losing are not only meant to be, but meant to be for a reason—whether the time is right or whether you can handle it.

Other respondents with low sense and illusion of control think that different external forces are responsible for their life events and gambling outcomes. They believe that while God or fate influences their life experiences, chance influences their gambling outcomes. 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.

For these people, the specific belief in control is not directly translated. While they believe an external force is responsible for both their life events and gambling outcomes, there is a disconnect as the forces at play are not the same: a powerful other and chance.

Five participants have high sense of control but low illusion of control. For these respondents, effort makes a difference in life but not in gambling. As one person 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.

While hard work is needed to succeed in life, gambling is instead about the odds of winning and chance, which cannot be influenced.

In some cases, beliefs about life outcomes are extended to inform beliefs about gambling outcomes.

This can include a belief in personal control, hard work, or fate. In other cases, different forces are at play. Some believe that their own effort or powerful others, like God, influence their lives, but their gambling is determined by chance.

Sense of Control and Gambling Self-Efficacy

Fifteen people spoke about the link between their understanding of life events and their ability to control their gambling. Seven have different levels of sense of control and gambling self-efficacy. Eight have similar levels of each, as predicted by the conceptual model. For some of them, general beliefs about life influence gambling-specific behaviours (Tang & Wu, 2010).

Three participants have high sense of control and high gambling self-efficacy. These people generally feel in control of their lives, including their gambling behaviours. 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.' She feels that taking charge and being decisive allows her to control her life and limit her gambling. Another person echoed the importance of decision making around gambling: '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.' Both of these quotes illustrate how control permeates to gambling through specific decisions about play—whether and how much. They also speak to the confidence developed among those with a high sense of control as described in the literature. These people feel with a level of certainty that they can direct their lives as well as manage their gambling behaviours.

Five respondents have low sense of control and low gambling self-efficacy. For these people, the two types of control are related concepts: a lack of control over life outcomes is linked with an inability to control gambling behaviours. In contrast to those in the previous group, these people 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.' Interestingly though, they do not blame their lack of control of their gambling on the external force that controls their lives. One person 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.

People in this group feel that God is a positive force in their lives, providing them with many meaningful things. They are the ones responsible for their inability

to do what God expects of them and control their gambling behaviours.

Six people have high sense of control and low gambling self-efficacy. Interestingly, several of these participants say that they make a conscious decision to gamble at high levels, despite their self-efficacy score indicating a lack of control. Gambling in this way is understood as a personal choice in line with other life decisions. 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.

Despite having different levels of sense of control and gambling self-efficacy, this person makes their decisions about life and about gambling in the same way: by doing what they enjoy while they can.

People understand their choice to gamble at high levels in other ways too. One person explained how gambling fits into 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.

For this person, gambling is a way to satisfy a general desire: getting something quick with little effort. People in this group feel they are making the decision to gamble at high levels. They have troubles resisting opportunities to gamble because they do not want to resist them—they want to take advantage of them.

For some people, level of control over life outcomes extends to gambling behaviours. Being in control of both can be achieved through confidence and decisiveness. In contrast, a lack of control in both areas is understood as originating from separate sources. While powerful others like God explain life events, the person is to blame for their lack of control over gambling behaviours. Beliefs about life events are extended through to beliefs about gambling behaviours for those who feel in control of their lives but have difficulties resisting gambling opportunities: both are understood as personal choice.

Illusion of Control and Gambling Self-Efficacy

Three respondents spoke about the relationship between their control over gambling outcomes and

gambling behaviours. Consistent with the model, they all spoke about how low illusion of control leads to high gambling self-efficacy.

One person spoke about the things she can and cannot control about her 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.

Her understanding that gambling outcomes are based on chance leads this person to limit her gambling. She knows she cannot control the game outcomes, so she instead controls what she can: how she gambles.

Another respondent explained the impact of knowing the odds of winning 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.' Experiencing the small odds of winning through repeated losses can drive home the fruitfulness of continued gambling and encourage restraint.

Although all three of these people spoke about limiting their gambling, two of them actually have low levels of gambling self-efficacy. For these participants, it seems that low illusion of control does not match up with high gambling self-efficacy because thoughts do not translate into actions. Despite understanding the need for controlled gambling, these people are not able to play in this way.

Knowing the low odds of winning can lead people to limit their gambling. When people acknowledge they cannot control gambling outcomes, which can be reinforced through repeated losses, they instead focus on the things they can control: whether they play and how much. Intentions to control gambling, however, do not always lead to such actions.

Discussion

In an effort to integrate concepts of control from mental health and problem gambling research and theory, this paper examined the links between general and gambling-specific types of control using 30 in-depth interviews with frequent gamblers. The results from this study are most valuable in that they provide an enlightening, authentic, and valuable account of how frequent gamblers understand the workings and interrelationships of various types of control in their lives. This more critical consideration of the concept of control demonstrates that frequent gamblers subjectively experience and attribute meaning to control in heterogeneous ways.

As hypothesized in the literature (Carroll & Huxley, 1994; Meyer de Stadelhofen et al., 2009), this study finds that, in some cases, beliefs about control for life

outcomes translate into similar beliefs about control for gambling outcomes; namely, beliefs in personal control, hard work, and fate. However, in other cases, different forces are at play. Several participants spoke about how their life is influenced by their own effort or a powerful other, but that gambling outcomes are determined by chance. These mixed results are in line with the limited but conflicting research on the link between sense of control and illusion of control (Carroll & Huxley, 1994; Chan et al., 1986).

More work is needed to clarify the relationship between these two concepts. It might be worth examining not only the levels of sense of control, but the types as well, as different external forces can function differently (Mirowsky & Ross, 2003; Ross & Sastry, 1999; Rothbaum et al., 1982). For example, feeling powerless by attributing outcomes to God might provide meaning that neutralizes the typically negative impact of powerlessness on health (Ross & Sastry, 1999). Further, it might be useful to examine illusion of control as two belief structures—primary and secondary. Illusion of primary control involves behaviours and beliefs aimed at changing the gambling environment (i.e., gambler's fallacy), which fits with the general conceptualization of illusion of control used in this paper. Illusion of secondary control involves beliefs and behaviours that attempt to influence gambling outcomes through supernatural forces, like luck and God, which may tie more directly to sense of control (Ejova et al., 2015).

Consistent with Tang & Wu (2010), general beliefs about life influence gambling behaviours for some people in the current study. For those with high sense of control and gambling self-efficacy, confidence and decisiveness are important for both domains. For those with high sense of control and low gambling self-efficacy, personal control is influential for both areas, even though levels of each type of control are different. In contrast, different forces can be involved for each type of control, even when the levels are the same. For those with low levels of sense of control and gambling self-efficacy, powerful others explain life events, but lack of control over gambling behaviours is the person's responsibility. Future work should more closely examine the conditions under which general beliefs about life shape control over gambling behaviours, in particular the role played by specific external forces as discussed above. Studies should also consider personal choice in more detail, as some respondents spoke about not wanting to resist gambling opportunities.

Few respondents considered how their control over gambling outcomes is related to control over gambling behaviours. This is in line with the literature; this connection is rarely examined specifically and is instead inferred from how each relates to gambling problems. Two of the three participants who discussed this link reported that they limited their gambling to avoid falling victim to the low odds of winning, but their closed-ended responses suggest they are not able to

resist opportunities to gamble. It seems that intentions to limit gambling do not necessarily lead to controlled behaviours for these people. The disconnect between intentions and actions is well documented in literature on health behaviour change (Gallagher & Updegraff, 2012). Future research should explicitly explore the link between illusion of control and gambling self-efficacy, while also examining the link between intentions and actions for gambling self-efficacy.

Though this study makes several important contributions, it suffers some limitations. There may be some bias in the results due to the self-selection of participants, as certain types of people might have been more likely to self-identify as frequent gamblers and be willing to participate in this study. Also, results for illusion of control should be interpreted with caution as there is no agreed upon measure, and the Beliefs about Gambling Questionnaire only differs by level of problems along the dimension of skill (Källmén et al., 2008). Further, most of the study questions were retrospective in nature, which may have reduced the accuracy of responses. However, since this study was mainly interested in how people experience control, how they remember and interpret their experiences is highly important. Finally, because the interviews were face-to-face and audio recorded, it is possible that some participants underreported negative experiences in order to avoid perceived stigma. This misreporting was reduced as much as possible by using open-ended questions to follow-up on answers given in the closed-ended questionnaire.

This work took an important first step in examining the developed conceptual model of control by considering how the three types of control work together. Future studies should seek to confirm and build on these findings, as well as examine the additional relationships outlined in the model; namely, how the types of control relate to gambling problems. While several studies support the links between high illusion of control and low gambling self-efficacy with gambling harm, no studies have examined sense of control specifically for its impact on gambling problems. By examining the entire conceptual model of control, future studies can identify the role played specifically by sense of control, as well as gain a full understanding of the importance of control in the development of gambling problems.

To shed further light on gambling onset, future work should also apply the Stress Process Model to the study of gambling problems. 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 onset (Afifi et al., 2010; Barnes et al., 2017; Dowling et al., 2017; Holdsworth et al., 2015). A full application of the Stress Process Model could improve our understanding of how social status and social and personal resources like sense of control work together to explain gambling

problems, and whether sense of control influences gambling problems by buffering stress and influencing stress appraisal.

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