Sociology and the Problems of Problem Gambling Research: Connecting private troubles to public issues

by

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Sociology
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Abstract

This study addresses the lack of sociological perspectives in theoretical frameworks commonly used in problem gambling research, and demonstrates the connection of often overlooked aspects of the social environment to variables commonly used to predict and explain problem gambling. Using the often studied correlates of problem gambling, namely, anxiety disorders; mood disorders; and gender, each paper shows how the relationships between those correlates and problem gambling are significantly modified by features of the social environment. Contributions of sociological research to theoretical frameworks for explaining problem gambling are posited as modifications to the Pathways Model to Problem Gambling. Advanced generalized linear modeling is used to explore the interconnections of these relationships in all three studies. The research findings are discussed in relation to the dangers of reducing complex social issues such as the prevalence of problem gambling to a series of individual characteristics found in problem gamblers. Implications of governmental responsibility in gambling provision, the medicalization of abnormal behaviours, and the role of sociological research in identifying patterns of inequality are also explored.
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1. Introduction

1.1 The Problem

The current state of the research surrounding problem gambling shows a troubling trend, and that trend is the lack of consideration of sociological perspectives in determining the potential harms that gambling brings with it (Bernhard 2007). The dominance of psychological research on the subject of problem gambling has led to a lack of investigation into how social structures determine who is most affected by problem gambling and the implications for gambling policy and regulation. The following papers apply sociological principles to address the gaps between commonly studied psychological correlates of problem gambling and the social contexts in which they are found. Using the 2008 Canadian Community Health Survey, a large representative dataset focused on the physical and mental health of Canadians, the research contained in this dissertation uses statistical methods to assess the variability of correlations between problem gambling and variables that are taken for granted such as anxiety disorders, mood disorders, and gender.

Each chapter of this dissertation demonstrates the importance of using sociological perspectives in gambling research by showing that sociological factors significantly moderate or mediate the relationships between problem gambling scores and each of the variables of interest identified above. The objective is to show that the connection between these aspects of a person’s individual characteristics and the experience of gambling related problems is in part dependent on that person’s social environment. Studying the connection between these individual traits and problem gambling without considering the sociological context means
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losing a significant piece of the puzzle when trying to limit the harm created by problem gambling.

The findings of each chapter are placed within the context of broader theoretical frameworks in order to enhance problem gambling research. The issues explored in this dissertation are theoretically framed by, and add value to, the Pathways Model to Problem Gambling (Blaszczynski & Nower 2002). Through the use of a theoretical framework that is well-designed for interdisciplinary research, my findings emphasize the importance of including sociological principles to the theoretical underpinnings of research, rather than just controlling for them in research design. A true incorporation of sociology into problem gambling research does not simply involve adding a narrow set of variables to a set of models and then claiming gives a meaningful consideration of the influence of complex social structures. Instead, gambling research must account for social contexts in the etiological perspectives that are used to explain why problem gambling happens and who experiences disproportionate harm because of it.

In short, this dissertation shows how incorporating sociological perspectives into gambling research aid in a better understanding of problem gambling, its effects, and its connections to various institutions and social structures. It is only by doing this that problem gambling can be approached as a social issue that needs to be addressed at the structural level, rather than a private trouble that should be treated at an individual level. By moving from understanding the individual to understanding the systemic problematic effects of gambling, research can make strides towards creating gambling policies with real “responsible” gambling provision.

1.2. Problem Gambling: Definition
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The harm that can result from excessive gambling participation has been studied by researchers from many different fields and perspectives. These viewpoints have led to the conception of “problem gambling” as a vague and difficult to interpret term. Depending on research perspectives, problem gambling can be defined as a psychological condition in which a person is unable to control his or her gambling; a fixed monetary loss associated with gambling; a diagnostic category, capable of separating those who do and do not have gambling problems; or a spectrum of problems ranging in form and severity. Additionally, each approach brings with its different methods for measuring problem gambling including the South Oaks Gambling Screen, the DSM-IV Screen for Gambling Problems, the Canadian Problem Gambling Index, and the Victorian Gambling Screen.

The current research approaches problem gambling from a harm-based perspective that defines problem gambling as “characterised by difficulties in limiting money and/or time spent on gambling which leads to adverse consequences for the gambler, others, or for the community” (Neal, Delfabbro & O’Neil, 2005:3). This definition is appropriate for two reasons. First, it recognizes that the harm of problem gambling extends beyond the individual to the relationships and social environments outside the gambler. Second, it encompasses a range of experiences that do not necessitate a “loss of control” associated with the presence of a psychological condition (Neal et al., 2005).

Defining problem gambling in this way is important because it relates problem gambling to how the participant experiences harm rather than defining it as a psychological disorder that is within the individual. This dissertation demonstrates the benefits of understanding problem gambling as a social issue rather than as a disorder or condition affecting a small number of people. Adopting a definition of problem gambling that focuses on a wide range of negative
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consequences, including issues related to problem gamblers’ social lives, is necessary for such a goal. As such, this definition is used throughout the dissertation unless otherwise stated, (i.e. where a cited study uses a different term such as “pathological gambling”).

1.3. Profits from Problems

Proponents of the continued expansion of gambling opportunities in Canada are quick to highlight the economic benefits of provincially run casinos, race tracks, slot machines, bingo halls and other forms of gambling in terms of the revenue they generate. For example, the Ontario Lottery and Gaming Corporation’s 2011-2012 Annual Report touts the positive effects created by the $1.3 billion profit collected from gambling activities that year. The report notes that gambling is the single biggest contributor of non-tax income to the provincial budget and emphasizes that this money contributes to health care, education, and various non-profit organizations in the province (OLG 2012). In addition, economic benefits such as employment, stimuli to local economies, and reductions in taxation are also listed among the positive impacts of large-scale gambling provision (Wynne & Shaffer, 2003).

In a 2012 report prepared for the Ontario Problem Gambling Research Centre and the Ontario Ministry of Health and Long Term Care, Williams et al (2012) found an average problem gambling prevalence rate of 2.4% across 10 Canadian provinces between 1989 and 2011. When compared to participation rates for past year gambling of 79.2% in Canada (Responsible Gambling Council, 2014), it is clear that the majority of people who participate in gambling activities are not at risk of experiencing significant harm. The comparatively low rates of addiction and sizeable revenues are arguably economically positive features for provincial governments which support the continued spread of gambling in Canada.
Although it is easy to demonstrate the economic benefits of gambling and provide the revenue figures generated for education and health care, economic factors are more difficult to quantify and call into question the positive effect of gambling as a mostly benign “voluntary tax”. Using a sample collected in 2003, Williams and Wood (2007) attempted to determine the proportion of Ontario gambling revenues that came from people with moderate to severe risks of problem gambling. Among 6,654 Ontarians, they found that probable problem gamblers made up only 4.8% of the total sample, but contributed 36% of the total gambling revenue for that year. This is a substantial profit at the expense of those who experience significant harm as a result of their gambling. This profit seems even more dramatic when compared to the amount of money devoted to addressing problem gambling. Consider, for example, the findings of the 2011-2012 Canadian Gambling Digest, prepared by the Canadian Partnership for Responsible Gambling which details what each province spends on issues related to problem gambling (2013). While Ontario is above the national average (1.45%) in revenues devoted to problem gambling, the report states that only 2.23% of all gambling revenues are dedicated to addressing issues surrounding problem gambling in Ontario. Which number is correct: 1.45 or 2.23? Within that 2.23%, 68% is devoted to treatment, 22.2% is devoted to awareness and 9.8% is dedicated to funding problem gambling research. This means that a scant 0.22% of all gambling revenues are actually devoted to research aimed at better understanding of the causes and harmful consequences of problem gambling. Considering that psychological research receives the majority of research funding due to its dominance in the field, it is likely that less than one thousandth of all gambling revenues would be dedicated to understanding the implications of problem gambling as a social problem. The above figures show a huge disparity between the profits that made from problem gamblers and the funds devoted to helping problem gamblers.
1.4. Private Troubles and Public Issues

One indication of the lack of consideration of the structural aspects of problem gambling is the fact that estimating prevalence rates of problem gambling in Canada has been somewhat sporadic. For example, the Canadian Gambling Digest produced by the Canadian Partnership for Responsible Gambling is an annual report of gambling-related information collected in Canada including expenditures, revenues, participation and problem gambling prevalence rates. However, the studies on which their estimates for the 2012-2013 report are based (the most recent to date) are on average 4.5 years old at the time of the report (Canadian Partnership for Responsible Gambling, 2013). This shows a failure on the part of the provinces to obtain recent, accurate estimates of problem gambling prevalence, especially in contrast to the detailed information collected on revenues and expenditures collected quarterly. This failure may seem surprising since the proportion of revenue generated from those that are being harmed by gambling could be the most telling indicator of responsible gambling provision. This lack of information on gambling indicators is a symptom of a larger issue: problem gambling is predominantly viewed as a personal affliction and not as a social problem.

C. Wright Mills wrote that one of most important features of the sociological imagination is that it allows us to distinguish between private troubles and public issues. The contribution that sociology makes to the scientific world is to identify when a particular problem transcends the realm of personal experience and demonstrates its connection to the institutions and social structures that surround it (Mills, 1967). Mills also notes that it is not by chance that many public issues get mistaken for private troubles. It is in the interests of governments and other ruling bodies to mask public issues and designate them as private troubles. Considering the large
revenues collected from gambling in Ontario and the fact that a disproportionate amount of those revenues comes from problem gamblers, it could be argued that governing bodies and the gambling industry benefit by framing problem gambling as a private trouble. Such an approach allows the government to encourage personal responsibility on the part of its citizens so that it can avoid changes to the larger structure that would threaten revenue streams.

One of the greatest contributing factors to the trend of defining and approaching problem gambling as a private trouble rather than a public issue has been the dominance of psychological research on the subject. The contributions of psychology have been so influential in the field of problem gambling research that they have provided us with the majority of our knowledge on gambling. These contributions are particularly useful in the identification and treatment of problem gambling and are crucial aspects in addressing gambling-related harm. However, as with any singular focus, psychology provides us with only one lens with which to view a complex and multifaceted problem. Specifically, psychological research tends to approach problem gambling as an expression of individual characteristics or psychopathologies found within the problem gamblers themselves. Focusing on the individual leads to the medicalization of problem gambling and subsequent burdening of the individual with the negative effects associated with making gambling more readily available.

1.5. The Disease Model of Problem Gambling

The term medicalization describes the process by which a problem becomes defined in medical terms and then treated as such (Conrad, 1992). As observed by Campbell and Smith (2003), the dominant view of problem gambling switched from a morality-based model to a medical one in the mid-twentieth century. This was largely due to the increasing authority of
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psychology as the field became more professionalized at the same time that clinicians were developing a medical understanding of substance use and addiction. During this time, many of the explanations for excessive gambling premised on flaws in moral character were replaced by scientific language that reflected early clinical research (Ferentzy & Turner, 2013). As governments began liberalizing gambling regulations in the late 1980s and early 1990s, efforts to further medicalize problem gambling increased substantially. As a result, the medical approach remains dominant in problem gambling research, public policy, and problem gambling treatment and prevention programs (Volberg and Wray, 2007).

Our knowledge of problem gambling is based largely on psychological and psychiatric research. The contributions of these fields have been indispensable to our understanding of how a person develops harmful gambling practices, their connections to other forms of mental illness, and the personal difficulties that can arise when a person is not able to control his or her gambling. However, a significant limitation of the psychological perspective is that it views problem gambling as the result of pre-existing conditions or traits within the individual. Throughout the history of the Diagnostic and Statistical Manual of Mental Disorders (DSM), excessive gambling has been classified as an obsessive compulsive disorder, an impulse control disorder, and more recently an addictive disorder (American Psychological Association 2013). These constructions do not focus on gambling as the cause of the disease itself as a typical medical construction might assume, but on a series of predisposing factors that make it impossible for a person to control their gambling (Castellani, 2000). This shows a consistent trend of classifying excessive gambling as a personal shortcoming on the part of the gambler, an inherent psychological state, changing over time to reflect trends in psychological research. Under this conception of problem gambling, a person develops problems because they
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themselves are disordered. In addition, the classification of problem gambling as a type of mental illness or disorder implies that all problem gamblers are disordered in the same way or that they share a common underlying cause of their problematic gambling (Blaszczynski & Nower, 2002). By understanding problem gambling as being caused by characteristics found within the individual, such research reifies problem gambling as a disease rather than a problem that can be exacerbated by social factors (Ferentzy & Turner, 2013).

The limitation of the medical approach to problem gambling is that its connections to other social problems are understood narrowly in terms of individuals’ characteristics and the risks associated with them. Using a disease model of problem gambling assumes that there are characteristics that make it more likely for a person to “get” problem gambling in the same way a person might get cancer. While the public health model can be effective in reducing harm of behavioural problems, it also reifies them as diseases (Ferris et al, 1999). This broad conception of health “problems” not only expands the number of issues that can be defined as medical in nature, but also allows for the presentation of nearly any feature of the social environment as an important aspect of that medical condition. Additionally, reclassifying social problems as medical is often reflective of political or intellectual viewpoints or agendas while maintaining a guise of scientific objectivity (Ferris et al., 1999).

Research that focuses uncritically on the rates or correlates of specific conditions or behaviours is what CW Mills would disparage as “social pathology”. Mills argues that the research of social pathologists contributes to elite interests by approaching social problems as imbalances in the status quo that could be explained by the shortcomings of the groups that were experiencing those problems (Mills, 1943). When problem gambling is viewed as a disease, especially in locations where gambling is provided by the state, a major distinction between
gambling and most other diseases and addictions (except for alcohol) is missed. Unlike infectious diseases such as influenza, substance use issues such as heroin addiction, or other behavioural addictions like sex addiction, gambling is an activity that is provided and continually expanded with great complexity and organization by provincial governments. The disease model perspective presents the occurrence of problem gambling as a natural feature of the environment in which it is found and distracts us from the fact that the provision of gambling opportunities is purposefully and meticulously planned.

1.6. Responsibilization and the Disease Model

While there are many consequences of medicalizing a social problem, my research focuses on two issues: the responsibilization of the problem gambler, and the subsequent depoliticization of problem gambling. While medical models of problem gambling have explicitly replaced moralistic constructions of the problem gambler, it is important to note that medical constructions still contain strong moralistic overtones. Bernhard (2007) argues that a moralistic evaluation of gamblers persists through the different generations of the DSM, focusing on the ideals of self-control. It is also important to note that the reframing of moral objections as medical diagnoses gives them the veneer of objectivity and makes them harder to challenge and change.

This blurring of the lines between health and morality has important implications for how we interpret the disordered body. According to Foucault’s work on the concept of biopower, modern definitions of what constitutes a normal or healthy body are closely related to how well-regulated a body is. Health, then, is judged on the body’s ability to engage in the tasks that are expected of it, rather than the specific condition of the body (Pylpa, 1998). This evaluation of
health as the ability to perform expected behaviours helps explain how a number of activities that fall outside the realm of the physical body can be considered health problems. For example, the problem gambler is identified as disordered or sick because he or she is unable to regulate their gambling within tolerable limits. Their inability to regulate themselves not only marks them as unhealthy but also as immoral, since being able to take care of oneself is also a central aspect of modern morality (Foucault, 1988).

It is important that this lack of regulation is identified as coming from within the individual rather than from outside influences. This means that to deal with this problem, solutions must be aimed at correcting the individual. This is what Conrad (1992) refers to as the individualizing of social problems as related to medicalization. It is by this process that structural or social dimensions of problematic behaviour are ignored and are considered to be the responsibility of the individuals experiencing them.

In discussing the nature of governmentality and bio-politics, Foucault (1988) argued that the intersection of liberal markets and the state results in a change in the state’s relationships with its citizens and their social problems. On one hand, the state is able to extend its methods of control indirectly through its economic participation and regulation of human action, and on the other, it is able to place responsibility for social problems on the individual citizen through its construction of the citizen as an individual economic-rational actor (Lemke, 2001). This allows the state to both constrain some actions and encourage other actions by its citizens while avoiding responsibility for the results of those actions.

To understand the Ontario government’s approach to problem behaviours, consider the recently announced plans of The Ontario Lottery and Gaming Corporation (OLG) to “modernize” their approach to gambling provision. This modernization takes two basic forms:
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privatisation and greater use of technology. OLG has stated that it plans to shift an increasing proportion of the gambling market onto private operators (modernolg.ca). It states that this change of delivery will help the government avoid burdening taxpayers with expansion and operation costs and will allow OLG to focus on its role as a regulator. This shift in gambling provision to private operators encourages the spread of gambling opportunities and decreases responsibilities of the government as the provider. The changes are packaged as a benefit to the citizen in the form of a reduced economic burden.

Incorporating more technology into Ontario’s gambling industry has the potential to encourage problem gambling. Increasing access to gambling opportunities is one of the most widely cited environmental correlates of problem gambling (Phillips, 2013). OLG (2015) states that an important part of its modernization plan is to increase access to gambling opportunities by making lottery purchasing more readily available and introducing more gambling venues into areas that are currently “underserved” (i.e., few gambling opportunities per capita), the Greater Toronto Area being the most notable. The plan involves introducing new games such as electronic bingo machines, electronic “instants,” and electronic “break-open tickets.” Electronic gaming machines (EGMs) are recognized as the form of gambling that is the most likely to result in problem gambling (Cantinotti & Ladouceur, 2008; Rockloff & Hing, 2013). While Ontario and British Columbia have used strict control on video lottery terminals (VLTs) on the grounds that they are unnecessarily addictive (Wilson & Ross, 2011), there is little to distinguish the new forms of EGMs from VLTs. The increased availability and numbers of EGMs are presented through a market rhetoric of better serving “customers,” a term that becomes a stand in for “citizens.” This strongly reflects the trend of treating the citizen as an economically-rational
actor with OLG fulfilling its responsibility of providing entertainment opportunities for customers rather than preventing harm to citizens.

The avoidance of responsibility on the part of the government is reflected in the language of the province’s responsible gambling program. On OLG’s website, the first sentence under the responsible gambling section reads, “At OLG, we want players to understand how our games work, to know the difference between myth and fact, to recognize their own gambling behaviours and to know where and when to get help if they're concerned about a gambling problem” (OLG.ca, 2015). This statement defines responsible gambling as responsible behaviour on the part of the customer and relieves the state of responsibility for encouraging the problem behaviour. First, the shift in language from “gambling” to “gaming” shows an effort to separate the gambling opportunities that are being provided from the negative moral and ethical connotations associated with gambling. The term “gaming” emphasizes the leisure aspects of gambling and separates it from the risks inherent to the activity and associates it with current, socially acceptable leisure activities such as video gaming. Second, the above statement from the OLG focuses on providing information to consumers to allow them to make “responsible” decisions on their own. Since the population is allowed to participate freely in economic activity and is responsible for monitoring its own mental health, provincial governments are left in a very specific ideological position. That is, provincial governments must approach problem gambling by encouraging treatment and personal responsibility; In this manner, the government is seen to be taking steps to correct the disordered minds of the few while preserving the liberty of the majority.

1.7. Research Objective
1. Introduction

This dissertation is not a refutation of the knowledge gained about problem gambling from the fields of psychology, psychiatry, and neuroscience. The contributions that these fields have made are indispensable when addressing problem gambling, even when it is confronted as a public issue. In their introduction to a collection of sociological research on problem gambling, Bernard and Preston (2007) argue that “adding” sociology to how we understand problem gambling is an important step forward for gambling research. Their research shows the ability of sociology to do many things that more individually focused sciences are unable to do. Crucial insights that the sociological perspective can provide include tracing the socio-cultural origins of the definitions of problem gambling, demonstrating gambling’s connection to other systems of social domination, and examining the social responsibilities of gambling providers and their controlling bodies.

The research presented in this dissertation follows the goal of incorporating sociology in a way that will enhance interdisciplinary research. This dissertation moves from using dominant frameworks plus sociology towards using dominant frameworks with sociology. Instead of using sociology to reinterpret the implications of findings made in psychology, this research includes sociological variables and explanations that work in conjunction with those found in the field of psychology. The three papers within this dissertation all work within a specific theoretical framework that is well-designed for multidisciplinary research. The overarching goal is to contribute to a theoretical framework that connects the wealth of knowledge on individual experiences of problem gambling gained from psychological and psychiatric research with larger social structural features that surround those individual experiences. In short, this dissertation creates a framework that explains problem gambling as both a private trouble and a public issue and demonstrates the connection between the two.
1.8. Theoretical framework: The Pathways Model

To incorporate the sociological imagination in current perspectives on problem gambling, I use the Pathways Model to Problem Gambling (Blaszczynski and Nower, 2002) as a tool to integrate findings from a range of different fields. The Pathways Model addresses the wide range of evidence and theories within problem gambling research. More importantly, the framework views insights from disparate fields such as psychology, neurobiology, and sociology as complementary rather than competing explanations for problem gambling.

The main assertion of the Pathways Model is that different combinations of environmental, emotional, and biological risk factors expose a person to different “pathways” that lead to problem gambling. Typically, gamblers who are exposed to more factors experience more severe problems and have greater difficulties with treatment.

According to the Pathways Model typology set up by Blaszczynski and Nower, there are three basic pathways to the development of problem gambling. Figure 1 illustrates the different paths described by the model. The first pathway, “behaviourally conditioned gamblers”, identifies people who start to gamble and “are characterized by an absence of any specific premorbid feature of psychopathology” (ibid. 492). These problem gamblers are at the lower end of the problem gambling spectrum and predicted to respond to minimal counseling and intervention treatment (ibid. 492).
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Figure 1: The Pathway Model to Problem Gambling

Source: Blaszczynski & Nower (2002)

The second pathway is referred to as “emotionally/biologically vulnerable problem gamblers.” These problem gamblers develop their patterns of gambling in much the same way as the first group, but also show emotional or biological vulnerability to problem gambling. These vulnerabilities include conditions such as anxiety disorders, depression, negative family background, and substance use disorders. These gamblers are more likely to gamble as a means of escape or avoidance of certain emotional states and possess fewer coping skills and poorer self-control. As a result, gamblers in this category are more likely to be resistant to certain kinds of treatment and their emotional vulnerabilities need to be addressed for treatment to have a higher chance for success.
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The third category of problem gambler is referred to as the “antisocial-impulsivist problem gambler” (*ibid.* 494). This group goes through a similar introduction process as the other categories and possess the vulnerabilities shown in the second group, but in addition, shows impulsivist and anti-social disorders. This is the highest risk group of problem gamblers because of their comorbidity with other addictions, criminality, and suicidal ideation and they present the greatest challenge in terms of treatment.

Since its introduction in 2002, the Pathways Model of problem gambling has made a lasting impact on problem gambling research and treatment programs and has been generally accepted by the gambling studies research community. It has been applied to a variety of scenarios, including gambling by senior citizens (Tirachaimongkol et al., 2010), gambling propensity among young adults (Fabiansson, 2008), impacts on family life (Kalischuk, 2010), variation by age (Welte et al., 2011), and the importance of mythic icons in gambling (Nixon & Solowoniuk, 2009). In an empirical test of the model, Turner et al. (2008) examined the extent to which the three pathways were distinguishable in terms of predicting gambling severity. The component analysis of Turner et al confirmed the notion that different risk factors lead to different outcomes in terms of gambling severity. In practice, several institutions involved in problem gambling research and treatment have adopted the Pathways as a conceptual model. The Centre for Addiction and Mental Health (CAMH) in Toronto has used the model in its therapeutic framework for several years (Problem Gambling Institute of Ontario, 2014). The model also exerts a strong influence on the conceptual framework of the Ontario Problem Gambling Research Centre (OPGRC) (Ontario Problem Gambling Research Centre 2014).

I have chosen to use the Pathways Model as the theoretical framework for my research for two critical reasons. First, as noted by Blaszczynski and Nower (2002), this framework
recognizes a range of experience within the category of “problem gambler.” Problem gambling is varied in its causes, development, severity, and consequences. Recognizing problem gambling as a range of experiences allows one to view it as a variety of expressions conditioned by contextual factors rather than as a simple and undifferentiated category.

Second, and more importantly, the Pathways Model views the causes of problem gambling as complementary rather than competitive. The conceptual map of the model identifying different pathways allows for the findings from different fields to be understood in relation to each other while maintaining an underlying, stable structure. Since the purpose of the current research is to show the link between individual traits and the social world, this feature of the model is crucial to this dissertation.

Although some researchers have included a greater understanding of social factors in the model (Fabiansson, 2008, Welte et al., 2010), such factors remain underrepresented in the application of the model. This dissertation expands on the Pathways Model by demonstrating that sociological characteristics are significant and powerful predictors of gambling problems when considered alongside key psychological variables in the model. This research aims to demonstrate that any theoretical model that seeks to understand problem gambling is best served by recognizing the interplay between individual and social structures. By giving greater recognition to social structural factors and considering how these intersect with individual predictors of problem gambling, the Pathways Model is equipped to give us a better tool for understanding problem gambling.

An important feature of the Pathways Model is that it implies a time order in the development of problem gambling. One drawback of this theoretical application is that the time order makes it difficult to “test” the model with cross sectional data. As such, the Pathways
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Model is used to interpret the research and as an aid to understand the implications of the models analyzed.

1.9 Methodology

For each paper, advanced generalized linear modelling applied to the 2008 Canadian Community Health Survey (CCHS), a large representative dataset of Canadian adults, is used to explore the key research objectives. The CCHS is a national level survey conducted through the joint efforts of Statistics Canada and The Canadian Institute of Health Information. The 2008 year collected information from over 130,000 participants excluding those living on First Nations reservations.

The CCHS is one of the few large representative Canadian surveys that offers content on problem gambling. The 2008 cycle of the CCHS was chosen for two important reasons. First, it is the only year that includes the optional gambling content for both Ontario and Quebec (in addition to Saskatchewan), the most populous provinces in Canada. This is important since problem gambling is a relatively rare occurrence in the general population, making it difficult to model using statistical methods using small numbers. Second, the 2008 survey was the only available cycle in which any province (Quebec) had content on both gambling activities and the social support battery of the Medical Outcomes Survey (MOS) (see appendix III), which is central for the study presented in the third chapter; “The Social Side of the Pathways Model: Examining the mediation of social support on the relationship between psychopathology and problem gambling”.

In each chapter, the dependent variable of analysis is the Problem Gambling Severity Index (PGSI), which is a part of the Canadian Problem Gambling Index (CPGI) (see appendix I).
The CPGI is advantageous for large datasets for several reasons: First, the CPGI was designed to be an improvement over psychiatric diagnostic screens in epidemiological and large survey projects. Popular scales such as the South Oaks Gambling Screen and the DSM-IV gambling criteria were developed to assess gambling behavior in a clinical setting and as a result are more likely to produce false positives. The CPGI, on the other hand, includes criteria that involve more aspects of respondents’ gambling experiences to limit the potential for false positives. Second, the CPGI takes a problems-based perspective, rather than an addiction-based, perspective. This makes the CPGI more appropriate for sociological analysis since it was specifically created to understand gambling behaviours in a social context (Ferris & Wynne 2001). Third, the PGSI measures problem gambling in terms of severity, not simply dividing gambling into pathological and non-pathological categories. More so than the SOGS or DSM IV scales, the CPGI differentiates gamblers by the severity of their problems by categorizing them into non-gamblers, non-problem gamblers, low-risk problem gambler, moderate-risk problem gambler, and problem gambler. The CPGI and PGSI were developed for use in the Canadian context which is the population of interest for the dissertation.

For each study in the dissertation the PGSI is used as a continuous measure. This means that each study is not able to distinguish between problem and non-problem gambling. Even with the large n’s studied the rate of those meeting or exceeding the 8 point threshold on the scale was 0.6% making it difficult to use the variable in logistic regressions. This means the research uses the severity of gambling related problems as the dependent variable rather than the category of “problem gambler”.

The CPGI has come under some criticism. First, The PGSI is developed with specific categories to identify the level of harm gambling related harm that a person experiences.
1. Introduction

However, only the highest category, those identified as problem gamblers, has gone through extensive testing for validity (Currie et al., 2013). This becomes a serious methodological issue when researchers begin to collapse those at moderate risk of problem gambling, an unvalidated category, with problem gamblers in order to increase statistical power. Second, there is also the possibility of the PGSI producing a large number of false negatives due to faulty memory related to the gambling habits or expenditures of heavy gamblers (Currie et al. 2013). Third, Currie et al. (2013) also state that the using the PGSI as a continuous ratio variable presents problems when assuming that the differences between increments on the scale are equidistant. Differences in the experience of harm at the lower end of the scale is likely to be greater when compared to the higher end of the scale. Despite these concerns the PGSI is appropriate for the current study due to its strong performance in large survey data, its problem-focused perspective, and the fact that it is the only gambling screen employed by the CCHS.

Each paper in this dissertation use Generalized Linear Modelling as its core statistical method. Due to the rare occurrence of problem gambling in the general population, the distribution of problem gambling scores follows non-normal distributions. This means that using an ordinary least squares regression could present problems in modeling since the method assumes a normal distribution of errors of the dependent variable. The use of Generalized Linear Models allows for a variety of different distributions for the dependent variable which results in more accurate results. Further discussion is found in the conclusion where greater detail of this methodological approach is given in addition to its implications for future problem gambling research.

Data analysis for this dissertation used the R Project for Statistical Computing software package. R has several advantages over other statistical programs. The program is light,
1. Introduction

powerful, and capable of performing complex analyses using large datasets such as the CCHS. As an open sourced program, it is also flexible and accessible, making it capable of a wide range of analyses with programming packages that are readily accessible and easily added to the existing program.

1.10. The Papers

1.10.1 The Pathway from Poor: Considering the relationship between psychopathology and gambling problems among different income levels

The first paper inserts sociology into the Pathways Model by assessing the impact of socioeconomic status on problem gambling. As the paper discusses, there are general trends in gambling research that show gambling has greater negative effects for those in lower income groups. Those with lower income generally spend a greater proportion of their earnings on gambling activities (Orford et al., 2003), and are more likely to experience significant problems as a result of their gambling (Dyall, 2007). It has also been argued that legal gambling is designed to gather a disproportionate amount of revenue from those in lower income groups and as such, is a form of social domination (Volberg & Wray, 2007).

More specifically, this paper considers how a person’s SES affects the relationship between both anxiety disorders and mood disorders, and experiencing gambling-related problems. This approach expands the pathways framework by recognizing that not everyone who gambles experiences the same negative effects associated with these two common forms of mental illness. Instead, the possession of certain resources such as income, education, and a stable work environment are all factors that may limit (mitigate) the negative effects of mental illness (problem gambling) (Middleton & Shaw, 1999). This research shows that those in the
1. Introduction

lowest income strata in the study (<$20,000 CAD) have significantly stronger relationships between anxiety disorders and the number of gambling problems experienced compared to the other groups. Further comparison of the income groups shows that for the poorest Canadians, the rates of gambling problems were much higher among those who had been diagnosed with an anxiety disorder, while among the highest income group, the effect of having anxiety disorder was almost negligible.

These findings show that the relationship between anxiety disorders and problem gambling is contingent upon important structural factors are camouflaged when we fail to incorporate a sociological lens. More importantly, this relationship follows a broader trend towards social hierarchy that further demonstrates the crucial connection between structural disadvantage and the distribution of negative mental health outcomes.

In reference to the Pathways Model, this paper contends that the connection between the supposedly underlying psychological predispositions to harm, (for example, anxiety disorders), should be considered in reference to the gambler’s socioeconomic resources. These resources in turn reflect structural inequalities and emphasize provincial governments’ responsibilities to address these inequalities in how gambling is provided.

1.10.2. The Social Side of the Pathways Model: Examining the importance of social support in a multidisciplinary framework of problem gambling

The second paper focuses on the importance of social support. Through a review of the literature on the subjects of gambling and mental health, this paper establishes a connection between social support, mental health problems, and gambling problems. To put it succinctly, higher levels of social support correlate to both lower rates of problem gambling and lower rates
of mental health problems (Buckner et al. 2008; Gomes and Pascual-Leone, 2009; Petry and Weiss, 2009).

The underlying argument is that social support allows a person to deal with difficulties experienced as a result of mental health problems, such as mood and anxiety disorders, and allows the person to avoid negative mental health outcomes, such as problem gambling. Having supportive relationships can both help a person avoid negative behaviours by providing more opportunities for non-problem behaviour, and to resolving problems more quickly when they arise.

Like economic resources, levels of social support vary greatly and follow patterns of social disadvantage. Lin (2000) explains that a person’s social capital is linked to their socioeconomic position. A person’s social support network is typically composed of people of similar advantage or disadvantage, and as a result differential access to social capital tends to reproduce social inequalities, particularly those found along lines of gender and ethnicity. People in the highest socioeconomic levels also have been shown to have significantly higher levels of social support, which has important implications for inequalities in mental health (Jones et al., 2011).

An important finding of this paper is that social support mediates the relationship between being diagnosed with a mood disorder and experiencing gambling problems. That is to say, once social support was controlled for the relationship between the presence of mood disorder and gambling problem severity becomes insignificant. While the cross-sectional nature of the study makes it difficult to interpret a causal ordering to this relationship, it suggests that social support is crucially important to the relationship between mood disorders and gambling problems. The implication of this finding on the Pathways Model is that the emotional vulnerabilities that
expose a person to greater risk of problem gambling are highly dependent on social context, which in turn reflects structural patterns of disadvantage. The “emotionally vulnerable” pathway, should consider the the effect social support has on the relationship between mood disorders and gambling problems.

1.10.3. An exploration of gender differences in the relationship between work-family conflict and gambling problems

The final paper moves from examining the importance of psychological correlates of problem gambling and focuses on gender. While gender difference in gambling behaviours has been widely studied in problem gambling research, there is little known about women’s problem gambling in relation to the structural disadvantages that they face. This paper examines problem gambling severity in connection to a common explanation of differences between men’s and women’s mental health in the modern era: work-family conflict.

Scholars of work-family conflict argue that gendered expectations concerning women’s roles in family life are incongruous with expectations of women’s participation in the labour market. The stress that arises from these mismatched expectations can result in poorer mental health and higher rates of problem behaviours (Aneshensel et al., 1981). While both employment and marriage are associated with lower rates of problem gambling, work-conflict theory suggests that there would be gender differences when considered together.

The main finding of this paper identifies an interaction between work and family life that exists for women but not for men. While marriage is associated with lower problem gambling scores for both men and women, having worked in the past week is associated with higher problem gambling scores for married women, and lower scores among unmarried women. This
finding supports the work-conflict theory since the intersection of roles is associated with more gambling-related problems. This paper offers insight into the Pathways Model not being gender neutral. Though the model does not make the claim that men and women experience the pathways the same way, this research demonstrates how important the structural experience of gender is to problem gambling distribution.

When gender differences are discussed in psychological research, they tend to be discussed without consideration of the social or conceptual constructions of the category (Stewart & McDermott, 2004). This trend of failing to consider the socially constructed aspects of gender holds in the research on problem gambling (Li, 2007) When discussing the differences between how men and women experience gambling, it is necessary to contextualize those differences within the structural disadvantages experienced by women. This becomes increasingly important as women’s participation in gambling increases and more gender-specific treatment and prevention strategies become necessary.

1.11 What Follows

The research is presented in the three subsequent chapters. Following discussion of the research, I address the implications of the findings of the dissertation. This includes its impact on theoretical models of problem gambling (the Pathways Model more specifically), the implications for harm reduction in problem gambling, governmental responsibility, and problem gambling treatment. Throughout this dissertation, the reader is asked to focus on the connection between the problem gambler and the social environment. The individualization of social problems, suggested by medical constructions of addiction and legitimated by individualizing research, leads to a focus on personal traits and characteristics to explain how problem gambling
develops. Shedding this lens is an important step towards approaching problem gambling as a public issue rather than a private trouble. As recipients of the programs funded by gambling revenues, Canadians are connected to and benefit from the misfortune of those who experience real and severe problems as a result of gambling. Recognizing this connection changes the meaning of “responsible gambling” from encouraging individuals to take responsibility for their own well-being to a collective responsibility to protect those who are most vulnerable to harm as a result of the structural disadvantages they face.

1.12 Works Cited


1. Introduction


Ontario Lottery and Gaming Corporation (2014) “How will casino gaming be affected”

Ontario Lottery and Gaming Corporation (2014) “Responsible Gambling”


Problem gambling Institute of Ontario (2014) “Pathways Model”


1. Introduction


2. The Pathway from Poor: Considering the relationship between mental health and gambling problems among different income levels

2.1 Abstract

This chapter examines gambling-related problems among a representative sample of Canadian adults using the 2008 Canadian Community Health Survey. It considers the operation of known psychological predictors of problem gambling across different levels of socioeconomic status. This study uses generalized linear modeling to find that the relationship between problem gambling severity scores and anxiety disorders is moderated by socioeconomic status. Using Blaszczynski and Nower’s (2002) Pathways Model as a theoretical framework, this paper demonstrates the importance of socioeconomic status in understanding the relationship between problem gambling and its psychological predictors. A discussion of the need for greater inclusion of sociological variables in the Pathways Model of problem gambling is presented in light of the research findings.

Keywords: Problem gambling, Sociology, Pathways, Anxiety, Socioeconomic Status

2.2 Introduction

Since the opening of the first Ontario casino in Windsor in 1994, there has been a rapid spread of gambling opportunities and dramatic increases in gambling revenues. Since that time,
gambling in Canada has grown to include 35,021 gambling venues by 2013, collecting a total of $13,775,535,000 in annual revenues for the 2012-2013 fiscal year (Canadian Partnership for Responsible Gambling, 2013). More recently, the Ontario Lottery and Gaming Corporation (OLG) has announced plans to “modernize” gambling provision in the province. This modernization centers on two major trends: increased availability of electronic gambling and privatization of gambling provision. These trends are concerning since electronic gambling machines (EGMs) and increased gambling opportunities (a likely consequence of privatizing the gambling market) are both associated with higher rates of problem gambling (Thomas et al., 2011; Wardle et al., 2014; Young et al., 2012). The potential for social harm that problem gambling presents, particularly in light of OLGs’s modernization plan, demands a greater understanding of the consequences of increased gambling provision.

Volberg and Wray (2007) argue that one reason the socioeconomic aspects of problem gambling have not been more impactful in gambling research is that there has not been enough research that adopts a structural perspective. While there is considerable research on the individual attributes that put a person at greater risk of problem gambling, there is less emphasis on features of that person’s social environment that put him or her at greater risk of problem gambling. There is even less research that attempts to demonstrate the connection between individual predictors of problem gambling and larger trends of social disadvantage as they relate to gambling behaviours. The current study is focused on this connection. Using the framework of Blaszczynski and Nower’s Pathways Model, this paper examines the extent to which important psychological predictors of problem gambling are moderated by socioeconomic status (SES).
2. The Pathway from Poor

2.3 Socioeconomic status and problem gambling

The relationship between gambling behaviour and income is crucial since financial strain is a central consequence of problem gambling. The gambling studies literature shows that this relationship is varied and complex. One consistent finding is that higher income groups tend to gamble more. In his review of gambling in Great Britain, Orford et al. found that in absolute terms, higher income groups spend much more on gambling than do low income groups. He also found that gambling participation rates and the number of gambling activities participated in were less in the lowest income bracket (Orford et al., 2003). Similarly, Grun and McKeigue (2000) found that, in absolute terms, higher income groups spend more on gambling than do lower income groups. In their study on the introduction of the National Lottery in Britain, 3% of those with weekly incomes over £400 spent £20 or more on gambling a week, whereas only 1% did so among those making less than £200 a week. Similar findings have been reproduced in Canada; Macdonald et al. (2004) in their analysis of the family expenditures (FAMEX) survey found that gambling expenditures were positively related to household income. Of the over 10,000 Canadian households surveyed, 66% of those earning under $20,000 had participated in past year gambling as compared to 87% of households earning over $80,000.

While higher income groups have higher rates of gambling participation, the adverse consequences of gambling are greater for those in low income groups. First, and perhaps most importantly, rates of problem gambling are higher among low income groups in comparison to high income groups. In a review of 17 gambling prevalence studies by the National Research Council, it was found a general trend for low income groups to show higher rates of problem gambling compared to higher income groups (1999). The previously cited study by Orford et al.
(2003) found that, when considered as a proportion of their income, lower income groups gambled several times more money than high income groups on average.

Understanding the relationship between financial troubles and problem gambling has also been studied. Freund and Morris (2006), found gambling to be a factor that maintains and exacerbates income inequalities. Examining the introduction of various forms of gambling in American states. Freund and Morris found that “state lotteries foster the growth of income inequality; in per-dollar revenue terms, the lottery is a far more efficient mechanism for generating income inequality than other prominent tax policies (such as sales taxes)” (266). In a similar vein, Dyall (2006) examined gambling from a social disorganization perspective in New Zealand and found that the placement of gambling machines in communities with a large proportion of Maori residents to be associated with increased social disorganization. It was also found that more gambling opportunities were available in communities that had higher proportions of Maori, and that federal policy prevented community organizations from having those opportunities removed.

Several researchers have noted the relationship between gambling and socio economic status in connection with other forces that maintain structural inequalities. Volberg and Wray (2007) suggest that the increased availability of gambling is a mechanism of social domination. The trends of disproportionate negative effects among low income groups and continued expansion of gambling driven by changes at the policy level means that public funds are drawn more from those having the fewest resources to pay for them, thus decreasing the need to tax industry and those in higher income groups (Volberg & Wray, 2007). Concerning this view Schissel (2001) and Borrell (2008) maintain that gambling not only adds to the marginalization of disadvantaged groups, but participation in gambling is also a response to the experience of
being marginalized. For these groups, gambling represents one of the few actions they can take to address the lack of opportunities and freedoms that they experience. In such cases, gambling research that understands problem gambling as the result of personal traits and/or dysfunctions, rather than a more structural perspective, distracts us from the exploitative aspects of gambling.

The various relationships discovered between SES and problem gambling discussed above, while varied in their implications, clearly show that dissimilar income groups experience gambling differently. These findings suggest that one’s financial resources affect the trajectory of his or her gambling career, and that the development of problem gambling is influenced by the gambler’s position in the socioeconomic hierarchy. From this perspective, the effects of individual predictors of problem gambling that dominate gambling research are not universal, but instead, vary with the economic position of the problem gambler.

2.4 Psychopathology and the Pathways Model

A wealth of existing research focuses on the relationship between problem gambling and psychological conditions. In particular, the presence of mood and anxiety disorders predict the presence of problem gambling and types of problems gamblers experience (Blaszczynski and Nower, 2002). Conditions such as depression and obsessive compulsive disorder have long been associated with the presence of problem gambling (Black & Moyer, 1998; Castellani & Rugle, 1995; Cox, 1999; Giddens et al., 2011; McCormick, 1994; Vitaro et al., 1999). Not surprisingly, these families of conditions play a prominent role in the Pathways Model. Of particular concern to the current study is the pathway to problem gambling for “emotionally/biologically vulnerable problem gamblers” as described by Blaszczynski and Nower (2002:294). This group of problem gamblers develop their patterns of gambling through operant conditioning and social
learning processes, but also possess an emotional or biological vulnerability to harm. These vulnerabilities include conditions such as anxiety disorders, depression, negative family background, and substance use disorders. This group of problem gamblers is more likely to gamble to escape or avoid certain emotional states, possesses fewer coping skills, and has poorer than average self-control. As a result, their emotional vulnerability should be addressed prior to common problem gambling treatments for a higher chance of success. Such findings highlight the importance of mood and anxiety disorders not only for identifying problem gambling, but also in developing effective treatment and prevention programs.

As with any addiction, or any other treatable or preventable condition, how approach problem gambling is heavily influenced by what we consider to be the “cause” of problem gambling (Turner et al., 2008). Theories that consider problem gambling to be a result of cognitive distortions focus on cognitive-based therapy, while theories that focus on abnormal levels of dopamine and serotonin present in problem gamblers prefer treatments that address those neurological imbalances. To address this wide range of approaches across fields, Blasczynski and Nower (2002) developed the Pathways Model to problem gambling. This model considers the different explanations for the existence of problem gambling as complementary, rather than competing, theories. The authors describe their model as dealing with a range of variables from various fields of research that intersect to produce different development paths and outcomes for problem gamblers. This view of problem gambling is useful because it categorizes problem gamblers into distinct subgroups with different issues and needs rather than a homogenous group belonging to a single diagnostic category.

The Pathways Model has several advantages over other, narrower, frameworks. First, the Pathways Model incorporates various explanations of problem gambling together into one
2. The Pathway from Poor

A coherent model. This means that it considers a broader range of findings from different disciplines and relates them to one another. Such an approach makes working across disciplines easier and also provides a framework for researchers in different fields to understand each other’s’ work. Second, a more inclusive model, like the Pathways Model, helps researchers understand the varied experiences of problem gamblers, and allowing them to identify different types of problem gamblers. The model goes beyond treating problem gambling as an either/or status, which has important implications for the treatment and prevention of problem gambling (Blascyznski & Nower, 2002).

The Pathways Model has been applied to a variety of topics, including seniors’ gambling (Tirachaimongkol et al., 2010), gambling propensity among young adults (Fabiansson, 2008), impacts of gambling on family life (Kalischuk, 2010), variation by age (Welte et al., 2011), and the importance of mythic icons in gambling (Nixon & Solowoniuk, 2009). In an empirical test of the model, Turner et al. (2008) examined the extent to which the three pathways were distinguishable from each other in terms of predicting gambling severity. Their component analysis confirmed the notion that different risk factors lead to different outcomes in terms of gambling severity. While the Pathways Model has proven useful in gambling studies, relatively few studies have used it to compare differences in problem gambling across socioeconomic variables.

Despite the Pathways Model’s usefulness in multiple fields of research, the application of sociological variables and concepts to this framework has been limited. Though some research has included a greater emphasis on social factors in the model (Fabiansson, 2008; Welte et al., 2011), the application of social factors remains limited. This study expands on the Pathways Model by demonstrating that socioeconomic variables such as education and income level are
significant and powerful predictors of problem gambling when considered alongside key psychological variables. The literature suggests that low economic status is associated with higher rates of gambling problems. Within the Pathways Model, low economic status may be considered a form of “vulnerability” to problem gambling that operates similarly to more widely studied psychological correlates. In addition, rates of mood and anxiety disorders have been shown to vary by various socioeconomic factors. In their study of Belgian patients in contact with their primary care providers Ansseau et al. (2008) found that generalized anxiety disorder and major depression were both positively associated with low socioeconomic status indicators such as low education and unemployment. In their meta-analysis of rates of depression in different socioeconomic status groups, Lorant et al. (2003) found that while the connection of depression to socioeconomic status was heterogeneous, there were strong trends of depression disproportionately affecting those with lower education and income. Considering the connection between poverty and poorer mental health, it is likely to see that anxiety and mood disorders carry more negative effects for those in low income groups.

Through examining the connection between gambling problem severity and psychopathologies such as anxiety and mood disorders across SES, this study expands the Pathways Model by contributing to our understanding of the importance of the relationship between SES, problem gambling, and its psychological correlates. Additionally, by exploring the interactions between these two sets of variables, this study demonstrates that theoretical models that seeking to understand problem gambling are best served by recognizing the interplay of psychological and social structural effects. The Pathways Model could further enhance problem gambling research by giving greater to the demographic characteristics of gamblers, as
well as considering how these characteristics interact with other established predictors of problem gambling.

2.5 Methods

2.5.1 Description of the CCHS Survey

The Canadian Community Health Survey (CCHS) is a national level, cross-sectional survey focused on status of Canadians’ health. The survey is a joint effort between the Canadian Institute of Health Information (CIHI), Statistics Canada, and Health Canada. The CCHS is drawn from residents of Canada’s ten provinces and three territories over the age of twelve. Excluded from the sample are those who live on reserves or other Aboriginal settlements, full-time members of the Canadian forces, and institutionalized populations in two small communities in northern Quebec. Statistics Canada estimates that under 3% of the Canadian population was excluded from the survey.

Sampling for the survey included all 136 Health Regions in Canada with a final n of over 130,000. Health Regions are divided into large urban centers, cities, and rural areas to prevent over representation from major urban centers in the data. Three sampling frames were used. First, an area frame was used for the majority of households (83%), then remaining participants were drawn through Random Digit Dialing (RDD) and a list frame of telephone numbers (17%).

For those households chosen by the area frame, respondents were interviewed face-to-face using the Computer Assisted Personal Interviewing method. This method allows the interviewer to determine the order of questions based on responses received as well as provide the interviewer with relevant information for inputting each response.
2. The Pathway from Poor

(non-response, maximum values etc.). For those households chosen by the telephone based sampling frames, the Computer Assisted Telephone Interview method was used.

2.5.2 The Study Sample

The subsample for this study was respondents living in Ontario, Quebec, and Saskatchewan as these were the only provinces asked about gambling activities for the 2008 cycle of the CCHS. Within those provinces, only those over the age of 18 who had participated in at least one gambling activity in the twelve months prior to the survey are included in the study (N= 33,012). After list wise deletion of all respondents who did not give a responded to all questions included in the models, the final sample is 28,271.

2.5.3 Measures

The CCHS employs the Problem Gambling Severity Index (PGSI), part of the Canadian Problem Gambling Index (CPGI), to measure problem gambling. The CPGI is advantageous for use in large datasets for several reasons. First, the CPGI was developed specifically as an improvement over the psychiatric diagnostic screens that have been used epidemiological projects and large surveys. To limit the potential for false positives, the CPGI criteria are stricter than most clinical screens, such as the South Oaks Gambling Screen. Second, the PGSI as a continuous measure takes a problems-based perspective rather than an addiction based perspective. This makes the PGSI more appropriate for sociological analysis since it was specifically created to measure problem gambling behaviours in a social context (Ferris &
Wynne, 2001). Third, the PGSI was created to measure problem gambling by measuring its severity, rather than simply differentiating abnormal from normal gambling.

Psychological correlates for this study are represented by the presence of either a mood or an anxiety disorder. The presence of an anxiety disorder is coded dichotomously from the following question: “Remember, we are interested in conditions diagnosed by a health professional…Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?” Similarly, the presence of mood disorder is indicated by a yes or no answer to the following question: “Remember, we are interested in conditions diagnosed by a health professional. Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?” While it would be preferable to have respondents complete a questionnaire designed to detect such conditions in a survey population, no such questionnaires were used in all three of the provinces included in the problem gambling subsample. As a result this study relies on self-reporting a professional diagnosis. To control for comorbidity of anxiety and mood disorders, a dichotomous variable was added with those answering positively to both of the previous questions coded as 1, and those who answered negatively to one or both of the above questions coded as 0.

For gender, the interviewer filled out whether the respondent was male or female. If the respondent’s gender was not clear to the interviewer, the interviewer asked the respondent if they were male or female (no other option). Participants for the current study were aged 18 and over. As age has been shown to have a curvilinear relationship with problem gambling (Welte et al., 2011) a quadratic term was added to the models to control for this effect. Socioeconomic status (SES) was measured as a composite of household income and educational attainment. Household income was divided into five categories: households with an income below 20,000
dollars; $20-39,999; $40-59,999; $60-79,999, and $80,000 dollars and over. Education is measured by the highest level of educational attainment. The categories are as being less than secondary school education, secondary school diploma or equivalent, some post-secondary education, and post-secondary degree or diploma. The scores for the income and education variables are multiplied to obtain the composite SES variable. While occupation is often included in measures of SES, the amount of missing data in measures of employment and occupation-related variables made them unacceptable for inclusion. Descriptive statistics for the above variables are described in table 2.1.

**Table 2.1: Descriptive Statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Man</td>
<td>13031</td>
<td>46.1%</td>
</tr>
<tr>
<td></td>
<td>Woman</td>
<td>15240</td>
<td>53.9%</td>
</tr>
<tr>
<td>Age</td>
<td>18-29</td>
<td>4636</td>
<td>16.4%</td>
</tr>
<tr>
<td></td>
<td>30-39</td>
<td>5112</td>
<td>18.1%</td>
</tr>
<tr>
<td></td>
<td>40-49</td>
<td>5013</td>
<td>17.7%</td>
</tr>
<tr>
<td></td>
<td>50-64</td>
<td>8022</td>
<td>28.4%</td>
</tr>
<tr>
<td></td>
<td>65 and up</td>
<td>5488</td>
<td>19.4%</td>
</tr>
<tr>
<td>Anxiety Disorder</td>
<td>No</td>
<td>26506</td>
<td>93.8%</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1765</td>
<td>6.2%</td>
</tr>
<tr>
<td>Mood Disorder</td>
<td>No</td>
<td>26034</td>
<td>92.1%</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>2237</td>
<td>7.9%</td>
</tr>
<tr>
<td>Comorbid Disorders</td>
<td>No</td>
<td>27430</td>
<td>97.0%</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>841</td>
<td>3.0%</td>
</tr>
<tr>
<td>Household Income (CAD)</td>
<td>&lt;20,000</td>
<td>3120</td>
<td>11.0%</td>
</tr>
<tr>
<td></td>
<td>20-40,000</td>
<td>5721</td>
<td>20.2%</td>
</tr>
<tr>
<td></td>
<td>40-60,000</td>
<td>5355</td>
<td>18.9%</td>
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<td></td>
<td>60-80,000</td>
<td>4573</td>
<td>16.2%</td>
</tr>
<tr>
<td></td>
<td>&gt;80,000</td>
<td>9502</td>
<td>33.6%</td>
</tr>
<tr>
<td>Education</td>
<td>&lt; Secondary</td>
<td>4673</td>
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</tr>
<tr>
<td></td>
<td>Secondary</td>
<td>4717</td>
<td>16.7%</td>
</tr>
<tr>
<td></td>
<td>Some post secondary</td>
<td>2156</td>
<td>7.6%</td>
</tr>
<tr>
<td></td>
<td>Grad. post secondary</td>
<td>16725</td>
<td>59.2%</td>
</tr>
</tbody>
</table>

2.5.4 Analysis
An important factor in problem gambling research, or with any addictive substance use or behaviour, is that problematic participation is a relatively rare occurrence when compared to the total number of participants. This rarity makes it particularly difficult when trying to model the relationship between gambling problems and uncommon variables, such as anxiety disorders and mood disorders. To address this problem, this study used generalized linear modeling employing a gamma distribution with a log link function. It is uncommon to use generalized linear models in gambling research, but it has been shown to be useful in research on alcohol consumption (Lopes et al., 2008) health economics research (Basu, 2005) and risk assessment (Blough et al., 1999). Analyses for this study were completed using the R project for statistical computing.

2.6 Results

As shown in table 2.2, Model 1 confirms previous research by linking mood disorders and anxiety disorders to problem gambling. As expected based on the problem gambling literature, both mood and anxiety disorders show significant positive relationships with PGSI scores. Those with either of these conditions scored significantly higher on the PGSI as a group compared to those not having either condition. The comorbidity variable did not show a significant effect.

<table>
<thead>
<tr>
<th>Table 1.2: Generalized Linear Modeling of Problem Gambling Scores (PGSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Mood Disorder</td>
</tr>
<tr>
<td>Anxiety Disorder</td>
</tr>
<tr>
<td>Comorbidity</td>
</tr>
<tr>
<td>Woman</td>
</tr>
</tbody>
</table>
### 2. The Pathway from Poor

<table>
<thead>
<tr>
<th></th>
<th>Coefficient 1</th>
<th>Coefficient 2</th>
<th>Coefficient 3</th>
<th>Coefficient 4</th>
<th>Coefficient 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.023**</td>
<td>0.009</td>
<td>0.038***</td>
<td>0.009</td>
<td>0.037***</td>
</tr>
<tr>
<td>Age²</td>
<td>0.001**</td>
<td>0.000</td>
<td>-0.008***</td>
<td>0.000</td>
<td>-0.002***</td>
</tr>
<tr>
<td>SES</td>
<td>-0.008***</td>
<td>0.001</td>
<td>-0.007***</td>
<td>0.001</td>
<td>-0.002***</td>
</tr>
<tr>
<td>Anxiety Disorder*SES</td>
<td>-0.012***</td>
<td>0.004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.162***</td>
<td>0.006</td>
<td>0.115**</td>
<td>0.039</td>
<td>0.169***</td>
</tr>
<tr>
<td>AIC</td>
<td>41617</td>
<td>41334</td>
<td>41006</td>
<td>41006</td>
<td>40960</td>
</tr>
</tbody>
</table>

* *p<0.05, **p<0.01, ***p<0.001

The second model introduces the demographic variables of gender and age and shows that gender has a significant relationship with PGSI scores with women scoring lower on average compared to men. Both the age and age² variables also show significant effects in the model. The positive value of the first term and negative value of the second term indicate a curvilinear relationship where PGSI scores start low at younger ages, increase in the middle of the age range, and decrease with higher age. The inclusion of these demographic variables shows little impact on any of the psychological condition variables in the model.

Model three includes the SES composite variable. The negative value in the model indicates an overall negative relationship between SES and PGSI scores. Those who scored higher on the SES composite measure tend to have lower PGSI scores on average compared to those with lower SES scores. The inclusion of the SES composite measure shows a slight decrease in the mood and anxiety disorder coefficients. Both age variables remain significant with their respective effects increased while the effect of gender remains fairly consistent.

Model four includes an interaction term between having been diagnosed with an anxiety disorder and the SES composite variable. The interaction variable shows a significant negative effect. As demonstrated by figure 2, PSGI scores of those with anxiety disorders are substantially higher compared to those who do not report such disorder at the lowest levels of SES. This is shown by the increased slope of the dashed line. Comparatively, differences between those with
and without diagnosed anxiety disorders are much smaller at the highest levels of SES. With the inclusion of the interaction, both the anxiety and mood disorder coefficients remain significant and comorbidity remains nonsignificant. These findings show that SES moderates the relationship between anxiety disorders and problem gambling severity. The implications of this relationship are addressed in the discussion section. Interactions between SES and mood disorders and comorbid disorders were examined in alternative models but did not show significant effects and are not reported in the current study. The inclusion of the interaction term had little effect on the gender and age variables.

**Figure 2: PGSI vs. SES**

![Graph showing PGSI vs. SES](image)

**2.7 Discussion**

The above models confirm many of the dimensions of problem gambling that have been established in gambling research. In concurrence with problem gambling research dealing with
2. The Pathway from Poor psychological correlates, this study shows mood and anxiety disorders to be strongly associated with gambling problem severity scores. The models, indicate a powerful and consistent effect, showing those reporting these disorders are more likely to be at risk of problem gambling. Interestingly, comorbidity of anxiety and mood disorders did not show a significant relationship with PGSI scores. This shows that, in the current sample, comorbidity of depression and anxiety disorders do not result in an increased experience of gambling related harm in addition to the separate effects of both those conditions.

Through all models examined in the current study, both the unadjusted and quadratic age terms showed consistent significant effects. This reaffirms the position that when age is studied in relation to problem gambling, researchers should note the curvilinear relationship between the two variables (Welte et al., 2011). Lower PGSI scores were associated with the youngest and oldest cohorts and higher scores in the middle age ranges. Refining our measurement of age is important as it, along with gender, are the most commonly controlled for variables in gambling research.

Consistent with gambling studies literature, a person’s socio-economic status also showed significant variation in terms of the degree of reported gambling problems. In this sample, with greater socio-economic resources experience fewer problems as a result of their gambling participation. The interaction effect found in model 4 is of particular interest as it shows SES to have a moderating effect on the relationship between anxiety disorders and problem gambling severity. As shown in figure 2, the greatest disparity in PGSI scores between those with and without anxiety disorders is at the lowest end of the of SES scale. As SES increases, this disparity becomes less and less to the point where for the highest SES group, there is little difference in PGSI scores between those with and without an anxiety disorder.
These findings have important implications for etiological frameworks such as the Pathways Model. First, socioeconomic status is associated with PGSI scores where the higher one’s SES, the lower one’s PGSI scores. Furthermore, these relationships are comparable in strength to those of the psychopathology variables as demonstrated by the magnitude coefficients in the models. This shows that contextual factors beyond the availability and accessibility of gambling opportunities are important in understanding the severity of gambling problems that a person experiences. More specifically, the above findings suggest that those with less education and lower household incomes experience more problems as a result of their gambling as indicated by PGSI scores. If financial strain is a crucial in the development of problem gambling, particularly in the PGSI, having fewer economic may lead to more severe problems and those problems would progress faster. This means that low socioeconomic status could predispose gamblers to harm to similar degree that an anxiety disorder or depression might. While more research would be necessary to confirm whether there is variation in the types of problems that one experiences as a result of one’s socioeconomic status, it would seem reasonable to suggest that having low economic resources can shape a person’s “pathway” to problem gambling.

The interaction of the SES composite variable with the presence of an anxiety disorder also suggests a possible expansion of the Pathways Model. A strength of the Pathways Model is that it shows how different traits, experiences and opportunities lead to different outcomes, which broadens our conception of how problem gambling develops. This feature makes the model a strong tool for multidisciplinary research as it creates a framework through which findings of disparate fields can be understood in relation to one another. The central finding of this study, that the relationship between anxiety disorders and severity of gambling problems is
significantly different for those with the low SES as compared to those with higher SES. This finding suggests that the pathway from anxiety to problem gambling is indirect. Instead, the economic resources a person possesses can moderate the link between anxiety and the severity of gambling related problems. This means the second and third pathways in Blaszczynski and Nower’s (2002) model (emotionally/biologically vulnerable problem gamblers and antisocial-impulsivist problem gamblers), psychological/psychiatric or biological predispositions to experiencing gambling related problems are better understood in relation to a person’s SES. This finding refines our understanding of the relationship between anxiety disorders and problem gambling and allows for two previously unrelated findings to be understood in connection to one another in terms of their implications for problem gambling.

It is also important to note that the relationship between the presence of a mood disorder and a respondent’s PGSI score was not significantly affected by a person’s socioeconomic status. This lack of variation in the effect of a mood disorder across education or income also helps to strengthen the Pathways Model. The finding that certain conditions are largely insulated from larger social structures in terms of their relationship to problem gambling has significant implications for the Pathways Model. Specifically, it contributes to the expressed purpose of understanding the variation within the category of “problem gambler” by showing that there is variation among biopsychosocial factors in the way that they interact with their social environment.

2.8 Limitations
There are several limitations of the current study that must be addressed. First, due to the construction of the CCHS and the variables included in it, it was not possible to fully examine the Pathways Model as constructed by Blaszczynski and Nower (2002). Specifically, there is no information on respondents’ possible biological or neurological conditions that have been linked to problem gambling. Additionally, the survey data contained no information on possible impulsivist or anti-social variables. Since these are two crucial aspects of both the second and third pathways of the model, this study is not a true test of sociological variables in that model. Rather, this study is an expansion of the basic structure and one of pathways in the model. First, a greater inclusion of structural variables can fit within the Pathways Model, and second, important aspects of the pathways can be better understood in relation to socioeconomic status.

The fact that the CCHS for the 2008 cycle did not collect information for Canada’s First Nations reserves is also an important limitation of this study. Aboriginal groups in Canada have been shown to be disproportionately affected by many of the key variables of interest in this study. Problems associated with addiction, poor mental health, and low socioeconomic status have been observed to be higher among aboriginal Canadians than among the general population. (Breen & Gainsbury, 2013). As such, the relationships explored in this study are of particular concern to Canadian aboriginal groups.

Another limitation of the current study is that it is not possible to show definitively where socioeconomic variables should be placed in the Pathways Model. The Pathways Model implies a certain time-ordered series of events where conditions or propensities for experiencing problem gambling exist before participation in the actual activity. This is complicated when trying to determine the place of money-related variables in the model, since financial difficulties are a common consequence of problem gambling. Additionally, understanding the relationship
between income level of poverty and mental health disorders is difficult since they have been shown to have a varied and complex relationship (Funk et al., 2012; Holzer et al., 1986; Kuruvilla & Jacob, 2007). While this limits the implications of the current findings, it also raises fruitful questions to be pursued by future research.

The validity of the presence of anxiety and mood disorders is open to question because they are based on a self-reported diagnosis by a mental health professional. This means that the current study is likely missing important information on subclinical and undiagnosed mental-health problems. However, while how these variables are measured lacks sensitivity, they may be strong in terms of specificity. That is, while the findings may be missing information due to a large number of false negatives in terms of psychological conditions, they are unlikely to be biased by false positives due to how the questions concerning these conditions were asked.

2.9 Conclusion

The purpose of this study was to determine the influence of SES socioeconomic status in understanding problem gambling. This study found that not only is low socioeconomic status related to experiencing more problems as a result of gambling, it also interacts with the relationship between anxiety disorders and problem gambling. This suggests that low socioeconomic status may represent another ‘path’ to problem gambling and that SES conditions the existing paths within the model. Refining the Pathways Model by giving greater consideration to socioeconomic context, will provide a better understanding of which factors, both separately and in relation to each other, predispose certain groups to greater harm.
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The findings of this study have practical implications in terms of social programs aimed at reducing the harm of problem gambling. Considering the increased seriousness of anxiety disorders among impoverished gamblers, increasing access to counseling, and mental health services in low income areas would be beneficial. Additionally, limiting gambling opportunities in areas with high proportions of low income households could help reduce the disproportionate rates of problem gambling among those below the poverty line. Reducing the opportunities for over-spending on gambling activities would address some of the increased negative effects of gambling for low income individuals, particularly for those with an emotional vulnerability to problem gambling. These might come in the form of restricting credit systems in casinos, restricting access to cash on gambling premises, adopting non-cash gambling systems, and using pre-commitment play systems. Such programs have met with some success in Canada such as the use of identification and prepay cards in Saskatchewan and Nova Scotia (Bernhard et al., 2008). Other nations such as Australia, Norway and the Netherlands have implemented more comprehensive player ID systems which impose regular play breaks, daily and monthly spending limits, and restrictions on bank transfers to the player ID cards (Williams et al., 2007).

It is important to note that the central harm of problem gambling is real financial loss that it entails and that such loss are more costly for some than for others. A comprehensive, responsible gambling strategy would give gamblers greater opportunity to control their gambling, emphasize the responsibility of how gambling is provided, include a duty of care for problem gamblers on the part of the province, and provide support and treatment for those that develop problem gambling. Those theoretical perspectives that will be most useful in achieving these goals will be those that are able to bridge understandings between the individual traits that a person has and the social environments where they are found.
2. The Pathway from Poor

(The author declares no conflict of interest)

2.10 Works cited


2. The Pathway from Poor


2. The Pathway from Poor


Temple, J. L. (2009). Caffeine use in children: What we know, what we have left to learn, and why we should worry. *Neuroscience and Biobehavioral Reviews, 33*(6), 793-806.


2. The Pathway from Poor


Young, M., Markham, F., & Doran, B. (2012). Too close to home? The relationships between residential distance to venue and gambling outcomes. *International Gambling Studies, 12*(2), 257-273.
3. The Social Side of the Pathways Model: Examining the mediation of social support on the relationship between psychopathology and problem gambling.

3.1 Abstract

This study uses a large representative sample of gamblers in the Canadian province of Quebec to examine the relationship between social support and psychological conditions commonly associated with gambling problems. Generalized linear modeling is applied to the 2008 Canadian Community Health Survey to find that social support mediates the relationship between mood disorders and problem gambling severity scores. These findings are discussed in the context of developing a framework that explicates the protective features of social support in relation to psychological predictors of gambling problems. The study concludes that prominent psychological predictors of problem gambling are best understood in the context of the social environments in which they are found.

Keywords

Problem Gambling; Addiction; Social Support; Canada; Generalized Linear Models; Mood Disorders; Sociology

3.2 Introduction

Few theoretical frameworks exist that take a multidisciplinary approach to the development of problem gambling. It is even rarer to find a theoretical approach that consistently applies sociological or social psychological concepts and constructs in a meaningful
way. This is problematic because the importance of social support and positive social relationships in understanding gambling behaviour has been demonstrated in a variety of research settings. These studies show that, generally speaking, those with greater social support from their personal relationships experience fewer problems as a result of the gambling, though these relationships are complex and varied (Gomes & Pascual-Leone, 2009; Oei and Gordon, 2008; Petry and Weiss, 2009; Vander Bilt et al., 2004; Weinstock and Petry, 2008). However, there has been little effort made to incorporate such research into a coherent theoretical model that seeks to understand these findings in relation to other perspectives on problem gambling.

The following research examines the extent to which an individual’s access to social support accounts for the association between mental illness and problem gambling. The findings contribute to the extant literature by revealing an important mechanism through which psychopathologies are associated with problem gambling. The present study is useful on several levels. First, by showing the importance of social support to widely studied psychological correlates of gambling problems, it will help to demonstrate the link between mental health traits and social environment in predicting gambling problems. Second, this study will be able to contribute to the development of a multidisciplinary theoretical model that makes sociological and social psychological research more relevant to scholarly explanations of gambling-related harm.

3.3 Current theoretical models

Much of the research on problem gambling focuses on individual attributes or conditions that are associated with problem gambling. This has led to an understanding of problem gambling as the result of an intersection of various risk factors, the majority of them related to
3. The Social Side of the Pathways Model

some manner of psychological or neurological condition or disorder. However, there are few theoretical perspectives that identify these conditions’ contributions to gambling problems in relation to the social environment in which they are found. Refining our knowledge of the situations or conditions in which problem gambling is most likely to be present, requires addressing two propositions. First, in order to understand the relationships between these conditions and problem gambling, it is important to consider the extent to which these relationships can be explained by features of the social environment. Second, when a person’s social support network offers them greater social resources, it decreases the negative impact of mental health problems in their everyday lives (Gomes & Pascual-Leone 2009; Petry & Weiss 2009). At a theoretical level, the goal of this paper is to expand on our understanding of the interconnections between predictors of problem gambling at the individual level by examining how a gambler’s social support network protects him or her from experiencing gambling-related harm.

The current study contextualizes its findings through the Pathways Model to Problem Gambling. The Pathways Model was developed by Blaszczynski & Nower (2002) in order to address the wide range of existing explanations of problem gambling. The Pathways Model has been used to examine various aspects of gambling including seniors’ gambling (Tirachaimongkol et al., 2010), gambling propensity among young adults (Fabiansson, 2008), variation in gamblers by age (Welte et al., 2010), impacts of gambling on family life (Kalischuk, 2010), and the relevance of mythic icons in gambling (Nixon & Solowoniuk, 2009). The goal of this theoretical framework is to develop an etiological model of problem gambling whereby the existing explanations of fields in neurobiology, psychiatry, social psychology etc. can be understood as complementary, rather than competing, explanations for problem gambling. The
result is a theoretical model that allows the findings of many different types of research to be understood in relation to each other. Another important aspect of the Pathways Model is its ability to recognize variation among problem gamblers. By recognizing that there are many contributing factors that lead to a diagnosis of problem gambling the theory also points out that there are also likely variation in the types of problems that a person experiences because of his or her gambling. This leads to the model’s three “pathways” to problem gambling; “behaviourally conditioned gamblers”, emotionally/biologically vulnerable gamblers”, and “antisocial-impulsivist gamblers”

Of particular interest to the current study are traits pertaining to the “emotionally/biologically vulnerable” pathway. This pathway includes gamblers who learn how to gamble and how to perceive the results of their gambling activities through behavioural conditioning but also have a psychological or neurological condition that predisposes them to harm. Specifically, this study will be examining the relationships between anxiety disorders, mood disorders and supportive relationships. Assessing the interplay between psychopathologies and features of a person’s social life, such as social support and family life, may provide a greater understanding of how a person’s emotionally vulnerable condition can lead to problem gambling. Showing that the link between psychological conditions and gambling-related problems is shaped significantly by a person’s social relationships represents an important step in gambling research. Not only does this link represent a refinement of the Pathways Model, it also serves the wider purpose of expanding interdisciplinary understandings of problem gambling.

3.4 Anxiety and mood disorders
Two correlates of problem gambling are anxiety disorders and mood disorders. Conditions such as depression and obsessive compulsive disorder have long been associated with the presence of problem gambling (Black & Moyer, 1998; Castellani & Rugle, 1995; Cox, 1999; Giddens et al., 2011; McCormick, 1994; Vitaro et al., 1999). Not surprisingly, these disorders play a prominent role in multidisciplinary explanatory frameworks such as the Pathways Model.

Epidemiological evidence has shows that both conditions are strongly related to problem gambling. In an analysis of the Canadian Community Health Survey for the 1.2 cycle (for the year 2002), el-Guebaly et al. (2006) found those with a mood and/or an anxiety disorder were 1.9 times more likely to experience moderate to high severity of problem gambling as measured by the PGSI. Petry et al. (2005) note that there is some inconsistency in existing research between the conditions and problem gambling, however, in their epidemiological study of the 2001-2002 NESARC survey, they found that, after controlling for various demographic factors, both mood and anxiety disorders showed strong and significant relationships with pathological gambling (Petry et al., 2005).

While these conditions are important for the treatment and prevention of problem gambling, these conditions do not operate in a vacuum. Social factors play an important role in determining the effects these conditions have. For example, in their study of social anxiety disorder and alcohol abuse, Buckner et al. (2008) found that co-morbidity between the two disorders was significantly lower in the presence of high social support from friends. Similarly, in a study of comorbidity between substance use and mental health problems, Warren et al. (2007) found that among participants in residential drug abuse programs, social support was linked to both better mental health and lower cocaine and heroin use. Weinstock et al. (2006)
found family functioning to be significantly related to the occurrences of mood disorder episodes. Specifically, that among patients with major depressive disorder and bipolar affective disorder, acute episodes were associated with family dysfunction.

3.5 Social Support

Gambling studies show research has found that low levels of social support to be an important risk factor in predicting problem gambling. Social support has been shown to be both a protective factor against the negative effects of anxiety and mood disorders and an encouraging factor in the treatment of problem gambling. In a study of 60 outpatients of a problem gambling treatment program in Ontario, Gomes and Pascual-Leone (2009) found that emotional support and instrumental support were associated with greater motivation to abstain from gambling, greater self-confidence, and reductions in depressed effect, all of which led to better treatment outcomes. Similarly, in examining over 200 pathological gamblers, Petry and Weiss (2009) found social support to be positively related to favorable outcomes in abstaining from gambling and negatively related to the presence of anxiety disorder and clinical depression. In terms of social support as a protective factor against problem gambling, in a sample of university students Weinstock and Petry (2008) found students with higher levels of perceived social support were less likely to be problem gamblers.

In their study of the relationship between coping with stress and specific gambling motivations, Thomas et al. (2011) found high subjective social support to be a direct protective factor against gambling frequency, and social support indirectly protected against avoidance-motivated and accessibility-motivated gambling. Hardoon et al. (2004) in a sample of students in grades 7-13 found respondents who screened for probable pathological gambling had
significantly lower scores of perceived social support compared to other students. High perceived support from both family and peers served as protective factors from problem gambling. (Hardoon et al., 2004). In a study of gamblers anonymous members, Oei and Gordon (2008) also found social support was significantly related to gambling behaviours. Specifically, social support and involvement in meetings in the gamblers anonymous meetings were the most strongly associated factors related to abstinence from gambling.

It is important to note that social relationships can also increase the likelihood of gambling. In a longitudinal study of older adults (mean 78.8 years old) Vander Bilt et al. (2004) found that social support was positively related to gambling participation. This was the result of gambling being a positive social activity for older adults and reflected high rates of sociability motivation in older adults as opposed to action-seeking or escapist motivations. Conflict within relationships can also lead to greater stress and problem gambling. Elman et al. (2010), through extensive interviews with problem gamblers, found that the experience of interpersonal stress was positively related to problem gambling severity.

### 3.6 Research Question

The above discussion suggests several possibilities. First, that strong theoretical frameworks for a multidisciplinary approach to problem gambling research exist, but that sociological research is not well represented in them. Second, the presence of mental illness, particularly anxiety and mood disorders, are key defining aspects in the categories of problem gamblers. Third, the degree of social support that a person receives is related to gambling frequency, the experience of gambling related harm, and negative effects associated with mood and anxiety disorders.
Given the above realities, it is reasonable to surmise that social support plays an important role in the extent to which psychological conditions are related to problem gambling. The current study is driven by two questions: 1) Is higher perceived social support related to lower problem gambling scores when mood disorders and anxiety disorders are controlled for? 2) Does perceived social support mediate the association between psychopathologies and problem gambling? Showing that aspects of the social environment are as effective as, and perhaps even modify, established psychological predictors of problem gambling supports the greater inclusion of sociological variables into theoretical frameworks for explaining problem gambling. Such an inclusion could improve the Pathways Model as a tool for conducting multidisciplinary research, for guiding treatment and prevention strategies, and expanding understanding of problem gambling research across disciplines.

3.7 Methodology

3.7.1 Data Description

The data source for this study is the Canadian Community Health Survey for the 2007-2008 collection cycle. The CCHS is a national level cross-sectional survey which collects data throughout the year and releases it annually. It is the joint effort of the Canadian Institute of Health Information (CIHI), Statistics Canada, and Health Canada. The survey sample includes Canadian residents in all ten provinces and three territories over the age of 12 and excludes those living on reserves and other aboriginal settlements, institutionalized populations, and residents in two small communities in Quebec.

The sample consists of over 130,000 Canadian residents in 136 Health Regions. These
Health Regions are divided into large urban centres and rural areas in order to avoid over representation from urban areas. Respondents were selected through a combination of area frames, random digit dialing, and telephone number list frames. The CCHS data was collected by face-to-face interviews and telephone computer assisted telephone interviews by specially trained interviewers.

3.7.2 Sample Description

This study focuses on the Quebec subsample since it was the only province that administered questions relating to both gambling and social support for the 2008 cycle of the CCHS. This study includes adults over 18 years who had participated in at least one gambling activity in the twelve months prior to their interview (9014). After list wise deletion for missing cases for variables included in the analyses and 8 deleted outliers (see discussion below), the sample for the present study contains 8010 participants.

3.7.3 Measures

This study employs the Problem Gambling Severity Index (PGSI), a part of the Canadian Problem Gambling Index (hereafter referred to as the CPGI) as its measure for gambling-related harm. The PGSI was developed for use with large surveys in part because of the problems associated with other diagnostic screens such as the South Oaks Gambling Screen and the DSM-IV criteria for pathological gambling (Ferris & Wynne, 2001). In comparison to other commonly used screens for problem gambling, the CPGI includes more questions related to the consequences of respondents’ gambling practices. This problem-based approach makes the use of this scale more appropriate for sociological research than more addiction-based diagnostic
scales (Ferris & Wynne, 2001). The PGSI is specifically useful to this study because of its capability for measuring the severity of gambling problems, not just their presence or absence. For individual items please see appendix I.

The age variable is coded by the CCHS as 16 categories. With the exception of the 18-19 years old category, these categories are separated into of groups of five years (e.g. 20-24) with a maximum category of 80 years or older. Existing research indicates that the relationship between age and problem gambling is better understood as a non-linear relationship. Rates of problem gambling have been found to be lower among young adults and older adults and higher among middle aged groups (Welte et al., 2011). In order to account for this, a term to each model is introduced that squares age, forming a quadratic regression equation.

Gender is coded as a dichotomous variable. The gender of the respondent as either a man or a woman was determined by the interviewer. If it was not clear which category the respondent belonged to the interviewer asked the respondent which gender he or she was.

Models also control for marital status. Marital status is coded as a dichotomous variable for this study with “married” and “common-law” coded as “yes” and widowed, separated, divorced, and single (never married) coded as “No”.

The degree of social support available to the respondent is measured by the Social Support Survey which is part of the Mental Outcomes Survey (MOS) (Sherbourne & Stewart, 1991) (appendix III). This scale includes information on several aspects of social support including positive social interaction, emotional and informational support, affection, and tangible social support. There are 19 items related to the following question: “How often is each of the following kinds of support available to you if you need it?” (Sherboune & Stewart, 1991:713). Each item is scored on a Likert scale with a score 0 indicting “none” and 4 indicating “all the
3. The Social Side of the Pathways Model

time”. The scale has a minimum score of 0, maximum score of 76, and a mean of 64.5. Higher scores on this scale indicate higher levels of support. The Social Support Survey also includes a question concerning how many close relationships a person has from which they might receive the aforementioned support. Respondents are asked to indicate a number for the following question: “About how many close friends and close relatives do you have, that is, people you feel at ease with and can talk to about what is on your mind?” (Sherbourne & Stewart, 1991:713). Eight respondents indicated having over 95 close relationships and were removed as outliers. The next highest score was 60.

Psychological conditions are represented by the presence of anxiety and/or mood disorders. The presence of an anxiety disorder is indicated by a yes/no answer to the following question: “Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?” Likewise, the presence of a mood disorder is indicated by a yes/no answer to the following question: “Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?” (Statistics Canada, 2008:25). These two questions are preceded by the phrase, “Remember, we are interested in conditions diagnosed by a health professional”. While it would be preferable to have a screening tool for detecting these conditions in a survey sample, the current measures are justified on the grounds they are likely to be highly specific. That is, while they may miss undiagnosed mental health disorders, they are unlikely to produce a large number of false positives. To account for problems of comorbidity of these conditions (Mineka et al., 1998), a combined categorical variable was created. The categories of this variable are ‘Neither anxiety nor mood disorders’ (the reference category), ‘mood disorder only’, ‘anxiety disorder only’, and ‘both anxiety and mood disorder’.
3. The Social Side of the Pathways Model

Table 2.1: Sample Description

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>n</th>
<th>mean</th>
<th>%/sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Man</td>
<td>3631</td>
<td>45.33%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Woman</td>
<td>4379</td>
<td>54.67%</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>18-29</td>
<td>1576</td>
<td>19.68%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30-39</td>
<td>1412</td>
<td>17.63%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40-49</td>
<td>1367</td>
<td>17.07%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50-64</td>
<td>2300</td>
<td>28.71%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>65 and up</td>
<td>1355</td>
<td>16.92%</td>
<td></td>
</tr>
<tr>
<td>Mood/Anxiety disorders</td>
<td>Neither</td>
<td>7256</td>
<td>90.59%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anxiety only</td>
<td>314</td>
<td>3.92%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mood only</td>
<td>273</td>
<td>3.41%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comorbidity</td>
<td>167</td>
<td>2.08%</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Married/cohabiting</td>
<td>4348</td>
<td>54.28%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Single/Divorced/Separated/Widowed</td>
<td>3662</td>
<td>45.72%</td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td>Social Support Survey (full)</td>
<td>64.4</td>
<td>14.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of relationships</td>
<td>7.5</td>
<td>6.6</td>
<td></td>
</tr>
</tbody>
</table>

3.7.4 Analysis

Data analysis for this study employs hierarchical multiple regressions. The estimates reported represent the raw estimates for each variable. The first step examines the relationship between PGSI scores, and mood and anxiety disorders. This first step also controls for basic demographic variables of age and gender. The second step introduces social predictors of low problem gambling scores including marital status, perceived social support, and the number of relationships from which one receives such support. The third step combines psychological predictors of high gambling scores with social predictors of low gambling scores.

The existence of problems due to gambling is a relatively rare occurrence with estimates ranging between 0.5% and 7.6% (Bastiani et al., 2015). This suggests that it is difficult to estimate the relationships between gambling problems and other variables using ordinary least squares regression without bringing into question the validity of those findings. For this reason
the current study uses a generalized linear model approach which assumes a gamma distribution for the dependent variable with a log function. The use of generalized linear models is rare in gambling research. This technique has proven useful in modelling other similarly distributed events such as alcohol consumption (Lopes et al 2008) health economics research (Basu, 2005) and risk assessment (Blough et al., 1999). Typically, gamma models cannot be run when there are zero values on the dependent variables. To account for this, a score of 0.1 was added to all scores on the PGSI. This means that when interpreting the fitted values of the models a score of 0.1 should be subtracted from the predicted values. Such adjustments are made in the discussion and presentation of the results.

Conditions for mediation tests include that 1) the mediator (social support) is significantly related to the dependent variable (PGSI scores), 2) that the mediated variable (past diagnosis of a mood disorder) is significantly related to the dependent variable, and 3) that the mediated variable is significantly related to the mediating variable. To test whether a mediation effect is occurring, the relationship between the mediated variable and the dependent variable must be significantly lowered with the introduction of the mediator variable. To test whether this lowering of effect is significant a Sobel test was performed (Sobel 1982). The following analyses were performed using the R project for statistical computing.

3.8 Results

<table>
<thead>
<tr>
<th>Gender</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>Std. Error</td>
<td>Estimate</td>
</tr>
<tr>
<td>Woman</td>
<td>-0.540***</td>
<td>0.087</td>
<td>-0.396***</td>
</tr>
</tbody>
</table>
In table 3.2 PGSI is regressed as the dependent variable on mood disorders, perceived social support and controls. Model 1 first looks at psychological conditions and basic demographic variables. This model largely supports existing research findings. As expected, gender shows a significant negative relationship with PGSI scores. The literature has shown that women have significantly lower rates of problem gambling in comparison to men and the findings here support that as well (Williams et al., 2012). Significances of both the age and age squared variables shows a non-linear relationship between age and PGSI scores where rates of gambling problem scores are lower among younger and older respondents and highest in the middle age groups. This supports research describing the relationship between age and gambling problems as being curvilinear (Welte, 2011). The presence of mood and anxiety disorders show strong and positive effects on PGSI scores and are significant at the p<0.001 level. This model confirms the previous findings that both mood disorders and anxiety disorders are strong predictors of gambling problems. Further, having been diagnosed with both anxiety and mood disorder shows an even stronger effect, supporting research that identifies the problem of
comorbidity or mental health issues among problem gamblers (Black & Moyer, 1998; Castellani & Rugle, 1995; Cox, 1999; Giddens et al., 2011; McCormick, 1994; Vitaro et al., 1999).

The second model examines variables that are used to indicate the quantity and quality of social support. In model 1, we see the effect of gender reduces somewhat but remains significant. The age variables increase in their effect, and their level of significance increases to the p<0.001 level. Social support shows a significant negative relationship with PGSI scores indicating higher levels of social support is associated with lower mean problem gambling scores. However, the number of supportive relationships does not show a significant effect in the model. While the AIC score is lower for model 2 compared to model 1, an analysis of variance test shows that the improvement in model fit is not significant.

Model 3 includes the two sets of independent variables. The age and gender variables show a similar effect as in the first two models. Variables in this model relating to social support show reasonably consistent effects with model 2. Likewise, both the presence of an anxiety disorder and comorbidity of mood and anxiety disorders show strong and significant effects. While in model 2 having a mood disorder was significantly related to higher PGSI scores, model 3 shows that once the model has adjusted for social support that relationship becomes non-significant. This suggests that the relationship between mood disorders and problem gambling scores is mediated by the degree of support that a person has. In this mediation relationship, a participant’s PGSI score is the dependent variable, having been diagnosed with a mood disorder is the independent variable, and the mediator is the degree of perceived social support a person receives. After confirming that the conditions for testing mediation were met, a Sobel test was conducted on the relationships involved. The models used in the Sobel test controlled for the presence of anxiety disorders, comorbidity with anxiety disorder, gender, age, and marital status.
3. The Social Side of the Pathways Model

The Sobel test statistic is 3.937 where $p<0.001$ on a two-tailed probability test. One interpretation of this pattern is that the relationship between mood disorders and problem gambling is indirect. The positive relationship between the presence of a mood disorder and problem gambling scores is explained in part by the negative relationship observed between mood disorder and the social support that one receives, specifically that those who have been diagnosed with a mood disorder report significantly lower levels of social support. The observation that model 3 has the lowest AIC score of the models examined shows that the combined model provides the best fit for the data examined. An analysis of variance test shows that model 3 is a significant improvement or both model 1 and model 2 ($p<0.001$ for both comparisons).

3.9 Discussion

The models contained in the above analysis confirm many findings in the problem gambling research literature. In terms of demographics, these models show that women experience fewer problems as a result of gambling compared to men (Hraba & Lee, 1996), and that age shows a non-linear relationship with gambling with younger and older adults experiencing fewer problems in comparison to the middle age groups (Welte et al., 2011). While research on social support as related to problem gambling has received less attention in the literature, the findings show mixed support for existing scholarly research on such variables. First, the amount of social support a person receives was significantly related to lower gambling problems. Conversely, the number of relationships from which a person receives social support was not significantly related to problem gambling scores. This indicates quality of social support that helps protect a person from experiencing problems as a result of gambling.
rather than size of a person’s social support network. These findings show that social support is an aspect of one’s social environment that requires greater consideration in theoretical frameworks. Particularly, in the context of the Pathways Model, the degree of social support that person receives should be considered as a part of a person’s “path” to problem gambling. Unfortunately, the current study was unable to explore the causal order of the relationship between support and gambling problems. Further investigation in needed to determine where to place social support into the current model.

Interestingly, the comparison of the first and second models shows that the social support related variables summarized the data better than the models focusing on psychopathologies commonly used as explanatory factors in the development of problem gambling as indicated by lower AIC score. Perhaps a more important result of this study is that the relationship between reporting a mood disorder and problem gambling score became non-significant with the introduction of the social support variables. The current study interprets this finding to be a mediating effect as identified in the results section. Under this interpretation, the initial relationship observed between mood disorders and problem gambling scores is in part explained through mood disorders being counterbalanced by strong social support.

As mentioned earlier, mental illnesses such as mood disorders are not only a crucial aspect of theoretical frameworks for understanding problem gambling, but they are also crucial to a large range of psychiatric and psychological research on problem gambling (Black & Moyer, 1998; Blaszczynski & Nower, 2002; Castellani & Rugle, 1995; Cox, 1999; Giddens et al., 2011; McCormick, 1994; Vitaro et al., 1999). Again, causal ordering is difficult to assert given the cross-sectional nature of this study. However, this study suggests that the social environment that a person lives in not only has an effect on gambling problems, it also affects how closely
certain psychological conditions are related to gambling problems. The findings of this study suggest that social support mediates the relationship between mood disorders and gambling problems. For the Pathways Model specifically, and theoretical approaches to problem gambling more generally, this suggests that one’s social environment not only has its important relationships to gambling problems but that they are also necessary in understanding the relationships between different psychological conditions and problem gambling. It is important to note that this study also found no mediation effect between anxiety disorders and social support related variables. As the Pathways Model suggests, different types of emotional vulnerability are likely to react with a person’s social environment in different ways (Blaszczynski & Nower, 2002). This study supports the Pathways Model’s capability of showing greater variability in regard to gambling problems.

The implications of these findings are important not only for the theoretical frameworks used to study problem gambling but also in how it is treated and prevented. Understanding that social relationships affect the relationship between powerful predictors of problem gambling and experiencing gambling related problems should be a key part of any multidisciplinary theoretical framework on the subject. Recognizing the interconnectedness of social and psychological traits makes theoretical frameworks of problem gambling more useful, not only for designing multidisciplinary research, but also for allowing researchers from disparate fields to understand their research in relation to each other. Such a model also helps us to recognize how the confluence of personal traits and features of the social environment affects human behaviour which in turn will inform policy and encourage more responsible provision of gambling opportunities. The current study aims to contribute to that goal by showing not that the social environment is \textit{as} important as psychopathological predictors of gambling problems but that the
effects of both are best understood in relation to each other, rather than separately.

3.10 Limitations

There are several important limitations of this study. First, while this study investigates aspects Pathways Model, not the whole of the Pathways Model itself. This is because the dataset used did not contain biological or neurological predispositions toward problem gambling. Additionally, impulsivist traits and anti-social personality traits were not included in the data. Another weakness of the study is that the rates of problem gambling in the sample according to the CPGI screen were quite low (approximately 2.4%). This presented problems when examining categories that had especially low rates of problem gambling. This meant focusing on the PGSI as a continuous dependent variable to capture more of the sample that experiences problems as a result of gambling but do not screen positively for problem gambling. The current study shows that the social support that a person receives affects the relationships between individual traits that they possess and their experience of problems related to gambling; however, future research on the relationship between social support and these other aspects of the Pathways Model is needed.

Another limitation involves anxiety and mood disorder variables. As noted in the methods section, these variables were a self-reported yes/no answer to whether the participant had received a diagnosis from a mental health professional. These measures may not reflect the actual rates of these conditions for several reasons. First, they do not capture subclinical or undiagnosed mental health problems. Second, respondents may over report, under report, or may be unable to remember mental health diagnoses. The current study is limited by the methods under which the survey was collected, but the fact that the question references clinical diagnosis
makes it less likely for respondents to self-diagnose and lowers the chances of false positive screens.

This study uses only cross-sectional data, making it difficult to assert more specific claims about the causal ordering of the relationship between social support and psychopathology variables. This is a problem when trying to contextualize the findings in a multidisciplinary framework such as the Pathways Model, which implies a temporal ordering of the variables involved. As such, it is difficult to place “where” in the Pathways Model social support related variables should be placed. However, the interaction effect between social support and mood disorders suggests a moderating effect between mood disorders and problem gambling.

3.11 Works Cited


3. The Social Side of the Pathways Model


3. The Social Side of the Pathways Model


Huang, Y. (2009). Statistical analyses of gambling behaviors. (M.Sc., The University of Regina (Canada)). *ProQuest Dissertations and Theses* (759481998).


3. The Social Side of the Pathways Model


Temple, J. L. (2009). Caffeine use in children: What we know, what we have left to learn, and why we should worry. *Neuroscience and Biobehavioral Reviews* 33(6), 793-806.


3. The Social Side of the Pathways Model
4. An exploration of gender differences in the relationship between work-family conflict and gambling problems

4.1 Abstract

The current study is an examination of gender differences in the experience of problems as a result of gambling. Using the framework of work-family conflict, this study compares men and women in terms of how their participation in work and family life relates to gambling problems as measured by the Problem Gambling Severity Index. Data from the 2008 Canadian Community Health Survey, a large representative sample of 28,687 participants in three Canadian provinces, is analysed with generalized linear modeling. The findings of this study show that simultaneously occupying the roles of married spouse and working spouse is associated with more gambling-related problems for women, but fewer for men. The study concludes with a discussion of how the intersection of problem gambling and important aspects of social life presents different problems for men and women due to gendered expectations surrounding work and family life. Implications for the findings in relation to trends of increased use of electronic gaming machines by gambling providers are also discussed.

4.2 Introduction

Many differences in gambling behaviours between men and women have been noted since the recent expansion of gambling research (Blinn-Pike et al., 2007). These studies generally show lower rates of participation and problem gambling among women in comparison to men. However, several concerns specific to women have arisen including the disproportionately high rate of progression and severity of problem gambling experienced by
women (Desai & Potenza 2008), differences in motivations and consequences of gambling for
women (Ellenbogen et al., 2007), and responses to male-centered treatment and prevention
programs (Toneatto & Wang, 2009). What has received less attention in problem gambling
research is how the relationships between important life roles and gambling related problems
differ between men and women.

Family and work are important domains of social life. Delineating/identifying their
features has also been shown to be useful in understanding problem gambling. Both being
married (Bakken et al., 2009; Black et al., 2012; Kennedy, 2010) and being employed (Castrén et
al., 2013; Nyman et al., 2013) are associated with lower rates of problem gambling. Researchers
have suggested that the stability and support (both emotional and financial) that are offered by
marriage and employment helps explain lower rates of problem gambling among the married
and employed.

However, there is a sizable collection of research that suggests the interaction of work
and family life is experienced differently by men and women (see Williams et al., 2010 for
review). In particular, sex role theory suggests that in terms of mental health outcomes, women
experience more problems from conflicts between work and family responsibilities due to
gendered expectations regarding the family (Aneshensel et al., 1981). While researchers have
explored the relationship between work-family conflict and addiction outcomes such as drug
abuse and dependence (Frone, 2000), and alcohol abuse (Wolff et al., 2013; Frone et al., 1993)
the relationship between this conflict and gambling-related problems remains understudied.

The current study seeks to contribute to an understanding of gender differences in the
experience of gambling-related problems. Using generalized linear modeling on a large
representative sample from three Canadian provinces, this study examines how rates of gambling
problems differ between men and women in relation to occupying work and family roles. The findings of this study have important implications in demonstrating how problem behaviours intersect with other important aspects of social life and refine our knowledge of the complicated relationship between gender, work-family conflict and mental health.

4.3 The liberalization of gambling in Canada

Recently, the Ontario Lottery and Gaming Corporation (OLG) announced its plans to “modernize” its approach to gambling provision. This modernization takes two basic forms: privatisation and greater use of technology. The plan involves introducing new games such as electronic bingo machines, electronic “instants,” and electronic break-open tickets in places where they were previously not available, such as bingo halls. Electronic gaming machines (EGMs) have been identified by a wealth of research as the form of gambling that is the most likely to result in problem gambling (Cantinotti & Ladouceur, 2008; Rockloff & Hing, 2013). While Ontario and British Columbia have strictly controlled video lottery terminals (VLTs) on the grounds that they are unnecessarily addictive (Wilson & Ross, 2011), there is little to distinguish the new forms of EGMs from VLTs. The increased availability and numbers of EGMs are presented through a market rhetoric of better serving “customers,” a term that becomes a stand in for “citizens.” This strongly reflects a trend of treating gambling participants as economic-rational actors for whom a service is being provided, rather than taking an approach that prioritizes harm reduction.

4.4 Work-Family Conflict

There is a large body of research in sociology that suggests we should expect the relationship between work, marriage, and gambling problems to vary between men and women. Since the 1970s, much attention has been given to the differences in how men and women experience the simultaneous demands of family and work life. Attention to the subject largely began with Bernard’s (1972), and Gove
and Tudor’s (1973) work on sex roles theory that focused on changes to marital roles in the post-war period. The basic premise of this theory is that the roles that men and women adopt within the context of marriage offer greater support for men than for women. As a person moves from single, to married, to then raising children, women are expected to commit themselves to the roles of wife and mother far more than men are expected to commit themselves to the roles of husband and father. This advantage translates to occupational roles as increased family commitments lower women’s participation in work but encourage greater commitment to occupational roles in men (Aneshensel et al., 1981). Role theory has received some support in the literature on work-family conflict. Gutek et al. (1991) state that men tend to experience fewer problems because work is more likely to be considered a family-related responsibility. Their research on a sample of managers and professionals showed that women tended to report more frequent instances of work interfering with family in comparison to men. Similarly, in their meta-analysis of 178 samples, Michel et al. (2011) found that gender was a significant moderator in work-family conflict measures such as role ambiguity and job autonomy, though gender was not a significant moderator for other measures as predicted by role theory. Cinamon & Rich (2002), in a sample of workers aged 20 to 50, found that women reported higher conflict measures between work and family such as level of work, frequency of work, and importance attributed to family relations.

Another body of research suggests that gender differences are less central to work-family conflict than previously assumed. In a study of the National (USA) Comorbidity Survey, Frone (2000) found that, while work-family conflict was related to substance abuse and substance dependence, there were no significant differences between genders in work-family conflict. Similarly, Mortazavi et al. (2009), in a cross-cultural sample of workers in the United States, Iran, and Ukraine found that gender was not a significant moderator of the experience of work-family conflict. The collection of research discussed above suggests that, while there is some evidence to the contrary, we should expect to see differences between how work-family conflict relates to gambling problems between men and women.

Sex role theory has received several criticisms, the best of which has perhaps been described by Robin Simon (2002). She points out the possibilities of selection effects on marriage, changing
5. Conclusion

expectations in marriage roles, the historical rootedness of sex role theories, and a lack of consideration of male dominated mental illness outcomes such as substance abuse as limitations of early sex roles research. She suggests that gendered socialization leads to different expressions of emotional distress and that gender differences in mental health cannot be understood by roles alone. She bolsters this position by pointing to research that shows that men tend to externalize emotional problems whereas women internalize them (Simon, 2002; Umberson et al., 2002). More recent research using a broader range of mental health outcomes also suggests that marriage provides similar benefits to both men and women (Evans & Kelley, 2004; Stroschein et al., 2005). Williams (1988) suggests that marital satisfaction rather than marriage itself is a source of the differences observed in mental health. Williams’ study found that for women, the effect of marital satisfaction on well-being was significantly stronger than for men, and that conflict over marital roles did not explain differences between men and women in terms of self-reported well-being. Using the Aging, Status, and Sense of Control (ASOC) survey, Bierman (2012) found that older unmarried men demonstrated significantly poorer mental health than married older men, but no such differences appeared among single and married women. His study suggests women are socialized to maintain close social relationships outside of marriage throughout the life course and so are better equipped to deal with mental health problems associated with old age (Bierman, 2012). While there are significant differences between sex roles and gendered socialization explanations, it is clear that there are also important differences for the mental health of men and women in relation to marital status. Research has connected work-family conflict to higher rates of substance abuse and dependence (Frone, 2000), and alcohol abuse (Wolff et al., 2013; Frone et al., 1993). However, no research has examined gender differences in problem gambling relating to the relationship between marital status and work.

4.5 Problem Gambling, Marriage, and Work

It has been proposed by some researchers that a common motivation for gambling is to cope with, or escape from, negative emotional states (Blaszczynski & McConaghy, 1989; Taber et al., 1987; Wood
5. Conclusion

& Griffiths, 2007). This body of research argues that those who are most likely to develop problems with gambling are those that use it to help distract themselves from persistent mental health problems, such as anxiety and depression, or from major life stresses (Blaszczynski & Nower, 2002).

Marital status and working status both have significant relationships to mental health outcomes. First, those who are married have been shown to have lower rates of negative mental health outcomes compared to those who are single, separated, divorced, or widowed. According to the marital resource model, those who are married have access to greater economic and social support compared to those who are not, and this generates health-related benefits (Williams et al., 2010). While there is some criticism and complication surrounding this model (as discussed below) there appears to be some support for the marital resource model in gambling research. Black et al. (2012), in their analysis of 95 pathological gamblers and 91 control respondents, found that pathological gamblers were more likely to experience higher rates of marital discord and were more likely to be divorced or single compared to their non-problem gambling counterparts. Bakken et al. (2009), in their sample of 3,482 Norwegians, also found that problem gambling was associated with being male and having a single marital status as well as suffering from multiple negative mental health outcomes.

Participation in work or employment has also been shown to provide important mental health benefits. While several factors related to the type of work that a person does can contribute to negative psychosocial outcomes, those who are employed generally enjoy better mental health than the unemployed (Lennon & Limonic, 2010). Explanations for the benefits of employment range from the real financial resources that it provides (Fryer, 1986) to serving latent functions such as improved self-worth and connection to social institutions (Jahod, 1981). In a similar vein to the marriage resource model, these explanations focus on work’s ability to provide economical and social stability for its participants. These benefits are reflected in the problem gambling literature as well. Nyman et al. (2013), in their examination of economic theories of gambling participation, found that people who were generally disadvantaged in the labour market were more likely to participate in gambling. They suggest that those under financial strain value won income more than earned income, though one would need at least some experience in
5. Conclusion

paid work to make this valuation. In a random sample of Finnish adults, Cistern et al. (2013) found that unemployment and lower education were related to higher rates of problem gambling. Cistern et al. (2013) argue that low socioeconomic status should be recognized as an important risk factor for problem gambling.

4.6 Gender and Problem Gambling

One area of problem gambling research that has become less common is the intersection of problem gambling and gender (Holdsworth et al., 2012). Findings consistently show that men display higher rates of gambling participation as well as higher rates of problem or pathological gambling (Hraba & Lee, 1996). These higher rates have been associated with male propensity for risky behaviours (Miller and Currie, 2008; Byrnes et al., 1999), impulse control disorders (Ibanez et al., 2003), and higher rates of substance abuse and addiction (Welte et al., 2004; Maccallum & Blaszczynski, 2002).

These findings have led to a strong focus on male experience with problem gambling in the development of treatment and prevention programs (Toneatto & Wang, 2009; Scannell et al., 2000). However, a growing body of research suggests that, while problem gambling is not as common for women, its progression is quicker and more severe, and it has different consequences compared to problem gambling in men. In their study of outpatient problem gambling treatment seekers, Toneatto & Wang (2009) found that women were more likely to have histories of psychopathological co-morbidity and a faster progression towards problem gambling. They also found that men responded better to the treatment program by showing fewer relapses and higher satisfaction with the program. The authors suggest that treatment programs should be tailored towards women’s specific needs, namely that treatments such as cognitive behavioural therapies should focus more on emotional variables and co-morbid disorders. In a Spanish study of outpatient treatment seekers, González-Ortega et al. (2012) found that women’s problem gambling tended to start later in life and that higher family support was found among women with severe problem gambling but not among men. The latter unexpected finding is
5. Conclusion

explained by the centrality of women’s roles in maintaining family networks in Spanish culture. They suggest that any treatment program would have to address these differences and that more attention needs to be devoted to the specific needs of women problem gamblers.

Considering the growth of EGM opportunities in Canada and abroad, their connection to problem gambling among women is an area of concern. Research has consistently shown that women tend to favour EGMs in comparison to men and that the spread of problem gambling among women can be linked to the increased focus on EGMs by gambling providers (Brown et al., 1998; Hing & Breen, 2001; Potenza et al., 2006; Productivity Commission, 2010; Toneatto et al., 2002). This preference for EGMs and women’s problems associated with them may be due to gender differences in gambling motivation. In comparison to men, women are more likely to gamble in order to distract themselves from stressful situations, referred to as escapist gambling, whereas men are more likely to gamble for excitement or “pleasure seeking” (Ellenbogen et al., 2007, Sacco et al., 2011, Schull 2002, The Productivity Commission 2010). These motivations express themselves in the types of gambling in which men and women participate. In comparison to men, women prefer to play slot machines and bingo while men prefer more action-oriented games such as table-based games or horse racing (Ellenbogen et al., 2007). Similarly, Miller and Currie’s (2008) research led them to suggest that male and female gamblers differ in terms of locus of control, with men exhibiting an internal locus of control and women expressing an external locus of control. This is reflective of the way that men see themselves as active agents when describing their gambling activities, whereas women see themselves as passive participants.

4.7 Research Problem

This study attempts to reconcile research findings on the benefits of work and marital status in reducing gambling problems with research on gender differences in the experience of work-family conflict and gender differences in gambling behaviours. The goal of the present study is to connect
current knowledge of gender differences in work-family conflict to gender differences in the responses to problem gambling. Role theory asserts that women tend to experience greater conflict than men over the intersection of work and family responsibilities and that this conflict can result in negative mental health outcomes. Research on problem gambling has shown that the motivations for and experiences of problem gambling vary greatly between men and women. Keeping in mind these assumptions, the question driving the current research is as follows: If women experience a greater degree of work-family conflict and are more likely to gamble in order to avoid negative emotional states, should we not expect to see similar patterns between women and men in the relationship between intersecting family and work roles and gambling-related problems? To answer this question the current study will test the following two hypotheses:

Hypothesis 1: Examined separately, both being currently married and being currently employed will be associated with significantly lower problem gambling scores in men and women.

Hypothesis 2: As men have been found to have fewer negative outcomes associated with occupying both family and work roles, the negative relationship between being both married and currently working and problem gambling scores will be stronger for men than for women.

These hypotheses have important implications for how we understand problem gambling as a negative mental health outcome among men and women. This in turn has implications for developing gender specific programs for the treatment and prevention of problem gambling, something that is lacking in the current problem gambling literature. These issues are of particular concern as recent plans to expand the availability of EGMs in Ontario are poised to cause a disproportionate amount of harm to women.
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4.8 Methods

4.8.1 Description of the CCHS Survey

This study employs the Canadian Community Health Survey (CCHS) for the 2008 collection year in its analyses. The CCHS is an annual national level survey that gathers information on health-related information on Canadian citizens aged 12 and older. The survey is conducted in cooperation with the Canadian Institute of Health Information (CIHI), Statistics Canada, and Health Canada. These agencies gather representative data from all ten provinces and three territories in Canada. Excluded from the survey are full-time member of the Canadian Armed Forces, those living on native reserves and other aboriginal settlements, and institutionalized populations in two small communities in northern Quebec. According to Statistics Canada, an estimated 3% of the population is excluded from the CCHS.

The current study uses information from the 2008 CCHS collected in Ontario, Quebec and Saskatchewan, as those were the only provinces to apply the Canadian Problem gambling index for that year. Only adults over the age of 18 that had participated in at least one gambling activity in the past year were included, leaving 33,012 eligible respondents. After listwise deletion for all variables included in the analysis, the final sample consisted of 28,687 participants.

4.8.2 Measures

For the CCHS, problem gambling is measured by the Problem Gambling Severity Index (PGSI) section of the Canadian Problem Gambling Index (CPGI). The CPGI was developed for use in survey data collection, unlike other problem gambling scales, such as the South Oaks Gambling Screen (SOGS) and DSM-IV pathological gambling screens, which were developed for clinical use. The CPGI was also developed from a problems-based perspective rather than an addiction perspective. This makes the scale more appropriate for use in large-scale sociological studies as it was first designed to understand problem gambling within the social context wherein participants exist (Ferris & Wynne 2001). PGSI is a portion of
the CPGI that is used to measure the level of severity of gambling problems rather than indicate a positive or negative screen. Problem gambling severity is measured on a scale from 0 to 28 with higher scores indicating more problems being experienced as a result of gambling.

In the CCHS gender is coded dichotomously. The trained interviewer fills in whether the respondent is male or female and if the gender is not clear the interviewer asks the respondent. Marital status is coded dichotomously for the purposes of this study with the categories “married” and “common-law married” being coded as “married,” and “single or never married” and “separated, divorced or widowed” coded as “unmarried.” This study includes a dichotomous variable for whether the respondent lives in a household where there is at least one child under the age of 12. For age, the CCHS is coded into 16 categories each divided by five years (e.g., 20-24), with the exception of the 18-19 years category (coded as 1). Age is included in the models in order to control for younger adults who are likely to be involved in some kind of work but are less likely to be married. Welte et al (2011) have argued that problem gambling shows a curvilinear relationship with age identifying lower levels at the younger and older age groups. In order to address this relationship, a squared age term is added to the models, making a quadratic regression equation.

Education is included in the models to help control for socioeconomic status. Education is used instead of income due to a large amount of missing data on the income variables in the CCHS. Education is measured in ordinal categories for this study. Respondents are coded according to their highest level of education in the following categories: less than secondary school education, secondary school diploma or equivalent, some post-secondary education, and post-secondary degree or diploma. Education is included in the equation as an orthogonal polynomial. As such, the coefficients in the models describe whether the relationship is linear, quadratic, or cubic. Working status has been coded dichotomously with respondents having worked at least once in the last week coded as “yes” and those who were unemployed, unable to work, or absent being coded as “no”. In order to control for the degree of stress experienced by the respondents, a dichotomous life stress variable was added to the models. The original question in the survey is “Thinking about the amount of stress in your life, would you say that most days are: not at all
stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful?” For this variable the responses “not at all stressful”, “not very stressful”, and “a bit stressful” have been coded 0, and “quite a bit stressful” and “extremely stressful” have been coded as 1. The frequencies for each variable as divided by gender are presented in Table 4.1 below.

**Table 4.1: Sample Description**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGSI</td>
<td>0.25 (1.27)</td>
<td>0.17 (1.07)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>2534 (19.2%)</td>
<td>2837 (18.2%)</td>
</tr>
<tr>
<td>30-39</td>
<td>2539 (19.2%)</td>
<td>2828 (18.2%)</td>
</tr>
<tr>
<td>40-49</td>
<td>2620 (19.9%)</td>
<td>2733 (17.6%)</td>
</tr>
<tr>
<td>50-64</td>
<td>2668 (20.2%)</td>
<td>3423 (22.0%)</td>
</tr>
<tr>
<td></td>
<td>2829 (21.4%)</td>
<td>3750 (24.1%)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than High School</td>
<td>2060 (15.6%)</td>
<td>2202 (14.1%)</td>
</tr>
<tr>
<td>Completed High School</td>
<td>2271 (17.2%)</td>
<td>2670 (17.2%)</td>
</tr>
<tr>
<td>Some Post-Secondary</td>
<td>1088 (8.3%)</td>
<td>1176 (7.6%)</td>
</tr>
<tr>
<td>Completed Post-Secondary</td>
<td>7771 (58.9%)</td>
<td>9451 (60.7%)</td>
</tr>
<tr>
<td>Worked in last week</td>
<td>9113 (69.1%)</td>
<td>8918 (57.3%)</td>
</tr>
<tr>
<td>Stress in Life</td>
<td>2738 (20.8%)</td>
<td>3701 (23.7%)</td>
</tr>
<tr>
<td>Currently Married</td>
<td>7855 (59.6%)</td>
<td>9076 (58.3%)</td>
</tr>
<tr>
<td>Child under 12 years</td>
<td>2630 (19.9%)</td>
<td>3620 (23.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>13190</td>
<td>15571</td>
</tr>
</tbody>
</table>

**4.8.3 Analysis**

A common challenge with researching gambling is that the experience of problems as a result of gambling is relatively rare. This means that problem gambling scores are typically not normally distributed, making regression analysis difficult. In order to address this limitation, the current study uses generalized linear models assuming a gamma distribution with a log link. This technique is rare in social science research, and, to the knowledge of the researcher, has never been used to study problem gambling. However, such models have been useful in studying other similarly rare behaviors such as problematic alcohol consumption (Lopes et al., 2008), the
5. Conclusion

occurrences of uncommon diseases in health economics research (Basu, 2005) and uncommon risk factors in risk assessment (Blough, Madden & Hornbrook, 1999). Models are compared by goodness of fit as determined by the Akaike Information Criterion (AIC) in which the lower score indicates the better fitting model. Since gamma distributions cannot reach a value of 0 on the dependent variable, a value of 0.01 was added to each PGSI score. A value of 0.01 was subtracted from all scores in the model interpretation. Analyses for the study were performed using the R project for statistical computing version 0.97.551.

4.9 Results

Table 4.2: Severity of problems experienced as a result of gambling as indicated by the PGSI: Main effects model.

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th></th>
<th></th>
<th>Women</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds Ratio</td>
<td>2.5%</td>
<td>97.5%</td>
<td>Odds Ratio</td>
<td>2.5%</td>
<td>97.5%</td>
</tr>
<tr>
<td>Age</td>
<td>0.290***</td>
<td>0.151</td>
<td>0.426</td>
<td>0.322***</td>
<td>0.162</td>
<td>0.478</td>
</tr>
<tr>
<td>Age²</td>
<td>-0.025***</td>
<td>-0.035</td>
<td>-0.014</td>
<td>-0.021***</td>
<td>-0.033</td>
<td>-0.009</td>
</tr>
<tr>
<td>Education Linear</td>
<td>-0.264**</td>
<td>-0.449</td>
<td>-0.084</td>
<td>-0.606***</td>
<td>-0.833</td>
<td>-0.388</td>
</tr>
<tr>
<td></td>
<td>-0.045</td>
<td>-0.267</td>
<td>0.171</td>
<td>0.068</td>
<td>-0.198</td>
<td>0.326</td>
</tr>
<tr>
<td></td>
<td>-0.208</td>
<td>-0.459</td>
<td>0.033</td>
<td>-0.403**</td>
<td>-0.713</td>
<td>-0.107</td>
</tr>
<tr>
<td></td>
<td>-0.345**</td>
<td>-0.581</td>
<td>-0.104</td>
<td>-0.072</td>
<td>-0.331</td>
<td>0.193</td>
</tr>
<tr>
<td></td>
<td>-0.282**</td>
<td>-0.490</td>
<td>-0.079</td>
<td>0.033</td>
<td>-0.186</td>
<td>0.250</td>
</tr>
<tr>
<td></td>
<td>-0.551***</td>
<td>-0.748</td>
<td>-0.355</td>
<td>-0.357***</td>
<td>-0.564</td>
<td>-0.151</td>
</tr>
<tr>
<td></td>
<td>0.421***</td>
<td>0.214</td>
<td>0.635</td>
<td>0.482***</td>
<td>0.254</td>
<td>0.719</td>
</tr>
<tr>
<td>AIC</td>
<td>-40884</td>
<td></td>
<td></td>
<td>-54907</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Intercept)</td>
<td>-1.414***</td>
<td>-1.796</td>
<td>-1.014</td>
<td>-2.540***</td>
<td>-2.970</td>
<td>-2.085</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>13280</td>
<td></td>
<td></td>
<td>15561</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<0.5, **p<0.01, ***p<0.001
Table 4.2 describes the main effect models for men and women. It shows that both men and women follow several general and expected trends in the variables’ relationships with gambling problems. First, the significant results of the age and age squared variables indicate that there is a curvilinear relationship between age and problem gambling (Welte et al., 2011). The experience of life stress figures also show positive effects for men and women and that the size of those effects is similar for both genders. Marital status is also associated with lower problem gambling as should be expected considering the above literature review. The models in Table 4.2 also shows that marriage has a notably stronger effect for men than it does for women.

Several variables show marked differences between genders in the main effects model. Education shows several interesting patterns. First, as expected there is a significant linear effect for both men and women with respect to the over pattern of the relationship between PGSI scores and education. The negative coefficient in the “linear” category shows that for both men and women, higher levels of education are associated with lower PGSI scores. We also see that this effect is much stronger for women with a coefficient three times that of the men in the sample. A separate model containing a combined sample of both men and women was run separately with the same variables with an interaction term added for gender and education. The difference in effects of education was found to be significantly different between men and women. While there is an overall negative relationship between education and PGSI scores for both genders, we see that for women there is also a significant cubic shape found in the relationship. This means that, for women, the relationship is best described by a double curved line rather than as a straight line. As shown in Figure 3, while having a high school education is associated with lower PGSI scores when compared to those with less than a high school degree, having completed some post-secondary education was associated with significantly higher PGSI scores compared to those who finished high school. While the general pattern appears to be similar for men, the differences between categories are smaller and not significantly different from a linear relationship. The significantly stronger effect of education for women and the shape of that effect are addressed further in the discussion section.
Most research on the subject indicates that current employment should coincide with lower problem gambling scores (Nyman et al., 2013; Castrén et al., 2013). As Table 4.2 shows, this holds true for men. However, there is no significant relationship between working status and problem gambling among women in the main effects model. Having a child in the household under the age of 12 might also be expected to be associated with lower problem gambling scores (Lyk-Jensen, 2010; Shinnar et al., 2004). Again, the variable behaves as expected for men but among women there is no significant relationship with PGSI scores.

Table 4.3: Severity of problems experienced as a result of gambling as indicated by the PGSI: Interaction effect model.
5. Conclusion

<table>
<thead>
<tr>
<th></th>
<th>Working</th>
<th>Married</th>
<th>Life Stress</th>
<th>Married*Working</th>
<th>AIC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.290</td>
<td>-0.559***</td>
<td>-0.292</td>
<td>-0.606</td>
<td>0.019</td>
</tr>
<tr>
<td>Working</td>
<td>-0.587</td>
<td>-0.878</td>
<td>-0.679***</td>
<td>-0.986</td>
<td>-0.378</td>
</tr>
<tr>
<td>Life Stress</td>
<td>0.001</td>
<td>-0.245</td>
<td>0.478***</td>
<td>0.250</td>
<td>0.713</td>
</tr>
<tr>
<td>Married*Working</td>
<td>-0.292</td>
<td>-0.606</td>
<td>0.250</td>
<td>0.713</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.019</td>
<td>-0.378</td>
<td>0.378</td>
<td>0.977</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-40882</td>
<td>-54996</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Intercept)</td>
<td>-1.407***</td>
<td>-1.829</td>
<td>--0.966</td>
<td>-2.326***</td>
<td>-2.783</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>13279</td>
<td>15560</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In order to examine the unexpected finding that working in the past week was not significantly related to PGSI scores (for women only), an interaction term between marital status and working status was added to the models in table 4.3. The interaction term does not show a significant relationship for men. As the effect display for men shows (Figure 4), married men show lower PGSI scores than unmarried men. For those men currently employed and those who are not currently employed we see that the difference in PGSI scores between those who are and are not married is roughly the same. This demonstrates that the effect of being married is consistent for men regardless of whether or not they are currently working.

**Figure 4: PGSI Scores, Marital Status and Work among Men**
5. Conclusion

In contrast, the interaction term does show a significant relationship with PGSI scores among women. Looking at Figure 5, we see several patterns within this relationship. First, we see that, overall, marriage has a negative relationship with PGSI scores. Regardless of working status, married women on average have lower PGSI scores. The chart also shows that current work is associated with lower PGSI scores among women who are not married and higher scores among women who are married. The implications of this interaction effect are discussed below.

Figure 5: PGSI Scores, Marital Status and Work among Women

4.9 Discussion

The findings of the current study show that participation in work and family life has markedly different implications for men and women in connection to problems experienced as a result of gambling. The relationships between various work and family life variables among men behaved as expected and offered support to existing research. Having worked in the past week was significantly related to lower PGSI scores, which supports findings that employment is an important protective factor for the negative effects of gambling (Nyman et al., 2013; Castrén et al., 2013). However, Table 4.2 shows that among the female subsample shows no significant relationship between working status and PGSI scores. These
results show that the models described in Table 4.2 fail to support Hypothesis 1. Among men, both currently working and being married were related to significantly lower PGSI scores. For women, being married had a significantly lower negative effect on PGSI scores (as tested by an earlier model, coeff.=0.313 (0.135)*), and no significant relationship was observed between working status and PGSI scores.

One finding of interest was that education showed a stronger negative relationship with problem gambling scores among women compared to men. Another unexpected finding is, among women, the lack of a significant relationship between problem gambling and living with a child under the age of 12. While we were unable to determine whether this was the respondent’s child, this variable is used to indicate at least some child-raising responsibilities in the home. Most interestingly, marital status and having worked in the past week had an interactive effect among women but did not among men. Specifically, working status among unmarried women is related to fewer gambling problem and among married women working in the past week is related to higher problem gambling scores. This effect is represented in Figure 5 by the increase in size of the second red bar.

Work-family conflict is premised on the idea that one’s work life and family life compete for time and energy and that the constraints experienced in either realm as a result of this competition can result in negative emotional states. It also suggests that women will in general experience greater degrees of work-family conflict because the modern workplace is structures around the single breadwinning male as the ideal worker, and that cultural expectations associated with women’s roles in family life create greater levels of distress where this conflict is found (Greenhaus & Beutell 1985; Simon 1995, Stewart 2013).

The findings discussed above first show that there is little conflict between work and family life among the men included in the sample. We see that marriage, childrearing, and employment are all related to lower average PGSI scores among men. Examining the non significance of the interaction term between work and marriage among men, we can also see that these variables have more of an additive effect in protecting men from gambling-related harm, with neither variable moderating or mediating the effect of the other.
5. Conclusion

For the women in the current analyses we see a very different trend. First, while marriage does have a significant negative relationship with problem gambling scores, we do not observe significant relationships between PGSI scores and either having a child under 12 in the home or being employed. What is more interesting is the finding that the interaction between work and marriage is significant. This shows that among women, working in the last week significantly moderated the relationship between marriage and PGSI scores in such a way that occupying both work and family roles was related to an increase in problem gambling scores.

These findings suggest that occupying roles related to both work and family was associated with fewer problematic gambling outcomes among men when compared to women, with more variables being related to lower PGSI scores among men. Further, while the effects of these variables were observed to be separate and additive for men, these same variables were shown to be interrelated among women.

While the current study is not able to establish directionality in these relationships, there are several possible interpretations of these findings. If we consider problem gambling to be an outcome that is related to the need to deal with stress or other existing mental health issues (Blaszczynski & McConaghy, 1989; Taber et al., 1987; Wood & Griffiths, 2007), then the higher scores among working married women compared to not working married women could indicate greater work-family conflict among women. Interpreted this way, gambling would be used as a coping mechanism to deal with the stress associated with managing gendered expectations surrounding women’s relationships to work and family life (Aneshenel et al., 1981; Gove & Tudor, 1973; Michel et al., 2011).

The results of the current study also have methodological implications for the study of gambling. The use of generalized linear models with a gamma distribution appears to summarize the data well. When compared to equivalent models assuming a Gaussian distribution, the AIC for the gamma models is much lower (46182 compared to -54996 for the female subsample in Table 4.3). As mentioned earlier, these models have been used successfully to examine other conditions that do not have a normal distribution (Basu, 2005; Blough et al., 1999; Lopes et al., 2008). Since gambling problems are rare among the general population, any study that looks to model problem gambling scores as a continuous
dependent variable must be able to account for the high number of zeroes and low scores. The results of this study suggest that generalized linear models with gamma distributions may be useful to future problem gambling research.

The significant cubic shape of the relationship between PGSI scores and education suggests that education should be measured as ordinal categories rather than as a continuous variable. The results show that, at least for women, the relationship between education and gambling problems is not a simple line. The models in Table 4.2 show that both women and men, those who have completed some post-secondary education but did not graduate do not show significantly different scores than those that completed high school. This means that despite receiving more education in terms of years, they do not experience fewer gambling problems on average. These findings could be an indication that there are traits related to the inability to complete postsecondary education, or selection effects in who enrolls in it, that also make them more likely to experience problems as a result of gambling. However, these patterns would likely be missed if education was measured as a continuous variable indicating the years of schooling.

There are several limitations to the current study. First, the CCHS does not collect data on those living on First Nations reservations or other aboriginal settlements. Aboriginal Canadians have been shown to be disproportionately affected by addiction generally and problem gambling more specifically (see Breen & Gainsbury, 2013 for a review of this subject). Higher average rates of unemployment among Aboriginal Canadians also means that one would reasonably expect different patterns in the relationship between working status and problem gambling and marriage. Given the specific concerns surrounding addictions among aboriginal Canadians, the relationships discussed in the present study would require specific research on that particular population.

The current study is also limited in that the data that it uses are cross-sectional. The cross-sectional nature of the data makes it difficult to discern causation in the relationships examined. This makes it particularly difficult to discuss whether the differences observed between genders are the result of
selection effects (Simon, 2002). It is also not possible to tell whether a person’s gambling problems occurred before or after they were married. The current study is constrained by the data available.

4.10 Conclusion

The goal of the current study was to examine how the intersection of work and family roles are related to the experience of gambling-related problems and whether or not there are differences in that relationship among men and women. The findings of this study show that while rates of gambling problems are lower among women, women do not experience the same benefits for the intersection of work and family life that men do. More specifically, married women who participate in paid employment experience more problems related to gambling than married women who do not work. Such a finding sheds light on the differences between women’s and men’s involvement in gambling activities as related to the social roles that they occupy.

Gender research on problem gambling has increasingly called for a greater effort to understand how women’s experiences of problem gambling differ from men’s (Blinn-Pike et al., 2007; Toneatto & Wang, 2009). This study contributes to this goal by showing that participation in particular social roles, such as work and marriage, shows distinctly different patterns in their relationships to problem gambling among men and women. Understanding that being both married and currently working may be complimentary for men and not for women has benefits for developing gender-specific treatment programs. Recognizing the gender differences the relationships between important and common social roles and problem gambling has important implications for how we understand and address problem gambling.

Recognizing and addressing such concerns becomes particularly important in the face of current pushes to increase the revenue generating potential of gambling in Canada. This is particularly concerning for women as the increased focus on EGMs and the increased accessibility of gambling opportunities have both been shown to disproportionately contribute to problem gambling among women. Research
5. Conclusion

that is able to understand gambling problems as a response to structural and cultural strains, which expose
certain portions of the population to increased harm, rather than portraying problem gambling as the result
of individual deficiencies, is an important step towards true responsible gambling provision.

(The author declares no conflict of interest)
4.11 Works Cited


5. Conclusion


5. Conclusion


Huang, Y. (2009). *Statistical analyses of gambling behaviors*. (M.Sc., The University of Regina (Canada)). *ProQuest Dissertations and Theses*.


5. Conclusion


5. Conclusion


5. Conclusion


5. Conclusion

5.1 The Non-Randomness of Problem Gambling

At the end of the introduction, the reader was asked to reflect on the connection between problem gamblers and the world that surrounds them. When discussing problem gambling, it is important to note that it is a preventable condition that does not occur randomly within the general population. First, a person’s position within the social hierarchy places him or her at greater or lesser risk of experiencing harm as a result of gambling and affects the types of harm that he or she may experience. The first paper, “The Pathway from Poor”, argues that variables related to socioeconomic status, such as education and income, shape the experience of harm as a consequence of gambling. It shows that those in lower income groups and those with lower levels of education experience more gambling problems on average. Most importantly, it reveals a person’s income level moderates the relationship between having an anxiety disorder and problem gambling scores.

Similarly, the second paper, “The Social Side of the Pathways Model”, shows those who have less social support, which is demonstrably connected to social inequality (Cleaver 2005; Kawachi et al., 1997; Lin, 2000), experience more gambling related problems on average. Additionally, this paper demonstrates that the level of social support a person receives mediates the relationship between mood disorders and problem gambling scores.

The third paper, “An exploration of gender differences in the relationship between work-family conflict and gambling problems”, demonstrates that for men and women both being married and employment is associated with lower problem gambling scores. However, for women, being both married and working is associated with higher problem gambling scores as
compared to women who are married and do not work outside the home. This finding is used to argue that as a result of societal expectations and structural disadvantages faced by women, they experience additional stresses when occupying both labour and marital roles that are not experienced by men, and this in turn results in more negative mental health outcomes like problem gambling.

In each of these papers, we see that contextual factors (socioeconomic status, social networks, and gendered role expectations) have significant impact on problem gambling scores. More importantly to the themes discussed in this dissertation, these studies show that three commonly studied variables associated with problem gambling (anxiety disorders, mood disorders, and gender) are subject to variation when the above contextual factors are accounted for. Across all three papers, there is a consistent theme of traits typically treated as innate to the problem gambler being significantly modified when these traits are examined in relation to important features of the social environment.

A second feature of the non-randomness of problem gambling in Canada gambling is a tightly controlled and highly organized nature of gambling provision. For example, the Ontario Lottery and Gaming Commission (OLG, 2013) reported revenue of 6.7 billion CAD for 2012, employs approximately 17,000 people, owns ten casinos, operates slot machines at 14 racetracks, and operates approximately 9800 lottery terminals throughout the province (OLG.ca). Expenses and profits are tracked and reported yearly and analyzed to identify where inefficiencies in gambling provision lie and how OLG might increase the number customers that it serves. It is also explicitly stated by OLG as a part of their “modernization” efforts that OLG is seeking to increase the availability of gambling in areas with higher population densities, increase the availability of their products where they exist already, increase the presence of the private sector
5. Conclusion

in gambling provision, and introduce new versions of electronic gaming machines to venues where they have previously been disallowed such as bingo halls. Each aspect of this “modernization” plan implements either the increased availability of gambling opportunities or the introduction of electronic gambling machines, both features that have been repeatedly linked to higher rates of problem gambling (St. Pierre et al., 2014, Storer et al., 2009). While responsible provision of gambling opportunities is clearly stated as an objective in the mandate of OLG, the provincial government agency is a large and highly organized corporation whose primary goal appears to be revenue generation, largely pursued by making gambling as widely available as possible.

The above discussion outlines two important features of gambling in Ontario. First, gambling disproportionately harms those who experience other types of social inequality, which means that problem gambling cannot be seen as a random or unpredictable occurrence. Second, the provision of gambling in Canada is highly organised and run by provincial governments with the primary goal of generating revenue, which again means that exposure to gambling cannot really be said to be a random or inevitable occurrence. Recognizing the connection between these two trends is an important part of what a greater incorporation of sociology offers the study of problem gambling. An approach to problem gambling that regards it as largely an affliction caused by a collection of risky personality traits, or worse, personal flaws or failings, obscures the connection between the harm caused by problem gambling and how opportunities for gambling are provided. It is through the sociological (and perhaps the socio-historical) lens that problem gambling can be connected to the institutions and social systems that shape the lives of those affected by it. It is the recognition of the influence of these connections, more so than the influence of individualized traits, which will lead to responsible gambling policy and provision.
5. Conclusion

That is to say, that effective public policy is that which is driven by understanding problem gambling as a public issue, not a private trouble.

5.2 Theoretical Contributions

This dissertation makes several theoretical contributions to the field of problem gambling. First, it serves as an example of research that “adds” principles of sociological analysis (as opposed to social variables) to existing knowledge about characteristics that make a person more likely to be a problem gambler. As Bernhard and Preston (2007) argue, connecting what is understood about the individual experiences of harm from gambling to broader sociological questions about how we approach gambling is an important next step for the field of gambling research. Demonstrating that people’s experiences of gambling are closely linked to their positions in the social structures that surround them has important implications for how we approach gambling at all levels of investigation. Sociological approaches to problem gambling are important because it is only by examining the “big picture” of the problem gambler within a social context that we can understand the importance of responsible control in the provision of gambling opportunities. There is a danger when we primarily understand problem gambling as the result of a collection of traits that increase a person’s chances of becoming a problem gambler. When research investigates what makes a person more or less prone to problem gambling, there is a tendency to forget that being “exposed” to gambling is not a simple environmental risk like getting too much sun or being exposed to the flu. Gambling is a social activity that, in most of the western world, is either provided by the state or strictly controlled by it. Having theoretical approaches that allow us to take the things we know about problem gambling in relation to both the individual and social structure and test them against each other is
important when trying to keep in mind the reality of harm caused by gambling provision and increased ease of access. A theoretical perspective that allowing personal experience as a reflection of a social problem rather than private trouble avoids getting lost in the details of personalities. Such approaches help make sure that gambling research does not stay narrowly focused on the individual at the expense of losing the big picture, or ignoring the personal pain gambling can cause, by looking only at larger trends.

The papers in the dissertation demonstrate the connections between individual traits and the institutions, structures and networks in which they are found through the Pathways Model. As discussed earlier in the introduction and in each of the papers, the Pathways Model is a theoretical framework that is well-equipped to incorporate a sociological lens. This ability to blend assumptions and findings from many different fields is largely due to pathways model assuming a great range in how a person develops and experiences problems as a result of gambling behaviours. Not assuming a single etiology or simple “yes or no” diagnostic category adds a flexibility to the Pathways Model that more accurately reflects how complex and variable a person’s experience with problem gambling can be.

In much the same way that the Pathways Model shows the development of problems as containing a range of experiences, in this dissertation demonstrates that the connections between problem gambling and some of its commonly studied correlates also show significant variation. Each of the three papers presented demonstrate that when we apply sociological principles or theories to the Pathways Model, it shows that the progression along those pathways is more complicated than the model assumes. Namely, the first two papers complicate the influence of emotional vulnerabilities with social support and socio-economic status, and the third paper complicates the impact of gender through the intersection of important institutions such as work
and marriage. It is important to remember that the social environment should not exist only as a starting point in an etiological model. As any behaviour develops, it continues to be shaped by the social institutions, norms and relationships with which a person interacts.

Figure 6: A modified Pathways Model

Figure 6 above serves as an initial suggestion of how the findings of this dissertation might “fit” into the visual representation of the Pathways Model. Resiliency resources can be, in part, represented by the sociological variables that were the focus of each of the studies that
make this dissertation. They are placed between the experiences of typical learning patterns of pathway 1 (indicated by the blue lines) and the emotional and impulsivist characteristics of pathways 2 and 3 (indicted by the red and green lines respectively). For each pathway, the social resources that a person has access to condition or modify the relationships between different assumed vulnerabilities and the experience of problem gambling related harm. Such an addition allow one to recognize that having problems with depression or anxiety do not automatically lead to gambling related harm and that there is a large range of experience among those with such problems

5.3 Methodological Contributions

The dissertation makes several contributions to the statistical analysis of gambling problems. First, modeling problem gambling scores presents challenges because the large majority of people who participate in gambling do not experience. This means that when problem gambling scores are used as a dependent variable it is important to address the skewedness of that variable’s distribution. A standard ordinary least squares regression assumes a constant error variance for the dependent variable. That is to say, the errors for the dependent variable are normally distributed. However, due to the high proportion of zero scores on problem gambling scales we see that errors on the PGSI do not follow a normal distribution. To adjust for this skewness the current study uses generalized linear modeling assuming a gamma distribution with a log link to determine how well the statistical models summarize the data. Essentially, the gamma distributions used in the current research assume a distribution of errors that more closely fits the dependent variable than an OLS regression would.
5. Conclusion

Figure 7 shows a quantile-quantile (q-q) plot that compares the theoretical and observed quantiles for the dependent variable (PGSI scores). If the errors of variable were normally distributed then we would expect the series of circles in the graph to follow the red line closely. However, the graph shows the lower and higher ends of the scale there is a greater difference between the red line and the actual observations. This indicates that a model that assumes a normal distribution for PGSI (such as an OLS regression) does not represent the data accurately.

*Figure 7: Comparison of expected and observed values assuming a normal distribution*

Figure 8 shows the q-q plot for the PGSI variable when a gamma distribution is assumed for the variable. This graph shows that observed values follow much more closely to the assumed distribution indicated by the red line.
The findings of this dissertation show that using generalized linear modeling, in this case assuming a gamma distribution for PGSI scores, offers an alternative to the problems of dealing with the rarity of problem gambling.

This research also supports refined approaches to important variables of education and age. As discussed by Welte et al. (2011), there is evidence suggesting that problem gambling shows a curvilinear, rather than strictly linear relationship with age. That is to say, there are lower rates of problem gambling in adolescence, higher rates during early to mid-adulthood, and lower rates again in older adulthood. This has been adjusted for by adding a quadratic term to the age variable in the three papers included in this dissertation. In each case, the inclusion of the quadratic term better summarizes the relationship between age and gambling than when it is measured as an unadjusted continuous variable. Accepting the principle of age as having a
5. Conclusion

curvilinear relationship with gambling is important as age is one of the most common control variables used in statistical research. If statistical models are to summarize data as efficiently as possible, acknowledging age as having curvilinear relationship with problem gambling is an important consideration.

Another variable often measured as a strict linear variable is education. Often, years of schooling is used to measure education. However, as pointed out by Barro & Lee (2001), measuring education by years spent in school or in training, makes assumptions about the connection between years of training and human capital that leave out important details. For example, in the third study of the dissertation “An exploration of gender differences in the relationship between work-family conflict and gambling problems” it was found that, for women, that more education was associated with lower scores on the PGSI. If the variable was measured as years of schooling, a simple positive linear relationship would have been observed. However, examining the variable as an ordered categorical variable showed that the relationship was better understood as having a cubic shape, or double curved line, that accounted for the finding that those who started but did not finish a post-secondary education actually scored higher on the PGSI on average compared to those who had completed high school as their highest level of educational attainment. In fact, the “some post-secondary” group had marginally higher PGSI scores on average (see figure 3). Education is a common variable used to indicate socioeconomic status in sociological research. Showing that the relationship between problem gambling and education may be more complex than a simple negative linear relationship is an important contribution of the current research to the study of problem gambling.

5.4 Next steps
I plan to continue my research in both the field of addictions generally and problem gambling specifically. I am dedicated to this field of research, and feel that I have gained a familiarity with both the subject matter and research methods that will help make a lasting contribution to the future study of problem gambling. In particular, my experiences gained at the Center for Addiction of Mental Health, both in the past and currently, have helped build and maintain professional relationships and skills that will allow me to pursue projects related to the problems that I have been studying in the last seven years of graduate study.

There are several issues that I would like to investigate that build on the research that presented in this dissertation. First, the finding that the relationship between education and problem gambling scores has a significantly different pattern between men and women warrants further investigation. I am particularly interested in examining gender differences in the relationships between various forms of capital and problem gambling. While forms of capital are not a large part of the theoretical framework that I worked with in this research, they might be viewed as an alternative explanation for the findings. Each paper focused on a different form of capital, the first economic capital, the second social capital, and the third human capital. Addressing different forms of capital in a resiliency against problem gambling approach has the potential for a strong sociological approach to both prevention and treatment of problem gambling.

Another finding I am interested in pursuing is found in the second paper. It is the mediation effect that social support scores had on the relationship between mood disorders and problem gambling scores. An important part of determining a mediation effect is determining the time ordering of the effect. As the data used for the dissertation was cross sectional, it was not possible to explore causal links. I plan to devote some of my future research energies to this
relationship. I feel that being able to parse out exactly how and when this mediation effect occurs will help contribute to the broader goal of the dissertation, which is to demonstrate the inextricable connection between a person’s social life and their experience of problem gambling.

5.5 The Conclusion’s Conclusion

Recognizing the dangers of the medicalization of problem gambling, approaching problem gambling as a public issue, and demonstrating problem gambling’s link to other issues and patterns of disadvantage are all goals I will continue to pursue. However, this dissertation, more generally speaking, demonstrates something simpler. While each research project deals with different topics, they all demonstrate the importance of sociological approaches in gambling research. The three popular risk factors for problem gambling studied (mood disorders, anxiety disorders and gender) each showed significant variation when sociological approaches were applied. Put simply, this dissertation shows that ignoring sociological approaches when studying problem gambling, can mean missing a significant part of the picture.

It is not enough to take a variable that is considered to be “social” and interpret it as another risk factor that might predispose a person to harm from gambling. This is the work of the “social pathologists” that C. Wright Mills took exception to. The work of the social pathologist has the potential for the same individualizing effects as the neurologist using dopamine maintenance deficiencies to explain problem gambling. While their work may be accurate and useful in many respects, it fails to connect those correlates of problem gambling to the institutions and social systems that shape the lives of their research subjects. Mills contends that the discipline best
able to recognize and address that missing connection is sociology, and I believe the work of this dissertation supports that claim.
5.6 Works cited


5. Conclusion

Appendix I: Problem Gambling Severity Index

Thinking about the last 12 months...

1. Have you bet more than you could really afford to lose?
   Never=0  Sometimes=1  Most of the time=2  Almost always=3

2. Still thinking about the last 12 month, have you needed to gamble with larger amounts of money to get the same feeling of excitement?
   Never=0  Sometimes=1  Most of the time=2  Almost always=3

3. When you gambled, did you go back another day to try to win back the money you lost?
   Never=0  Sometimes=1  Most of the time=2  Almost always=3

4. Have you borrowed money or sold anything to get money to gamble?
   Never=0  Sometimes=1  Most of the time=2  Almost always=3

5. Have you felt that you might have a problem with gambling?
   Never=0  Sometimes=1  Most of the time=2  Almost always=3

6. Has gambling caused you any health problems, including stress or anxiety?
   Never=0  Sometimes=1  Most of the time=2  Almost always=3

7. Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?
   Never=0  Sometimes=1  Most of the time=2  Almost always=3

8. Has your gambling caused any financial problems for you or your household?
   Never=0  Sometimes=1  Most of the time=2  Almost always=3

9. Have you felt guilty about the way you gamble or what happens when you gamble?
   Never=0  Sometimes=1  Most of the time=2  Almost always=3

Scoring Instructions for the PGSI

Total your score. The higher your score the greater the risk that your gambling is a problem.
Score the following for each response:

never = 0
sometimes = 1
most of the time = 2
almost always = 3

Scores for the nine items are summed, and the results are interpreted as follows:

0 = Non-problem gambling.
1-2 = Low level of problems with few or no identified negative consequences.
3-7 = Moderate level of problems leading to some negative consequences.
8 or more = Problem gambling with negative consequences and a possible loss of control.


Appendix II: Psychopathology questions

Mood Disorder

Literal Question:
Remember, we are interested in conditions diagnosed by a health professional. Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?

VALUE LABEL
1 YES
2 NO
6 NOT APPLICABLE
7 DON'T KNOW
8 REFUSAL
9 NOT STATED

Anxiety Disorder

Literal Question:
Remember, we are interested in conditions diagnosed by a health professional. Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?

VALUE LABEL
1 YES
2 NO
6 NOT APPLICABLE
Appendix III: Medical Outcomes Survey (Social Support scale)

Question 1

Literal Question:
About how many close friends and close relatives do you have, that is, people you feel at ease with and can talk to about what is on your mind?

VALUE LABEL
996 NOT APPLICABLE
997 DON'T KNOW
998 REFUSAL
999 NOT STATED

Question 2

Literal Question:
How often is each of the following kinds of support available to you if you need it? - Someone to help you if you were confined to bed: (none of the time, a little of the time, some of the time, most of the time, or all of the time)?

VALUE LABEL
1 NONE OF THE TIME
2 LITTLE/TIME
3 SOME OF THE TIME
4 MOST OF THE TIME
5 ALL OF THE TIME
6 NOT APPLICABLE
7 DON'T KNOW
8 REFUSAL
9 NOT STATED

Question 3

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone you can count on to listen to you when you need to talk
5. Conclusion

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED

Question 4

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to give you advice about a crisis

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED

Question 5

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to take you to the doctor if you needed it

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED
Question 6

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone who shows you love and affection

VALUE LABEL
1 NONE OF THE TIME
2 LITTLE/TIME
3 SOME OF THE TIME
4 MOST OF THE TIME
5 ALL OF THE TIME
6 NOT APPLICABLE
7 DON'T KNOW
8 REFUSAL
9 NOT STATED

Question 7

Literal Question:
Again, how often is each of the following kinds of support available to you if you need it? - Someone to have a good time with

VALUE LABEL
1 NONE OF THE TIME
2 LITTLE/TIME
3 SOME OF THE TIME
4 MOST OF THE TIME
5 ALL OF THE TIME
6 NOT APPLICABLE
7 DON'T KNOW
8 REFUSAL
9 NOT STATED

Question 8

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to give you information in order to help you understand a situation

VALUE LABEL
1 NONE OF THE TIME
2 LITTLE/TIME
3 SOME OF THE TIME
4 NOT APPLICABLE
7 DON'T KNOW
8 REFUSAL
9 NOT STATED
5. Conclusion

4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED

Question 9

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to confide in or talk to about yourself or your problems

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED

Question 10

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone who hugs you

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED

Question 11

Literal Question:
5. Conclusion

(How often is each of the following kinds of support available to you if you need it?) - Someone to get together with for relaxation?

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED

Question 12

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to prepare your meals if you were unable to do it yourself

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED

Question 13

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone whose advice you really want

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW

8 REFUSAL
9 NOT STATED

Question 14

Literal Question:
Again, how often is each of the following kinds of support available to you if you need it? - Someone to do things with to help you get your mind off things

VALUE LABEL
1 NONE OF THE TIME
2 LITTLE/TIME
3 SOME OF THE TIME
4 MOST OF THE TIME
5 ALL OF THE TIME
6 NOT APPLICABLE
7 DON'T KNOW
8 REFUSAL
9 NOT STATED

Question 15

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to help with daily chores if you were sick

VALUE LABEL
1 NONE OF THE TIME
2 LITTLE/TIME
3 SOME OF THE TIME
4 MOST OF THE TIME
5 ALL OF THE TIME
6 NOT APPLICABLE
7 DON'T KNOW
8 REFUSAL
9 NOT STATED

Question 16

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to share your most private worries and fears with
VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED

Question 17
Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to turn to for suggestions about how to deal with a personal problem

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED

Question 18
Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to do something enjoyable with

VALUE LABEL
1  NONE OF THE TIME
2  LITTLE/TIME
3  SOME OF THE TIME
4  MOST OF THE TIME
5  ALL OF THE TIME
6  NOT APPLICABLE
7  DON'T KNOW
8  REFUSAL
9  NOT STATED
5. Conclusion

9 NOT STATED

Question 19

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone who understands your problems

VALUE LABEL
1 NONE OF THE TIME
2 LITTLE/TIME
3 SOME OF THE TIME
4 MOST OF THE TIME
5 ALL OF THE TIME
6 NOT APPLICABLE
7 DON'T KNOW
8 REFUSAL
9 NOT STATED

Question 20

Literal Question:
(How often is each of the following kinds of support available to you if you need it?) - Someone to love you and make you feel wanted

VALUE LABEL
1 NONE OF THE TIME
2 LITTLE/TIME
3 SOME OF THE TIME
4 MOST OF THE TIME
5 ALL OF THE TIME
6 NOT APPLICABLE
7 DON'T KNOW
8 REFUSAL
9 NOT STATED