

Gambling in Nova Scotia: The Regulations, Reinforcements, and Impacts

Chelsea Doherty

Bachelor of Science (Health Promotion) Honours Candidate

Prepared for

Injury Free Nova Scotia

April 6, 2015

Table of Contents

The Current State of Gambling in Nova Scotia	3
Gambling Regulations	3
Gambling Revenues	5
Prevalence of Gambling in Nova Scotia.....	6
Why is Gambling so Addictive?.....	6
The Meticulous Design of Casinos and Gambling Machines.....	7
Gambling Advertisements	9
Brain Circuitry	10
Psychological Reinforcements.....	11
Social Facilitation	12
Gambling Impacts.....	12
Individual Impacts	12
Interpersonal Impacts.....	14
Impacts to Communities and Society	15
Conclusion	16
References	17

The definition of gambling is risking something of value on an activity that has an unknown outcome. Examples include the use of slot machines, playing poker, or playing bingo (Addiction & Mental Health, Alberta Health Services, 2015). Gambling behaviour exists on a continuum from no gambling to problematic and pathological gambling (Griffiths, 2004; Problem Gambling Institute of Ontario, 2015). Some individuals never gamble, whereas others are casual gamblers and occasionally purchase raffle tickets, lottery tickets, or visit a casino. Social gamblers are individuals who play regularly and consider gambling to be their primary source of entertainment. Although gambling occurs frequently, these individuals prioritize themselves and their social relationships first. Problematic gamblers experience gambling harms through various aspects of their lives; personal, social, and work relationships are negatively impacted by the behaviour (Problem Gambling Institute of Ontario, 2015). Lastly, pathological gamblers are individuals who meet the DSM criteria (Griffiths, 2004).

The following literature review outlines the current state of gambling in Nova Scotia, including the regulations surrounding gambling, the revenues of gambling, and the prevalence of gambling behaviours. The review then discusses how gambling is addictive, and the impacts of gambling at the individual, interpersonal, community, and societal level.

The Current State of Gambling in Nova Scotia

Gambling Regulations

Citizens of Nova Scotia and the Nova Scotia Government are shareholders and own the gambling industry (Nova Scotia Provincial Lotteries and Casino Corporation [NSPLCC], 2014c). Established in 2011, the Deputy Minister's Advisory Committee

assists with strategy development and addresses issues related to social responsibility (Government of Nova Scotia, 2011). Cabinet is the primary decision maker, and makes choices about the province's involvement in gambling, changes in gambling, and gambling policies (NSPLCC, 2014c).

Four departments within the Government of Nova Scotia are involved in regulating gambling. Under the Department of Service Nova Scotia and Municipal Relations, the Alcohol and Gaming Division (AGD) administers Part II of the *Gaming Control Act* and licences gambling activities. The Division ensures that gambling activity occurs in an honest manner, and develops various reports on gambling in the province. The AGD administers seven licences in the province: bingo lotteries, breakopen tickets, casino registration, game of chance lottery, ticket lottery permits, ticket lottery licenses, and video lottery terminal registration (Access Nova Scotia, 2015).

The Nova Scotia Provincial Lotteries and Casino Corporation (NSPLCC) falls under the Department of Communities, Culture, and Heritage. Formerly known as the Nova Scotia Gaming Corporation, the NSPLCC is a Crown corporation that is governed by the *Gaming Control Act*. It oversees the business of gambling in the province, as it is responsible for the conduct of lottery schemes and casinos. The NSPLCC manages the Atlantic Lottery Corporation (ALC) and the Great Canadian Gaming Corporation (GCGC) who are in charge of the daily operations of ticket lotteries, video lotteries, and casinos (NSPLCC, 2014c). Established in 1976, the ALC runs lottery schemes in the four Atlantic Provinces (Province of Nova Scotia, 2008). In 2005, the GCGC took ownership of the two casinos in Nova Scotia (NSPLCC, 2014c).

The Office of Aboriginal Affairs manages gambling activities on First Nations Reserves (NSPLCC, 2014c). During 1995, the Province began facilitating gambling agreements to assist with the economic development of First Nations Reserves. Within the agreements, First Nations communities share profits from Sydney Casino and keep revenues from VLTs on their lands (Office of Aboriginal Affairs, 2014).

The Addiction Services Division is an agent of the Department of Health and Wellness. The Division develops standards for services related to gambling harms, develops provincial policies, monitors and audits programs, and facilitates provincial program development and research. Furthermore, the Division consults with District Health Authorities (DHAs) who implement and deliver gambling addiction programs and services (NSPLCC, 2014c). There were previously nine DHAs in Nova Scotia but as of April 1st 2015, the DHAs combined to form one Nova Scotia Health Authority (Government of Nova Scotia, 2015).

Due to its long history in Canada, harness racing is regulated by the federal government. The Canadian Pari-Mutuel Agency (CPMA) within Agriculture and Agri-Food Canada licences racetracks and betting theatre operators across the country. The agency enforces the *Pari-Mutuel Betting Supervision Regulations*, and audits harness racing activities (Agriculture and Agri-Food Canada, 2014).

Gambling Revenues

During the 2013-2014 fiscal year, there were two casinos, 2,776 video lottery terminals (VLTs), 850 slot machines, and 43 gambling tables in Nova Scotia (NSPLCC, 2014b). The gambling industry directly employed 538 individuals, and 7193 gaming licenses were active (NSPLCC, 2014b; Service Nova Scotia and Municipal Relations,

2014). In 2013-2014, citizens of Nova Scotia wagered approximately \$1.3 billion on gambling (NSPLCC, 2014a). This resulted in a revenue of \$402 million for the NSPLCC (NSPLCC, 2014c). In that year, approximately \$123.3 million was given to the province, \$5.7 million was allocated to education and treatment, and \$34.3 million was given to retailer commissions (NSPLCC, 2014a). The majority of revenue in Nova Scotia is generated from VLTs, followed by ALC lotteries and gambling that occurs in casinos (NSDHPP, 2008).

Prevalence of Gambling in Nova Scotia

According to the *2007 Adult Gambling Prevalence Study*, 94% of adults in Nova Scotia have gambled at least once in their lifetime. When using the Canadian Problem Gambling Index, 6.1% of adults were at any level of risk for problem gambling. Approximately 2.5% scored problem levels, with 1.6% reaching Moderate Problems and 0.9% identifying as Severe Problem Gamblers. Individuals who gambled regularly each month contributed to 95% of gambling revenues. During 2007, approximately 1.6% of adults reported Internet gambling at least once in their lifetime. Rates of problem gambling were twice as high among men, but women were more likely to play bingo and instant lottery tickets. Problem gambling was also more common among individuals under the age of 35, individuals who are unemployed, and individuals with disabilities (NSDHPP, 2008).

Why is Gambling so Addictive?

The odds of winning in gambling activities are low. For example, one in 13,983,813 will win a top prize in Lotto 6/49, and the odds of winning a top prize through

slot machines are 1 in 32,000 to 30,000,000 (NSPLCC, 2013). A large number of individuals continue to gamble despite the slim chances of winning (NSDHPP, 2008). This may be due to a variety of factors that reinforce the behaviour. These factors include the design of gambling activities, gambling advertisements in society, biological and psychological tendencies, and the influence of gambling on social facilitation.

The Meticulous Design of Casinos and Gambling Machines

Literature suggests that aspects of the physical environment can influence an individual's behaviour and emotions (Finlay, Kanetkar, Londerville, & Marmurek, 2006). Casinos are designed with the use of experience-based architecture. The design aims to direct the movement of individuals in the space, and to focus their attention on the gambling activities (Schüll, 2012). In many casinos, there are narrow aisles that twist and turn. This design directs attention to the equipment that is immediately ahead. Signage draws the eye to machines, and a lack of clocks allows players to lose track of time. Furthermore, low ceilings and separated gambling areas create the feelings of protection and control (Griffiths & Parke, 2003; Schüll, 2012). Gambling can be tiresome, as it requires a large amount of focus and repetition. Gamblers are also bombarded with competing stimuli that may lead to large amount of environmental stress. Casino environments are therefore designed to promote mental restoration, decrease stress, and produce positive emotions (Finlay et al., 2006).

Light levels influence performance and behaviour patterns. Up to a certain part, visual acuity increases with levels of light. However, too much light decreases performance because it impacts visual information cues (Griffiths & Parke, 2003). Consumer research has also shown that a player's energy is drained the quickest when

light hits their forehead. For that reason, lighting is designed to be steady and even (Schüll, 2012). There is an additional link between colours, central nervous system activity, and mood. For example, the colour red is typically associated with excitement and stimulation. Researchers have compared galvanic skin responses and found that individuals show higher levels of arousal when showed the colour red versus the colour green (Griffiths & Parke, 2003). Griffiths and Swift (1992) examined five gambling arcades in England and observed that the colour general scheme in all of the arcades was towards the red end of the spectrum.

Casinos are strategic with their use of sounds and smells (Griffiths & Parke, 2003; Schüll, 2012). Constant noise gives the impression of a fun and exciting environment. It also contributes to the illusion that winning is more common than losing. Similarly, music can play a role in both increasing physiological arousal or causing relaxation (Griffiths & Parke, 2003). Some casinos play different music at various times of the day, depending on the demographics of players who are most likely to gamble during that time (Schüll, 2012). Furthermore, as humans we typically enjoy familiar, pleasant smells. Designers exploit this sense by ensuring that there are consistent aromas in casinos (Schüll, 2012). To study this phenomenon, Hirsh (1995) odorized slot-machine areas in Las Vegas casinos. Two areas were each given a different aroma, and one area was the control and had no odour. The amount of money gambled in each area was examined before and after the odorization. Individuals spent approximately 45% more money after the odorization, and the most money was spent when the concentration of the aroma was the highest.

Gambling machines are designed to accelerate play, increase its duration, and increase the total amount of money spent. This is accomplished through a variety of techniques that appeal to our senses (Hsu, 2013; Schüll, 2012). Similar to casino designers, machine designers exploit animation, light, and sound to secure gamblers in one spot and manage their play. Softly pixelate video monitors reduce glare, and video technology has increased the speed of playing as users no longer have to wait for mechanical reels to spin. Animation is pleasing and often uses themes from pop-culture. On average, 400 different sounds blare through high quality speakers and are used to create unique sound events. Buttons are designed to be comfortable to touch, and have a variety of functions to respond to every desire of the player (Schüll, 2012).

Through the introduction of bill acceptors and Ticket-In-Ticket-Out Technology (TITO), players no longer waste time acquiring or handling coins (Schüll, 2012). TITO has been shown to increase the speed and amount of play by 20% (Lehman, 2007). Furthermore, machines are ergonomically designed to prevent slouching which may lead to feelings of tiredness. Foot rests, cup holders, and purse holders are incorporated to increase comfort and ensure that gamblers continue to play for long periods of time (Schüll, 2012).

Gambling Advertisements

In 2007, approximately 58% of adults stated that there was a lot of advertising encouraging people to gamble, and that there was too much advertising promoting gambling in Nova Scotia (NSDHPP, 2008). Commercial gambling advertisements impact knowledge, attitudes, beliefs, and behaviour intentions (Korn, Hurson, & Reynolds, 2005). Advertisements have normalized gambling in society, and

have created the perception that gambling is fun, easy, and has no consequences (Derevensky et al., 2007). The word “gambling” is not often used in the advertisements and statements such as “test your skill” and “get into the holiday spirit” are used instead. These phrases reduce feelings of guilt (Griffiths & Parke, 2003). Gambling advertisements focus on winners and imply that skill is more important than luck when playing games (Binde, 2009). They use powerful imagery to portray social and cultural values such as wealth, success, and happiness (Binde, 2009; McMullan & Miller, 2009).

Various studies have explored the impact and effects of gambling advertisements (Derevensky et al., 2007; Felsher, Derevensky, & Gupta, 2004; Binde, 2009). Through the use of youth focus groups and surveys, Derevensky et al. (2007) found that almost all youth are exposed to gambling advertisement. Approximately 93% of youth had seen gambling advertisements on the Internet, and 96% has seen television advertisements. In the study, 42% of youth reported that gambling advertisements make them want to try gambling and 61% imagine and dream about spending their winnings (Derevensky et al., 2007). Felsher et al. (2004) examined the promotion of lottery tickets and found that 39% of youth were more likely to buy a lottery ticket after seeing an advertisement. In a qualitative study of individuals with current or past gambling problems, over half of the participants reported that gambling advertisements had a marginal impact on themselves, and one fifth reported a tangible impact. According to the participants, gambling advertisements triggered their impulses to gamble (Binde, 2009).

Human Brain Circuitry

Human brains have a reward system that creates feelings of pleasure when we anticipate then receive a reward. Research suggests that the expectation of a reward

causes a stronger reaction than when we actually receive the award (Klein, 2006). The neurotransmitter dopamine is released when we behave in ways that get us more rewards (Spinella, 2003). Current literature states that dopamine is associated with consumption and addiction. When higher levels of dopamine are fired, our motivation to attain the reward becomes greater (Arias-Carrión & Pöppel, 2007). This system also influences mood change in players and causes them to feel excitement or relaxation (Binde 2011, Binde, 2013; O'Brien Cousins & Witcher, 2004; Schüll, 2012).

Psychological Reinforcements

In psychological terms, gambling utilizes operant and classical conditioning. Gambling behaviour is reinforced when individuals get prizes and become excited. Prizes are given randomly, so the player thinks that winning will happen as long as they are persistent. Over time, aspects of the physical environment such as sounds, lights, and smells become triggers for gambling (Nower, & Blaszczynski, 2006; Parke & Griffiths, 2004). Furthermore, gamblers often feel an illusion of control meaning they believe they are playing a game of skill, rather than a game of chance (Martinez, Bonnefon & Hoskens, 2009). Gamblers fallacy refers to the belief that a random event is less likely to occur if the event has recently occurred. Players believe that if they recently lost, they will be less likely to lose again (Suetens & Tyran, 2012). 'Near-Misses' are an additional reinforcer to gamble. They occur when players are close to winning, but do not succeed. 'Near Misses' encourage gamblers to continue playing as individuals believe that they are becoming closer to winning. Lastly, a large incentive to gamble occurs from the dream of hitting the jackpot. Players develop a fantasy of becoming rich and dream about how their lives will be transformed (Binde, 2013; Gudgeon & Stewart, 2001).

Social Facilitation

Some gambling activities provide the opportunity for individuals to gather and socialize. Examples include playing bingo or participating in sports betting (Binde, 2013; Krauss, 2010; O'Brien Cousins & Witcher, 2004). Players can escape their everyday lives and participate in a culture with unique identities, sounds, and vocabulary (Binde, 2013; Krauss, 2010, O'Brien Cousins & Witcher, 2004). One study found that friends who gamble together by slot machines are more likely to stay in the environment. This occurs as they watch each other play and feel a “secondary high” (Griffiths & Parke, 2003, p. 288). For individuals who enjoy competition with others, activities such as poker offer competitions at local, regional, national and international levels (Binde, 2013). Competitive players enjoy impressing their peers by increasing risk taking and demonstrating their gambling skills (Griffiths & Parke, 2003).

Gambling Impacts

Gambling has a variety of impacts at the individual, interpersonal, community and societal level. The impacts are interdependent and influence one another (Hayward & Colman, 2004).

Individual Impacts

Impacts on personal finances are widely discussed in current literature (Andresen, 2006; Hayward & Colman, 2004; NSDHPP, 2008; Petry, 2002; Williams, Rehm, & Stevens, 2011; Wynne, 2002). In 2007, 14.8% of problem gamblers in Nova Scotia reported income loss or job loss. Compared to non-problem gamblers, problem gamblers lost 10 times the amount of money, and spent 14 times the amount of money on

gambling. A causal relationship has not been defined (NSDHPP, 2008). During 2004, 5% to 10% of personal bankruptcy cases in Nova Scotia were attributed to gambling (Hayward & Colman, 2004). Due to the loss of money, some individuals are no longer able to pay for human necessities. In a study conducted by Wynne (2002) on problem gambling in Saskatchewan, 26% of problem gamblers reported not purchasing food or groceries, and 8.6% reported not paying power, heat, or water bills.

Problem gambling can also have a profound effect on mental health. Approximately 96% of individuals with a lifetime history of problem gambling also met the criteria for another psychological disorder within their lifetime (Kessler et al., 2008). In particular, there is an association between problem gambling and depression (Battersby, Tolchard, Scurrah, & Thomas, 2006; Kessler et al., 2008; NSDHPP, 2008). According to the *2007 Adult Gambling Prevalence Study*, problem gamblers in Nova Scotia were more likely to suffer from depression and anxiety (NSDHPP, 2008). In a study of problem gamblers who attended a treatment service, half of the sample had clinical depression (Battersby et al., 2006). Personality disorders are also evident among problem gamblers. Petry et al. (2005) analyzed data from 43,093 participants in the United States and found 60.8% of problem gamblers had a lifetime prevalence of a personality disorder. Emotional outbursts, anxiety, and a loss of appetite are reported by problem gamblers as well (Centre for Addiction and Mental Health, 2010).

Current literature indicates a connection between gambling addiction and suicide ideation (Bischof et al., 2014; Lin et al., 2014; Manning et al., 2014; Tse, Tang, & Wong, 2014). It is estimated that problem gambling leads to 200 suicides a year in Canada. In 2004, problem gambling was a factor in 6.3% of suicides in Nova Scotia (Canada Safety

Council, 2008). The association was also evident in a study by Battersby et al. (2006) as 30.0% of the problem gambling sample had previously attempted suicide.

Substance use is another common co-morbid disorder linked with problem gambling (Battersby et al., 2006; Crockford & el-Guebaly, 1998; Petry, 2002). One literature review found that between 25% and 63% of problem gamblers met the criteria for a substance use disorder in their lifetime (Crockford & el-Guebaly, 1998). In 2007, problem gamblers in Nova Scotia reported higher rates of smoking; approximately 57% of problem gamblers smoked on a daily basis. Roughly 3% of at-risk gamblers reported problems with alcohol use (NSDHPP, 2008). Some problem gamblers have also reported withdrawal effects from gambling. In one study of problem gamblers, 65% of the sample reported at least one physical side effect of withdrawal. Examples included insomnia, headaches, loss of appetite, physical weakness, heart racing, muscle aches, breathing difficulty, and chills (Rosenthal & Lesieur, 1992). Problem gambling may also impact physical health by contributing to back pain, neck pain, headaches, lack of sleep, irritable bowel syndrome, and hypertension (New Brunswick Department of Health, 2012).

Interpersonal Impacts

The Productivity Commission (1999) suggests that for every problem gambler, at least five other individuals are negatively impacted. This may occur as gambling can contribute to divorce and the breakdown of family and friend networks (New Brunswick Department of Health, 2012). In Nova Scotia, almost one third of problem gamblers have lied about their gambling behaviours, and one quarter indicated that friends or family worried or complained about their gambling (NSDHPP, 2008). Problem gambling has

also been identified as a predictor of violence against intimate partners (Muelleman et al., 2002).

Impacts to Communities and Society

Gambling has some benefits to communities and societies because it provides entertainment, jobs, and government revenue (Hayward & Colman, 2004). Conversely, the positive impacts are largely offset by the negative impacts (Williams, Rehm, & Stevens, 2011). Literature suggests that every problem gambler has an economic cost of \$20,000 to \$56,000 each year (Andresen, 2006). The *Socioeconomic Impact of Video Lottery Terminals* report found that VLT players produce a total cost of \$74.2 million in Nova Scotia (Porter Dillon Limited and Sterling Research Inc., 1999). The costs result from an increased need of medical care, policing, and social assistance (Andresen, 2006; Porter Dillon Limited and Sterling Research Inc., 1999; Williams et al., 2011). Compared to any other province in Canada, Nova Scotia spends the highest amount of money per capita on problem gambling. Approximately \$6.41 is spent per capita in Nova Scotia compared to the Canadian provincial average of \$3.53 per capita (Government of Nova Scotia, 2011).

Gambling can also impact local businesses. Money that would normally be spent in restaurants and shops is alternatively spent in casinos or other gambling environments (Henriksson & Lipsey, 1999). When Casino Rama opened in the town of Orillia, Ontario, shopkeepers in close proximity to the casino reported a 45% decrease in business (Seelig & Seelig, 1998). Furthermore, literature suggests an association between gambling and crime (Evans & Topoleski, 2003; Garry, Wynne, & Hartnagel, 2003; Grinols, Mustard, & Dille, 1999; Hayward & Colman, 2004; Smith, Wynne, & Hartnagel, 2003; Williams et

al., 2011; Wynne & Shaffer, 2003). Gambling is linked to increased property offenses, fraud, embezzlement, theft, and larceny (Williams et al., 2011). Evans and Topoleski (2003) found that in four years after a casino opens, violent crime and auto thefts increase by 10%. Counties with casinos were found to have an 8% higher crime rate than counties without casinos (Grinols et al, 1999).

Conclusion

In conclusion, the regulation of gambling in Nova Scotia is complex and involves a variety of government departments and corporations. Gambling is a prominent activity in Nova Scotia, and provides a large source of revenue for the province (NSDHPP, 2008; NSPLCC, 2014c). Individuals continue to gamble due to the design of gambling activities (Schüll, 2012), biological and psychological tendencies (Binde, 2013; Nower, & Blaszczynski, 2006), and the effect of gambling on social facilitation (Griffiths & Parke, 2003). Consequently, the pervasiveness of gambling has lead to a wide range of negative impacts that are evident at each social level (Andresen, 2006; Battersby et al., 2006; Hayward & Colman, 2004).

References

- Access Nova Scotia. (2015). *Alcohol and Gaming*. Retrieved from <http://www.novascotia.ca/sns/access/alcohol-gaming.asp>
- Addiction & Mental Health, Alberta Health Services. (2015). *Gambling: Topic Overview*. Retrieved from <https://myhealth.alberta.ca/Alberta/Pages/Gambling-information.aspx>
- Agriculture and Agri-Food Canada. (2014). *The Canadian Pari-Mutuel Agency*. Retrieved from <http://www.agr.gc.ca/eng/about-us/partners-and-agencies/canadian-pari-mutuel-agency/>
- Andresen, M. (2006). Governments' conflict of interest in treating problem gamblers. *Canadian Medical Association Journal*, 175(10), 1191-1191.
- Arias-Carrión, Ó., & Pöppel, E. (2007). Dopamine, learning, and reward-seeking behavior. *Acta Neurobiologiae Experimentalis*, 67(4), 481-488.
- Battersby, M., Tolchard, B., Scurrah, M., & Thomas, L. (2006). Suicide ideation and behavior in people with pathological gambling attending a treatment service. *International Journal of Mental Health and Addiction*, 4, 233–246.
- Binde, P. (2009). Exploring the impact of gambling advertising: An interview study of problem gamblers. *International Journal of Mental Health and Addiction*, 7(4), 541-554.
- Binde, P. (2011). Trotting territory: The cultural realm of Swedish horse betting. *Gambling, Space and Time: Shifting Boundaries and Cultures*, eds. P. Raento & D. Schwartz.

- Binde, P. (2013). Why people gamble: A model with five motivational dimensions. *International Gambling Studies*, 13(1), 81-97.
- Bischof, A., Meyer, C., Bischof, G., John, U., Wurst, F. M., Thon, N., ... & Rumpf, H. J. (2015). Suicidal events among pathological gamblers: The role of comorbidity of axis I and axis II disorders. *Psychiatry research*, 3(225), 413-419.
- Canada Safety Council. (2008). *Canadian Roulette*. Retrieved from <https://canadasafetycouncil.org/node/758>
- Centre for Addiction and Mental Health. (2010). *Problem Gambling*. Retrieved from http://www.camh.ca/en/hospital/health_information/a_z_mental_health_and_addiction_information/problemgambling/Pages/default.aspx
- Crockford, D. N., & el-Guebaly, N. (1998). Psychiatric comorbidity in pathological gambling: a critical review. *Canadian Journal of Psychiatry*, 43(1), 43-50.
- Derevensky, J., Sklar, A., Gupta, R., Messerlian, C., Laroche, M., & Mansour, S. (2007). *The Effects of Gambling Advertisements on Child and Adolescent Gambling Attitudes and Behaviors*. Retrieved from http://www.frqsc.gouv.qc.ca/upload/editeur/RF-J_Derevensky-103278.pdf
- Evans, W. N., & Topoleski, J. H. (2002). *The social and economic impact of Native American casinos* (No. w9198). National Bureau of Economic Research.
- Felsher, J., Derevensky, J., & Gupta, R. (2004). Lottery playing amongst youth: Implications for prevention and social policy. *Journal of Gambling Studies*, 20, 127-153.

- Finlay, K., Kanetkar, V., Londerville, J., & Marmurek, H. H. (2006). The physical and psychological measurement of gambling environments. *Environment and Behavior*, 38(4), 570-581.
- Garry, S. J., Wynne, H. J., Hartnagel, T. (2003). *Examining Police Records to Assess Gambling Impacts*. Retrieved from <http://hdl.handle.net/1880/1628>
- Government of Nova Scotia. (2011). *Responsible Gaming Strategy, 2011*. Retrieved from <http://www.novascotia.ca/gamingstrategy/ResponsibleGamingStrategy2011.pdf>
- Government of Nova Scotia. (2015). *Nova Scotia Health Authority*. Retrieved from <http://novascotia.ca/dhw/about/nova-scotia-health-authority.asp>
- Griffiths, M. D. (2004). Betting your life on it: Problem gambling has clear health related consequences. *British Medical Journal*, 329(7474), 1055-1056.
- Griffiths, M. D., & Parke, J. (2003). The environmental psychology of gambling. In G. Reith (Ed.), *Gambling: Who wins? Who loses?* (pp. 277-292). New York: Prometheus
- Griffiths, M. D., & Swift, G. (1992). The use of light and colour in gambling arcades: A pilot study. *Society for the Study of Gambling Newsletter*, 21, 16-22.
- Grinols, E. L., & Mustard, D. B. (2006). Casinos, crime, and community costs. *Review of Economics and Statistics*, 88(1), 28-45.
- Gudgeon, C., & Stewart, B. (2001). *Luck of the draw: True-life tales of lottery winners and losers*. Vancouver: Arsenal Pulp Press.
- Hayward, K & Colman, R. (2004). *The Costs and Benefits of Gaming: A Literature Review With Emphasis on Nova Scotia*. Retrieved from <http://www.gpiatlantic.org/pdf/gambling/gambling.pdf>

- Henriksson, L. E., & Lipsey, R. G. (1999). Should provinces expand gambling?.
Canadian Public Policy, 25(2), 259-275.
- Hirsch, A. R. (1995). Effects of ambient odors on slot-machine usage in a Las Vegas
casino. *Psychology & Marketing*, 12(7), 585-594.
- Hsu, H. (2013). Machine gambling in the 'zone': Natasha Dow Schüll's Addiction by
Design. *Social Studies of Science*, 43(6), 952-956.
- Kessler, R. C., Hwang, I., LaBrie, R., Petukhova, M., Sampson, N. A., Winters, K. C., et
al. (2008). DSM-IV pathological gambling in the National Comorbidity Survey
replication. *Psychological Medicine*, 38(9), 1351-1360.
- Klein, S. (2006). *The Science of Happiness: How Our Brains Make Us Happy--and what
We Can Do to Get Happier*. Da Capo Press.
- Korn, D., Hurson, T., & Reynolds, J. (2005). *Commercial Gambling Advertising:
Possible Impact on Youth Knowledge, Attitudes, Beliefs and Behavioural
Intentions*. Ontario Problem Gambling Research Centre.
- Krauss, F. (2010). *Taking the Points: The Socialization Process of a Sports Book
"Regular"*. Retrieved from http://gaming.unlv.edu/papers/cgr_op07_krauss.pdf
- Lehman, R. (2007). *Game Selection Criteria Part IV: Payout Frequency*. Retrieved from
[http://www.casinoenterprisemanagement.com/articles/december-2007/game-
selection-criteria-part-iv-payout-frequency](http://www.casinoenterprisemanagement.com/articles/december-2007/game-selection-criteria-part-iv-payout-frequency)
- Lin, I. H., Ko, C. H., Chang, Y. P., Liu, T. L., Wang, P. W., Lin, H. C., ... & Yen, C. F.
(2014). The association between suicidality and internet addiction and activities in
Taiwanese adolescents. *Comprehensive Psychiatry*, 55(3), 504-510.

- Manning, V., Koh, P. K., Yang, Y., Ng, A., Guo, S., Kandasami, G., & Wong, K. E. (2014). Suicidal ideation and lifetime attempts in substance and gambling disorders. *Psychiatry Research*, *3(225)*, 706-709.
- Martinez, F., Bonnefon, J. F., & Hoskens, J. (2009). Active involvement, not illusory control, increases risk taking in a gambling game. *The Quarterly Journal of Experimental Psychology*, *62(6)*, 1063-1071.
- McMullan, J., & Miller, D. (2009). Wins, winning and winners: The commercial advertising of lottery gambling. *Journal of Gambling Studies*, *25(3)*, 273–295.
- Muelleman, R. L., DenOtter, T., Wadman, M. C., Tran, T. P., & Anderson, J. (2002). Problem gambling in the partner of the emergency department patient as a risk factor for intimate partner violence. *The Journal of Emergency Medicine*, *23(3)*, 307-312.
- New Brunswick Department of Health. (2012). *Warning Signs*. Retrieved from <http://www.gnb.ca/0378/WarningSigns-e.asp>
- Nova Scotia Department of Health Promotion and Protection [NSDHPP]. (2008). *2007 Adult Gambling Prevalence Study*. Retrieved from http://novascotia.ca/dhw/addictions/documents/Adult_Gambling-Prevalence-Study-2007.pdf
- Nova Scotia Provincial Lotteries and Casino Corporation [NSPLCC] (2013). *Knowing the Odds*. Retrieved from <http://yourbestbet.ca/reality-check/knowning-the-odds/>
- Nova Scotia Provincial Lotteries and Casino Corporation [NSPLCC]. (2014a). *2013-2014 Summary of Results*. Retrieved from

- http://www.gamingns.ca/new/images/uploads/NSPLCC_Summary_of_results_2013-14.pdf
- Nova Scotia Provincial Lotteries and Casino Corporation [NSPLCC]. (2014b). *Gambling in Nova Scotia*. Retrieved from http://www.gamingns.ca/new/images/uploads/Gambling_in_NS.pdf
- Nova Scotia Provincial Lotteries and Casino Corporation [NSPLCC]. (2014c). *Overview of Gaming in Nova Scotia*. Retrieved from http://www.gamingns.ca/new/images/uploads/Overview_of_Gaming_in_NS.pdf
- Nower, L., & Blaszczynski, A. (2006). Impulsivity and pathological gambling: A descriptive model. *International Gambling Studies*, 6(1), 61.
- O'Brien Cousins, S., & Witcher, C. (2004). Older women living the bingo stereotype: 'Well, so what? I play bingo. I'm not out drinkin'. I'm not out boozin'. *International Gambling Studies*, 4(2), 127-146.
- Office of Aboriginal Affairs. (2014). *First Nation Gaming*. Retrieved from <http://novascotia.ca/abor/resources/first-nations-gaming/>
- Parke, J., & Griffiths, M. (2004). Gambling addiction and the evolution of the "near miss". *Addiction Research and Theory*, (12), 407-411.
- Petry, N. M. 2002. A comparison of young, middle-aged, and older adult treatment-seeking pathological gamblers. *Gerontologist*, 42(1), 92-99.
- Petry, N. M. (2005). *Pathological gambling: Etiology, comorbidity, and treatment*. American Psychological Association.

Porter Dillon Limited and Sterling Research Inc. (1999). *Socioeconomic impact of video lottery terminals: Final report*. Halifax, NS: Standing Committee on Community Services.

Problem Gambling Institute of Ontario. (2015). *Level of Gambling Involvement*.

Retrieved from

<http://www.problemgambling.ca/EN/AboutGamblingandProblemGambling/Pages/LevelofGamblingInvolvement.aspx>

Productivity Commission. (1999). *Australia's Gambling Industries: Final Report*.

Retrieved from <http://www.pc.gov.au/inquiries/completed/gambling>

Province of Nova Scotia. (2008). *Adult Gambling Prevalence Study*. Retrieved from

<http://novascotia.ca/dhw/addictions/documents/adult-gambling-prevalence-study-2007.pdf>

Rosenthal, R. J., & Lesieur, H. R. (1992). Self-reported withdrawal symptoms and

pathological gambling. *The American Journal on Addictions*, 1(2), 150-154.

Seelig, M. Y., & Seelig, J. H. (1998). "Place Your Bets!" on gambling, government and society. *Canadian Public Policy*, 24(1), 91-106.

Schüll, N. D. (2012). *Addiction By design: Machine Gambling in Las Vegas*. Princeton University Press.

Service Nova Scotia and Municipal Relations. (2014). *Nova Scotia Annual Gaming Report 2013-2014*. Retrieved from <http://www.novascotia.ca/sns/pdf/agd-nova-scotia-annual-gaming-report-2013-14.pdf>

Smith, G. J., Wynne, H. J., & Hartnagel, T. F. (2003). *Examining police records to assess gambling impacts: A study of gambling-related crime in the City of Edmonton*.

Edmonton: Alberta Gaming Research Institute.

Stokowski, P. A. (1996). Crime patterns and gaming development in rural Colorado.

Journal of Travel Research, 34(3), 63-69.

Suetens, S., & Tyran, J. R. (2012). The gambler's fallacy and gender. *Journal of*

Economic Behavior & Organization, 83(1), 118-124.

Tse, S., Tang, J., & Wong, P. (2014). Fortune or foe: the fatal harm caused by a gambling disorder. *Addiction*, 109(12), 2135-2135.

Williams, R.J., Rehm, J., & Stevens, R.M.G. (2011). *The Social and Economic Impacts of Gambling*. Retrieved from

https://www.uleth.ca/dspace/bitstream/handle/10133/1286/SEIG_FINAL_REPORT_2011.pdf?sequence=1

Wynne, H. J. (2002). *Gambling and Problem Gambling in Saskatchewan: Final Report*.

Saskatchewan Health.

Wynne, H. J., & Shaffer, H. J. (2003). The socioeconomic impact of gambling: The

Whistler symposium. *Journal of Gambling Studies*, 19(2), 111-121.