AGRI Conference Poster Presentations

Friday, April 13, 2018; 4:30 – 6:00 pm Kinnear Centre rooms 301 & 305

Posters will be available for viewing until April 14, 3:00 pm



(Presenter name is in bold)

| 1 | Does Pop-up Message Content Matter? An Examination of the Effectiveness of Informing Gamblers about their Monetary Losses on Player Limit Adherence | Samantha J. Hollingshead ¹ Michael J. A. Wohl ¹ Diane Santesso ² ¹ Carleton University ² University of Winnipeg sam.hollingshead@carleton.ca | We tested whether the content of a monetary limit message on an electronic gaming machine (EGM) improves adherence as the amount of responsible gambling information increases. In Study 1, players (N=124) were given \$20 to gamble with on an EGM, however, a limit of \$10 was set for the session. When this limit was reached, players were informed via a pop-up message that either their limit was reached or the amount of money and credits they lost in addition to a standard "limit reached" message. To measure limit adherence, players were given the opportunity to continue gambling with their remaining funds. Type of message did not influence limit adherence. Informatively, however, about half of the participants could not recall the content of the message, regardless of condition. In Study 2 (N=109), the pop-up window could not be closed for 10 seconds. Again, message content did not influence adherence. Akin to Study 1, message recall remained poor in all conditions, despite forced exposure. Results suggest that informed decision-making may be uninfluenced by the amount of responsible gambling information provided in a limit-oriented pop-up message. This is because players may not pay attention to the content of such a message. |
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| 2 | Coping Motives Mediate the Relationship Between Positive and Negative Urgency and Problem Gambling Severity | Hyoun S. (Andrew) Kim Julia C. Poole David C. Hodgins Daniel S. McGrath Keith S. Dobson University of Calgary hyoun.kim@ucalgary.ca | Elevated impulsivity traits, particularly negative and positive urgency, have been identified as robust predictors of disordered gambling. However, the mechanisms that link urgency to disordered gambling remain unknown. The present research examined whether gambling motives (social, coping, enhancement, financial) mediated the association between urgency and disordered gambling. A sample of community gamblers (N = 564) completed self-report measures of urgency, gambling motives, and disordered gambling. Results revealed that both negative and positive urgency were associated with increased disordered gambling. Coping was the only motive that mediated the associations between both negative and positive urgency and disordered gambling. The results suggest that the desire to alleviate strong affective states (negative or positive) may be an important factor in the conceptualization of disordered gambling. Furthermore, results indicate that treatment initiatives for disordered gambling may do well to include training for clients in alternative- and more adaptive- coping strategies for effective management of intense affective states. |

| 3 | A Flow to the Crush: Construct Validity in a Skill-challenge Balance Measure of the Optimization of Flow Experience in Candy Crush | Chanel J. Larche Mike J. Dixon University of Waterloo cjlarche@uwaterloo.ca mjdixon@uwaterloo.ca | Current literature on problematic videogame play suggests a strong correspondence between playing videogames for the escape of everyday worries and problematic video gaming (Kuss & Griffiths, 2012). Moreover the experience of flow and lack of global happiness are significant predictors of excessive play (Hull, 2013). Research has yet to provide construct validity to a major constituent of flow in an ecologically valid gaming context, namely the balance of challenge and skill. Using Candy Crush as a platform, we sought to explore and provide construct validity to the role of the challenge-skill balance in flow as measured by the Game Experience Questionnaire. We exposed 14 avid Candy Crush players to three possible game outcomes that should inherently differ in their skill/challenge balance: wins, near-misses (just failing to win) and losses. On average players reported the greatest discrepancy between perceived challenge and skill for losses (most challenging, least skill). Importantly, near-misses (despite being losses), showed a greater challenge/skill balance as did wins. Consistent with the hypothesis that the challenge/skill balance is an antecedent of flow both wins and near-misses produced higher flow during gameplay compared to regular losses. The finding that near-misses led to greater flow may have implications for problematic play. |
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| 4 | Flow and Gambling | Raymond Lavoie ¹ Kelley Main ² ¹ Merrimack College ² University of Manitoba kelley.main@umanitoba.ca | Across two studies, in the contexts of online blackjack and slot machines, we demonstrate that flow is associated with an increase in the amount of time that is spent gambling. As a result, flow is also related to an increase in the amount of money spent. We demonstrate that the reason why flow increases the amount of playing time is that flow's inherently enjoyable nature makes it difficult to stop. We also tested the alternative hypothesis that this relationship is due to the fact that in flow, people lose track of time. Although flow was related to losing track of time, that did not mediate the relationship with playing time. Lastly, we demonstrate that despite losing more money and spending more time while gambling, those who experienced flow had more enjoyable experiences overall, creating a counterintuitive, and potentially dangerous situation for gamblers. A secondary goal of this research is to explore ways to protect consumers from this paradox. We used warning messages and on-screen interruptions to potentially thwart flow. However, both tactics were ineffective. We discuss the implications for future research and practice. |
| 5 | Gambling Behaviors in Massachusetts Prior to Casino Development: Family and Friends Matter | Alissa Mazar ¹ Robert J. Williams ² Martha Zorn ¹ Rachel A. Volberg ¹ ¹ University of Massachusetts Amherst ² University of Lethbridge amazar@umass.edu | States are expanding gambling options to their populations. In 2011, Massachusetts sanctioned the development of casinos. Increased gambling availability is associated with increases in gambling related harm. Like the concept of gambling related harm, gambling behavior is not dichotomous; it exists on a spectrum. To our knowledge, this is the first study to perform analyses across subtypes of gambling behavior with the most common type of gambler – Recreational Gambler – as reference. The sample consists of 9,523 Massachusetts adults and multivariate regressions include 32 demographic, health, and gambling related variables. This study fleshes out the predictive differences driving gambling behaviors, offering: 1) a baseline understanding prior to the development of casinos in Massachusetts and 2) guidelines for targeted intervention to reduce gambling related harm. These findings suggest that targeting the social networks of At-Risk and Problem/Pathological Gamblers ought to be a high priority. |

| 6 | A Lay Epidemiology Study Comparing the Earliest and Most Important Indicators of Problematic Gambling | Iman Musani ¹ Ximena Garcia ¹ Hyoun S. (Andrew) Kim ¹ T. Cameron Wild ² David C. Hodgins ¹ ¹ University of Calgary ² University of Alberta iman.musani1@ucalgary.ca | This study sought to understand the early and most important warning signs of problem gambling from the perspective of individuals who have experienced gambling problems firsthand. An inductive, lay epidemiological approach was used to complement current expert-driven notions of problem gambling warning signs, with these findings having potential future clinical and preventative implications. Participants were a random sample of online panel members from Alberta (N = 202) who provided qualitative answers to questions about the earliest and most important warning signs of problematic gambling. Responses were coded and categorized using thematic content analysis. Results suggested both similarities and differences between early and most important warning signs. Financial problems were most frequently endorsed as an early indicator (45.2% vs. 32.1%) whereas deception (8.9% vs. 3.0%) and other harms (e.g. personality changes and social impairments) were more frequently endorsed as the most important warning sign (4.3% vs. 2.4%). There were no significant differences in school/work problems or the use of gambling as a coping mechanism between early and most important indicators. Results suggest some differences exist between perceived early and most important warning signs of a gambling problem; these results may be used to inform early detection of problematic gambling. |
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| 7 | Examining the Effects of Intolerance of Uncertainty on Risk Propensity and Gambling | Dallas Novakowski ¹ Sandeep Mishra ² Nick Carleton ² ¹ University of Calgary ² University of Regina dallasnovakowski@gmail.com | Intolerance of uncertainty, the dispositional tendency for individuals to have a fear of the unknown, appears to have inherent links to risk-taking, as outcomes with higher variance carry greater uncertainty. Exploratory partial correlations (n = 747) controlling for age and sex were conducted to examine whether intolerance of uncertainty was associated with individual differences in risk propensity (i.e., sensation-seeking, impulsivity, low self-control, and risk attitudes) and gambling behaviour. The results indicated that intolerance of uncertainty was negatively associated with sensation-seeking and self-control, while not being significantly associated with impulsivity. Intolerance of uncertainty was negatively associated with attitudes towards social, recreational, and investment risks, but positively associated with ethical risk attitudes. However, no significant correlation was observed with health/safety nor gambling risk attitudes. Lastly, intolerance of uncertainty was positively associated with two separate measures of problem gambling, but was not significantly associated with general gambling frequency. In summary, the above results indicate that intolerance of uncertainty has varying relationships with measures of risk acceptance. The inconsistent effect of intolerance of uncertainty are suggestive of 1) domain-specific effects of intolerance of uncertainty in decision-making under risk. |
| 8 | Involvement and Predictors of Gamblers Anonymous Attendance among Disordered Gamblers in Treatment | Christine Novitsky ¹ Daniel S. McGrath ¹ Hyoun S. (Andrew) Kim ¹ David C. Hodgins ¹ Hermano Tavares ² ¹ University of Calgary ² University of São Paulo christine.novitsky@ucalgary.ca | Numerous treatment options exist for gambling disorder; however, Gamblers Anonymous (GA) is the most prevalent and affordable option. GA chapters exist world-wide, yet despite their popularity, little empirical research has examined reasons for attendance or levels of involvement among attendees. The goal of the current study was to investigate Gamblers Anonymous attendees' involvement, participation, and satisfaction in GA among a clinical sample of disordered gamblers. A treatment-seeking sample of disordered gamblers (N = 512) from São Paulo, Brazil, completed a series of self-report measures including an author-compiled Gamblers Anonymous survey. Of the total sample, 141 reported attending Gamblers Anonymous in the last 30 days. The results indicated that 80% of attendees reported achieving a high or moderate level of satisfaction. The most popular motivation for attending GA was for relapse prevention. Furthermore, regression analyses revealed that individuals who never gave testimonials displayed a higher gambling severity score than those who provided at least one testimonial. Giving testimonials was also strongly related (OR = 6.18) to satisfaction with the program. |

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| 9 | Delayed Reward Discounting Among Individuals with Current and Past Disordered Gambling: Implications for its Role in the Maintenance of Problem Gambling Behaviour | Magdalen G. Schluter David C. Hodgins University of Calgary magdalen.schluter@ucalgary.ca | Prior research has suggested that Delayed Reward Discounting (DRD), a measure of impulsive choice, may be an important factor in the development and maintenance of disordered gambling (DG). However, its precise role in DG is not yet understood. This study sought to investigate the potential role of DRD in the maintenance of DG and the impact of substance abuse on this relationship. Using a two-stage recruitment procedure, a sample (N=500) of individuals with a history of disordered gambling or current disordered gambling, with lifetime or current problems with substance abuse have been recruited through Amazon's Mechanical Turk (MTurk). Participants first completed self-report measures of gambling involvement, current and lifetime DG symptoms, and current and lifetime substance use disorder symptoms. Participants who met eligibility criteria are invited to complete a follow-up study, which includes a random-adjustment delay discounting task. Data from 386 participants has been collected for part 2. The results of this study will be presented, and implications discussed. |
| 10 | Scratch Card Gambling: Examining the Influence of Unclaimed Prize Information and the Role of Individual Differences | Madison Stange Alexander C. Walker Mike J. Dixon Jonathan A. Fugelsang Derek J. Koehler University of Waterloo mstange@uwaterloo.ca | The number of prizes yet to be won in scratch card games is commonly provided to players. However, without knowing the number of tickets remaining, this information is uninformative about the odds of actually winning one of these prizes. We investigated how this information influences participants in a gambling context. We presented participants with three scratch cards from batches with varying levels of unclaimed prizes (high, medium, low) and assessed how likely they were to win, their perceived excitement for playing each game, and their preference between cards. Overall, participants perceived winning as more likely, had more excitement to play, and preferred to hypothetically purchase cards from a batch with the most unclaimed prizes. Although attenuated, these effects persisted even when information about the number of tickets remaining was provided and players could determine that the batch with the most unclaimed prizes had the lowest odds of winning. Additionally, we observed negative correlations between analytic thinking style and scratch card play frequency, as well as problem gambling severity, and a positive association between problem gambling severity and scratch card play frequency. These results add to a growing body of literature examining scratch card gambling and gambling decision making. |
| 11 | Do Gambling Urges Predict Severe Problem Gambling? – Results from an Online Survey | Christopher Sundström ^{1, 2} Alexandra Godinho ¹ David C. Hodgins ³ John Cunningham ¹ ¹ Centre for Addiction and Mental Health ² Karolinska Institutet ³ University of Calgary Christopher.sundstrom@ki.se | Like all addictions, gambling disorder is multi-faceted and complex incorporating both behaviours, consequences and psychological features such as urges. The relationship between gambling urges and severe problem gambling is unclear. To investigate this issue, we used data collected in an online gambling intervention trial where participants were recruited through an advertisement on Amazon's Mechanical Turk. After initial eligibility was established (age ≥ 18 and reporting having engaged in gambling at least weekly preceding year), participants (N = 3059) completed an extensive baseline survey. The survey consisted of three gambling instruments; the initial four questions of the Gambling Symptom Severity Scale (G-SAS) measuring gambling urges and NORC DSM-IV Screen for Gambling Problems (NODS) and the Problem Gambling Severity Inventory (PGSI) measuring problem gambling. We hypothesized that gambling urges as measured by G-SAS would predict severe problem gambling as measured by NODS (≥ 5) and PGSI (≥ 5). The data are currently being analyzed with binary logistic regressions, and findings presented at the conference will provide researchers with information that may be of value to clinical and public health researchers alike. |

| 12 | Protective Factors Buffer the Effects of Frequent Gambling on Problem Gambling | Amanda Wuth Nabhan Refaie Sandeep Mishra Shadi Beshai University of Regina amandawuth@uregina.ca | High frequency gambling behavior is a necessary precondition of disordered gambling. Although immunization theories of resilience posit resilience and related factors, like mindfulness, reduce the risk of pathological outcomes. We examined if mindfulness served to moderate the association between high-frequency gambling and disordered gambling. Participants (n = 327) completed self-report measures of problem gambling, frequency of gambling behavior, and mindfulness. Hierarchical regression analyses revealed participants' mindfulness scores moderated the relationship of gambling frequency and disordered gambling. Specifically, individuals with a high level of mindfulness endorsed lower levels of disordered gambling, regardless of the frequency of their gambling behaviour, whereas those reporting low mindfulness and high frequency of gambling also reported the highest levels of pathological gambling. Results of this study highlight the buffering effects of resilience factors, such as mindfulness, among those who engage in frequent gambling behaviors. These findings have important implications for the assessment and treatment of problem gambling. |
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| 13 | Neighborhood Perceptions and Gambling Behavior | Eva Monson ¹ Sylvia Kairouz ² Marie-Josée Fleury ³ Samantha Ilacqua ² Jean Caron ³ ¹ University of Sherbrooke ² Concordia University ³ McGill University sylvia.kairouz@concordia.ca | Within the field of gambling research an emerging body of literature has begun to examine the associations between neighbourhood context and gambling participation and problems. Previous research has been heavily focused on objective measures of neighborhood influence on gambling outcomes while few studies have examined subjective expressions of neighborhood context as they relate to gambling outcomes. This study aimed to expand knowledge through cross-sectional investigation in the 4th wave of an epidemiological community sample (N =1,862) of the associations between perceived neighbourhood contextual factors and gambling participation and problems. Our findings reveal that community participation is positively related to gambling participation, even after accounting for control variables. Problematic gambling is positively associated with perceived neighbourhood disorder. Findings highlight the necessity that any public health effort to reduce the burden of gambling-related health and social problems must recognize the spatial distortion of gambling opportunities in the urban environment. |
| 14 | Review of Gambling Behaviours in Indigenous Populations within Canada | Kristy R. Kowatch Christopher J. Mushquash Lakehead University kkowatch@lakeheadu.ca | There is evidence that games of chance historically served to bring some Indigenous communities together and to redistribute wealth. Yet, some individuals became so intently involved in these games that they wagered significant personal belongings including clothing, pipes, and tobacco. The popularity of gambling has continued in contemporary Indigenous communities with 60% - 89.8% of Indigenous people gambling on a regular basis and many individuals being at an elevated risk for developing problematic gambling behaviours. This poster reviews what is known about the current rates of gambling in Indigenous communities within Canada and presents contributing factors for these rates. For example, the risk for developing problematic gambling is associated with experiences of racism and abuse. Conceptualizing gambling behaviours in the context of significant life reinforcers for Indigenous communities will be given particular attention throughout. Identified reasons for low treatment seeking rates will also be presented. Best practices for future research, such as engaging community members in the research process, can provide insights into community specific priorities and may broaden the literature base to reflect the socially facilitative aspects of gambling. International literature on gambling in Indigenous populations is drawn upon to suggest the use of mixed method research for future inquiries. |

| 15 | Evaluation of How the Social Context of Gambling Moderates the Association between Gambling Motives and Gambling Problems in Electronic Gaming Machine Gamblers | Megan E. Cowie ¹ Seema Mutti-Packer ¹ David C. Hodgins ¹ Nady el-Guebaly ¹ David M. Casey ² Shawn R. Currie ² Don P. Schopflocher ³ Garry J. Smith ³ Robert J. Williams ⁴ ¹ University of Calgary ² Alberta Health Services ³ University of Alberta ⁴ University of Lethbridge megan.cowie@ucalgary.ca | Individuals vary in their motivations for gambling, with certain motives being differentially related to gambling problems (Stewart & Zack, 2008). Additionally, gambling in the presence of others acts as a buffer towards some (Rockloff & Greer, 2011), but not all, risky gambling practices (Cole, Barrett, & Griffiths, 2011). Together, certain motives and contexts may help perpetuate or protect against gambling problems. However, this association has yet be investigated. We examined whether the social context of gambling moderated the association between gambling motives and gambling problems in 274 Electronic Gaming Machine (EGM) gamblers. Gambling motives (cope, excitement, relax, win) and the social context of EGM play (alone vs. with others) were assessed using self-report questionnaires. Gambling problems were assessed using the Problem Gambling Severity Index (PGSI). Gambling alone and with others moderated the association between motives and gambling problems for some (cope, excitement, win) but not all (relax) gambling motives. Though the effect tended to be larger for gambling alone, largely, regardless of context, certain motives may inevitably lead to gambling problems; gambling with others does not safeguard EGM players from experiencing gambling problems. The treatment implications including harm reduction strategies are discussed. |
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| 16 | Effects of Acute Tobacco Abstinence on Gambling Craving and Behavior in Electronic Gaming Machine Gamblers who Smoke | Emma V. Ritchie Nicole K. Romanow Daniel S. McGrath University of Calgary evritchi@ucalgary.ca | Smoking and gambling behaviours are highly co-morbid, yet the mechanisms of this relationship are not fully understood. This study sought to understand how acute tobacco withdrawal affects gambling behaviours and cravings. A total of 18 community-recruited regular gamblers (15 of whom were classified as disordered gamblers) who were also daily smokers participated in two laboratory sessions. In one session, they were asked to abstain from smoking for 12 hours (the abstinent condition) and in the other they were asked to smoke as they normally would (the satiated condition). Smoking and gambling cravings were measured at four different time points in each session. Gambling behaviours were assessed during the final task when participants were invited to gamble on an authentic Video Lottery Terminal (VLT). It was expected that tobacco withdrawal would be associated with a decrease in gambling cravings and altered VLT play; however, these hypotheses were only partially supported. Gambling cravings did not significantly differ between the abstinent and satiated conditions. Yet, average bet size was significantly larger in the satiated session compared to the abstinent session. These findings suggest that tobacco withdrawal may impact gambling behaviours, although more research is necessary in order to fully understand this relationship. |
| 17 | Impulsivity, Mental Health, and Problem Gambling Severity in Cannabis-Using Gamblers | Maryam Sharif-Razi Leslie Diandra Hyoun S. (Andrew) Kim Dan S. McGrath David C. Hodgins University of Calgary maryam.sharifrazi@ucalgary.ca | Licit substances, namely alcohol and nicotine, are the most commonly co-morbid substances associated with problem gambling. With cannabis becoming increasingly accessible through legalization, examining the relationship between co-morbid cannabis use and gambling is particularly pressing. However, studies examining the relationship between cannabis and gambling are rare. To bridge this gap in the research, the present study investigated the clinical and gambling profiles of cannabis using gamblers. A community sample of gamblers (N = 563) were recruited and categorized into four groups based on severity of cannabis use as assessed by the World Health Organization's Alcohol, Smoking and Substance Involvement Screening Test (WHO-ASSIST): non-user (n = 179), low risk (n = 200), moderate risk (n = 155), and high risk (n = 29). The UPPS-P Impulsive Behavior Scale, Depression, Anxiety and Stress Scale, and the Problem Gambling Severity Index were completed by participants |

| | | | to evaluate trait impulsivity, mental health, and gambling severity, respectively. After accounting for alcohol and nicotine use, ANCOVA analyses revealed that cannabis using gamblers were elevated on trait impulsivity, gambling severity, depression, anxiety, and stress; highest elevations were observed in the high risk cannabis group. The findings from this study may inform treatment interventions for gamblers struggling with cannabis use, as well as health policy and programming. |
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| 18 | An Examination of HEXACO Personality Dimensions and Gambling Disorder, Alcohol Use Disorder, and Cannabis Use Disorder | Christina L. Rash Daniel S. McGrath University of Calgary clrash@ucalgary | Research indicates that certain personality traits increase one's likelihood of engaging in various addictive behaviours at recreational as well as problematic levels. Studies aiming to understand the relationship between personality and addictive behaviours suggest that traits may differ across addictions. However, such findings are limited both in terms of how personality has been assessed and the types of addictive behaviours compared. For instance, research has tended to rely on the Five Factor Model (FFM) of personality, which is argued to inadequately assess traits related to dishonesty and entitlement. Moreover, past research has not yet compared individuals struggling with substance-related addictions to those with behavioural addictions such as gambling. In an effort to address this gap in the literature, the present study used Amazon's MTurk to recruit adults reporting problematic levels of gambling, alcohol use, and cannabis use, as well as a group of healthy controls. Personality traits were assessed using the HEXACO Personality Inventory. The three groups were compared to one another and to healthy controls across HEXACO personality dimensions. Results and implications of the present research will be discussed. |
| 19 | Motivations for Not Gambling Among Abstinent Former Disordered Gamblers | Christina L. Rash Daniel S. McGrath Nicole K. Romanow University of Calgary clrash@ucalgary | Compared to the existing research aimed at identifying risk factors for disordered gambling, little attention has been paid to the identification of protective factors. Recent research indicates that lifetime non-gamblers report different motivations for not gambling than do non-gamblers who have gambled before. However, little is known about non-gamblers who have previously experienced gambling problems. The present study aimed to address this limitation by examining self-generated motives for not gambling among a sample of former disordered gamblers. American adults who reported having experienced a gambling problem in the past were recruited via Amazon's MTurk. Participants were asked to provide their top three reasons for no gambling in rank-order, and these responses were coded and categorized based on conceptual similarity. The various categories were then compared on several demographic and psychosocial variables. Results of this study may provide insight into potential protective factors against disordered gambling, as well as important differences and similarities between abstinent former disordered gamblers and other groups of non-gamblers. |
| 20 | Pleasure Consuming Games | Martin French Concordia University Martin.french@concordia.ca | This poster illustrates a new project situated at the intersection of studies of risk, surveillance, gaming and gambling. With a nod to Kane Race's wonderful book, <i>Pleasure Consuming Medicine</i> , it invokes the double entendre of <i>pleasure consuming games</i> to signify that contemporary digital games can be both pleasurable and pleasure-consuming pursuits. Focusing on so-called 'Free-to-Play' (FTP) games (e.g. freeslots.com), this poster describes a study examining the collapsing boundary between gambling and non-gambling digital games. Drawing from Reith (1999; 2007), the poster considers how discourse on responsible gambling, in the context of late capitalism, deals only inadequately with FTP games. However, against critiques that dismiss responsible gambling discourse as mere rhetoric designed to legitimate the mainstreaming and institutionalization of gambling, this poster also suggests that a modified version of 'responsible gaming' may actually usefully capture |

| | | | some of the potential harms associated with these gambling-like 'non-gambling' digital games. Nevertheless, given that it is not only adults who may play them, it would be mistaken to assume that a regime of responsible gaming alone could mitigate all the potential harms of these kinds of pleasure-consuming games. |
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| 21 | A Mobile App as a Tool to Assess Gaming and Gambling Risk Behaviours | Kyle Leduc-McNiven Marcia R. Friesen Robert D. McLeod University of Manitoba Winnipeg Marcia.Friesen@UManitoba.ca | Smartphone apps hold promise for mental health applications including behaviour tracking and addiction recovery. Our work focuses on the potential role of Smartphones in social gaming and gambling. While social gaming and gambling are conceptually and empirically distinct phenomena, there is emerging research that suggests their intersectionality. Our work explores serious mobile games' potential as empirical assessment tools for behavior related to social gaming/gambling, with potential applications to policy and intervention development. Specifically, we have developed a prototype mobile game based on the familiar card game War, and from which one can collect and extract player metadata including time of play, duration of play, and each move made within the game. With broad adoption, it can collect sufficient player metadata to establish baselines for cognitive processes associated with social gaming/gambling. Current work is focussed on three areas: enhancing engagement by developing a tournament version of the mobile game; second, developing the architecture for the game to act as the assessment vehicle, using player metadata to correlate to risk tolerance and risk aversion; and third, exploring the integration of a biosensors to correlate to other player metadata. |
| 22 | Predicting Movements from Individuals Affected by Problem Gambling Using a Model of Decision Making | Nathan J. Wispinski Craig S. Chapman University of Alberta nathan3@ualberta.ca | We recently developed a computational model of decision making, which explains at a fundamental level what we choose, when we choose it, and how we behave in between. This model is able to predict complex behaviour in a representative sample of students. Here, we use our model to predict how people affected by problem gambling would behave when making simple decisions, like reaching to grab which chocolate bar they would prefer. We simulate a group of participants affected by problem gambling by changing the values of an impulsivity parameter in our model to fall outside the range observed in our student sample. Excessive impulsivity is highly comorbid with problem gambling, has been shown to predict future problem gambling, and has been argued by some to underlie these issues (at least in some problem gambling subtypes). Our simulations predict that these individuals will initiate more premature movements and change their mind while moving nearly twice as often as control participants. These simulations are relatively simple when aiming to predict complex behavior from people with complex disorders. However, our results show promising proof of concept for the use of computational modelling and movement analysis for the diagnosis and explanation of problem gambling. |

| 23 | Brief Interventions for Problem Gambling: A Meta-analysis | Lena C. Quilty ^{1,2} Jeffrey Wardell ¹ Thulasi Thiruchselvam ^{1,2} Matthew Keough ³ Christian Hendershot ^{1,2} ¹ Centre for Addiction and Mental Health ² University of Toronto ³ University of Manitoba | Aim: Brief interventions have been increasingly investigated to promote the management of risky health behaviours. The goal of the current investigation was to evaluate the efficacy of brief interventions in reducing gambling behaviour and/or associated harms. Method: Randomized controlled trials including the following design features were identified via systematic review: an adult sample; an in-person individual psychosocial intervention of brief duration (≤3 sessions); a control/comparison group; and an outcome related to gambling and/or harms. Results: Five records (N = 425) compared brief interventions to assessment only control; using a random effects model, brief interventions were associated with significant reductions in gambling outcomes versus assessment only control (g =19, 95% CI [27,01]). Five records (N = 366) compared brief interventions to longer active interventions; there was no significant difference between brief interventions and longer active interventions (g = .02, 95% CI [17, .21]). Supplementary analyses yielded similar effect size estimates across short- versus long-term follow-up and gambling behavior versus problem outcomes. Discussion: Results supported the efficacy of brief interventions for problem gambling compared to inactive control, and found comparable outcomes across single- versus multi-session interventions for both gambling behaviour and problems. The current investigation supports the continued investigation of the public health impact of these cost-effective interventions. |
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| 24 | A Scoping Review of Self- exclusion Ban-length and Compliance with this Problem Gambling Intervention | Anna Dawczyk University of Guelph adawczyk@uoguelph.ca | Despite the widespread availability of self-exclusion programs, there has been relatively minimal research exploring what self-exclusion ban-lengths are most appropriate for reducing problem gambling and preventing relapses. Although there is a lack of consensus about the appropriate ban-length for reducing problem gambling, various ban-lengths are offered. A scoping review was conducted according to the methodological framework developed by Arksey and O'Malley (2003) to summarize and disseminate the existing research on the impact of ban length on compliance with self-exclusion programs. The search strategy resulted in 269 journal articles and 12 sources from grey literature. Seventeen sources were retained for the review. Results demonstrate that there are diverse theoretical arguments for appropriate ban lengths. However, these arguments are not empirically supported and therefore future research should empirically assess what ban length is most likely to lead to successful outcomes, and when people are most likely to relapse. With high rates of program non-compliance, understanding when self-excluders are most vulnerable to relapse may assist in identifying when follow-ups and additional supports may be most valuable. |
| 25 | Development of Canada's National Low-Risk Gambling Guidelines | Shawn Currie ¹ Marie-Claire Flores-Pajot ² David Hodgins ¹ Louise Nadeau ³ Catherine Paradis ² Matthew Young ² ¹ University of Calgary ² Canadian Centre on Substance Use and Addiction | Objectives: Using the same collaborative, evidence-driven approach that produced Canada's Low Risk Alcohol Drinking Guidelines, this project aims to develop a workable set of national Low-Risk Gambling Guidelines (LRGGs) with clear quantitative limits on gambling behaviour to help people make informed decisions about their gambling. Methods: Led by the Canadian Centre on Substance Abuse (CCSA), in April 2016 a scientific working group was formed and tasked with synthesizing all available evidence from Canadian and international population datasets on the relationship between gambling patterns (i.e., frequency, duration, and expenditure) and gambling related harms. A nationally representative advisory committee, including partners from government, industry, and academia, was formed to review the evidence and oversee the development of the LRGGs. |

| | | ³ Université de Montréal MFlores-Pajot@ccsa.ca | Results: A technical report will summarize the guidelines, the best evidence to date that informed their development, limitations, and contextual factors essential (e.g., co-occurring substance use) to consider in disseminating to the public. Conclusions: It is hoped that development and promotion of these guidelines will contribute to the reduction of gambling-related harms. |
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| 26 | Development and Psychometric Evaluation of the Gambling Disorders Identification Test (G-DIT) - an Ongoing Study | Olof Molander ¹ Viktor Månsson ¹ Kristina Sundqvist ² Peter Wennberg ² Rachel Volberg ³ Anne H. Berman ¹ ¹ Karolinska Institutet ² Stockholm University ³ University of Massachusetts Amherst olof.molander@ki.se | Current screening instruments for problem gambling often have a public health focus and generally focus on either consumption behaviors or negative consequences. To address an apparent gap, our team is developing the Gambling Disorders Identification Test (G-DIT) as an instrument covering consumption, negative consequences and concern from others, analogous to the widely used Alcohol Use Disorders Identification Test (AUDIT) and the Drug Use Disorders Identification Test (DUDIT). An extended literature search of previous gambling measures was conducted, yielding 584 unique items which were categorized in an inter-rater item analysis. Based on this analysis and consideration of the recommendations of the Banff consensus agreement, alternative versions of the new G-DIT will be formulated. A Delphi process with expert researchers and a think aloud procedure with a sample (n = 10) of problem gamblers will follow. Then, a pilot study (n = 80) will be conducted to validate a draft G-DIT version in relation to existing standard instruments as well as the DSM-5 criteria for Gambling Disorder, using the Structured Clinical Interview for Gambling Disorder (SCI-GD). Psychometric properties of the final version of the new G-DIT will be evaluated in relation to existing instruments and self-reported DSM-5 criteria, among Swedish individuals with problem gambling (N = 500) from treatment-seeking and self-help group samples, as well as population samples including recreational gamblers. |
| 27 | Do General Problem Gambling Severity Indices Converge with Activity Specific Scores? | Adèle Morvannou ¹ Eva Monson ² Sophie Dauphinais ¹ Sylvia Kairouz ¹ ¹ Concordia University ² University of Sherbrooke adele.morvannou@usherbrooke.ca | The Problem Gambling Severity Index (PGSI) is an internationally recognized problem gambling assessment tool. Despite its established reliability and validity, the PGSI fails to consider the activity-specific differences in gambling behaviours. This study aims to examine the association between general PGSI and activity specific scores to question the capacity of the PGSI to capture problem gambling equally across activities. A sample of 192 moderate risk and problem gamblers was recruited from a population-based survey conducted in the province of Québec in 2009. Participants were first administered the general PGSI. For each item endorsed on the general scale, an activity specific response was then requested. Findings reveal significant differences between the general PGSI and low-risk activities such as lottery, while higher convergence is found between the general PGSI and high-risk activities such as VLTs and slot machines. The results suggest that the general PGSI score can be a useful indicator of problems for some activities but a poor benchmark for others. |
| 28 | Meta-Analysis of Peer- Reviewed Gambling Research via a Big Data Approach | Fiona Nicoll Mark R. Johnson Zachary Selman Palmer University of Alberta Zspalmer@ualberta.ca | This poster presents preliminary results of studying gambling research as indexed by leading online databases "Scopus" and "Web of Science". We searched peer-reviewed articles in English published between 1996 and 2016 in the US, UK, Australia, Canada, and New Zealand. We then used the "big data" management tool OpenRefine to clean and aggregate the data and to pose a series of questions to illuminate current debates in the field related to epistemology, policy and research ethics. We outline the challenges of analyzing research on scholarly publications which are aggregated in diverse and non-standardized ways by numerous platforms and providers. We demonstrate "problem" gambling is disproportionately represented as a research topic, especially given the broad range of historical, jurisdictional, |

| | | | political and economic factors that are important for understanding gambling. We show that EGMs, despite ongoing expansion and attendant-heated political debate, are the focus of a relatively small proportion of research. We use key concepts from science and technology studies to explain this finding, and we suggest ways of ameliorating ethical issues and stimulating more research from humanities and social sciences. This can be achieved through the development of a code of ethics and an interdisciplinary journal to develop capacity in critical gambling scholarship. |
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| 29 | Online Interventions for Problem Gamblers with and without Co-occurring Mental Health Concerns: Three- and Six-month Follow-up Results from a Randomized Controlled Trial | John A. Cunningham ¹ David C. Hodgins ² Corey S. Mackenzie ³ Christian S. Hendershot ¹ Alexandra Godinho ¹ ¹ Centre for Addiction and Mental Health ² University of Calgary ³ University of Manitoba john.cunningham@camh.ca | Research Question: Is it helpful to provide simultaneous access to both an online gambling intervention and an Internet intervention for mental health difficulties? Methods: Participants who were concerned about their gambling were recruited using online advertisements. Those who met criteria for current problem gambling were randomized to one of two conditions – a G-only intervention comprising an online intervention for problem gambling and a G + MH intervention comprising an online problem gambling intervention and an intervention for depression or anxiety (MoodGYM). Baseline assessment included measures of current psychological distress (Kessler 10). Participants were followed up at 3-and 6-months. Results: For participants displaying psychological distress (75% of the sample, N = 284), participants in the G + MH condition displayed a greater improvement in NODS scores compared to participants in the G-only condition at 3-month follow-up (p = .055) but there was no significant difference at 6-month follow-up. Conclusion: There may be some benefit to providing combined gambling and depression/anxiety online interventions for problem gamblers with current psychological success. Given the low follow-up rate (38% at 3-months), the results of this trial should be interpreted with caution. |
| 30 | Mental Health of Disordered Gamblers with and without Co- morbid Substance Abuse Disorders | Chelsea L. Fitzpatrick ¹ Daniel S. McGrath ¹ Hyoun S. (Andrew) Kim ¹ David C. Hodgins ¹ Hermano Tavares ² ¹ University of Calgary ² University of São Paulo chelsea.fitzpatri1@ucalgary.ca | Gambling disorder often co-occurs with other impulsivity-related problems such as alcohol and substance abuse (Petry et al., 2005). Individuals with gambling disorder or a substance or alcohol use disorder are at a higher risk for mental health problems, specifically mood disorders such as depression as well as anxiety (Petry et al., 2005; Xiong et al., 2015). As disordered gambling, alcohol and substance abuse each commonly co-occur with mood disorders, individuals experiencing disordered gambling as well as alcohol or substance abuse problems may represent a unique subset of gamblers who display an even greater risk for mental health problems. The present study will directly compare indices of mental health between disordered gamblers vs. disordered gamblers with co-morbid substance or alcohol use disorders (n = 51) in a sample of treatment seeking gamblers (N = 349). To diagnose substance use disorders and mental health, the Mini International Neuropsychiatric Interview (MINI) was used. Differences between these groups in terms of demographics, gambling-related factors and psychological variables will also be discussed. The findings of this study will help to clarify how different co-occurring disorders affect one's mental health and may be especially informative for the treatment of co-morbid addiction. |

| 31 | Selective Memory in Gamblers: An Autobiographical Memory Approach | Norman R. Brown Mathew Klapstein University of Alberta nrbrown@ualberta.ca | It is common for researchers to assume that gamblers' autobiographical memories are selective for wins. Although this assumption seems plausible, there appears to be no direct evidence to support it. The research described in this poster (which is ongoing at the time of submission) addresses this issue directly by having gamblers recall, describe and rate their five most memorable gambling experiences, their five largest wins and their five largest losses. If memory is selective for wins, then: (a) a large percentage of events considered most-memorable should be wins; (b) more wins than losses should be recalled in response to the most-memorable prompt; and (c) there should be large overlap between the most-memorable events and the largest-wins events. Regardless of whether these predictions are confirmed (i.e., regardless of whether autobiographical memory is, in fact, selective for wins), content analysis performed on the event memories shed new light on the range of experiences that gamblers find particularly noteworthy. |
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| 32 | Schizophrenia and Disordered Gambling: The Effects of Working Memory Training | Briana D. Cassetta ¹ Vina M. Goghari ² Hyoun S. (Andrew) Kim ¹ David C. Hodgins ¹ Lianne M. Tomfohr-Madsen ¹ ¹ University of Calgary, ² University of Toronto bcassett@ucalgary.ca | Background: Recent research has demonstrated high comorbidity rates between schizophrenia and gambling disorder (GD), with these individuals reporting increased impulsivity and gambling severity. However, few studies have investigated treatment options for this dual disorder population. Objectives: This study aimed to: 1) identify the prevalence of GD in individuals with schizophrenia, and 2) examine the efficacy of working memory training in reducing gambling behaviours and impulsivity in individuals with schizophrenia and GD. Methods: Eighty-three individuals with schizophrenia or schizoaffective disorder were administered the Composite International Diagnostic Interview (Gambling Subscale). Participants were randomly assigned to working memory training, processing speed training, or no training. The Problem Gambling Severity Index (PGSI) and Delay Discounting Task were administered at pre- and post-training. Results: 18% of participants endorsed GD symptoms, with 11% meeting full criteria. Individuals who met criteria for GD scored significantly higher on the PGSI at baseline. Mixed-design repeated measures ANOVA indicated that gamblers in the working memory group endorsed a significant decline in PGSI scores relative to the processing speed and no training groups. There were no significant effects on impulsivity. Implications: This study highlights the need for assessment of GD among individuals with schizophrenia and provides initial support for working memory training in reducing self-reported symptoms of gambling in schizophrenia. |
| 33 | Implicit Memory Associations and Gambling | Gillian Russell Robert Williams James Sanders University of Lethbridge g.russell@uleth.ca | Cognitive processes that operate outside of conscious awareness have shown value in being able to predict concurrent and future substance use. Research on these processes as they relate to gambling is much more limited and has tended to utilize measures attentional bias. Two studies were employed in order to develop measures to capture and quantify implicit memory associations in gambling and identify the presence and magnitude of these implicit associations as they relate to a person's level of gambling involvement and problem gambling. Study 1 involved the development and evaluation of two measures assessing different aspects of implicit memory in a sample of 494 University of Lethbridge undergraduate students. The first measure was a 'word associates' task involving people's immediate word associations for words that have ambiguous meanings, and the second measure was a 'behaviour associates' task in which people indicate the automatic behavioural outcomes or actions that come to mind with stem-phrases for potential future situations. In both tasks the words and phrases presented had potential gambling connotations. An analysis of the performance of individual items |

| | | | in Study 1 helped guide the creation of two shorter measures for Study 2 using a more nationally representative sample. In Study 2 these shortened measures were administered to an online panel comprising 3,078 Canadians (oversampled for gambling involvement). The findings of these two studies confirm that the presence and frequency of implicit gambling-related associations increases to a significant degree as a person's level of gambling involvement and problem gambling increases. |
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| 34 | Historically Oppressed Groups Entering Established Economic Fields: Resourcing Stigma, Competition Dynamics and Entry Outcomes | Chang Lu School of Business, University of Alberta clu5@ualberta.ca | In this study, I address how historically oppressed groups can enter established economic fields. Drawing from the literature on fields and stigma, I investigate how First Nations in Canada entered the Canadian gambling field. I show that historically oppressed groups can enter established economic fields by resourcing stigma, and specify how resourcing stigma affects field-level coopetition dynamics and entry outcomes. In particular, the mechanisms of resourcing stigma include 1) Transforming stigma into the source of power and legitimacy for field entry; 2) Collecting resources based on stigma; 3) Strengthening legitimacy and competitiveness based on stigma. These mechanisms differentially affected the contention with field incumbents and the joint tasks and concessions that directly paved the way for field entry. I show the mechanisms of resourcing stigma and the linkages between mechanisms of resourcing stigma, coopetition, and entry outcomes in a process model, and discuss the contributions to the field and stigma literature. |
| 35 | Stress and Problem Gambling: Findings from a Systematic Review | Candice Graydon Fiza Arshad James MacKillop Iris M. Balodis McMaster University candice.graydon@uwaterloo.ca | There is a high degree of comorbidity between gambling disorder and other psychiatric conditions. Few studies, however, have empirically looked at the role of stress on problem gambling (PG). Here, we conducted a systematic review of peer-reviewed journal articles looking at associations between PG and self-report measures of stress and distress. Associations were found between PG and Generalized Anxiety Disorder, Panic Disorder, and Post-traumatic Stress Disorder. PGs also exhibit higher stress levels than moderate risk or low risk gamblers. Associations were also found between PG severity and number of daily stressors and the impact of a single stressful event. Gamblers report gambling more heavily when experiencing some form of stress, conflict, or problem in their life. Players concerned about their gambling reported worrying more about daily stressors than players who were not concerned about their gambling, and the majority of these stressed intensive gamblers reported that they needed help to stop their gambling. Finally, individuals with Gambling Disorder (GD) reported feeling more distressed than individuals without GD. Given that stress can trigger relapse in addictions, further empirical research is necessary to elucidate the exact relationship between stress and PG and GD, at the subjective, cognitive, behavioural, and neurobiological levels. |
| 36 | Are Impulsive Rats More Sensitive to Gambling Reward Schedules? | Danika L. Dorchak Kathleen M. Ward Catherine S. Laskowski Darren R. Christensen David R. Euston University of Lethbridge danika.dorchak@uleth.ca | Some traits, such as impulsivity, may increase one's susceptibility to gambling addiction. Could these traits be used as predictors for problem gambling? We modeled gambling in 30 rats by having them work for food delivered on a random-ratio reward schedule, similar to the payout schedules used in slot machines. We compared the performance of rats on this gambling paradigm with impulsivity, assessed using the 5-choice serial reaction time task. Anxiety and motor activity were also assessed. Surprisingly, more impulsive rats show lower response rates on the gambling task, suggesting that they were less motivated to gamble. Impulsivity was not correlated with other measures of gambling engagement, such as the pause after reward or pursuit of reward during cued no-reward periods. Anxiety and hyperactivity were not correlated with any gambling measures. An inter-trait analysis did reveal a strong correlation between impulsivity and anxiety, suggesting that impulsive |

| | | | animals are also more anxious, contrary to expectation. These findings suggest that impulsivity in rats is not predictive of their engagement with a slot-machine reward schedule, but leave open a possible relationship between impulsivity and compulsive behavior, as has been reported in drug addiction studies. |
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| 37 | Does Chronic Dopamine Agonist Administration Generate Gambling Addiction in Rats? | Catherine S. Laskowski Kathleen M. Ward Danika L. Dorchak Darren R. Christensen David R. Euston University of Lethbridge catherine.laskowski@uleth.ca | Individuals treated for Parkinson's disease using dopamine agonists that preferentially target D3 receptors develop gambling addiction at much higher rates than the general population. We aimed to replicate this effect in a rodent model. Thirty rats were implanted subcutaneously with either an osmotic or dummy pump after being trained to respond for reward delivered on a slot-machine-like schedule of reinforcement. Osmotic pumps delivered a dopamine D3 agonist, pramipexole dihydrochloride, at a fixed rate over 28 days at doses of 1.0, 2.0, or 3.0 mg/kg/day. After implantation, animals were assessed for gambling addiction using a battery of behavioural tests. Results indicated that chronic pramipexole administration increases the motivation to work for food reward and interferes with rats' ability to limit reward-seeking behavior when cues indicate that reward is not available. Interestingly, there was little difference on any measure between different doses of pramipexole. Data from tests measuring rates of relapse and changes in persistence levels when reward is paired with footshock will also be presented. These data show that pramipexole can induce compulsive behavior in rats exposed to gambling-like reward schedules, just as it does in humans, and opens the door to further studies on the neurobiology of gambling addiction. |
| 38 | Reward-insensitive Attraction to an Unpredictable Reinforcer – a Novel Brain System with Possible Involvement in VLT Engagement | Sienna H. Randolph Aaron J. Gruber University of Lethbridge sienna.randolph@uleth.ca | A hallmark of problem gambling (PG) is the persistence of gambling despite losses. Are these individuals predisposed to continued gambling in situations with infrequent winnings? It has been shown that PG is associated with alterations in reward processing involving the prefrontal cortex, ventral striatum, and their innervation by dopamine neurons. Here, we investigated how rats alter their behaviour on a choice task that mimics some aspects of gambling, such as competition, unpredictable outcomes, and intermittent rewards. We found that rats continuously approached feeders outside of the task context – a behaviour we have termed Extraneous Feeder Sampling (EFS). EFS is never reinforced, but does not fully extinguish even after thousands of trials despite imposing opportunity and effort costs. This behaviour's insensitivity to devaluation and reward outcome (wins/losses) indicates that it is not driven by Pavlovian systems or 'cognitive' systems that explicitly represent outcome value. Additional pharmacological manipulations imply that EFS is modulated by dopamine. This evidence suggests the existence of a novel neural system that promotes approach and engagement with intermittent reinforcers and is linked with dopamine and the ventral striatum, which has possible novel implications for how problem gamblers are drawn to gambling devices such as VLTs. |

| 39 | Disordered Gambling & Bankruptcy Law: Research-Informed Practice for Insolvency Professionals | Arooj Shah University of Alberta arooj@ualberta.ca | A central goal of Canada's personal bankruptcy system is to rehabilitate over-indebted individuals. The bankruptcy system seeks to achieve this goal by providing individuals with a legal form of debt forgiveness, but also by subjecting debtors to mandatory financial counselling and therapeutic interventions. Problem gamblers are more likely to declare bankruptcy than other Canadians, and when they do, the insolvency professionals who implement bankruptcy law struggle to develop appropriate responses. The counselling and therapeutic interventions currently employed by insolvency professionals are not consistently reflective of the research on disordered gambling. This poster presentation reports on part of a larger project, undertaken in conjunction with Professor Anna Lund of the University of Alberta, Faculty of Law, that seeks to synthesize and translate existing research on problem gambling for use by insolvency professionals. This poster presentation will synthesize research on providing financial counselling to disordered gamblers and translate it into the bankruptcy context. This synthesis and translation exercise seeks to address two questions: (1) What financial indicators can insolvency professional use to identify when a bankrupt individual may have a gambling problem, and, (2) What financial interventions can insolvency professionals implement during the bankruptcy process to help individuals overcome their gambling problem? |
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