

Introduction to the Special Issue “20 years of the Pathways Model: Understanding Disordered Gambling and Other Behavioural Addictions”

Luke Clark^{1,2}, Joël Billieux^{3,4} & David M. Ledgerwood⁵

¹Centre for Gambling Research at UBC, Department of Psychology, University of British Columbia, Vancouver, B.C., Canada

²Djavad Mowafaghian Centre for Brain Health, University of British Columbia, Vancouver, B.C., Canada

³Institute of Psychology, University of Lausanne, Lausanne, Switzerland

⁴Center for Excessive Gambling, Addiction Medicine, Lausanne University Hospitals (CHUV), Lausanne, Switzerland

⁵Department of Psychiatry and Behavioral Neurosciences, Wayne State University, Detroit, MI, USA

This is an Author Accepted Manuscript. This paper is not the copy of record and may not exactly replicate the final, authoritative version of the article. Please do not copy or cite without authors' permission. The final article is published as: Clark L, Billieux J, Ledgerwood DM. Introduction to the Special Issue “20 years of the Pathways Model: Understanding Disordered Gambling and Other Behavioural Addictions” *International Gambling Studies*, 2022, doi: 10.1080/14459795.2022.2108484

Correspondence: Dr Luke Clark, Department of Psychology, University of British Columbia, Vancouver, B.C., Canada. Email luke.clark@psych.ubc.ca

Funding: The Centre for Gambling Research at UBC is supported by the Province of British Columbia government and the British Columbia Lottery Corporation (BCLC; a Canadian Crown Corporation). LC also holds a Discovery Award from the Natural Sciences and Engineering Research Council of Canada (RGPIN-2017-04069).

The Department of Psychiatry at Wayne State University is supported by Helene Lycaki/Joe Young Sr. funds from the State of Michigan.

Declaration of Interests: LC is the Director of the Centre for Gambling Research at UBC, which is supported by funding from the Province of British Columbia and the British Columbia Lottery Corporation (BCLC), a Canadian Crown Corporation. The Province of BC government and the BCLC had no role in the preparation of this manuscript, and impose no constraints on publishing. LC holds a Discovery Award from the Natural Sciences and Engineering Research Council (Canada). LC has received a speaker/travel honorarium from the National Association for Gambling Studies (Australia) and the International Center for Responsible Gaming (US), and has received fees for academic services from the International Center for Responsible Gaming (US), GambleAware (UK) and Gambling Research Exchange Ontario (Canada). He has not received any further direct or indirect payments from the gambling industry or groups substantially funded by gambling. He has received royalties from Cambridge Cognition Ltd. relating to neurocognitive testing. LC is a Regional Assistant Editor at International Gambling Studies, and was not involved in the editorial process for this submission. JB has no conflict of interest to declare. DL recently completed a research award for the Manitoba Liquor & Lotteries Corporation, and has current research funding from the National Institutes of Health and State of Michigan. DL has also recently received speaker/travel honorarium from The Fletcher Group (US), National Institutes of Health (US), Lifeworks/Morneau Shepell (US and Canada), University of California, Los Angeles (US), and Oklahoma Association on Problem and Compulsive Gambling.

Introduction to the Special Issue “20 years of the Pathways Model: Understanding Disordered Gambling and Other Behavioural Addictions”

Abstract

The Pathways Model of problem gambling by Blaszczynski & Nower (2002) has become a highly influential framework in the field of gambling studies. This Special Issue commemorates 20 years since the publication of the original paper, highlighting the sustained impact of the Pathways Model across the broader and emergent field of behavioural addictions. As a framework, the Pathways Model set out two distinct objectives: first, to synthesize an array of risk factors and psychological processes that have been implicated in the etiology of gambling problems, and second, to characterize heterogeneity among people with gambling problems. As the articles included in this collection confirm, the three subtypes proposed by Blaszczynski & Nower continues to be an especially powerful stimulus for research.

Gambling disorder continues to be a major public health concern, and the etiology and maintenance of gambling disorder has been a focus of research for several decades. A common theme to emerge from the literature is that individuals with gambling disorder constitute a heterogeneous group in terms of demographics, gambling patterns, types and motivations, psychosocial characteristics, as well as co-occurring mental health and other problems (Jacobs, 1986; Milosevic & Ledgerwood, 2010; Stewart & Zack, 2008). These findings have necessitated efforts to better characterize different subtypes of individuals with gambling problems with the ultimate goal of providing more effective policies and interventions to address this problem.

The landmark paper outlining “A Pathways Model of Problem and Pathological Gambling” by Blaszczynski and Nower was published in the journal *Addiction* in 2002 (Blaszczynski & Nower, 2002), and its most recent revision has been published only a few months ago (Nower, Blaszczynski, & Anthony, 2022). According to its authors, the Pathways Model was developed in response to the need to integrate the various biological, psychological, ecological, and developmental factors involved in gambling disorder into a single comprehensive and integrative framework, to ultimately promote individualized treatment approaches. Since its publication, the Pathways Model has been cited well over 2,000 times, and we suspect most readers encountering this editorial within a journal in the field of gambling studies will already be familiar with its main tenets. That said, gambling research is a highly

interdisciplinary field, and it should be noted the Pathways Model has been particularly influential within clinical psychology and psychiatry, and among healthcare professionals who work with people experiencing gambling problems. It is best known as a framework for understanding *heterogeneity* among people with gambling problems; clinicians find the Pathways Model attractive in helping them move beyond the ‘one size fits all’ approach to treatment, with tailored therapies – and intensities of therapy – aligned with the three etiological subtypes. For other researchers, from cognitive or behavioural psychology, or public health, the Pathways Model also acts as a useful organizing system for the many constructs and risk factors that have been implicated in the development of gambling problems. Moreover, in the last years, similar “pathways” approaches have been used to account for the heterogeneity of other excessive and addictive behaviors (e.g., problematic smartphone use, see Billieux et al, 2015; and problematic video gaming, see Marchica et al, this issue).

How did this Special Issue come about? Empirical papers examining the Pathways Model have continued to be published at pace in recent years, partly as a result of new research tools for systematically capturing the individual difference components of the original paper (Nower & Blaszczynski, 2017), and partly as a result of increasing uptake in the research community of the relatively advanced statistical procedures capable of evaluating the latent subtypes at the heart of the framework (Black & Allen, 2022; Nower et al., 2022). In late 2020, Dr. Clark was engaged in separate conversations with Dr. Billieux and Dr. Ledgerwood anticipating the 20-year anniversary of the original Blaszczynski & Nower (2002) paper, and we approached *International Gambling Studies* as a possible host outlet for a special issue commemorating this event. Notably, beyond some initial words of encouragement, Dr Blaszczynski (Editor-in-Chief at IGS) recused himself from any role in preparing the Special Issue.

During the window of submissions for the Special Issue (from July 2021 until June 2022) other manuscripts have been published elsewhere that have also advanced this field. Nower, Blaszczynski, and Anthony (2022) used the Gambling Pathways Questionnaire in a dataset of 1168 treatment-seeking gamblers. Using a Latent Class analytic approach, their results broadly supported the 3 pathways but also prompted some revisions to the original 2002 model. In particular, Pathway 3 (the antisocial-impulsivist pathway) is now conceptualized as independent (rather than additive upon) the characteristics of Pathway 2 (the emotionally vulnerable pathway). Commentaries upon this recent paper have also reflected on some ongoing ambiguities. The premise that the Pathways Model only applies to clinically relevant gambling patterns has been questioned, and described as a neo-Kraepelinian perspective. This is at odds with contemporary evidence suggesting no qualitative

difference between the normal and the pathological and calls for assuming a continuum of harm (Billieux, Bonnaire, Bowden-Jones, & Clark, 2022). Goudriaan & de Waal (2022) noted how attention deficit hyperactivity disorder (ADHD) – a key comorbidity with gambling disorder – does not seem to differ across subtypes in the Pathways Model, and may instead be associated with overall gambling severity (see also Blaszczynski & Nower, 2022).

The articles in this Special Issue eloquently capture the breadth of the impact arising from the original publication. Two papers synthesize the current strength of evidence for the Pathways Model, one from a systematic perspective that compares the evidence against alternative frameworks for heterogeneity (Excell et al), and the other from a more critical perspective seeking to highlight knowledge gaps and ambiguities (Delfabbro & King). In their paper, Bonnaire and Billieux provide in depth process-based formulations for each of the three pathways. Through demonstration using case descriptions, these authors deliver a rich and comprehensive depiction of how each specific pathway may manifest among clients seeking treatment. Another study in a treatment-seeking sample with Gambling Disorder considers the Pathways constructs from a dimensional (regression-based) perspective (Mestre-Bach et al). Highlighting the importance of applying validated psychological models to other cultures and languages, Primi et al validated the use of the Pathways Questionnaire for use in an Italian sample. Two further empirical studies consider the application of the Pathways Model to other addictive behaviours; notably problematic video gaming in adolescents (Marchica et al) and patients undergoing methadone maintenance therapy for opioid use disorder (Lister et al), highlighting how components of the model have translational utility in describing the many routes to excessive consumption. Lastly, a more subtle contribution of the Pathways Model has been to organize the diverse psychological constructs that are implicated in the escalation of gambling behaviour. Ferrari et al focus on habit formation as one of the more neglected components of the original model, providing a thorough behavioural analysis of slot machine gambling over repeated sessions.

The work included in this special issue highlights the continuing importance and validity of the Pathways Model. Nevertheless, more work needs to be done. For example, few studies have directly used the Pathways Model to inform treatments in those with gambling disorder, and such personalization has not been evaluated. As noted in recent publications, there is also a need for further discussion about whether and how we may apply the Pathways Model to other groups of individuals who gamble, such as those without gambling problems. The field has progressed significantly since the original publication of

Blaszczynski & Nower's work, but there remains plenty of room for advancement of the Pathways Model.

References

Billieux, J., Bonnaire, C., Bowden-Jones, H., & Clark, L. (2022). Commentary on Nower et al: The Pathways Model should apply to non-clinical gambling patterns. *Addiction, 117*, 2011–2012. <https://doi.org/10.1111/add.15860>

Billieux, J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015). Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Current Addiction Reports, 2*(2), 156–162. <https://doi.org/10.1007/s40429-015-0054-y>

Black, D. W., & Allen, J. (2022). Testing the validity of the Pathways Model: a Latent Class Analysis of potential pathological gambling subtypes in a non-treatment sample. *Journal of Gambling Studies, 38*(2), 663–679. <https://doi.org/10.1007/s10899-021-10056-9>

Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction, 97*, 487–499.

Blaszczynski, A., & Nower, L. (2022). Response to commentaries on: Clarifying gambling subtypes: the revised pathways model of problem gambling. *Addiction, 117*, 2013–2014. <https://doi.org/10.1111/add.15890>

Goudriaan, A. E., & de Waal, M. M. (2022). Commentary on Nower et al : Patterns in pathways: underlying comorbidities and the importance of assessment. *Addiction, 117*, 2009–2010. <https://doi.org/10.1111/add.15859>

Jacobs, D. (1986). A general theory of addictions: a new theoretical model. *Journal of Gambling Behaviour, 2*, 15–31.

Milosevic, A., & Ledgerwood, D. M. (2010). The subtyping of pathological gambling: a comprehensive review. *Clinical Psychology Review, 30*(8), 988–998. <https://doi.org/10.1016/j.cpr.2010.06.013>

Nower, L., & Blaszczynski, A. (2017). Development and validation of the Gambling Pathways Questionnaire (GPQ). *Psychology of Addictive Behaviors, 31*(1), 95–109.

Nower, L., Blaszczynski, A., & Anthony, W. L. (2022). Clarifying gambling subtypes: the revised pathways model of problem gambling. *Addiction, 117*, 2000–2008. <https://doi.org/10.1111/add.15745>

Stewart, S. H., & Zack, M. (2008). Development and psychometric evaluation of a three-dimensional Gambling Motives Questionnaire. *Addiction, 103*, 1110–1117. <https://doi.org/10.1111/j.1360-0443.2008.02235.x>