

éditorial/ editorial

Lancement de la section francophone du *Journal of Gambling Issues*/ Launching the Inaugural French Section of the *Journal of Gambling Issues*

Chères et chers collègues,

J'ai le plaisir d'annoncer que vous trouverez dans ce numéro les premiers articles publiés en français par le *Journal of Gambling Issues*. C'est un premier pas prometteur vers une publication comprenant davantage de contenu bilingue et qui commence par un article de fond de Dr. Frank Vitaro intitulé « La méthodologie au service de l'avancement des connaissances en matière de jeux de hasard et d'argent ». Dans cet article, l'auteur discute de trois méthodologies scientifiques dont les experts pourront se servir pour répondre aux questions de recherche les plus pertinentes et les plus pressantes actuellement dans le domaine du jeu compulsif. Ce numéro présente également quatre autres manuscrits qui contribuent au coup d'envoi de cette première section francophone de la revue. Tout particulièrement, Dr. Isabelle Giroux et ses collègues présentent d'importants résultats provenant d'une étude évaluant un site Web francophone ciblant les problèmes de jeu chez les jeunes adultes. Aussi, celui du Dr. Michael Cantinotti qui nous offre une brillante critique du film français *La Tueuse* [*The Killer Queen*], dont l'intrigue tourne autour d'une femme qui devient dépendante du poker. Ensuite, Claude Boutin offre un éditorial d'actualité où il fait part de ses réflexions sur la façon dont les chercheurs et les professionnels des centres de traitement du jeu compulsif pourraient collaborer plus efficacement. Enfin, Dr. Marie Grall-Bronnec et ses collègues contribuent à la revue par l'entremise d'un article de recherche rédigé en anglais et intitulé « A French adaptation of the Gambling-Related Cognitions Scale ». Cet article, qui traite des instruments d'évaluation des distorsions cognitives, devrait s'avérer intéressant et utile aux lecteurs qui travaillent avec des joueurs pathologiques ou qui étudient ce problème dans les pays francophones. Nous offrons également, pour la première fois, des traductions anglais-français et français-anglais de tous les résumés d'articles afin que tous nos lecteurs puissent prendre connaissance du contenu de tous les articles dans chaque numéro, quelle que soit leur langue d'origine.

Nos efforts pour publier un contenu en français et en anglais ont été le fruit d'une importante collaboration. Néanmoins, quelques personnes clés méritent d'être tout particulièrement mentionnées. En premier lieu, nous tenons à remercier Dr. Serge Sévigny, notre rédacteur en chef associé pour la nouvelle section francophone, dont la vision, le soutien déterminant et l'expertise ont été la pierre angulaire de ce projet.

Ensuite, nous remercions l'éditeur adjoint du *JGI*, Daryl Boshart, qui a travaillé en étroite collaboration avec Dr. Serge Sévigny pour développer cette idée et la concrétiser. Les membres de notre comité de rédaction méritent également une mention honorable pour le soutien et les suggestions très ingénieuses qu'ils ont offerts pour que cette entreprise réussisse. Enfin, nous aimerions remercier les auteurs de notre première section francophone : Dr. Vitaro, pour avoir eu la bonté d'accepter le défi d'écrire et de réviser (d'après les évaluations faites par les pairs) notre premier article de fond écrit en français; Dr. Giroux et ses collègues, pour avoir écrit un article intrigant basé sur des données recueillies au Québec; Dr. Cantinotti, pour sa critique de film si perspicace; Claude Boutin, pour avoir rédigé un éditorial d'ouverture fort intéressant; et Dr. Grall-Bronnec et ses collègues, pour leur évaluation d'une adaptation française d'un important instrument d'évaluation dans le domaine du jeu compulsif.

L'esprit derrière notre initiative bilingue a été de ne pas nous arrêter aux travaux publiés en anglais – la *lingua franca* en matière de recherche scientifique –, mais d'inclure également des auteurs francophones d'ailleurs dans le monde qui participent à des travaux de recherche très importants dans les domaines du jeu compulsif et de la science traitant des dépendances. Nous sommes heureux des réponses que nous avons reçues lors de nos appels pour solliciter des contributions en français et nous encourageons les auteurs à continuer de soumettre leurs manuscrits en français au *JGI*. Comme toujours, vous pouvez communiquer avec nous si vous avez des questions ou des commentaires.

Nous espérons que vous aimerez ce premier numéro bilingue, quelle que soit la langue de votre choix!

Sherry H. Stewart, Rédactrice en chef

Launching the Inaugural French Section of the *Journal of Gambling Issues*

Dear colleagues,

I am pleased to announce that, appearing in this issue, you will find the first French language article to be published in the *Journal of Gambling Issues*. The first exciting step toward making our journal a more bilingual publication begins with a feature article written by Dr. Frank Vitaro, entitled “La méthodologie au service de l'avancement des connaissances en matière de jeux de hasard et d'argent” [“Methodologies for advancing knowledge in gambling research”]. In this article, Dr. Vitaro critically reviews three scientific methods that problem gambling experts

might use to answer the research questions that are most relevant and pressing to our field today. This issue also features four other contributions that assist us in kicking off the inaugural French section of the journal. Specifically, Dr. Isabelle Giroux and her colleagues present important findings from a study of a Francophone problem gambling website targeted toward young adults. Also, Dr. Michael Cantinotti provides our first French language film review – a brilliant critique of the French film *La Tueuse* [*The Killer Queen*] about a woman who develops an addiction to poker. Claude Boutin offers a timely editorial that outlines his thoughts on how problem gambling research and treatment centres could collaborate more effectively. And Dr. Marie Grall-Bronnec and her colleagues contribute an English-language research article entitled “A French adaptation of the Gambling-Related Cognitions Scale” – a measurement paper which should prove interesting and useful to members of our readership who work with or study problem and at-risk gamblers in French-speaking parts of the world. Also for the first time, we provide English-to-French and French-to-English translations of all article abstracts, such that members of our readership can make use of *all* articles in each issue, regardless of whether their primary language is English or French.

Our endeavour to publish content both in French and English has been a collaborative one. Nonetheless, a few key people deserve special mention. First, we would like to thank Dr. Serge Sévigny, our Associate Editor for the new French section, whose vision, instrumental support, and expertise have been the cornerstone of this venture. Next, acknowledgement goes to *JGI*'s managing editor, Daryl Boshart, who worked closely with Dr. Sévigny to develop this idea and bring it to fruition. Our editorial board members also deserve honorable mention for being so supportive of this effort and very creative in their suggestions to help ensure that this undertaking proves to be a success. Finally, we would like to thank our French section authors: Dr. Vitaro, for graciously accepting the challenge of writing and revising (based on peer review input) our first French feature article; Dr. Giroux and her colleagues for authoring an intriguing French language article based on data collected in Quebec; Dr. Cantinotti, for providing such an insightful film critique; Claude Boutin for writing an absorbing, inaugural French language editorial; and Dr. Grall-Bronnec and her co-authors, for contributing an evaluation of a French adaptation of an important measurement tool in the gambling field.

The spirit behind our bilingual initiative has been to look beyond the English *lingua franca* of scientific scholarship, so as to include authors from French speaking parts of our world who are involved with very important scholarship in the problem gambling and addiction science fields. We are pleased with the response we've been receiving to our previous calls for French contributions, and we encourage authors to continue submitting French manuscripts to the *JGI*. As always, please contact us if you have any questions or feedback.

We hope you enjoy this issue – in whichever language you choose!

Sherry H. Stewart, Editor-in-Chief

éditorial/ editorial

Le défi de la recherche en milieu naturel/ The Challenge of Conducting Research in the Field

Les chercheurs vouent une grande part de leur énergie à élaborer des projets novateurs qui favorisent l'émergence de pratiques cliniques toujours plus efficaces. S'inspirant en quelque sorte des travaux de Dewey Jacobs dans le développement de la « Théorie générale des dépendances », quelques centres de recherches s'affilient de nos jours à des organismes de traitement pour joueurs pathologiques. Ce faisant, les chercheurs testent en milieu naturel des procédures éprouvées au préalable en milieu contrôlé ou développent en collaboration avec ces divers organismes de traitement de nouvelles pistes d'intervention qui doivent ensuite faire l'objet d'une étude. Ils espèrent voir leurs recherches se muter en meilleures pratiques et du coup offrir aux joueurs des traitements de qualité supérieure ou de nouvelles modalités d'intervention. Ces pratiques relativement nouvelles soulèvent cependant plusieurs questions, qui aux premiers abords semblent relever du sens commun, mais qui, lorsqu'on s'y attarde un peu, provoquent une remise en cause des façons de faire cliniques, scientifiques, voire éthiques. Plusieurs écueils attendent le chercheur en quête d'une validation de ses travaux lorsque ceux-ci se font en collaboration avec un ou plusieurs organismes de traitement en milieu naturel. Après avoir travaillé près de 15 ans au *Centre Québécois d'Excellence pour la Prévention et le Traitement du Jeu* de l'université Laval, je vous propose aujourd'hui une réflexion quant aux difficultés susceptibles de jalonner le parcours de tout chercheur désireux de collaborer avec un centre de traitement. Mais, ce sera à titre de directeur de programme du jeu pathologique de la Maison Jean Lapointe que je vous entretiendrai, aujourd'hui. La Maison Jean Lapointe s'implique activement à la recherche, notamment en collaborant avec certains centres universitaires afin que ceux-ci testent en ses murs des protocoles de recherche imaginés par eux, ou en s'intégrant à une équipe de recherche universitaire où les orientations de recherches sont alors élaborées conjointement. Vivre l'autre côté de la médaille donne une perspective autre sur ce qu'implique une collaboration entre les milieux scientifique et naturel. Cela permet d'être témoin des difficultés concrètes que soulèvent de telles pratiques et attire l'attention sur des questionnements au plan éthique, non encore ou rarement abordés.

Il va de l'intérêt du chercheur de considérer l'importance d'élaborer dès le départ, en collaboration avec le responsable du centre de traitement pour joueurs pathologiques, le protocole de recherche qui sera mis en place et testé au sein de son établissement. Tous les centres de traitement n'adoptent pas la même façon d'intervenir auprès des joueurs, plusieurs variantes existent et certaines façons d'intervenir propres à la recherche pourraient ne pas correspondre à la philosophie

du dit centre de traitement. Cette divergence possible influe alors sur la motivation des intervenants en milieu naturel à recruter des sujets pour l'étude autant que sur celle à prodiguer la nouvelle procédure en observation. Il peut alors se créer un clivage au sein même des membres de l'organisation quant à leur désir de poursuivre leur implication dans la recherche. Jauger l'impact de la mise en place d'une nouvelle procédure de recherche en milieu naturel évitera bien des désagréments de part et d'autre. Tout chercheur tire avantage à ce que sa recherche cadre avec la visée du centre de traitement avec qui il entreprend de mener à bien ses travaux. Il en va du succès de la démarche scientifique.

Cela relève en partie de l'évidence, mais qu'en est-il des difficultés éthiques posées par une telle démarche ? Avant toute chose, le joueur pathologique en traitement présente de grandes vulnérabilités et doit avoir droit aux meilleures pratiques, mais surtout au meilleur de ce qu'un intervenant peut lui offrir. Le personnel d'un milieu naturel impliqué dans un projet de recherche peut-il se faire imposer une nouvelle façon d'intervenir qu'il ne maîtrise ou ne cautionne pas d'emblée ? Chaque conseiller clinique, par exemple, mis à partie dans un nouveau projet de recherche devrait-il avoir le pouvoir décisionnel de participer, voire de se retirer à tout moment d'un tel projet sans que cela ne lui cause préjudice dans son milieu de travail ? On sait par ailleurs que certains protocoles de recherches donnent peu de libertés aux cliniciens impliqués, d'autant plus que plusieurs centres de traitement en milieu naturel sont parfois impliqués dans une seule et même recherche. La pression vers une procédure standardisée se fait alors très grande sur chacun des centres de traitement. Au final, qui devra faire des compromis afin que le joueur pathologique en traitement demeure au cœur des préoccupations de tous, le monde de la recherche, celui du milieu naturel, ou les deux ? De même, existe-t-il des outils dans le cadre de la recherche afin de protéger l'intégrité professionnelle et les droits des collaborateurs en milieu naturel souvent peu formés à la recherche et parfois forcés de collaborer en raison de leur statut d'emploi ? En y pensant bien, y aurait-il lieu d'intégrer un consentement éclairé à l'intention des collaborateurs issus du milieu naturel ? Ne serait-il pas préférable de veiller à ce que les collaborateurs en milieu naturel ne se sentent pas menacés par la recherche ?

De multiples enjeux existent entre les membres d'une équipe de travail en milieu naturel qu'une participation à un projet de recherche peut faire sortir de l'œuf. Qui prendra part à la recherche, dans quelles conditions et pourquoi, sont toutes des questions que le chercheur a avantage à soulever auprès du responsable de la recherche en milieu naturel. En l'absence de quoi, il est probable que des désistements surviennent ou pire que certains intervenants tentent de faire avorter le projet de recherche. En clair, passer outre ce point risque de provoquer des revirements de situation difficilement récupérables. Cela met en péril l'aboutissement de la recherche et l'équilibre si fragile de toute une équipe de travail. En attendant que des formulaires éthiques remédient à ces difficultés, ces dimensions doivent être négociées avec grand sérieux.

La formation des intervenants qui participent à la recherche exigera temps et générosité. L'intervenant qui voit sa tâche quotidienne modifiée, et parfois augmentée en raison de sa participation à la recherche voudra que cela lui bénéficie sur le plan professionnel. En contrepartie, le projet de recherche ne peut occuper une trop grande part du temps alloué aux tâches régulières de l'intervenant. Il s'agit pour le chercheur de trouver le bon équilibre dans le temps qu'il désire affecter à la formation et la supervision des intervenants impliqués dans sa recherche. Là encore, cette situation risque de créer des remous au sein de l'équipe qui y verra peut-être une situation d'injustice en regard de leur nombre de cas ou « case load ». Tous les intervenants d'une même équipe ne participent pas forcément au projet de recherche. Cette situation potentiellement problématique semble concerner davantage le responsable d'équipe en milieu naturel. Toutefois, il en va autrement : trop de désagréments risqueront de provoquer un désintéressement généralisé du projet de recherche et provoqueront une rupture du lien pour l'avenir. En somme, mettre en place des projets simples qui appellent une formation et supervision légère maximisera la collaboration tout en atténuant les risques de désagrément dans l'équipe en milieu naturel.

Il en va souvent de cet ordre dans lequel le chercheur propose des idées de recherches et les individus en milieu naturel tentent alors de s'accommoder de façon à donner satisfaction au chercheur. L'inverse ne serait-il pas plus révélateur des vrais besoins en milieu naturel ? En partant des idées générées par le milieu naturel, le monde scientifique y gagnerait-il ? Par ailleurs, serait-il envisageable que le milieu universitaire offre parfois son soutien à la recherche créée, mise en place, et évaluée par le milieu naturel ? Bien entendu, afin de réussir un tel exploit, il faudrait s'assurer que les cliniciens soient formés aux rouages de la recherche et que les chercheurs soient en contrepartie formés aux réalités du monde clinique.

Une bonne collaboration transitera toujours par une excellente préparation et une communication soutenue. Et, si tout ne peut se prévoir ou se contrôler, la collaboration entre les milieux scientifique et naturel ne peut cependant pas se permettre le luxe du hasard. Cela dit, on peut se demander pourquoi plusieurs des questionnements soulevés ici sont encore ignorés du monde de la recherche ? Prendre le temps de s'y intéresser n'ouvrirait-il pas la voie à de nouvelles suggestions visant une meilleure collaboration ? Car enfin, cette collaboration est le premier pas, le plus important, dans l'élaboration du pont qui sépare l'univers de la recherche de celui du milieu naturel.

En terminant, la collaboration recherche/milieu naturel est une des avenues les plus prometteuses. Seulement, nombreuses sont les difficultés rencontrées et les précautions qui doivent être prises pour mener à bien une telle collaboration. Des remises en question des façons de faire actuelles pourraient être faites notamment au plan de l'élaboration des projets, de la formation des gens impliqués, et du droit de chacun de préserver leur pouvoir éthique décisionnel. Par ailleurs, lorsque les scientifiques prendront sur eux de rendre digestibles les résultats de leurs plus

grandes recherches, tout en assurant un relais rapide vers les centres de traitement, nous pourrons enfin dire qu'il existe un pont entre la recherche et l'intervention en milieu naturel. Alors seulement pourrons-nous parler de réelle collaboration.

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Approbation éthique : non applicable.

The Challenge of Conducting Research in the Field

Researchers devote a great deal of energy to developing innovative projects that support the emergence of increasingly effective clinical practices. Drawing inspiration from the work of Dewey Jacobs and the general theory of addictions, some research centres are now affiliating themselves with treatment centres for problem gamblers. Affiliations such as these enable researchers to test procedures in a clinical setting that were originally developed in a controlled setting. In co-operation with these treatment centres, some researchers are also developing new forms of treatment which then need to be tested. They hope that their research will translate into best practices, providing gamblers with better treatment and clinicians with new modes of intervention. However, these relatively new practices raise many questions.

The answers may seem obvious; however, when these practices are explored more fully, they call into question clinical, scientific, and ethical assumptions. Many pitfalls await researchers seeking to test their work in co-operation with a treatment centre or centres in the field. Having worked at the Quebec Centre for Excellence in the Prevention and Treatment of Gambling at Laval University for close to 15 years, I would like to open up a discussion on the challenges that await researchers who want to collaborate with a treatment centre. Here, however, I am speaking as the director of the problem gambling program at Maison Jean Lapointe. Maison Jean Lapointe is actively involved in research, notably through agreements with university research centres. Such agreements enable researchers to test their research protocols at Maison Jean Lapointe or to deploy a research team at the centre where avenues for research are then developed jointly. This process allows researchers and clinicians alike to see what laboratory-field collaboration looks like. It also makes it possible to observe first-hand the difficulties that such practices create and to draw attention to ethical issues that are rarely, if ever, addressed.

It is in a researcher's best interests to consider the importance of working in co-operation with the director of the treatment centre, right from the outset, to develop the research protocol that will be introduced and tested in the centre. Not all treatment centres work in the same way with gamblers; there are many variations and some of the procedures used in research may conflict with the philosophy of the centre. This may affect the willingness of workers at the centre to recruit subjects for the study or their willingness to apply the new procedure in observation. It may even result in a split amongst the staff over their desire to be involved in the research. Gauging the impact of introducing a new research procedure in the field will make it possible to avoid many of these pitfalls. Researchers would do well to ensure that their research is compatible with the vision of the treatment centre in which they plan to work. The very success of their research may depend on it.

This is partly a matter of the evidence, but what about the ethical challenges that the research process poses? The first thing to remember is that problem gamblers in treatment are very vulnerable; they must have access to the best practices available and to the best treatment that the centre's clinicians are able to offer. Treatment centre staff who are taking part in a research project may find themselves required to work in a new way that they haven't mastered or do not immediately endorse. Should each clinician involved in a new research project have the power to decide whether to participate or to withdraw at any time during the project, without risk of this decision jeopardizing their work environment? Some research protocols do not give clinicians much latitude and many treatment centres are involved in a single research project. As a result, treatment centres experience tremendous pressure to conform to a standardized procedure. Lastly, is it up to the researchers to make compromises to ensure that pathological gamblers receiving treatment remain the central focus, or is it up to the treatment centre clinicians? Or is it up to both parties? Do tools exist that can be used with research projects in order to protect the professional integrity and rights of workers in the field who are taking part in the

research, who often have little training in research, and who are sometimes forced to co-operate because of their employment status? Would it not be appropriate to introduce informed consent for field workers taking part in research? And would it not be appropriate to ensure that field workers taking part do not feel threatened by the research?

Participation in a research project may also cause issues between members of a work team to come to a head. Who will participate in the research? Under what conditions will they participate, and why? These are questions that the researcher should raise in advance with the appropriate official at the treatment centre. Failing to do so may result in resistance or, worse yet, attempts by some workers to sabotage the research project. Avoiding this discussion may lead to unpleasant situations that are difficult to reverse and that jeopardize the success of the research project and the delicate balance of an entire work team. Until ethics forms to address these challenges are available, they must be raised and taken very seriously.

Training workers to participate in research requires time and patience. Workers who see their daily work routine changed and sometimes added to, as a result of their participation in research, will want to derive some professional benefit from their participation. In addition, the research project must not take too much of the time that workers devote to their regular activities. The researcher must strike a balance between the time spent training and supervising the workers involved in the research. Once again, this situation could make waves if the team feels that the research is having an unfair impact on their case load. It is possible that only some of the workers on a team will participate in the project. This potentially problematic situation is more likely to be of concern to the treatment centre team leader. Many problems can stem from staff disinterest in a project, and jeopardize collaboration in the future. Choosing simple projects that require minimal training and a low level of supervision will foster co-operation and minimize the risk of conflict on the treatment centre team.

Often, a researcher will suggest possibilities for research and field workers will try to adjust in order to satisfy the researcher. Yet the opposite approach would probably tell us more about the true needs of the field. Would the research world not benefit from working with ideas that originated in the field? And what if academe periodically supported research developed, introduced, and tested by workers in the field? This would, of course, make it necessary to ensure that clinicians were trained in research and, conversely, that university researchers were trained in the realities of the clinical world.

Successful collaboration always requires excellent preparation and ongoing communication. It is not possible to plan for every contingency; however, collaboration between the lab and the field cannot be left to chance. Having said that, it is fair to ask why so many of the issues raised here are still not being addressed by researchers. If researchers were to take the time to consider them, this

would open up new possibilities for improved co-operation. This is the first step—and the most important step—toward bridging the gap between the research world and the clinical world.

In closing, co-operation between these two worlds holds great promise. Co-operation means that difficulties will be encountered and precautions need to be taken. Current practices must be re-examined, particularly in terms of project development, training, and the right of each stakeholder to preserve their ethical decision-making power. When scientists take responsibility for making their research findings intelligible and readily available to those working in the field, we will finally be able to say that there is a bridge between the research laboratory and the field. Only then will we be able to talk about true collaboration.

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Ethics approval: Not required.

La méthodologie au service de l'avancement des connaissances en matière de jeux de hasard et d'argent

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Résumé

Cet article passe en revue trois méthodologies susceptibles de faire avancer les connaissances en matière de jeux de hasard et d'argent: la méthodologie longitudinale, la méthodologie expérimentale et la méthodologie génétique. Des exemples servent à illustrer comment ces méthodologies permettent: a) de documenter le développement des habitudes et des problèmes de jeu; b) d'identifier les facteurs de risque à présomption causale associés à leur apparition, à leur maintien ou à leur aggravation; c) d'explorer la signification de la cooccurrence des problèmes de jeu avec d'autres problèmes de santé mentale; d) d'analyser les possibles liens transactionnels entre les problèmes de jeu et d'autres problèmes d'adaptation; et, enfin, e) de dégager des leçons par rapport à la modélisation théorique et à l'intervention préventive.

Abstract

In this paper, we describe three methodologies that could help advance our current knowledge about gambling: the longitudinal method, the experimental method, and the genetically informed method. We present examples that illustrate the relevance of these methods with respect to a) the development of gambling problems, b) the identification of presumably causal risk factors linked to their initiation, maintenance, or aggravation, c) the significance of the co-occurrence of gambling problems with other mental health problems, d) the determination of possible transactional links between gambling problems and other adjustment problems, and, finally, e) possible implications for theoretical models and intervention strategies.

Introduction

Savoir poser les bonnes questions est essentiel pour l'avancement des connaissances. Utiliser les bonnes méthodologies pour y répondre adéquatement l'est tout autant. Cet article passe en revue les avantages (et les limites) de trois méthodologies qui pourraient aider à répondre à des questions cruciales sur le développement des jeux de hasard et d'argent de l'enfance à l'âge adulte, les facteurs de risque et de protection qui y sont associés et, enfin, l'origine et la signification de leur cooccurrence avec d'autres problèmes de santé mentale. Ces trois méthodologies sont la méthodologie longitudinale, la méthodologie expérimentale et la méthodologie génétique. L'idée n'est pas d'offrir un survol complet des études qui ont utilisé l'une ou l'autre de ces méthodologies, mais d'illustrer chacune à partir d'exemples tirés de travaux de recherche récents. Il n'est pas question non plus de prétendre innover en la matière, puisque les trois méthodologies décrites ici sont utilisées couramment dans des domaines connexes, comme ceux de la toxicomanie ou de la délinquance. Enfin, les trois méthodes seront décrites séparément, mais elles ne sont pas mutuellement exclusives.

Nous abordons ici les jeux de hasard et d'argent sous deux angles: la participation à ces activités (ou habitudes de jeu) et les problèmes qui peuvent en découler. Dans les deux cas, deux approches sont possibles: une approche dimensionnelle et une approche catégorielle (pour une discussion générale des avantages et des inconvénients de chacune, voir MacCallum, Zhang, Preacher, & Rucker, 2002). L'approche dimensionnelle s'intéresse à la fréquence de participation à des jeux de hasard et d'argent ou au nombre de problèmes qui peuvent en découler. L'approche catégorielle, quant à elle, s'intéresse au nombre de personnes qui jouent ou qui éprouvent des problèmes de jeu. En somme, la première dénombre les comportements ou les problèmes de jeu, alors que la deuxième dénombre les joueurs avec ou sans problèmes de jeu. Dans ce dernier cas, les joueurs sont regroupés en catégories. Ces catégories s'appuient sur des critères variés et reçoivent des appellations diverses d'une étude à l'autre. Afin d'éviter la surmultiplication des appellations ainsi que des distinctions parfois arbitraires entre catégories de joueurs sans frontières précises, les différentes catégories de joueurs aux prises avec des problèmes de jeu sont désignées ici par le vocable de "joueurs problématiques" (Toce-Gerstein, Gerstein, & Volberg, 2003a, 2003b).

La méthodologie longitudinale

Malgré les efforts des dernières années, le domaine des jeux de hasard et d'argent souffre encore d'une pénurie d'études longitudinales. Par conséquent, nous ne savons pas: a) comment émergent les premiers jeux de hasard et d'argent; b) comment ils évoluent à travers le temps chez les mêmes individus sur des périodes couvrant plus d'une période développementale (ex. : enfance-adolescence ou adolescence-âge adulte); c) s'il existe des trajectoires types de joueurs, définies de manière empirique à partir d'instruments valides; et d) si plusieurs des facteurs de

risque associés au jeu précoce ou au jeu problématique sont des antécédents, des corrélats ou des conséquences des jeux de hasard et d'argent. Nous ne connaissons pas non plus les facteurs associés aux possibles transitions dans les trajectoires de jeu. Enfin, nous n'avons aucune idée précise de la direction et de la signification du lien qui unit la pratique, problématique ou non, des jeux de hasard et d'argent à une panoplie de problèmes de santé mentale. Une étude adéquate en réponse à ces questions requiert une méthodologie longitudinale car elle permet de suivre les mêmes individus à travers le temps. Deux stratégies sont alors possibles : décrire le cheminement des participants selon une perspective centrée sur le changement intra-individuel ou déterminer la position relative de chaque participant par rapport aux autres participants à différentes périodes de leur développement selon une approche centrée sur le changement interindividuel. Dans les deux cas, une démarche prospective est privilégiée. Contrairement aux études rétrospectives, les risques d'oubli ou de reconstruction du passé sont évités dans les études longitudinales de nature prospective. Les retombées théoriques et pratiques que les études longitudinales peuvent générer sont nombreuses et importantes.

L'identification des facteurs de risqué. Pour éviter d'être un simple corrélat ou une conséquence du problème auquel il est associé, un facteur de risque candidat à un rôle causal (i.e. un déterminant) doit précéder l'émergence ou l'aggravation du problème. Un décalage temporel entre le facteur présumé de risque et l'émergence ou l'aggravation du problème d'intérêt est donc requis (Kraemer et al., 2000; Susser, 1991). Dans une recension récente, Johansson et ses collaborateurs (Johansson, Grant, Kim, Odlaug, & Gotestam, 2009) passent en revue les présumés facteurs de risque associés au jeu problématique. Ils concluent entre autres qu'un faible rendement scolaire constitue un facteur de risque, c'est-à-dire susceptible de jouer un rôle causal, direct ou indirect, relativement au développement des problèmes de jeu. Or toutes les études recensées par les auteurs sont de nature transversale: comment peuvent-ils alors tirer pareille conclusion? En effet, comment être sûr que le faible rendement scolaire n'est pas une conséquence plutôt qu'un antécédent des problèmes de jeu? De plus, est-il possible d'affirmer que des tierces variables ne sont pas responsables du lien entre faible rendement scolaire et problèmes de jeu lorsque la plupart des études citées n'en tiennent pas compte? Ces questions cruciales s'appliquent à chacun des présumés facteurs de risque identifiés par les auteurs. Sans une approche longitudinale, elles demeurent sans réponse.

Tel que souligné précédemment, un facteur de risque ne peut prétendre à un rôle causal que s'il précède les habitudes ou les problèmes de jeu et que si les facteurs confondants sont pris en compte. Si les habitudes ou les problèmes de jeu sont déjà amorcés, il importe alors d'inclure leur niveau initial comme élément de contrôle. Dans un article récent, Vitaro et Wanner (2011) ont montré qu'un niveau élevé d'impulsivité et un faible niveau d'anxiété entre l'âge de 6 et 8 ans prédisent la pratique précoce des jeux de hasard et d'argent à l'âge de 10 ans. Ils montrent également que les habitudes de jeu des parents prédisent, de manière unique et additive, le jeu précoce chez les enfants. Leur étude délimite ainsi deux catégories de

facteurs de risque qu'on peut clairement qualifier d'antécédents: une catégorie d'ordre personnel et une autre d'ordre sociofamilial. Cette étude et d'autres du même genre (Pagani, Derevensky, & Japel, 2009; Vitaro, Arseneault, & Tremblay, 1999), permettent d'établir la préséance de certains facteurs de risque par rapport aux comportements ultérieurs de jeu. Toutefois, elles ne permettent pas d'en garantir la contribution causale, puisqu'il n'est pas possible d'écarter toutes les tierces variables, possiblement confondantes. En effet, une étude longitudinale demeure essentiellement associative. Elle permet néanmoins de préciser la direction du lien entre un facteur de risque et les habitudes ou les problèmes de jeu, augmentant du même coup la présomption causale des facteurs en question. Par conséquent, les concepteurs de programmes de prévention auraient avantage à cibler les facteurs de risque, de promotion ou de protection identifiés dans le cadre d'études longitudinales plutôt que transversales.

Cooccurrence des problèmes de jeu avec d'autres problèmes d'adaptation.

Pourquoi les problèmes de jeu, la dépendance à l'alcool et à la nicotine, les conduites délinquantes, ou encore les sentiments dépressifs ont-ils tendance à survenir simultanément chez les mêmes individus (Petry, Stinson, & Grant, 2005)? Est-ce que la présence d'antécédents communs pourrait expliquer la cooccurrence de ces diverses problématiques? Afin de répondre à cette question, quelques équipes de chercheurs ont fait appel à la méthodologie longitudinale (Barnes, Welte, Hoffman, & Dintcheff, 2005; Dussault, Brendgen, Vitaro, Wanner, & Tremblay, 2011; Slutske, Caspi, Moffitt, & Poulton, 2005; Vitaro, Brendgen, Ladouceur, & Tremblay, 2001). En contrôlant un certain nombre d'antécédents communs aux jeux de hasard et d'argent et à une ou plusieurs autres problématiques, ces auteurs ont constaté qu'on pouvait expliquer en tout ou en partie ces éléments, appuyant du même coup la thèse d'une origine partiellement ou totalement commune. C'est cette même logique qui a inspiré le concept de prévention générique (voir Vitaro, 2009). Suivant celui-ci, les programmes de prévention générique instaurés en amont des problèmes devraient chercher à réduire le plus grand nombre de facteurs de risque communs à différentes problématiques.

Liens transactionnels entre les comportements de jeu et d'autres comportements. Même si les problèmes de jeu partagent des antécédents communs avec d'autres problématiques, il demeure possible qu'une fois installés, ils contribuent à l'aggravation ou au maintien de ces dernières. Certaines propositions théoriques appuient ce modèle (Langhinrichsen-Rohling, 2004). D'autres appuient le modèle inverse : les autres problématiques pourraient entraîner une augmentation des problèmes de jeu (Blaszczynski & Nower, 2002; Jacobs, 1986; Thomas, Allen, & Phillips, 2009). Il est même possible, voire probable, que les deux modèles soient tous deux valables. Un examen adéquat de ces propositions exige une méthodologie longitudinale particulière de type bidirectionnel avec corrélations croisées (*cross-lagged*). Il s'agit en fait de déterminer la présence de liens longitudinaux croisés, aussi appelés liens transactionnels. L'établissement de tels liens exige la prise en compte des liens de stabilité de chaque comportement, leurs liens concomitants ainsi

que leurs possibles antécédents communs. Sur le plan pratique, il s'agit de mesurer de manière répétée les comportements voulus (par exemple, les habitudes/problèmes de jeu et les sentiments dépressifs) de manière à pouvoir contrôler leur stabilité temporelle respective ainsi que leurs liens concomitants à chaque temps de mesure. Pour donner un exemple, un lien longitudinal entre des problèmes de jeu au temps 1 et des sentiments dépressifs au temps 2 laisserait entendre que les premiers « entraîneraient » une augmentation des seconds du temps 1 au temps 2. Le contrôle additionnel des tierces variables communes aux deux ordres de problèmes assure que leurs liens possibles ne sont pas de nature controuvée. Une étude récente de Dussault et collaborateurs (2011) permet d'illustrer cette approche longitudinale particulière. Ceux-ci montrent que les problèmes de jeu au milieu de l'adolescence prédisent une augmentation des sentiments dépressifs du milieu de l'adolescence jusqu'au début de l'âge adulte. Ils montrent aussi que, simultanément et réciproquement, les sentiments dépressifs au milieu de l'adolescence prédisent une augmentation des problèmes de jeu pendant la même période. Ces résultats réconcilient des points de vue théoriques divergents sur la direction des liens unissant les problèmes de jeu et les sentiments dépressifs. Ils permettent également de clarifier le rôle de tierces variables possiblement communes aux deux problématiques, telles l'impulsivité et l'adversité sociofamiliale. En effet, les résultats montrent que ces tierces variables permettent d'expliquer le lien concomitant à l'adolescence entre les problèmes de jeu et les sentiments dépressifs, mais pas leurs liens longitudinaux croisés du milieu de l'adolescence jusqu'au début de l'âge adulte, ce qui suggère l'existence d'une relation réciproque non controuvée entre ces deux éléments durant cette période de la vie.

On peut trouver d'autres exemples de liens transactionnels entre les habitudes/problèmes de jeu et la consommation de psychotropes ou la délinquance dans les études de Vitaro, Brendgen et Tremblay (2001) et de Wanner, Vitaro, Carbonneau et Tremblay (2009). Dans ce dernier article, les auteurs examinent également le rôle potentiellement modérateur de certaines variables. Ainsi, l'impulsivité s'avère non seulement un facteur de risque commun au jeu problématique, à la consommation de psychotropes et aux conduites délinquantes, mais aussi un facteur de vulnérabilité par rapport à la stabilité des problèmes de jeu du milieu de l'adolescence jusqu'au début de l'âge adulte: chez les individus impulsifs, les problèmes de jeu stagnent et même s'aggravent, alors qu'ils se résorbent chez les autres. Ces résultats soulignent le rôle modérateur de l'impulsivité. Une étude récente montre, qu'à son tour, le lien entre l'impulsivité et le jeu pourrait être modéré par le niveau socio-économique des participants (Auger, Lo, Cantinotti, & O'Loughlin, 2010).

Les études de nature longitudinale citées jusqu'à présent reposent sur deux points de mesure. Cela suffit pour vérifier un possible lien entre des facteurs de risque et les problèmes de jeu. Elles suffisent également pour établir de possibles liens transactionnels entre les problèmes de jeu et d'autres problèmes de santé mentale. Un minimum de trois points de mesure est toutefois requis pour établir des trajectoires développementales fiables.

Trajectoires développementales. Les études de prévalence sur les habitudes ou les problèmes de jeu chez des individus d'âges variés nous renseignent sur les *différences* entre les groupes d'âge. Elles ne nous renseignent pas sur le *développement* des habitudes ou des problèmes de jeu avec l'âge. Étant donné que des individus d'âges variés appartiennent à des cohortes distinctes exposées à des environnements particuliers, il est possible que les différences entre les groupes d'âge reflètent davantage des différences d'ordre environnemental qu'ontogénétique (Loeber & Farrington, 1995). La seule façon de savoir comment les comportements ou les problèmes de jeu se développent consiste à suivre les mêmes individus à travers le temps. Cette section présente un survol de la première génération d'études traitant de l'évolution des habitudes ou des problèmes de jeu selon une perspective longitudinale prospective.

La corrélation entre la fréquence de participation à des jeux de hasard et d'argent sur deux années consécutives au cours de l'adolescence (i.e. de 16 à 17 ans) est au mieux modérée ($r = .55$) (Vitaro et al., 2001). Cette corrélation diminue de moitié ($r = .25$) sur un intervalle de 7 ans (i.e. de 16 à 23 ans) (Wanner et al., 2009). La stabilité des problèmes de jeu ou du statut des personnes affichant ces problèmes est également modérée (Wanner et al., 2009). Par conséquent, l'instabilité plutôt que la stabilité constitue la règle. Sans tomber dans le nomothétisme extrême, il est possible de bien représenter cette variabilité dans les trajectoires individuelles de jeu en utilisant une méthode semi-paramétrique dite de "mixture" (Muthén & Muthén, 2004; Nagin, 1999). Cette méthode exige un minimum de trois points de mesure et génère des trajectoires types qui se distinguent par leur point d'origine, leur niveau et leur forme. Par des comparaisons statistiques, l'algorithme détermine la solution à la fois la plus parcimonieuse et la plus discriminante permettant de regrouper les trajectoires qui se ressemblent en catégories distinctes. Il est ainsi possible de déterminer le nombre optimal de trajectoires ainsi que le nombre de participants qui y cheminent. Les premières trajectoires de jeu ont été décrites par Vitaro et ses collaborateurs (Vitaro, Wanner, Ladouceur, Brendgen, & Tremblay, 2004). Trois trajectoires types en lien avec la fréquence de participation à des jeux de hasard et d'argent ont été identifiées entre l'âge de 11 ans et l'âge de 16 ans chez une cohorte populationnelle de garçons en milieu défavorisé. Un premier groupe de garçons se distingue par une trajectoire chronique élevée. Ces jeunes, qui représentent 16,2% de la cohorte, sont déjà impliqués dans des activités de jeux de hasard et d'argent à l'âge de 11 ans. Un second groupe manifeste peu d'activités de jeux de hasard et d'argent à l'âge de 11 et 12 ans. Leurs activités prennent leur envol à l'âge de 13 ans et grimpent rapidement pour atteindre le niveau du groupe précédent à l'âge de 15 et 16 ans. Ce second groupe de « joueurs tardifs » représente 22,1% des jeunes. Enfin, le dernier groupe, qui représente la majorité des jeunes, participe rarement à des activités de jeux de hasard et d'argent tout au long de l'adolescence. La proportion de jeunes ayant connu des problèmes de jeu par la suite était significativement plus élevée au sein des deux premiers groupes que du dernier, validant ainsi les trois trajectoires. Le lien associatif avec diverses variables de prédiction (e.g. impulsivité, faible supervision parentale, amis déviants) a également permis de valider les trois trajectoires.

Dans une autre étude, Carbonneau, Vitaro, Wanner et Tremblay (2010) ont suivi un échantillon de 1800 participants et participantes sur plus d'une décennie afin d'établir leurs trajectoires de problèmes de jeu de l'âge de 16 ans à 28 ans. La grande majorité des participants, soit 84,1%, ont suivi une trajectoire faible sans problème de jeu. Conformément aux attentes, cette trajectoire comporte plus de filles que de garçons. La deuxième trajectoire, appelée trajectoire déclinante, a été empruntée par 12,8% des participants. Elle se caractérise par la présence moyenne de deux problèmes de jeu à chaque temps de mesure pendant la période 16–22 ans et par l'absence quasi totale de problèmes pendant la période 22–28 ans. Les garçons sont deux fois plus nombreux à la suivre que les filles. Enfin, une faible proportion de sujets (3,1%) suivent une trajectoire élevée de problèmes de jeu de façon remarquablement stable. Ils rapportent, en moyenne, plus de deux problèmes de jeu à chaque temps de mesure. Les garçons sont davantage représentés sur cette trajectoire que les filles, avec quatre garçons pour une fille. Ces données montrent qu'une partie des adolescents aux prises avec des problèmes de jeu mettent fin à leur pratique problématique lorsqu'ils atteignent l'âge adulte et adoptent de nouvelles responsabilités. Cela explique aussi pourquoi les taux de prévalence des joueurs problématiques sont habituellement plus faibles chez les adultes que chez les adolescents. Fait à remarquer, Carbonneau et ses collaborateurs n'ont pas trouvé de trajectoire de joueurs problématiques qui prendrait son envol après la période de l'adolescence. Ce dernier résultat ne concorde pas avec ceux de Grant et al., qui ont trouvé des groupes de joueurs dont les problèmes de jeu atteignaient un niveau clinique pour une première fois bien au-delà de la trentaine (Grant, Kim, Odlaug, Buchanan, & Potenza, 2009). Un suivi de cette cohorte est donc nécessaire, car de nouvelles trajectoires pourraient apparaître au-delà de la vingtaine.

Les exemples précédents s'intéressent aux trajectoires simples de jeu. Il est toutefois possible de modéliser des trajectoires conjointes afin de faire ressortir le degré de chevauchement des trajectoires de jeu avec d'autres trajectoires comportementales qui se développent simultanément. En plus du chevauchement, il est possible d'examiner si les conséquences négatives liées à des trajectoires conjointes sont plus importantes que celles liées à des trajectoires simples. C'est ainsi que certains auteurs ont constaté que les jeunes les plus à risque de connaître des problèmes de jeu au début de l'âge adulte sont ceux qui cheminent à la fois sur une trajectoire précoce-élevée de jeu et sur une trajectoire précoce-élevée ou tardive-élevée de substances psychotropes pendant leur adolescence. À l'opposé, ceux qui cheminent sur une trajectoire tardive de jeu et une trajectoire faible de substances psychotropes ne sont pas plus à risque de présenter des problèmes de jeu au début de l'âge adulte que les jeunes qui cheminent sur des trajectoires faibles de jeu et de consommation de psychotropes (Wanner, Vitaro, Ladouceur, Brendgen, & Tremblay, 2006). Ces résultats ont des répercussions évidentes pour le dépistage des jeunes à risque.

L'approche fondée sur les trajectoires permet d'établir des archétypes de joueurs, problématiques ou non. En ce sens, elle se marie bien avec une approche catégorielle. De plus, elle est de mise lorsque le comportement à l'étude (i.e. le

comportement de jeu dans le cas présent) n'évolue pas dans la même direction chez tous les individus d'une même population. Dans d'autres circonstances, une approche centrée sur les courbes de croissance pourrait s'avérer plus appropriée. Dans ce type d'analyse, qui requiert à son tour au moins trois points de mesure, on établit d'abord une courbe de croissance moyenne. Celle-ci comporte deux paramètres : un point d'interception et une pente. Le reste de l'analyse consiste à déterminer le degré de déviation des courbes individuelles par rapport à ces deux paramètres moyens.

Conclusion au sujet des études longitudinales. Malgré tous les efforts de contrôle de tierces variables confondantes, il n'est possible de contrôler, dans une étude longitudinale, que celles qui sont mesurées. Voilà pourquoi il est préférable d'éviter tout terme de causalité dans ce type d'études. Au contraire des études longitudinales dont le pouvoir de contrôle est limité (Christenfeld, Sloan, Carroll, & Greenland, 2004), les études expérimentales permettent de contrôler d'emblée l'ensemble des variables potentiellement confondantes, même celles non mesurées (Shadish, Cook, & Campbell, 2002). En raison de leur forte validité interne, les études expérimentales sont par conséquent les seules à pouvoir confirmer le statut causal des facteurs présumés de risque (ou de promotion). Elles prennent parfois la forme d'un programme de prévention ou d'intervention.

La méthodologie expérimentale

Les problèmes de jeu causent-ils la détresse psychologique ou, à l'inverse, la détresse psychologique est-elle un déterminant du jeu problématique? Si, comme les résultats de Dussault et al. (2011) semblent le suggérer, les problèmes de jeu et les sentiments dépressifs s'influencent bel et bien mutuellement au début de l'âge adulte, alors la réduction d'une problématique (e.g. les sentiments dépressifs) à la suite d'une intervention thérapeutique devrait entraîner une réduction de l'autre (e.g. les problèmes de jeu). Cette démonstration serait d'autant plus convaincante si elle était faite dans le cadre d'une recherche évaluative randomisée, de manière à garantir l'équivalence initiale entre le groupe expérimental soumis à l'intervention et le groupe contrôle sur liste d'attente. Dans ce cas, l'intervention visant, par exemple, la réduction des sentiments dépressifs peut être envisagée comme une manipulation expérimentale d'une cause présumée des problèmes de jeu, i.e. les sentiments dépressifs. S'ils étaient confirmés, de tels résultats démontreraient du même coup la relation causale entre les deux ordres de problème, puisque la manipulation expérimentale d'une problématique se traduirait par la modification de l'autre. À notre connaissance, aucune étude n'a encore suivi une telle démarche. Cet exemple sert néanmoins à illustrer comment une intervention réalisée dans le contexte d'une méthodologie expérimentale peut servir à faire avancer les connaissances théoriques, tout en permettant d'évaluer de manière rigoureuse les résultats d'une intervention.

Dans le même ordre d'idées, une intervention réalisée dans le contexte d'une démarche expérimentale pourrait permettre de vérifier si les problèmes de jeu et d'autres

problèmes d'adaptation, par exemple la consommation abusive de psychotropes, découlent, du moins en partie, d'antécédents communs tels que l'impulsivité ou la recherche de sensations (Goudriaan, Oosterlaan, de Beurs, & van den Brink, 2005; Slutske et al., 2005; Vitaro et al., 2001). Si, selon le modèle des antécédents communs, l'impulsivité est effectivement un déterminant associé à la fois aux problèmes de jeu et aux problèmes de consommation de psychotropes, alors un traitement pharmacologique visant une réduction de l'impulsivité, par le blocage du système de récupération de la sérotonine par exemple, devrait aboutir à une réduction conjointe des habitudes de jeu *et* de la consommation de psychotropes. Une telle démonstration a été tentée dans le cadre d'études expérimentales auprès de joueurs pathologiques, mais les résultats sont non concluants (Grant et al., 2003; Saiz-Ruiz et al., 2005). Les études dont la manipulation expérimentale prend la forme d'une intervention n'ont toutefois pas besoin de passer par la voie de la pharmacologie.

À titre d'exemple, quelques recherches associatives ont établi un lien entre la méconnaissance des probabilités mathématiques de gain au jeu et les problèmes de jeu. Ainsi, à première vue, cette méconnaissance pourrait constituer un facteur de risque important, voire causal, par rapport à l'adoption de comportements problématiques. Mais qu'en est-il vraiment? Williams et Connolly (2006) ont tenté de répondre à cette question par une manipulation expérimentale. Après avoir réparti au hasard des étudiants universitaires en deux groupes, ils ont enseigné les probabilités de gain en lien avec divers jeux de hasard et d'argent aux étudiants d'un des deux groupes. Les étudiants du second groupe n'ont reçu aucun entraînement et représentaient donc le groupe contrôle. Un mois après l'intervention, les comportements de jeu des étudiants dans les deux groupes étaient demeurés inchangés, ce qui sème le doute, par conséquent, sur la pertinence causale des notions de probabilité relativement au jeu.

Un dernier exemple de manipulation expérimentale provient d'une étude récente de Munoz, Chebat et Suissa (2010). Ces auteurs ont exposé trois groupes de joueurs d'appareils de loterie vidéo à des avertissements fictifs d'intensité variable quant aux risques attribués à l'utilisation de ce type d'appareil. Un quatrième groupe servait de groupe contrôle. De plus, les auteurs ont manipulé la source prétendue des avertissements expérimentaux: pour la moitié des participants de chaque groupe, ils étaient attribués à une source médicale fictive; pour l'autre moitié, à une agence associée au jeu étatisé. Les résultats sont sans équivoque: les participants exposés à des avertissements avec une charge émotionnelle moyenne ou élevée endossaient l'information reçue davantage que ceux du groupe contrôle, mais uniquement lorsqu'elle provenait d'une source médicale. Par ailleurs, les auteurs ont examiné divers mécanismes d'ordre cognitif et comportemental susceptibles d'avoir été mis en branle par leur double manipulation expérimentale. L'examen de ces médiateurs (i. e. les attitudes et les intentions d'agir conformément aux messages) a permis de montrer que les effets de la manipulation se sont actualisés par le truchement de mécanismes compatibles avec certains modèles théoriques, augmentant par le fait même la plausibilité de la manipulation et ses retombées théoriques.

La méthodologie génétique

Des trois méthodes décrites dans ce texte, la méthode génétique est probablement la moins connue, même s'il est généralement acquis qu'il y a une composante génétique associée aux jeux de hasard et d'argent (Lobo & Kennedy, 2009). La méthode génétique comporte deux volets : la génétique moléculaire et la génétique quantitative (ou génétique comportementale). La génétique moléculaire consiste à rechercher les gènes associés au jeu ainsi que leurs possibles modes d'action. La génétique quantitative repose sur la méthode des jumeaux, ou membres d'une même famille, et vise à quantifier le poids relatif des gènes et de l'environnement dans la détermination d'un phénotype, par exemple celui du jeu. Dans cette section, il sera surtout question de la méthode de la génétique quantitative.

La génétique quantitative décompose le pourcentage de variance que les gènes permettent d'expliquer par rapport au pourcentage de variance que l'environnement commun ou unique aux jumeaux d'une même famille permet d'expliquer. Cette décomposition de la variance par rapport à un phénotype (i.e. les habitudes ou les problèmes de jeu) repose globalement sur une comparaison du degré de ressemblance intra-paire chez les jumeaux monozygotes, qui partagent en principe 100% de leurs gènes, par rapport aux jumeaux dizygotes, qui partagent en moyenne 50% de leurs gènes. Suivant le principe d'un environnement familial constant chez les jumeaux monozygotes et les jumeaux dizygotes, une plus grande ressemblance intra-paire au plan des comportements de jeu chez les premiers comparativement aux seconds reflèterait une origine partiellement ou entièrement génétique. Dans l'éventualité d'une origine au mieux partiellement génétique, il y aurait alors lieu de rechercher les facteurs de l'environnement qui jouent un rôle actif dans la détermination des habitudes ou des problèmes de jeu. Dans le cas contraire, il faudrait se pencher sur les gènes responsables de la transmission des habitudes et des problèmes de jeu ainsi que sur les mécanismes neurobiologiques et les facteurs de l'environnement qui pourraient, respectivement, en expliquer ou en moduler l'expression.

Transmission culturelle ou génétique? Plusieurs études ont mis à jour l'existence de facteurs familiaux associés au jeu problématique ou précoce. Par exemple, une personne sur 10 dont les parents ont un problème de jeu connaîtra à son tour un problème de jeu, comparativement à une personne sur 50 chez celles dont les parents n'ont pas de problème de jeu (Black, Monahan, Temkit, & Shaw, 2006). Dans le même ordre d'idées, 20% des joueurs pathologiques adultes se rappellent avoir grandi dans un environnement familial où sévissaient des problèmes de jeu (Lorenz & Shuttlesworth, 1983).

Une telle agrégation familiale peut s'expliquer par les deux voies de transmission intergénérationnelle connues : la transmission culturelle ou la transmission génétique, ou une combinaison des deux. Pour estimer les contributions relatives de la voie culturelle et de la voie génétique, le devis doit être informatif à la fois sur le plan génétique et le plan culturel. C'est le cas des études de jumeaux. Dans deux

études portant sur plus de 3000 paires de jumeaux adultes de sexe masculin, les facteurs génétiques expliquaient environ 50% de la variance au chapitre des symptômes de jeu pathologique et du diagnostic de jeu pathologique (Eisen et al., 1998; Potenza, Xian, Shah, Scherrer, & Eisen, 2005). Une autre étude portant sur 150 paires de jumeaux adultes a révélé que l'héritabilité génétique des problèmes de jeu se limiterait aux hommes (Winters & Rich, 1998). Ce dernier résultat était toutefois probablement attribuable à une faible puissance statistique puisqu'une étude récente auprès de 2889 paires de jumeaux confirme une héritabilité de 49% des problèmes de jeu, chez les femmes comme chez les hommes (Slutske, Zhu, Meier, & Martin, 2010).

Des travaux récents au niveau moléculaire ont permis d'établir des liens entre les variantes génétiques de divers systèmes de neurotransmetteurs, notamment celles des gènes récepteurs de la dopamine et du gène transporteur de la sérotonine, et les problèmes de jeu (Ibanez, Blanco, Perez de Castro, Fernandez-Piqueras, & Saiz-Ruiz, 2003). Bien que statistiquement associés aux problèmes de jeu, ces gènes spécifiques n'expliquent cependant qu'une faible proportion de leur variance. Il est donc possible, voire probable, qu'une constellation de gènes, plutôt qu'un seul gène, soit impliquée dans la portion des problèmes de jeu expliquée par la voie de la génétique. En outre, il est probable que cette constellation soit reliée aux problèmes de jeu par le truchement d'endophénotypes, telle la propension à l'impulsivité ou à la recherche de sensations, eux-mêmes sous forte héritabilité génétique (Beaver, Ratchford, & Ferguson, 2009; Hur & Bouchard, 1997; Vierikko, Pulkkinen, Kaprio, & Rose, 2004). En résumé, une part importante de la variance au chapitre des habitudes et des problèmes de jeu chez les adultes, soit approximativement 50%, est sous contrôle génétique; le reste est fonction de l'environnement. Chez les adolescents et les préadolescents, la portion de variance expliquée par l'environnement est apparemment plus importante que chez les adultes. En effet, à l'âge de 10 ans, le pourcentage de variance expliquée par l'environnement relativement à la pratique précoce de jeux de hasard et d'argent est de l'ordre de 83% (52% pour l'environnement partagé par les jumeaux d'une même famille et 31% pour l'environnement unique à chaque jumeau) (Vitaro et al., 2011). Ces résultats ont été recueillis auprès de 460 paires de jumeaux suivis depuis l'âge de 5 mois dans le cadre de l'Étude des jumeaux nouveau-nés du Québec (ÉJNQ). Combinés aux quelques résultats disponibles chez les adultes, ces résultats suggèrent que l'expression des gènes devient de plus en plus importante au fur et à mesure que les individus s'affranchissent de leur environnement sociofamilial.

Jeu problématique et problèmes d'adaptation associés: bases génétiques communes? Une autre série d'études montre qu'une partie des gènes impliqués dans le jeu problématique sont également à l'origine d'autres problèmes d'adaptation tels que la dépendance à l'alcool ou la dépression. Plus précisément, le jeu problématique et la dépendance à l'alcool partagent entre 12% et 20% des mêmes gènes (Slutske et al., 2005). Dans une autre étude, les problèmes de jeu et la dépression partagent aussi des bases génétiques communes (Potenza et al., 2005).

Par conséquent, ces bases peuvent expliquer, du moins en partie, la propension à développer simultanément des problèmes de jeu et d'autres problèmes d'adaptation tels que la dépression ou une dépendance à l'alcool. Elles déboucheraient sur des problématiques diverses par le truchement de mécanismes neurobiologiques liés à l'expression d'endophénotypes, tels que l'impulsivité, la recherche de sensation ou la vulnérabilité au stress (Goldman, Oroszi, & Ducci, 2006). Ces bases génétiques communes, ainsi que les neurotransmetteurs et les endophénotypes qui leur sont associés, peuvent expliquer le chevauchement initial entre différentes problématiques comme le jeu problématique et la dépression.

Des facteurs environnementaux peuvent également expliquer une partie de la cooccurrence entre problèmes de jeu et autres problèmes d'adaptation, tel que mentionné dans une section précédente. Par exemple, Slutske et al. (2000) ont trouvé que de 3% à 8% des facteurs environnementaux spécifiques à chaque jumeau sont également associés aux problèmes d'alcool. Ces facteurs environnementaux uniques (i.e. non partagés) peuvent se rapporter, par exemple, au réseau social partiellement ou totalement différent entre les jumeaux d'une même paire. Selon une perspective transactionnelle, il est également possible qu'une consommation excessive d'alcool favorise l'adoption de comportements excessifs de jeu, comme l'ont démontré certaines études expérimentales (Kyngdon & Dickerson, 1999). Dans ce cas, les problèmes de jeu découleraient ou seraient aggravés par une consommation abusive d'alcool, en plus de partager certains des mêmes facteurs antécédents. En somme, des bases génétiques et environnementales communes pourraient expliquer une partie de la comorbidité entre jeu problématique et autres dépendances. Le reste de la comorbidité reposerait sur des facteurs environnementaux ou des liens transactionnels (i.e. des influences mutuelles) entre les problèmes de jeu et les autres problèmes d'adaptation.

Les études de jumeaux ne constituent pas seulement une méthodologie éprouvée pour déterminer la contribution des gènes. Elles représentent aussi une excellente stratégie méthodologique pour mettre à l'épreuve des facteurs environnementaux difficiles à manipuler de manière expérimentale. La comparaison des membres d'une même paire de jumeaux monozygotes qui se distinguent au chapitre de leurs problèmes de jeu pourrait notamment permettre de repérer certaines expériences sociales propres au jumeau affecté, tout en contrôlant la contribution des gènes (les jumeaux monozygotes étant génétiquement identiques). Par exemple, si le jumeau affecté par une dépendance au jeu se trouve à avoir été exposé à un environnement favorable au jeu davantage que son cojumeau, cela augmenterait la plausibilité d'une transmission sociale des problèmes de jeu. Pourquoi et comment? Parce que toute transmission génétique et toute possibilité de corrélation entre les gènes et l'environnement sont contrôlées lorsque les analyses portent sur les différences entre jumeaux monozygotes (Moffitt & Caspi, 2007; Pike, Reiss, Hetherington, & Plomin, 1996; Vitaro, Brendgen, & Arseneault, 2009).

La méthode des jumeaux discordants par rapport aux problèmes de jeu a été utilisée par Scherrer et ses collaborateurs (Scherrer et al., 2005). Ces auteurs ont trouvé que

le jumeau affecté par une dépendance au jeu se distinguait de son cojumeau sur une variété de dimensions liées au fonctionnement social et au bien-être physique. Faute de méthodologie longitudinale, ces auteurs sont forcés de conclure que ces différences peuvent découler d'une dépendance au jeu, autant que la précéder. Dans une autre étude utilisant une variante de la méthode des jumeaux discordants, Wanner et ses collaborateurs (2011) ont trouvé que des différences intra-paires au chapitre des pratiques parentales à la petite enfance, particulièrement au chapitre de la punition parentale, prédisaient des différences intra-paires sur le plan de la participation à des jeux de hasard et d'argent à l'âge de 10 ans. De plus, ces liens étaient médiatisés par des différences intra-paires au chapitre du rendement scolaire et de la sensibilité à la récompense à l'âge de 7 ans. Autrement dit, le jumeau le plus puni par ses parents à l'âge préscolaire affichait à l'âge de 10 ans plus de comportements de jeu que son cojumeau. Il affichait également un moins bon rendement scolaire et une plus forte sensibilité à la récompense à l'âge de 7 ans. Dans cette étude, l'antériorité des pratiques parentales, du faible rendement scolaire et de la forte sensibilité à la récompense par rapport à la pratique des jeux de hasard et d'argent est assez claire. Quant au rôle des gènes, il est totalement contrôlé puisqu'il s'agit de jumeaux monozygotes qui partagent 100% de leurs gènes.

Conclusions

Dans cet article, nous avons présenté trois approches méthodologiques susceptibles d'aider à répondre à des questions complexes et importantes en matière de jeux de hasard et d'argent. Ces méthodologies sont relativement nouvelles dans le domaine, même si elles sont abondamment employées dans des champs d'études connexes comme ceux de la consommation de psychotropes ou de la délinquance. Par ailleurs, ce ne sont pas là les seules méthodes 'innovantes' susceptibles de faire avancer les connaissances dans le domaine des jeux de hasard et d'argent. D'autres méthodes telles que la neuro-imagerie (van Holst, van den Brink, Veltman, & Goudriaan, 2010) ou l'analyse géomatique (Wilson, Ross, & Derevensky, sous presse) sont tout aussi importantes. Combinés aux études longitudinales et expérimentales qui examinent le rôle des facteurs environnementaux et les propriétés addictives des jeux de hasard et d'argent, les résultats qui en découleront permettront de mieux comprendre l'interface complexe entre plusieurs niveaux d'explication, allant des systèmes biologiques aux systèmes sociétaux. Le potentiel de ces méthodes pour l'avancement des connaissances et la conception de programmes de prévention et d'intervention est énorme. Si les problèmes de jeu de hasard et d'argent et d'autres problèmes d'adaptation comme la dépendance aux psychotropes partagent effectivement des bases étiologiques communes, il pourrait alors s'avérer profitable que la prévention mise sur celles-ci, même si elles sont en partie d'origine génétique. Comme les travaux récents en épigénétique semblent le suggérer, les expériences sociales peuvent moduler l'expression des gènes. Les retombées de ces travaux pour les modèles explicatifs des problèmes de jeu de hasard et d'argent sont également importantes. À ce jour, différents modèles théoriques ont été proposés pour rendre compte du développement des problèmes de jeu, mais aucun ne fait l'unanimité ni ne

permet d'intégrer toutes les données empiriques disponibles (voir Westphal, 2008). Une partie du problème vient du fait qu'une proportion importante d'études utilisées pour élaborer ces modèles repose sur des démarches empiriques insuffisamment rigoureuses sur le plan du devis (trop souvent transversal) et du contrôle (trop souvent inadéquat) des tierces variables. La nature des instruments de mesure et des sources d'information (trop souvent limitées aux répondants eux-mêmes) laissent également à désirer. Par conséquent, plusieurs résultats demeurent inconnus ou incertains. Plusieurs groupes de recherche dans le domaine des jeux de hasard et d'argent, au Canada et à l'étranger, ont reconnu ces lacunes et se sont donnés comme mission d'y remédier. De cette manière, les questions importantes pourront trouver des réponses valides.

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Morals, medicine, metaphors, and the history of the disease model of problem gambling

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Abstract

Over the past 200 years, society has come to accept the idea that addictions such as alcoholism and pathological gambling (PG) are a type of disease that is chronic, progressive, and somewhat mysterious in terms of etiology. This conception has been most strongly associated with organizations such as Alcoholics Anonymous and Gamblers Anonymous. The chronic disease model alleviated stigma and encouraged many to seek help, but has been challenged by some experts. Confusing the issue is that the public health model, often presented as the main alternative to the disease model, is rooted in epidemiology and clearly a disease model itself. In this paper, we trace the history of ideas about PG as a disease and examine some of the assumptions and metaphors that underlie these models. In the final section, we examine what aspects of addiction in general, and PG in particular, are either revealed or hidden by these models.

Résumé

Au cours des 200 dernières années, la société en est venue à accepter l'idée selon laquelle les dépendances comme l'alcoolisme et le jeu pathologique sont une forme de maladie chronique, évolutive et relativement mal connue quant à son étiologie. Fortement associée à des organismes comme les Alcooliques Anonymes et les groupes d'aide aux joueurs pathologiques, cette conception des dépendances selon le modèle d'une maladie chronique a permis d'atténuer la stigmatisation des personnes atteintes et a encouragé nombre d'entre elles à consulter, mais elle fait l'objet d'une remise en question par certains spécialistes. La question fait l'objet de confusion, parce que la conceptualisation des dépendances en tant que problème de santé publique, souvent présentée comme la principale façon d'envisager les dépendances autrement que comme une maladie, provient de l'épidémiologie et repose elle-même clairement sur le modèle d'une maladie. Dans cet article, nous retraçons l'histoire des idées concernant la conceptualisation du jeu pathologique comme maladie et

examinons les diverses hypothèses et métaphores qui sous-tendent les modèles qui en ont découlé. La dernière partie de l'article est consacrée à une étude des différentes facettes de la dépendance en général, et du jeu pathologique en particulier, que contribuent à dévoiler ou à cacher ces modèles.

Introduction

Pathological gambling (PG) achieved medical recognition later than alcoholism. Through the first half of the 20th century, PG was seen largely in moral terms, as a vice for which the gambler is entirely responsible. This changed with the ascendancy of a medical perspective, symbolized perhaps in 1980 with pathological gambling's inclusion in the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; *DSM-III*; American Psychiatric Association [APA], 1980) as a disorder of "impulse control". This change helped to reduce guilt and stigma, and the "medical model" was hailed by its proponents as enlightened and ascendant (Lesieur & Custer, 1984). Though there are, in fact, many disease or medical conceptions of addiction in general and of PG in particular (e.g., genetic, trauma, personality, allergy), the model is often treated as a unified entity (by supporters and critics alike). Writers who argue against the disease model often speak as though there were only one disease or medical model of addiction. Yet the public health model of addiction, which is based on epidemiological models of disease (Duncan, 1974; Gruenewald, Treno, Taff, & Klitzner, 1997) and could also be called a disease model, is often advanced as an alternative to the dominant disease concept. To make clear the type of model that we are talking about in the present paper, we will call it the *chronic disease model of addiction*.

What we refer to here as the chronic disease model is a conception based on the view of addiction advanced largely by mutual aid or self-help organizations such as Alcoholics Anonymous (AA) and Gamblers Anonymous (GA), albeit with some scientific support (D. Flavin & Morse, 1991; Jellinek, 1960; Lesieur & Custer, 1984), and in many ways consistent even with the *DSM-III* (APA, 1980) description of PG as a disorder of impulse control (R.I.F. Brown, 1991; Ferentzy & Skinner, 2003). The model also shares features with the *DSM-III* discussion of substance dependence, despite the absence of terms such as *disease* and *addiction* (O'Brien, 2006; Petry, 2006; Potenza, 2006). In a study of GA and of ideas pertinent to that fellowship, the following breakdown has been proposed: "1. Addiction is a primary disease, the cause rather than the effect of other difficulties; 2. Addiction is progressive, meaning that untreated it can only get worse; 3. Addiction is chronic, meaning that it can be arrested but never cured (hence abstinent subjects must forever remain on guard); 4. Abstinence is the only solution" (Ferentzy & Skinner, 2003, p. 7). The tenets listed here are often taken as inherent aspects of addiction as

disease, perhaps even more so by those who criticize the model (e.g., Dickerson, 2003; Peele, 1989, 2003).

The chronic disease conception put forward by AA relies upon personal, experiential accounts, involving a radically phenomenological approach that posits one's addiction as ontologically given (Ferentzy, Skinner, & Antze, 2009). To a degree, this sets it apart from the medicalized version offered by the *DSM-III* (APA, 1980) – but only to a degree, and even here the similarities may be more important than the differences. Ferentzy & Turner (2011) have observed a key difference in 19th- and 20th-century addiction constructs: Whereas in the 19th century inebriety doctors could diagnose patients through observation, this approach was supplanted by an experiential approach requiring, for example, statements of loss of control on the part of patients (Room, 2003). As the 12-step movement emerged and grew in the mid-20th century, the medical approach to diagnosing addictions was itself becoming cooperative: a team effort requiring both doctors and patients to do their part.

This chronic disease model posits a peculiar disease that does not fit in well with the general notion of medical disease (Turner, 2006). None of the criteria mentioned above are necessary attributes of a disease label. Many diseases are secondary problems, that is, not primary (e.g., heart disease can result from a poor diet). Many diseases are not progressive and many people recover, some without medical assistance (e.g., people typically recover from the flu). Similarly, many diseases are treatable and then complete recovery is often possible. Finally, complete lifelong abstinence is pretty much unique to addictions (and, in some cases, allergies as well – a matter addressed in this paper). A heart patient or a diabetic might be told (respectively) to avoid strenuous physical activities or certain foods (e.g., sugar). But only rarely would someone be told to avoid activity entirely or to avoid all foods that contain even a little sugar.

Lesieur and Custer (1984) asserted confidently that “by the year 2000” the medical model of PG “will be firmly entrenched” (p. 156). Yet this model has since been questioned on grounds similar to those upon which it has been invoked. Appeals to kindness and understanding, along with calls for less judgmental attitudes designed to help rather than harm the gambler, can all involve critiques of – or at least alternatives to – this very conception. Sociological arguments treat much of PG as situational rather than as “internal” to the gambler (Ocean & Smith, 1993) and share much with social learning theory in that PG is typically viewed in terms of a continuum of harm rather than as categorically different from normal gambling (Ferris, Wynne, & Single, 1999, p. 25). Peele (1989) has been one of the most prominent advocates of this perspective in the substance abuse field, and similar harm reduction approaches in the PG field have challenged the strict application of pathological constructs found, for example, in the *DSM approach* (Strong, Breen, Lesieur, & LeJuez, 2003).

The public health model has also been offered as an alternative to the chronic disease model (Dickson, Derevensky, & Gupta, 2002; Marotta & Hynes, 2003). Yet, as mentioned, the public health model is similarly derived from the medical field (Korn, 2005; Korn & Shaffer, 1999). In this paper, we briefly examine the histories of the chronic disease model and of what might be its major competitor, the public health model, in order to develop some conceptual clarity. Beyond this, we discuss the extent to which these models are based on metaphors, the prototypes that lie at the heart of these models, and the strengths and weakness of these conceptual and metaphorical transpositions.

History

Gambling and luck-oriented rituals have been found dating back to as early as 4000 BC (David, 1962; Reith, 1999; Schwartz, 2006). Although numerous books have been written on the history of gambling (Asbury, 1938; Binde, 2007; Dixon, 1991; Schwartz, 2006), little scholarly attention has been paid to the history of the disease conception of disordered gambling. Gambling problems have been the target of church sermons (Bernhard, 2008) and fiction (Dostoyevski, 1866/1996; M. Flavin, 2003). Gambling has consistently been a popular topic for myths, books, songs, and more recently film (e.g., Chaucer, 1400/1993; Dostoyevski, 1866/1996; Orff, 1936/1994; Tchaikovsky, 1890/1993). An examination of works of art, such as the 13th-century *Carmina Burana* poems (see Orff, 1994), Hogarth's *Rake's Progress* (Wikipedia, 2010), or Chaucer's (1400/1993) Pardoner's Tale from the *Canterbury Tales*, suggests that people have long been aware of the potential for problems with gambling, but the treatment of the topic tended to be moralistic rather than scientific. Significantly, the theme of compulsion was often applied inconsistently or not at all. Although there has long been some awareness of what we might call "addiction," notably with respect to alcohol, for centuries such awareness was not systematic (Ferentzy, 2001; Levine, 1978; Warner, 1994).

A more focused approach to compulsion began to take hold in the 18th and 19th centuries. Prototypical versions of a disease conception of substance addiction can be found in sermons dating back to the 17th and 18th centuries (Levine, 1978; Warner, 1994). Hard drinking was thought, for example, to get worse over time. In current terminology, drunkenness was derided as "progressive." Yet this involved a conception of sin in general, applying to behaviors such as swearing and adultery (Ferentzy, 2001), and so the current situation, wherein PG and substance abuse are understood with similar concepts, is not entirely novel. Bernhard (2008) was able to find examples of all 10 of the *DSM-IV* symptoms for pathological gambling in sermons from the 18th and 19th centuries. There are some references to gambling as a disease from the 19th century (Asbury, 1938; M. Flavin, 2003), and a hymn from 1905 compares gambling to leprosy (M. Flavin, 2003, pp. 222–223).

Current disease conceptions of addiction stem largely from the political and medical attention given to alcohol in the 19th and early 20th centuries. Chronic

drunkenness – whether labeled dipsomania or inebriety – was the prototypical addiction, followed by other substance addictions and then a host of compulsive behaviors (Levine, 1978; Reinarman, 2005). For example, when Levenstein (1878, 1981) discussed morphine withdrawal in the late 19th century, he compared it to alcoholic delirium tremens rather than to withdrawal from opium – which was already well-known and obviously more similar to morphine withdrawal. More recently, an addiction model has come to target a range of behaviors (Carnes, 1983; Griffiths, 1996; Miller, 1980; Orford, 1985), with pathological gambling often portrayed as an addiction (R.I.F. Brown, 1991; Griffiths, 2005; Jacobs, 1986). Hence, it should not be surprising that efforts to tackle problem gambling often adopt ideas and practices from the substance abuse field. Arguably the label disease, when applied to addictions, has varied from metaphoric use to strictly literal. Peele (1989, 2003), for example, has questioned the literal veracity of labeling addictions as diseases. Szasz (1973, 1974) has explicitly invoked the notion of metaphor to disparage the disease status of both mental illness and addiction. This raises questions pertaining to what, exactly, it might mean to ask whether addictions are literally or metaphorically diseases.

The Meaning of Metaphor

Although debates over the literal veracity of behavioral disease conceptions abound (Barham, 1984; Fingarette, 1988; D. Flavin & Morse, 1991; Meyer, 1994; Peele, 1989, 2003; Schaler, 1998, 2000; Szasz, 1973, 1974), we are not aware of any attempt to address this topic with a sound grasp of the distinction between the metaphoric and the literal. It is our intention to lay such a foundation before proceeding further.

According to the standard pragmatic model of language (Searle, 1979), the meaning of a sentence that is intended literally is the same as the expressed meaning of the words in the sentence (Searle, 1979). For example, consider the following:

1. The cat is on the mat.

The word *cat* refers to a small furry animal, and *mat* refers to a small floor covering. The words *is on* indicate the location of the animal relative to the floor covering. Conversely, in a figurative sentence, the expressed meaning differs from the exact meaning of the words:

2. My job is a jail.

The word *jail* does not refer to a prison, but uses characteristics of the concept signified by jail to express a sense of confinement. According to Searle's (1979) standard pragmatic model, literal sentences take the form of S is P, where S is the subject and P is the predicate. In literal sentences, the literal meaning (P) is also the intended meaning or referent (R). However, in a metaphoric sentence, the literal meaning (P) is not the intended meaning (R). For example, "Sam is a pig" could be used to describe a pig named Sam, but the sentence could also be used to indicate that a person named Sam is filthy or gluttonous (R).

A metaphor often assumes the structure of S is a P, but there are actually a variety of different figures of speech, each of which is characterized by using a word, phrase, or sentence to convey a nonliteral meaning. These figures of speech include simile, analogy, metonym, personification, idiom, synecdoche, and proverb. Many use metaphors or are types of metaphors. A simile, for example, is a metaphor in which the nonliteral intention of the sentence is explicit. The metaphor is hedged by using *like* or *as* to weaken the strength of the statement. For example, “Sam acts like a pig” implies that Sam is not actually a pig and also provides some indication of the particular pig-like features that are intended. Metaphors without the hedge are actually stronger statements about the subject of the sentence than similes are: Sam is not merely *like a pig*; he *is a pig*. Consider the relative strength of the following:

1. Gambling addiction is “like” a disease.
2. Gambling addiction “is” a disease.

But the strength of the second sentence comes with the potential cost of making the meaning ambiguous.

An analogy is typically an explicit comparison, more like a simile, that is more structurally complex and involves the mapping of multiple features from predicate to subject. An idiom is a figure of speech that is so well-known that it is understood directly without reference to the underlying metaphor (e.g., kick the bucket). As noted below, sometimes idioms are so well-known that the speaker would not recognize them as metaphors (e.g., “I’m feeling down”).

Studies by psychologists (Glucksberg, 2003; Ortony, Schallert, Reynolds, & Antos, 1978; Turner & Katz, 2003) have shown that people can understand metaphors as quickly as literal language if the metaphors are placed in an appropriate context. In addition, Gibbs (1980) and others have shown that idioms are in fact understood more quickly when used in their conventional figurative sense than in their literal sense. The issue of literal versus figurative meaning is often obscured in the use of common metaphors or idioms. The use of *pig* to describe persons is so common that on hearing the sentence, “Sam is a pig,” many readers would assume that Sam was a filthy or gluttonous human rather than a farm animal.

Many people consider metaphor a device of the poetic imagination, part of extraordinary rather than ordinary language. In truth, metaphors are pervasive in everyday life – not just in poetry, but in ordinary language, thought, and action (Lakoff & Johnson, 1980). Arguably, our human conceptual system is fundamentally metaphorical. Consider the following examples:

- I’m feeling *up*.
- That *boosted* my spirits.
- You’re in *high* spirits.
- I’m feeling *down*.

- My spirits *sank*.
- I *fell* into a *depression*.

Each of these uses a directional metaphor (in italics) to describe moods that can be summarized as happy is up; sad is down. The last example includes the word *depression*, and is particularly relevant to the current discussion. The mental disease depression is named in a manner consistent with this directional metaphor.

Lakoff and Johnson (1980) catalogued several such families of metaphors, showing how they underlie a large number of ideas. Lakoff (1987) expanded this study into a more general account of how we categorize and make sense of the world. Far from being rare poetic devices, metaphors are fundamental to conceptualization (Lakoff & Johnson, 1980). Nonmetaphorical thought is for Lakoff only possible when we talk about purely physical reality. Lakoff and Johnson (1980) have been criticized by some psychologists who argue that the metaphoric root is not automatically accessed when reading a novel instance of a conceptual figure of speech (Keysar & Bly, 1995; Keysar, Shen, Glucksberg, & Horton, 2000;). However, linguistic studies (e.g., Deignan, 2005; Steen, 2007) confirm the importance of metaphor in ordinary language. In addition, research has shown that it is easier to understand – and even to remember – things that are grounded in physical experience (Paivio, 1986). Metaphors are used to help us understand and organize information about unfamiliar and abstract ideas (Lakoff & Johnson, 1980; Turner, 1995; Turner & Katz, 1997, 2003). A key aspect of what Lakoff (1987) reveals about language is that people are often unaware of the metaphoric basis of much of their language, categorization, and reasoning. The importance of Lakoff and Johnson's (1980) work is not their specific theory, but the incredibly rich fabric of metaphors in conventional language that they have revealed. It is therefore understandable that so-called mental and behavioral diseases borrow terms originally applied to biological ailments – this would just be another example of thought proceeding from the physical toward the more abstract.

Metaphor actually belongs to a family of mental shortcuts that also includes mental models (Johnson-Laird, 1983, 1989), mental imagery (Paivio, 1986), heuristics (Kahneman & Tversky, 1982), and analogy (Gentner, 1983). All of these are employed to concretize, organize, and simplify the world. These shortcuts can be useful, but reliance on them can lead to errors in reasoning (Johnson-Laird, 1983, 1989; Kahneman & Tversky, 1982). In the case of metaphors, a particularly important potential problem is that features inconsistent with the model will be overlooked (Lakoff, 1987).

Scientific models also often use metaphors. Although scientific reasoning attempts to define ideas by using empirical methods, scientific models are derived in a manner quite similar to other mental models: a simplification and concretization of abstract ideas. For example, both Newton's particle theory of light and Maxwell's wave theory of light (see Coren & Ward, 1989, p. 58) use designations borrowed from common experience (particles and waves) to explain some properties of

electromagnetic radiation. These metaphors are still current, not only because of the clarity they provide, but also because of the predictions they facilitate regarding the properties of light.

Though useful, metaphors can become a hindrance if we accept them too strongly. Metaphors reveal some aspects of a subject domain, but hide others (Lakoff, 1987). For example, calling Sam “a pig” reveals perhaps that the person in question eats too much, is greedy, or is filthy. However, Sam could be a respected teacher, a loyal friend, or a skilled mathematician. Part of the reason that both Newton’s particle theory of light and Maxwell’s wave theory of light (see Coren & Ward, 1989, p. 58) are still in use today is that the features hidden by the particle theory are revealed by the wave theory and vice versa. It is therefore important to examine both aspects of a metaphoric categorization: what it reveals and what it hides.

What a metaphor reveals and what it hides depends on the prototype used. Consider, for example, the following statements: (1) A duck is a bird; (2) a penguin is a bird; (3) a plane is a bird. The third example is clearly metaphor. According to both Lakoff (1987) and Glucksberg (2003), categorization is defined not by comparison with an abstract concept, but by reference to a prototype or exemplar. For the category *bird*, the prototype might be a type of songbird called a robin. In essence, identifying a member of a category is a comparison of that member to the prototype: (1) A duck is a robin; (2) a penguin is a robin; (3) a plane is a robin. The issue of whether addictions are literally or metaphorically diseases can hinge on the many definitions and the selected prototypes for the category *disease*. As mentioned, categories (both literal and figurative) reveal some things and hide others. To draw a link between a duck and a robin emphasizes some features such as eggs, feathers, and nests, but hides the differences in habitats (trees vs. ponds), sounds (chirps vs. quacks), and size (small vs. medium). If the receiver of a message were only familiar with songbirds such as robins, after hearing the sentence “a duck is a bird,” he or she might mistakenly assume that the duck is a songbird. This issue is particularly troublesome when people use a familiar metaphor that they may not realize is a metaphor. When metaphors become too familiar, people cease to read them as metaphors and instead understand them directly as if they were literal sentences (Gibbs, 1980; Turner & Katz, 2003). The *addiction as a chronic disease* metaphor has, in fact, become so familiar that it is now used as a metaphor for numerous other behavior disorders.

As already mentioned, metaphors help us to understand and organize information about the unfamiliar. We use familiar and literal categories to make sense of ideas that are perhaps new, unknown, or even just too difficult to negotiate with abstraction alone (Turner, 1995; Turner & Katz, 1997, 2003). Although a metaphor can enhance understanding, it can become a hindrance if we fail to apply some critical acumen to the issue. This can be especially troublesome when attempts are made to merge popular conceptions with scientific categories; and disease conceptions of addiction have evolved in conjunction with a practical and

experienced-based method of recovery known as the Twelve Step program offered originally by AA and later by GA.

It is our contention that the question – “Is pathological gambling literally or only metaphorically a disease?” – raises a moot point because both literal and figurative meanings are founded on categorization by prototypes. Calling it a metaphoric categorization in no way diminishes its significance. However, it is important to examine the nature of the prototypes (literal or figurative) that underlie the chronic disease model in order to examine what the prototypes reveal and what they hide. This, in turn, may give us a different perspective on some of the controversies haunting our field.

It could be argued that alcoholism and problem gambling are only metaphorically diseases. But as Lakoff and Johnson (1980) have argued persuasively, all abstractions, including those that refer to physical diseases and mental disorders (e.g., depression), are founded on metaphors. No matter how we categorize problem gambling (disease, disorder, public health problem, etc.), the reality is that people who suffer from the disorder do indeed suffer, and that helping professionals can often alleviate their distress. The more important questions for the current paper involve the following: When a science links categories such as addiction and disease, what aspects of the predicate of the sentence (e.g., disease) are being attributed to the subject of the sentence (e.g., addiction)? What, in essence, do metaphors of addiction reveal about the affliction and what do they hide?

The Chronic Disease Model of Addiction

This model has had effects on medical and psychiatric practice that are undeniably unique. Advocates often insist that avoidance and abstinence are only possible after individuals admit to themselves that they have no control over their behavior (the admission of powerlessness) and join an appropriate mutual aid society that acts as a support group and – by means of a Twelve Step program – helps people to change their thinking and move towards sanity (Alcoholics Anonymous World Services [AAWS], 1976; Gamblers Anonymous International Service Office, 1984; Lesieur & Custer, 1984). The model certainly has some positive features. Ferentzy, Skinner, and Antze (2007; in press) found that although the chronic disease model helps GA members to deflect guilt and shame, it can also (perhaps ironically) encourage the taking of responsibility: Given that the model treats the affliction as internal to the individual, it precludes laying the blame upon external circumstances such as bad luck. The paradoxical situation has become a cliché, with some therapeutic merit: Although persons are not responsible for having contracted an addiction, they are nonetheless responsible for their recovery. As it removes some of the stigma associated with the disorder, the model encourages a culture of assistance among the afflicted, leading to a symbiotic sharing of experience and hope (Antze, 1987). The model also encourages a strong emphasis on pathology conducive to identifying those at risk.

Yet this conception offers a peculiar disease with no medicine and, often, no treatment other than turning to a mutual aid society and a “higher power.” No medical disease other than addiction is treated this way. The model’s role could be viewed as positive or negative, depending upon one’s ideological bent. Professional and scientific authorities have often been marginalized, with arguably dogmatic and uncompromising results (Peele, 1989). Conversely, Valverde (1998) has pointed out that AA represents the 20th century’s most significant challenge to scientific and professional psycho-authority, leading to an empowerment of the afflicted that is only starting to emerge in similar areas such as mental illness.

The medical condition known as allergy provided a highly influential prototype – a maneuver first made popular by AA (AAWS, 1976; Silkworth, 1937). Though discredited scientifically today, and by no means a respectable theory even in its time (Haggard, 1944), the allergy model of alcoholism was pivotal at the popular level and also helped to buttress a conception of addiction that did, despite misgivings about the allergy theory itself, receive scientific as well as professional support (D. Flavin & Morse, 1991; Jellinek, 1960; Lesieur & Custer, 1984). Notably, allergies can involve lifelong abstinence (e.g., in the case of an allergy to peanuts). Yet today, even allergies can often be treated with drugs or antihistamines. The oddity of the AA chronic disease model from which the GA model was derived is perhaps beholden to circumstance: When the allergy theory of alcoholism was first put forward, allergies were less clearly understood and the only solution was avoidance. In its day, the allergy model fit reasonably well with alcoholism because alcohol is an ingested substance. That the allergy analogy is more problematic for gambling does not detract from the fact that the disease conception of PG has been beholden to an intellectual climate in which AA, and by implication GA, played a pivotal role (Kurtz, 1979; Rosecrance, 1985; see Jellinek, 1960; Lesieur & Custer, 1984). Despite possible protests from adherents, the allergy theory can easily qualify as a metaphorical transposition from biological science to behavioral disorders. Aside from providing ambiguous yet undeniably influential support to disease conceptions of addiction, the allergy metaphor’s most significant contribution was perhaps in helping to buttress an abstinence principle that is still current despite being contentious.

In more recent years, researchers have compared alcoholism and drug abuse to chronic medical conditions such as type 2 diabetes mellitus, hypertension, and asthma (McLellan, Lewis, O’Brien, & Kleber, 2000). The value of these comparisons is clear in the implication that if the condition is managed properly, the damage to the brain and body can be stopped and to some extent reversed (Bartsch et al., 2007). The link to asthma can be viewed as a variation on the original allergy model because asthma is often triggered by environmental irritants such as dust. Diabetes mellitus offers an interesting comparison because it is chronic, can be progressive, can be dealt with by carefully monitoring blood sugar, and actually involves self-control (e.g., not eating too much sugar). However, as we have already pointed out, diabetics have to control their sugar intake rather than abstain (in fact, they

sometimes must take sugar to avoid hypoglycemia). In addition, in no way are diabetics and asthmatics expected to get worse – “hit bottom” – before they can get better. Early intervention is, in fact, considered helpful to a good prognosis (Bailey, Del Prato, & Zinman, 2005).

Criticisms of the Chronic Disease Model

Controversial from the start, the chronic disease model of PG has been subject to criticisms that parallel critiques of disease conceptions of substance addiction, including, but not limited to, the following:

1. It is overly rooted in clinical perspectives (Alberta Alcohol and Drug Abuse Commission, 2002; Shaffer, Hall, & Vander Bilt, 1999).
2. It was developed with a focus on the hardest cases – often those relying upon either treatment or mutual aid – and wisdom so derived is applied to the entire population of problem gamblers without considering possible differences between severe and milder cases (Messerlian, Derevensky, & Gupta, 2004).
3. For these and other reasons, such as the view that problem gamblers must suffer sufficiently (hit bottom) in order to recover, it inhibits harm reduction and moderation therapy approaches – an idea at odds with general medical practice where emphasis is placed on early intervention. With no medical condition other than those designated as addictions do treatment professionals suggest (or insist!) that the disease must be allowed to get worse (and cause sufficient harm) in order to render treatment more effective.
4. It does not fit well with psychosocial and sociological inquiries because it encourages the view that the disorder is located within the individual rather than in social problems that the individual might experience (e.g., poverty, oppression, or, with gambling, even issues such as game features; Raylu & Oei, 2004; Tse, Wong, & Kim, 2004; see also Peele, 1989, 2003).
5. It paints pathology in black and white terms without allowing for degrees (Abbott & Volberg, 2006; Strong & Kahler, 2007).
6. It still has too much in common with the moral model it supplanted – calling a behavior a disease rather than a vice need not, on its own, drastically alter our approach (Brown, 1997; Brown, 1991; see also Ferentzy, 2001; Levine, 1978; Peele, 1989, 2003; Warner, 1994).
7. The model suggests that a cure is impossible, with lifelong abstinence as the only solution (Abbott & Volberg, 2006; Peele, 2003).
8. Many adherents of this model view mutual aid societies, rather than medical professionals, as the only means to recovery. We are left with an odd situation wherein the chronic disease models of substance abuse and PG are often defined by nonmedical people. This odd situation is often supported in part by the US political climate and its health care system because it places responsibility for recovery on the individual, and places much of the solution in the hands of (cost-free) self-help groups.

One challenge that encompasses, or at least touches upon, the properties just listed involves the notion that PG be viewed from a public health perspective on a continuum of harm rather than with a focus on pure pathology. Harm reduction, moderation management, and many (though not all) preventative measures fit well with the notion of degrees of harm and less well with a focus on those who must simply abstain.

The Public Health Model

Though not originally designed to target psycho-behavioral ailments, the public health model has from the start been focused on promoting healthy behaviors. In 1854, British physician John Snow identified polluted water as a source of cholera (Vinten-Johansen, Brody, Paneth, Rachman, & Rip, 2003). Snow was an innovator in notions such as *medical hygiene*, highlighting an approach that later came to be associated with Pasteur and the germ theory of disease, which in turn prompted various attempts at imitation in 19th-century psychiatry (Dowbiggin, 1985; Rosenberg, 1979). For epidemiology, concepts such as host, agent, and environment all became key to grasping and addressing the spread of contaminants. Twentieth-century psychiatrist Paul Lemkau, founding chairman of the Mental Hygiene department at the Johns Hopkins School of Public Health, was among the first to apply a public health model to mental disorders. Of note is the department's title: *Mental Hygiene*, just like one of Lemkau's books: *Mental Hygiene and the Public Health* (Lemkau, 1955). A promoter, for example, of community walk-in clinics in the place of larger scale residential institutions, Lemkau advocated a more sociologically grounded approach to mental health with an interesting twist: Whereas an arguably harder approach to medicalization rooted largely in clinical perspectives was challenged, the challenge involved an alternative type of medicalization that borrowed ideas from epidemiology. Thus, health becomes a public, rather than a private, issue. Medicalizing the social sphere by suggesting that maladaptive behaviors are social issues, the public health model offered a conception of societal disease in direct contrast to the more dominant, individualistic disease conceptions of behavior. Figures such as Blair Justice (1976), David Duncan (1974), and Roger Meyer (1972) soon applied the model to issues ranging from child abuse to substance abuse. If nothing else, the conceptual and metaphorical transpositions were creative:

In this model, **host** refers to the person susceptible to the illness condition and those individual characteristics which effect his or her susceptibility to the condition. The **agent** is the element (germ, toxin, nutrient, etc.) which by its presence or absence in the host may produce the illness condition. The **environment** affects both the probability of the agent's presence and the host's resistance to the agent. A fourth concept known as **vector** originally referred to insects, such as mosquitoes or flies, which carried disease. The term vector has

now been broadened in use to include any animate carrier of infection or even any vehicle by which the agent is transmitted from host to host ...

The **agent** then, is one or more psychoactive drugs. The **host** is an individual whose susceptibility is increased by internal conflicts and poor coping skill. The **environment** is the social and interpersonal setting in which the host exists, with high levels of stress contributing to the probability of drug dependence. The **vector** by which the agent is transmitted to the host is the drug using peer group. (Duncan, 1974, p. 211)

Often associated today with harm reduction approaches to substance abuse problems, the public health model has been applied to PG and poses a challenge to the mainstream disease conception with respect to each of the eight issues listed in the previous subsection (Korn & Shaffer, 1999; Marotta & Hynes, 2003; Messerlian et al., 2004; Raeburn, 2004; Shaffer, LaBrie, & LaPlante, 2004; Shaffer & Korn, 2002; Taylor, Taske, Swann, & Waller, 2007).

For gambling, the “host” is the individual who chooses to gamble and who may be at risk for developing problems depending on their neurobiology, psychology and behavior patterns. The “agent” represents the specific gambling activities in which players engage (e.g., lotteries, slot machines, casino table games, bingo, horse race betting). The “vector” can be thought of as money. The “environment” is both the gambling venue and the family, socio-economic, cultural and political context within which gambling occurs (e.g., whether it is legal, how available it is, and whether it is socially sanctioned or promoted). (Korn & Shaffer, 1999, pp. 290–291)

With respect to ideology and policy, some sympathize with many or all of the criticisms of the chronic disease concept – favoring, for example, the treatment of harm as a continuum, and questioning the rigid application of an abstinence principle – but still take issue with the use of notions such as host, agent, and vector when targeting psychobehavioral issues (Gruenewald et al., 1997), including PG (Ferris et al., 1999). That such a case could be made without these constructs is well exemplified by the following: David Korn, coauthor of the paper quoted above (Korn & Shaffer, 1999), later coauthored another in which those very terms were not mentioned, even as a case was made for a public health/harm reduction-oriented approach to PG (Korn, Gibbins, & Azmier, 2003). If public health advocates favor a broad-based, societal perspective on addictions and related matters, it is at least arguable that some of their reliance upon epidemiological notions – though perhaps needed when the public health model was new – is by now superfluous. In fact, late-19th-century psychiatry actually borrowed from Pasteur’s germ theory of disease by positing single, identifiable mental ailments (Dowbiggin, 1985). Rather than a continuum of harm, germ theory and constructs related to it were originally used to buttress hard pathological constructs in psychiatry – arguably a more consistent metaphorical application than the one in use today. One may also note that for substance abuse, the chosen “vector” is the peer group, whereas for gambling it is

money. One could imagine, for example, the vector being a peer group in either case, or something else. Although epidemiology does provide a useful prototype in some respects, perhaps the specifics of its application to addictions could be revised. One might legitimately ask whether the essence of the public health model is truly in its medical slant, or whether its long-standing associations with harm reduction practices and sociological approaches could function coherently without the strictly medical focus. So far, however, the model has relied too strongly on epidemiology to be considered anything but medical.

Two Models and Their Implications

The allergy theory highlighted the need to avoid alcohol (abstinence), removed the condemnation characteristic of earlier moral models, and helped to empower many of the afflicted (alcoholics, problem gamblers, and even drug addicts) in ways that remain unmatched in similar areas such as mental illness. At the same time, it promoted an uncompromising principle that to this day marginalizes options designated either as harm reduction or controlled drinking therapy. By emphasizing physical reactions, the model put focus upon the biological and the internal aspects of the addiction and, inevitably, downplayed the psychosocial. Thus, it played a role in the creation of a clinically oriented conception of alcoholism, PG, and other addictions – one that is being challenged to this day by sociologists and other critics (Alexander, 2008; Fingarette, 1988; Mate, 2008; Peele, 1989, 2003). In addition, as mentioned, since the cause of allergies was unknown, the only solution was avoidance. The AA “Big Book” itself treats any attempt to explain why one became an alcoholic as hypothetical and possibly as making excuses (AAWS, 1976). Overall, this conception has not been receptive to psychosocial etiological accounts.

A major challenge has come from the public health model, which negates some of these difficulties, albeit providing a few of its own. We end with a brief discussion of what various models reveal and hide and why no model should be accepted uncritically. In Table 1, we have outlined a number of the different metaphoric roots that have been used to define addiction, in particular gambling addiction. The disease model has been likened to an allergy and to diabetes. The public health model involves the application of control of infectious disease. For each model, we have listed the origin, along with the themes it reveals or emphasizes and others that it hides. Each of these models helps identify different features of the disorder. For example, the allergy model informs us that the patient is not to blame for the illness and that avoidance of the substance or behavior (e.g., alcohol, gambling) is essential and must be lifelong. The analogy to diabetes also emphasizes the chronic and potentially progressive aspects of the disease if the person does not follow a regular maintenance program (e.g., AA or GA membership rather than insulin). In addition, treatment compliance (e.g., avoiding excess sugar, abstaining from gambling) is often a problem for both diabetes and addiction patients. Finally, although the disease model places responsibility for recovery in the hands of the individual, it provides them with a strategy (abstinence) and resources (GA) to help

Table 1
Features revealed and hidden by the disease and public health models

Metaphor/origin	Source/origin	Reveals/emphasizes	Hides/ignores
Chronic disease model • Allergy • Diabetes	• AA • Medical research	• Patient not blamed for illness • Avoidance is necessary • Chronic • Lifelong avoidance is the only solution • Individual responsibility for recovery • View problem and nonproblem gamblers as different	• Addiction is primary and other causes are ignored • Actual recovery is viewed as not possible • Ignores role of the games • Rejects the potential for controlled or less harmful drinking or gambling
Public health model • Infectious disease • Toxin	Epidemiology and disease control	• Importance of involvement of society • Toxic or infectious aspects of exposure • Emphasizes prevention (hygiene) • Emphasizes social responsibility • Anyone can catch the disease • Exposure puts a person at risk • Features of the games may make some more toxic than others	• Does not account for nonproblem gamblers • Assumes that it harms recreational gamblers • Confuses current play with being at risk

them along this pathway. It also hides some important aspects of the disorder in that it focuses on alcohol or gambling in such a way that other issues are ignored. It views long-term remission (meaning normal use or gambling) as simply impossible, and, in the case of gambling, the role of specific games in creating the problem is ignored.

Conversely, the epidemiological public health model reveals the importance of social determinants and policy changes (see Babor et al., 2005) that might minimize the impact of the epidemic. It emphasizes prevention and depicts everyone as potentially

vulnerable to contracting the disease. In addition, the idea that an addiction results from a toxin or is an infection focuses attention on aspects of exposure (availability) so that people who are near a casino or a bar are viewed as more susceptible, or people who engage more often are viewed as being at greater risk. Just as some strains of a disease are more problematic than others, with gambling, specific features of the game may be viewed as important because they may explain the difference in the relative risk from exposure to one form of gambling compared with another. Similarly, although a public health approach might, for example, endorse a distinction between wine and hard liquor, an AA-based disease concept leaves no room for such gradations. For example, gamblers are warned to stay away from all forms of gambling (Gamblers Anonymous International Service Office, 1999), even though people addicted to slot machines may well be able to gamble nonproblematically with other games of chance (e.g., lotteries).

In the problem gambling field, at least, the public health model has had ambiguous implications. One aspect typical of an epidemic is that children, the elderly, and the very ill are often seen as especially vulnerable to a new virus. This may be related to an arguably disproportionate focus by funding agencies or the media on problem gambling among youth and the elderly, rather than on middle-aged men and women (who typically populate treatment programs). The public health model also hides or de-emphasizes some aspects of gambling. The most notable of these is the very existence of nonproblem gamblers. Whereas GA members typically understand that recreational gamblers may simply not be vulnerable to problem gambling, the public health model can lead to the suggestion that any exposure is potentially harmful. This has certainly been the public health approach to tobacco (Siegel et al., 1997) and, to a lesser extent, also to alcohol (Babor et al., 2005), where emphasis is placed on restricting availability more than on educating consumers. Nonproblem drinkers and gamblers are not always seen as healthy individuals, but often as mild cases on the continuum of harm, who still suffer to some degree (Alberta Alcohol and Drug Abuse Commission, 2002; Shaffer et al., 1999). Some researchers have suggested that recreational gamblers are also likely to suffer from harmful consequences compared with nongamblers (Potenza, Fiellin, Heninger, Rounsaville, & Mazure, 2002). One particular model within the public health approach, the distribution of consumption model (Chipman, Govoni, & Roerecke, 2006), has proposed that because alcohol problems are log-linearly related to consumption, the best way to reduce problems would be to reduce average consumption by shifting the entire distribution downwards. That is, rather than targeting problem drinkers, the distribution of consumption model targets everyone (Chipman et al., 2006). Chipman et al. (2006) have argued that the log-linear model also fits gambling consumption and have advocated exploring the application of this and other findings from alcohol research to problem gambling research. It would seem that an epidemic model has difficulty accounting for healthy nonproblem gamblers (and drinkers) or for the enjoyment that people gain from a little flutter (see M. Flavin, 2003). Although the chronic disease model is often criticized for being too focused on abstinence, the infectious disease or toxin model has promoted policies restricting

access and at times seems to entail a neo-prohibitionist agenda. The idea that gambling is a communicable disease or a toxin does have implications that stand in direct contrast with the purported harm reduction – or even liberal – focus of the public health model.

Conclusion

In the larger field of addictions, we are left with the curious riddle of a chronic disease model that was only loosely derived from medical science, pitted against a public health model, directly derived from medical science, whose advocates sometimes explicitly reject the disease model. In our view, both the chronic disease model and the public health disease model invoke useful metaphors for some aspects of problem gambling and addictions in general, but are incomplete because they fail to take into account the interactive nature of the disorder. The disorder is neither entirely in the person nor in the exposure to the game, drug, or any other agent (see Room, 2006). It is the result of an interaction between characteristics of the gamblers or substance users (e.g., unhappiness, poor coping skills, genetically based vulnerability) with experiences such as pleasure (and relief from stress) and with social conditions such as poverty. Although few would deny this last point, we still contend that each model has, at least in practice, pointed too strongly in one direction and hence that neither deals with the disorder appropriately.

In the field of physics, both the wave and the particle model of light are now accepted as useful but incomplete metaphors for the properties of light, and current theories use an awkward blend of the two (Coren & Ward, 1989). This particle-wave duality is now a cornerstone of quantum mechanics (Greiner, 2001). Our approach, from the start, has been nonjudgmental in the sense that we do not suggest that a purportedly scientific model must be discarded simply because of debt to metaphor or to other cultural and idiomatic determinants. Rather, we have tried to expose where and how such determinants clarify or obfuscate an issue. The two competing models of addiction – chronic disease and public health – are both useful yet incomplete. In some respects, an addiction acts like a chronic disease because it alters the manner in which the brain processes rewards. It thereby makes it difficult for a person to stop and leaves many who have stopped at serious risk for relapse. Yet public health concepts such as exposure are also important considerations in understanding this disorder. Instead of fighting between two disease models of addiction, we should be advocating for less punitive and more medically based humane treatments of addiction – a consideration that should clearly override all others. Rather than disparaging either model, our suggestion is that the two could, as with wave and particle theory, be unified into a broader conception – a comprehensive view that could incorporate the best practices in medicine and public health.

The treatment of this topic in this paper has been brief. We are currently putting the finishing touches on a book to address these issues in more depth (see Ferentzy & Turner 2011).

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Évaluation d'un site Web de sensibilisation sur le jeu excessif s'adressant aux jeunes adultes

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Résumé

Transmettre de l'information sur les jeux de hasard et d'argent (JHA) semble être une façon efficace de sensibiliser la population aux problèmes de jeu. L'utilisation d'un site Web comme outil de sensibilisation peut être une approche adaptée pour atteindre les jeunes adultes puisqu'ils naviguent souvent sur Internet. Avant de lancer un tel site Web à l'ensemble de la population, il est important d'évaluer si la transmission d'informations par cet outil de communication est efficace pour informer les jeunes adultes sur les problèmes de jeu. Le but de la présente étude est d'évaluer si la transmission d'informations sur les JHA par le biais d'un site Web de sensibilisation permet d'améliorer les connaissances et de favoriser la reconnaissance des mythes associés au jeu. L'étude vise également à vérifier la satisfaction des utilisateurs envers le site Web. Cent joueurs réguliers âgés de 18 à 25 ans ont été répartis entre le groupe expérimental (consultation du site Web) et le groupe contrôle (lecture de magazines). Les participants devaient, pendant 30 minutes, naviguer sur le site ou lire des articles de revues et remplir les questionnaires expérimentaux avant et après leur tâche. Conformément au postulat de départ, les participants du groupe expérimental sont plus nombreux que ceux du groupe contrôle à rapporter des connaissances justes en matière de JHA et à pouvoir identifier les mythes reliés aux JHA après la consultation du site. Lors du post-test, les participants du groupe expérimental sont également plus nombreux à manifester des connaissances plus justes et à identifier correctement les mythes comparative-ment au prétest. En outre, ils ont aimé la présentation visuelle et la facilité de navigation du site. Les implications des résultats sont discutées.

Abstract

Transmitting information about gambling is an effective way of sensitizing the general population to gambling problems. Using a website as a problem gambling

education tool appears to be an appropriate approach for reaching young adults, as they frequently browse the Internet. Before setting up such a website, its effectiveness should be evaluated. This study aimed to verify if information about gambling, transmitted via a website, can increase the viewer's knowledge and help them recognize myths about gambling. It also verified their satisfaction with the website. One hundred gamblers aged 18–25 were equally distributed between experimental (website-viewing) and control (magazine-reading) groups. Participants were required to either browse the website or to read magazine articles, in both cases for 30 minutes. Questionnaires were completed before and after the task. As expected, in comparison with the control group, participants from the experimental group were significantly more likely to report correct knowledge about gambling and to identify myths related to gambling after the website consultation. Participants from the experimental group were also significantly more likely to report correct knowledge about gambling and to identify myths related to gambling at the post-test than they were at the pretest. Young adults from the experimental group also enjoyed the visual presentation and the ease of navigation of the website. The implications of these results are discussed.

Introduction

Avec l'augmentation de la popularité d'Internet, les façons de participer aux jeux de hasard et d'argent (JHA) se sont diversifiées (Griffiths, 1999). Bien qu'au Québec la prévalence des joueurs pathologiques adultes soit stable depuis 1996 (Kairouz, Nadeau, & Paradis, 2010; Ladouceur, Jacques, Chevalier, Sévigny, & Hamel, 2005), les jeunes adultes de 18–25 ans représentent le sous-groupe dont les habitudes de jeu demeurent les moins étudiées (Ferland et al., 2009). Ce constat est pour le moins surprenant, car les jeunes adultes peuvent être davantage à risque que les adultes plus âgés de développer des problèmes de jeu, en raison de la période de changement, d'exploration et d'expérimentation qu'ils vivent et qui les rend plus enclins à adopter des comportements problématiques (Ferland et al., 2009). Puisque les comportements de jeux peuvent être plus fréquents durant cette période de transition, il est important d'élaborer un programme de sensibilisation à la problématique du jeu s'adressant à cette clientèle en particulier. Il semble également opportun d'utiliser un médium comme Internet pour atteindre les jeunes adultes québécois puisque 92 % d'entre eux utilisaient régulièrement ce médium en 2010 et que tout porte à croire que ce pourcentage ne déclinera pas au cours des prochaines années (Cefrio, 2011). Le lancement d'un site Web de sensibilisation à la problématique du jeu destiné aux jeunes adultes de 18–25 ans s'inscrit dans une visée éducative de transmission d'informations justes portant sur les JHA. La présente étude vise à évaluer si un site de sensibilisation à la problématique des JHA peut améliorer les connaissances des jeunes adultes quant à cette problématique et les aider à démystifier les fausses croyances associées à la pratique de cette activité.

Selon le DSM-IV-TR (American Psychiatric Association, 2000), le jeu pathologique se caractérise par une participation inadaptée, persistante et récurrente aux JHA. Le joueur pathologique ne peut s'empêcher de jouer toujours de plus gros montants et ce, de plus en plus fréquemment. Il est constamment préoccupé par le jeu et par les moyens d'obtenir des fonds pour jouer, ce qui a des répercussions dans plusieurs sphères de sa vie (Clarke et al., 2006; Shaffer et al., 1999; Toneatto & Ladouceur, 2003). Parmi les 15–24 ans, 61 % ont participé au moins une fois à un JHA dans les 12 derniers mois (Huang & Boyer, 2007), et 3,1 % des jeunes de 18 à 24 ans sont à risque modéré de développer un problème de jeu ou sont des joueurs pathologiques (Kairouz et al., 2010).

Plusieurs facteurs de risque contribuent au développement et au maintien des problèmes de jeu (Johansson, Grant, Kim, Odlaug, & Gøtestam, 2009). La présence de fausses croyances liées au jeu constitue un élément fréquemment rapporté depuis plusieurs années comme étant un facteur associé au maintien des habitudes de jeu chez les joueurs (Johansson et al., 2009). Ces fausses croyances se développeraient, entre autres, après une période de jeu (May, Whelan, Meyers, & Steenbergh, 2005) et leur nombre augmenterait significativement après un gain, parce que celui-ci alimente le développement d'attitudes positives envers le jeu (Monaghan & Blaszczyński, 2009). Selon Toneatto (1999), les joueurs qui maintiennent de fausses croyances sur les JHA ont davantage de difficultés à différencier les mythes liés à la pratique du jeu des informations objectives et factuelles. Plusieurs auteurs s'entendent pour dire que la réduction en nombre et en force de ces fausses croyances constitue l'aspect central pouvant influencer la diminution des comportements de jeu problématiques (Mattson, MacKillop, Castelda, Anderson, & Donovan, 2008; Toneatto, 1999). Puisque les fausses croyances peuvent être atténuées, notamment par la transmission d'informations justes concernant les mythes associés aux JHA, le contenu d'un site Web de sensibilisation orienté en ce sens devrait aider à leur démystification.

Un site Web comme outil de prévention des jeux de hasard et d'argent chez les jeunes adultes

En plus de cibler les fausses croyances reliées au jeu, il est important qu'un site de sensibilisation au jeu adapte son contenu en fonction des types de jeux auxquels s'adonne la clientèle visée. Vu la popularité croissante du poker chez les jeunes (Wood & Griffiths, 2008), il apparaît pertinent qu'un site de sensibilisation accorde une place à cette activité. Notons qu'en plus de sa popularité chez les jeunes, le poker revêt une importance particulière en raison de sa valorisation sociale (Wood, Griffiths, & Parke, 2007), de sa grande disponibilité sur Internet, de la possibilité de miser de petits montants d'argent et de son accès illimité; soit des éléments qui pourraient inciter les jeunes adultes à y jouer en ligne (Griffiths, Parke, Wood, & Parke, 2006; Tosun & Lajunen, 2009).

Selon Dickson-Gillespie, Rugle, Rosenthal et Fong (2008), bien qu'il existe plusieurs programmes de traitement du jeu pathologique, les efforts de prévention auprès des 18–25 ans sont encore à un stade embryonnaire. Selon ces auteurs, un plus grand nombre de programmes de prévention devrait être mis en place et ceux-ci devraient être axés sur la transmission d'informations concernant, entre autres, les conséquences du jeu et les risques lui étant associés. En outre, certains auteurs soulignent l'importance d'adapter le contenu et le format des messages préventifs à une population plus jeune, dont la perception du risque se distingue de la population adulte (Filsinger, 2009). Il est également important d'évaluer les actions préventives avant de les rendre publiques afin d'éviter des effets iatrogènes (Werch, 2002) ou encore, la possibilité que le site puisse augmenter la curiosité pour le comportement plutôt que de le prévenir (Durlak, 1997; Valente & Dodge, 1997). Au Québec, l'équipe de Ladouceur (2000) s'est préoccupée des effets possiblement délétères des programmes de prévention et a évalué l'efficacité de certaines interventions préventives en matière de JHA. Ainsi, un dépliant d'informations sur le jeu pathologique s'est avéré efficace pour transmettre des informations concernant les problèmes de jeu, les comportements à risque et les ressources disponibles à une population générale (Ladouceur, Vézina, Jacques, & Ferland, 2000). D'autres programmes qui visaient des clientèles davantage à risque se sont également montrés efficaces, tels que des interventions visant des personnes travaillant dans le domaine des JHA (Dufour, Ladouceur, & Giroux, 2010; Giroux, Boutin, Ladouceur, Lachance, & Dufour, 2008; Ladouceur et al., 2004) ou encore des interventions menées auprès des jeunes (Ferland, Ladouceur, & Vitaro, 2002; 2005; Ladouceur, Ferland, Vitaro, & Pelletier, 2005; Ladouceur, Ferland, & Vitaro, 2004; Ladouceur, et al., 2004).

Certaines études commencent à introduire l'utilisation de sites Web comme médium de transmission d'informations sur le jeu. Plusieurs sites de prévention concernant d'autres thématiques que le jeu se sont révélés efficaces pour améliorer la santé et modifier certains comportements problématiques (Bishop, Bryant, Giles, Hansen, & Dusenbury, 2006; Dilorio et al., 2009). L'équipe de Dilorio (2009) a montré qu'un site visant à améliorer l'autogestion des crises d'épilepsie permettait de développer une meilleure efficacité personnelle en situation de gestion des crises et d'augmenter la perception du soutien social à l'aide d'un forum de discussion. Ces résultats indiquent que les sites Web peuvent être efficaces lorsqu'ils sont utilisés comme agents d'informations et de changement. L'utilisation de ce moyen de communication apparaît être une solution de rechange appropriée et peu coûteuse à privilégier pour atteindre les jeunes adultes et les sensibiliser à la problématique des JHA.

L'utilisation des sites Web n'étant pas exclusive à la clientèle pour laquelle ils sont officiellement mis en ligne, un site de sensibilisation au jeu pourra être consulté tout autant par les membres de la famille que par les proches d'un joueur problématique. Sachant que les comportements d'un joueur pathologique touchent entre dix et dix-sept personnes de son entourage (Kalischuk, Nowatzki, Cardwell, Klein, & Solowoniuk, 2006), on peut alors avancer que la publication d'informations

pertinentes sur les conséquences du jeu dans la vie des proches des joueurs représente un besoin criant auquel il faut répondre.

Bien qu'Internet n'offre pas de contacts directs et personnalisés avec un professionnel, ce médium comporte des avantages qui lui sont propres. Tout d'abord, la prévention par le biais d'Internet constitue un moyen autonome de transmettre de l'information, car l'utilisateur contrôle son accès (Tsai, 2008). De plus, la consultation d'informations sur Internet peut être perçue comme une action moins intrusive qu'une rencontre avec un professionnel (De Nooijer, Veiling, Ton, DeVries, & DeVries, 2008). Sous le couvert de l'anonymat, les gens seront plus enclins à s'ouvrir et à révéler des informations personnelles, contribuant ainsi à l'acquisition de connaissances, d'attitudes positives et, même, à un changement de comportement (Chiauzzi, Green, Lord, Thum, & Goldstein, 2005). Notons, enfin, que les programmes en ligne sont peu coûteux (Booth, Nowson, & Matters, 2008) et qu'on utilise l'attrait du multimédia, entre autres choses, pour que ces programmes touchent une clientèle plus jeune (Pahwa & Schoech, 2008) et parfois difficile à intéresser.

Objectifs de l'étude

La présente étude vise à évaluer si la transmission d'informations sur les JHA par le biais d'un site Web de sensibilisation au jeu pathologique permet aux jeunes adultes d'améliorer leurs connaissances sur la problématique du jeu ainsi que leur capacité à identifier les mythes associés à la pratique de cette activité. La satisfaction des utilisateurs quant à la qualité de la présentation visuelle et des informations présentées, la facilité d'utilisation du site et l'intérêt à naviguer de nouveau sur le site sont également évalués. L'étude vérifie l'hypothèse selon laquelle la transmission d'informations éducatives sur les JHA, par le biais d'un site Web, contribue à l'acquisition d'informations justes sur la thématique de même qu'à la démystification des fausses croyances.

Méthode

Participants

Les participants ont été recrutés à l'aide d'une annonce courriel diffusée par une liste de distribution regroupant les étudiants et le personnel d'une université de la région de Québec, de même que par des annonces apposées sur différents tableaux d'affichage de cette université et de deux collèges de la région. Pour être admissibles, les participants devaient être âgés de 18 à 25 ans, avoir terminé leurs études secondaires et avoir joué à des JHA au moins deux fois par mois au cours des 12 derniers mois. Les personnes n'ayant pas navigué sur Internet au cours de la dernière année et celles présentant de faibles habiletés en lecture étaient exclues. Au total, 171 personnes ont répondu à l'annonce, parmi lesquelles, 13 ne répondaient pas aux critères d'admissibilité, 43 se sont désistées après avoir été informées du

déroulement de l'étude (principalement par manque de temps ou d'intérêt) et 15 personnes n'ont pu être jointes malgré plusieurs tentatives. Cent personnes ont donc participé à l'étude.

L'échantillon final était composé de 84 hommes et de 16 femmes. L'âge moyen des participants était de 21,76 ans ($ET=1,96$). La majorité d'entre eux étaient nés au Québec (81 %), avaient terminé des études de niveau collégial ou universitaire (86 %) ou étaient étudiants à temps plein (87 %) au moment de leur participation. Les participants ont indiqué jouer entre une fois par semaine et quelques fois par mois. Enfin, 16,3 % des participants ($n=16$) étaient considérés comme joueurs à risque et 5,1 % ($n=5$) comme joueurs pathologiques probables selon le *South Oaks Gambling Screen* (SOGS; Lesieur & Blume, 1987). Les participants ont été répartis entre le groupe contrôle (50 premiers participants) et le groupe expérimental (50 derniers participants). Le test t de Student et le test du χ^2 (khi-carré) de Pearson n'indiquaient aucune différence significative entre les deux groupes tant pour les variables sociodémographiques étudiées que pour la répartition des joueurs problématiques (pathologiques probables et à risque) entre les groupes (voir Tableau 1).

Instruments

Questionnaire sociodémographique. Ce questionnaire est un instrument maison comprenant huit questions et se divisant en deux parties qui ont été remplies à des périodes différentes. La première partie regroupe des questions sur l'âge, le niveau de scolarité et l'habileté à la lecture. Elle a été administrée par téléphone et servait à déterminer si le participant satisfaisait aux critères sociodémographiques exigés pour être admissible à l'étude. La seconde partie regroupe des informations concernant la

Tableau 1
Informations sociodémographiques des participants

Groupes		
	Contrôle ($N=50$)	Expérimental ($N=50$)
Âge (années)	$M : 21,84; ET : 1,88$	$M : 21,68; ET : 2,05$
Sexe (masculin)	88 %	80 %
Scolarité (diplôme collégial ou plus)	90 %	82 %
Fréquence du jeu	Quelques fois par mois à une fois par semaine	Quelques fois par mois à une fois par semaine
Joueurs à risque	14,00 %	18,75 %
Joueurs pathologiques probables (SOGS>4)	6,00 %	4,17 %

langue maternelle, le lieu de naissance et la profession principale du participant. Elle a été administrée quelques minutes avant que le joueur ne soit soumis au traitement propre à son groupe (expérimental ou contrôle) et servait à préciser les caractéristiques des participants retenus.

Grille sur la fréquence de jeu. Cette grille permettait d'évaluer la fréquence de participation à 15 activités de jeu différentes. Pour chaque activité, le participant devait indiquer s'il avait joué « Chaque jour », « Quelques fois par semaine », « Environ une fois par semaine », « Quelques fois par mois », « Quelques fois au cours des 12 derniers mois » ou « Jamais » au cours de l'année précédente. Cette grille a été administrée par téléphone et permettait de déterminer si le participant satisfaisait au critère d'admissibilité lié à la fréquence de jeu. Les questions sont inspirées de celles utilisées dans le cadre de l'étude de prévalence sur le jeu pathologique de Ladouceur et ses collaborateurs (2005).

Habitudes de jeu. La présence de problèmes de jeu était évaluée à l'aide d'une version française (Ladouceur, 1991) du SOGS (Lesieur & Blume, 1987). Le SOGS comprend 20 items et permet de répartir les répondants en trois catégories, soit joueur pathologique probable (score ≥ 5), joueur à risque (score = 3 ou 4) et joueur non problématique/non-joueur (score ≤ 2). Son coefficient de validité de construit se situe à 0,94 et le coefficient de consistance interne s'élève à 0,97.

Mythes et réalités. Ce questionnaire évaluait la capacité du participant à identifier les mythes reliés aux JHA. Pour ce faire, le participant devait utiliser une échelle de type Likert en cinq points (allant de 1 = « Mythe », 3 = « Mythe et Réalité » à 5 = « Réalité ») pour indiquer si l'énoncé correspondait à un mythe ou à une réalité. Les énoncés sont les suivants; a) Nous pouvons tous devenir joueurs professionnels de poker; b) Certains jeux de hasard et d'argent sont plus payants que d'autres; c) Peu de jeunes développent des problèmes de jeu; d) Je suis correct, je mise si peu ou pas du tout d'argent (sites en ligne, jeu avec des amis, tournois, etc.); e) Si je joue sur plus d'une machine ou sur plus d'une table de poker, j'ai plus de chances de gagner; f) L'important pour devenir un bon joueur est de pratiquer; g) Ce n'est pas grave si je perds, puisque je finirai par gagner; h) Si je connais bien les règles du poker, ça me permet d'augmenter mes chances de remporter la partie; i) Les jeux de hasard et d'argent sont une façon facile de faire de l'argent; et j) Tout le monde peut gagner sa vie en jouant au poker.

Les réponses ont été traitées comme des variables dichotomiques. Une seule réponse était acceptée comme étant adéquate (soit 1 si l'énoncé représentait un mythe et 5 s'il représentait une réalité). Il est à noter que bien que neuf mythes étaient inclus dans le questionnaire, le mythe numéro 8 (« Je suis correct, je mise si peu ou pas beaucoup d'argent ») a été retiré des analyses, car l'énoncé était ambigu. Un score global représentant le nombre de bonnes réponses (0 à 8) a été calculé pour cette section. Ce questionnaire a été conçu pour répondre aux objectifs de l'étude et les auteurs se sont inspirés des informations contenues dans le site Web évalué.

Connaissances sur le jeu. Ce questionnaire évaluait les connaissances du participant par rapport au jeu. Il comportait neuf questions ouvertes pour lesquelles une ou deux réponses par question étaient requises. Ainsi, en tout, 14 réponses ont été recueillies avec ce questionnaire. Une grille de correction créée *a priori* visait à déterminer la cotation (0, 1 ou 2) accordée à chacune des informations correctement rapportées. Une mauvaise réponse recevait une cote de 0, une bonne réponse incomplète ou imprécise recevait une cote de 1 et une réponse comprenant tous les éléments attendus obtenait une cote de 2. La cotation des réponses a été réalisée par deux personnes de façon individuelle et les disparités entre les deux correcteurs ont été résolues par consensus afin d'assurer la fiabilité des cotations. Par la suite, un score global, variant de 0 à 28, a été calculé à partir du pointage accordé à chaque élément correctement identifié par les participants. Pour les analyses par question, le participant obtenait une bonne réponse seulement s'il fournissait tous les éléments requis par la question. Seuls les participants obtenant un résultat de 4 sur 4 étaient considérés comme ayant une bonne réponse.

Satisfaction par rapport au site Web. Ce questionnaire maison comprenait neuf questions regroupées en trois thèmes. Tout d'abord, trois questions fermées évaluaient la satisfaction quant à l'aspect visuel du site, sa facilité de navigation ainsi que l'utilité des informations contenues dans le site. Ces trois questions utilisaient des échelles de type Likert variant de 1 (« Insatisfaction totale ») à 5 (« Satisfaction complète »). La deuxième section comportait deux questions de type « Oui/Non » qui vérifiait si le participant souhaitait revisiter le site lorsque celui-ci serait en ligne et s'il recommandait à des proches de le visiter. Finalement, quatre questions ouvertes permettaient de connaître les sections du site que les participants avaient trouvées les plus utiles et les plus intéressantes, les informations supplémentaires qu'ils auraient aimées y trouver et des suggestions pour l'améliorer. Seuls les participants du groupe expérimental répondaient à ces questions.

Attentes par rapport à un site Web. Les attentes ont été évaluées à l'aide d'une question ouverte invitant les participants à indiquer ce qu'ils aimeraient trouver dans un site Web portant sur les JHA. Seuls les participants du groupe contrôle ont répondu à cette question. Les réponses données par les participants ne seront pas présentées dans cet article car elles ne font pas partie des objectifs.

Site Web évalué : www.lesdessousdujeu.com. Le site comporte deux parties distinctes, soit une destinée aux joueurs et une autre s'adressant aux proches des joueurs. La partie destinée aux joueurs comprend trois sections. La première consiste en un jeu-questionnaire qui invite l'utilisateur à tester ses perceptions face au jeu en identifiant si l'affirmation présentée est un mythe ou une réalité. La seconde section, « Jeu d'équilibre », explore les habitudes de jeu de l'utilisateur et la troisième section consiste en une auto-évaluation permettant de reconnaître si ses habitudes de jeu sont problématiques ou non. La partie destinée aux proches comporte également trois sections. La première reprend la section sur les mythes associés au jeu qui était présente dans la partie destinée aux joueurs, la seconde

section reprend le thème « Jeu d'équilibre » également présent dans la section destinée aux joueurs et y ajoute des indices pour détecter un problème de jeu chez un proche. Quant à elle, la troisième section, « Aider un joueur », suggère des stratégies pour aborder le sujet du jeu avec un proche ainsi que des moyens permettant de se protéger tout en aidant un proche. Le site Web a été conçu par la Direction de santé publique de la Capitale-Nationale.

Procédure

Les personnes ayant vu les annonces de recrutement et désirant participer à l'étude devaient contacter l'équipe de recherche par courriel ou par téléphone et laisser leurs coordonnées. Par la suite, des assistantes de recherche (étudiantes au baccalauréat en psychologie) les contactaient par téléphone afin de leur soumettre toutes les informations nécessaires à leur participation et de vérifier leur admissibilité. La partie 1 du « Questionnaire sociodémographique » et la « Grille sur la fréquence de jeu » étaient remplies à l'occasion de cet appel. Une rencontre était ensuite fixée avec chaque participant admissible afin de poursuivre l'expérimentation.

À son arrivée, le participant devait lire et signer le formulaire de consentement avant de remplir la dernière partie du « Questionnaire sociodémographique », le « SOGS », le questionnaire sur les « Mythes et Réalités » et le questionnaire sur les « Connaissances sur le jeu ». Par la suite, la tâche variait selon le groupe : les participants du groupe contrôle étaient invités à lire des magazines ou le journal pendant 30 minutes tandis que ceux du groupe expérimental avaient 30 minutes pour naviguer sur le site Web. L'expérimentateur s'assurait que les participants consultaient la partie pour les joueurs pendant 20 minutes et celle pour les proches de joueurs pendant 10 minutes. La consultation de ces sections était contrebalancée : la moitié des participants consultait d'abord la partie pour les proches et l'autre moitié débutait par celle pour les joueurs. Une fois les 30 minutes écoulées, les participants remplissaient les questionnaires sur les « Mythes et Réalités » et sur les « Connaissances sur le jeu ». Le dernier questionnaire variait selon le groupe : seuls les participants du groupe contrôle répondaient à la question sur les « Attentes par rapport à un site Web » tandis que ceux du groupe expérimental devaient se prononcer sur leur « Satisfaction face au site Web ». Les participants recevaient une compensation monétaire de 15 \$ CAN à titre de dédommagement pour leur déplacement et le temps alloué à l'étude. De plus, tous recevaient une liste de ressources en lien avec le jeu.

Résultats

Analyses

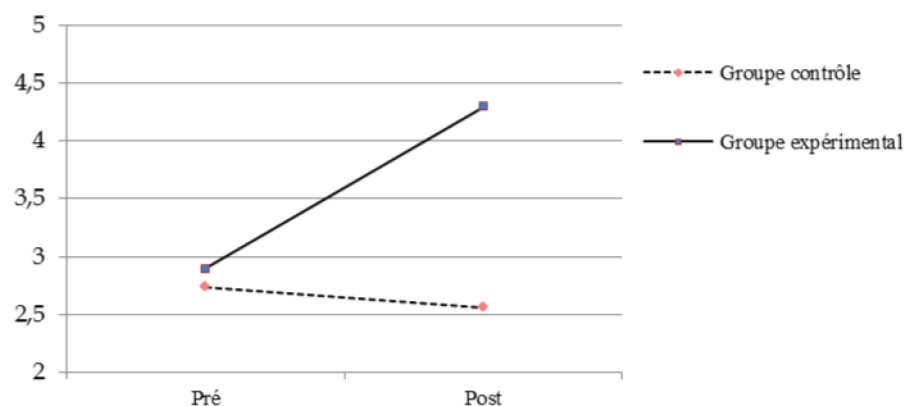
Les données ont été analysées à l'aide des logiciels SAS version 9.1.3 et SPSS version 14.0. Le seuil de signification α des analyses a été fixé à 0,05. Les questions relatives aux mythes et réalités et celles concernant les connaissances sur le jeu ont fait l'objet

d'une analyse à mesures répétées sur les scores globaux. Lorsque l'interaction s'avérait significative, des analyses de contrastes ont été effectuées. La méthode de Bonferroni-Holm a été utilisée pour l'analyse des contrastes afin de contrôler le risque d'une erreur de type I. Les mêmes analyses ont par la suite été réalisées pour chaque item du questionnaire de connaissances afin d'identifier les plus performants. Seules les données concernant la satisfaction du site ont fait l'objet d'analyses descriptives.

Mythes et réalités. L'analyse à mesures répétées sur le nombre de mythes correctement identifiés a montré un effet d'interaction Groupe x Temps significatif, $F(1, 72)=17,02, p<0,01$. Les analyses de contraste ont indiqué que les participants du groupe expérimental reconnaissent significativement plus de mythes après qu'avant la consultation du site ($t(49)=4,10, p<0,01$). Les analyses de contrastes montraient aussi que les participants du groupe expérimental ont un score global significativement plus élevé que ceux du groupe contrôle lors de la période post-expérimentale, $t(92)=4,47, p<0,01$ (voir Figure 1).

Connaissances sur le jeu. L'analyse à mesures répétées effectuée sur le score total obtenu aux questions portant sur les connaissances a révélé un effet d'interaction Groupe x Temps significatif, $F(1, 92)=52,17, p<0,01$. Les analyses de contrastes ont montré que le groupe expérimental a un score global significativement plus élevé à la période post-expérimentale qu'à la période pré-expérimentale, $t(49)=-9,20, p<0,01$. Les analyses de contrastes montraient aussi que les participants du groupe expérimental ont un score global significativement plus élevé que ceux du groupe contrôle lors de la période post-expérimentale, $t(98)=-5,28, p<0,01$ (voir Figure 2).

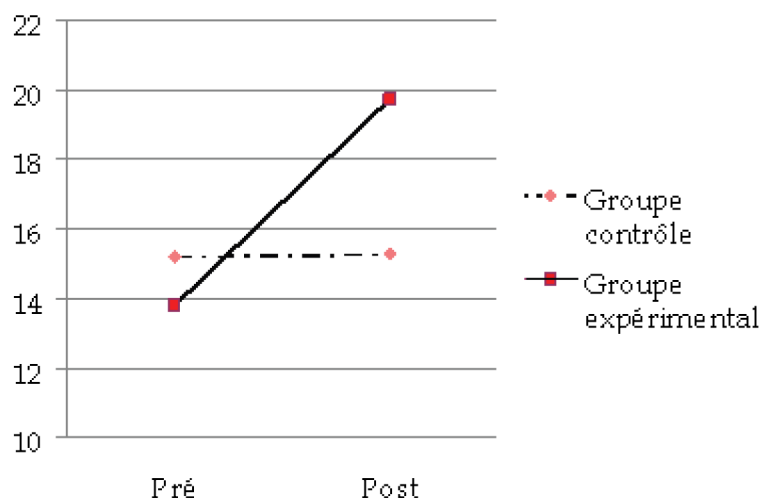
Figure 1. Nombre moyen de mythes correctement identifiés par chacun des groupes selon le temps de mesure.



Note. Intervalles de confiance (95 %)

Gr. Contrôle	Pré = 2,25 & 3,16	Post = 2,01 & 3,04
Gr. Expérimental	Pré = 2,48 & 3,38	Post = 3,64 & 5,00

Figure 2. Nombre moyen d'informations correctement rapportées par chacun des groupes selon le temps de mesure.



Note. Intervalles de confiance (95 %)

G. Contrôle	Pré = 13,92 & 16,49	Post = 13,94 & 16,51
G. Expérimental	Pré = 12,59 & 15,22	Post = 18,70 & 21,08

Les questions de connaissances sur le jeu ont par la suite été analysées séparément pour vérifier les thèmes ayant été les mieux compris par les participants. Le Tableau 2 présente le pourcentage de participants des groupes expérimental et contrôle ayant répondu correctement aux questions sur les connaissances des JHA au prétest et au post-test.

Au niveau des indices facilement visibles pour identifier si un ami a un problème de jeu, l'analyse à mesures répétées a montré un effet d'interaction Groupe x Temps significatif, $\chi^2 (1, N=100)=5,49, p=0,02$. Plus de participants répondent correctement à cette question après la consultation du site Web qu'avant la consultation ($\chi^2 (1, N=50)=9,05, p<0,01$) et le nombre de participants répondant correctement est plus élevé chez le groupe expérimental que chez le groupe contrôle. Les analyses de contrastes effectuées sur cette question ont révélé que les joueurs du groupe expérimental sont significativement plus nombreux à répondre adéquatement à la question lors de la période post-expérimentale que lors de la période pré-expérimentale, ($\chi^2 (1, N=50)=9,05, p<0,01$). Elles montraient aussi que les participants du groupe expérimental sont significativement plus nombreux à répondre adéquatement à la question que ceux du groupe contrôle lors de la période post-expérimentale, $\chi^2 (1, N=100)=5,74, p=0,02$.

En ce qui concerne les conditions à privilégier pour faciliter la discussion avec un proche présentant possiblement un problème de jeu, l'analyse à mesures répétées a montré un effet d'interaction Groupe x Temps statistiquement significatif, $\chi^2 (1, N=100)=4,93, p=0,03$. Les analyses de contrastes effectuées sur cette

Tableau 2

Pourcentage de participants ayant répondu correctement aux questions sur les connaissances des jeux de hasard et d'argent selon la période et le groupe

Question	Périodes							
	Pré				Post			
	Groupes ^a							
	Contrôle		Expérimental		Contrôle		Expérimental	
	n	%	n	%	n	%	n	%
1	37	74	26	52	30	60	32	64
2	12	24	5	10	14	28	13	26
3	33	66	33	66	35	70	45 ^{bc}	90
4	17	34	19	38	21	42	31	62
5	13	26	11	22	15	30	28 ^{bc}	56
6	25	50	22	44	25	50	42 ^{bc}	84
7	13	26	15	30	15	30	27 ^{bc}	54
8	8	16	8	16	7	14	15	30
9	3	6	4	8	6	12	8	16

Note. Les questions de 1 à 9 se lisaient comme suit : Nomme... 1) deux questions que quelqu'un peut se poser pour vérifier si il/elle est toujours en contrôle de ses habitudes de jeu; 2) deux trucs qui peuvent aider à rester attentif à notre participation au jeu; 3) deux indices facilement visibles qui pourraient t'aider à savoir si un de tes amis ou de tes proches a un problème de jeu; 4) deux indices plus difficiles à repérer qui pourraient t'indiquer qu'un de tes proches a peut-être un problème de jeu; 5) deux conditions à privilégier pour faciliter la discussion avec un proche dont les habitudes de jeu nous préoccupent; 6) une façon de se protéger soi-même quand on désire aider un proche qui a un problème de jeu; 7) une ressource de la région de Québec qui offre de l'aide aux joueurs; 8) une ressource de la région de Québec qui offre de l'aide aux proches des personnes ayant un problème de jeu; 9) une ressource qui donne des informations sur le jeu chez les jeunes.

^a N=50 par groupe

^b Différence pré-post significative pour le groupe expérimental

^c Différence statistiquement significative entre le groupe expérimental et le groupe contrôle au post-test

question montraient que les participants du groupe expérimental sont significativement plus nombreux à répondre adéquatement à la question lors de la période post-expérimentale que lors de la période pré-expérimentale (χ^2 (1, $N=50$)=11,31, $p<0,01$) et que les participants du groupe expérimental sont significativement plus nombreux à répondre adéquatement à la question que ceux du groupe contrôle à la période post-expérimentale, χ^2 (1, $N=100$)=6,72, $p<0,01$.

L'analyse à mesures répétées a montré un effet d'interaction Groupe x Temps significatif en ce qui concerne les façons de se protéger soi-même quand on désire aider un proche qui a un problème de jeu, χ^2 (1, $N=100$)=19,64, $p<0,01$. Les analyses de contrastes effectuées sur cette question montraient que les participants du groupe expérimental sont significativement plus nombreux à répondre adéquatement à la question lors de la période post-expérimentale que lors de la période pré-expérimentale (χ^2 (1, $N=50$)=21,33, $p<0,01$) et ils sont significativement plus nombreux que les participants du groupe contrôle à y répondre adéquatement lors de la période post-expérimentale, χ^2 (1, $N=100$)=12,02, $p<0,01$.

Les deux groupes répondent également différemment lorsqu'ils sont questionnés sur les ressources disponibles pour les joueurs. L'analyse à mesures répétées a montré un effet d'interaction Groupe x Temps significatif pour cette question, $\chi^2 (1, N=100)=4,54, p=0,03$. Les analyses de contrastes montraient que les participants du groupe expérimental sont plus nombreux à répondre adéquatement à la question lors de la période post-expérimentale que lors de la période pré-expérimentale, ($\chi^2 (1, N=50)=10,09, p<0,01$). Ils sont également plus nombreux à répondre adéquatement à la question que les participants du groupe contrôle lors de la période post-expérimentale, $\chi^2 (1, N=100)=5,78, p=0,02$.

Des effets d'interaction Groupe x Temps significatifs ont également été observés pour l'item qui se rapporte aux questions qu'on peut se poser pour vérifier si quelqu'un contrôle toujours ses habitudes de jeu ($\chi^2 (1, N=100)=5,85, p=0,02$) et celui demandant de nommer une ressource offrant de l'aide aux proches des joueurs, $\chi^2 (1, N=100)=5,52, p=0,02$. Toutefois, les analyses de contrastes effectuées sur ces questions n'ont révélé aucune différence significative pour ces deux énoncés. Pour ce qui est des questions se rapportant aux stratégies pouvant aider à rester attentif à sa participation au jeu, aux indices plus difficiles à repérer qui pourraient indiquer un problème de jeu chez un proche et aux ressources donnant des informations concernant le jeu chez les jeunes, aucun effet d'interaction significatif n'a été trouvé.

Satisfaction envers le site Web. Les participants du groupe expérimental ont accordé une note moyenne de 3,72/5 ($ET=0,99$) à la qualité de la présentation visuelle du site, soit à mi-chemin entre « Je l'ai moyennement aimé » et « Je l'ai aimé ». De plus, ils ont accordé une note de 4,74/5 ($ET=0,63$), soit très facile, à la facilité de navigation sur le site. Lorsqu'on leur a demandé quelles étaient les sections du site les plus utiles, 62 % ($n=31$) des participants du groupe expérimental ont mentionné la section « Aider un joueur ». Suivent par la suite les sections « Jeu d'équilibre pour un joueur » (44 %; $n=22$) et « Jeu d'équilibre pour un proche » (44 %; $n=22$), la section « Auto-évaluation du joueur » (30 %; $n=15$) et la section « Mythes et réalités » (12 %; $n=6$). Parmi les informations qu'ils aimeraient voir ajouter au site, 44,4 % ($n=16$) des participants du groupe expérimental ont mentionné qu'ils aimeraient y trouver des ressources, 27,8 % ($n=10$) aimeraient y trouver des informations plus précises sur le jeu (comme des statistiques) et 22,2 % ($n=8$) aimeraient y trouver des témoignages sur les effets néfastes du jeu. Enfin, un peu plus de la moitié des participants ayant consulté le site aimeraient le visiter à nouveau et un peu plus de trois participants sur quatre (76 %; $n=38$) recommanderaient à un proche de visiter le site.

Discussion

La présente étude visait à évaluer l'impact des informations présentées sur un site Web conçu pour sensibiliser les jeunes adultes à la problématique du jeu pathologique. Le premier objectif de l'étude était d'évaluer dans quelle mesure l'information contenue sur le site apportait des connaissances supplémentaires sur

cette problématique et facilitait l'identification des mythes reliés au jeu. Les hypothèses selon lesquelles la transmission d'informations par le biais d'un site Web apporterait des changements sur le nombre d'informations justes recensées et sur le nombre de mythes correctement identifiés sont confirmées. Dans un premier temps, on constate qu'après consultation du site, plus de participants étaient en mesure d'identifier les indices visibles pour déceler la présence d'un problème de jeu chez un proche. Ils pouvaient aussi nommer des conditions permettant de réduire les confrontations avec un proche présentant un problème de jeu. Les personnes consultant le site sont également mieux avisées des manières de se protéger face à un proche présentant un problème de jeu.

Les résultats démontrent que la consultation du site Web permet de mieux identifier les mythes reliés aux JHA, ce qui laisse penser que les informations présentées sur le site concernant les principaux mythes entourant le jeu sont bien retenues. Ce résultat devrait avoir des retombées positives pour les joueurs puisque, selon Mattson et ses collaborateurs (2008), les mythes entretenus à l'égard du jeu sont en fait des pensées erronées qui contribuent au maintien des habitudes de jeu. Ceci porte à croire que la consultation du site a permis aux participants de remettre en question leur perception des mythes liés au jeu en leur offrant des informations basées sur des résultats de recherche. Le fait d'identifier correctement des mythes reliés au jeu pourrait, tôt ou tard, contribuer à la diminution des pensées erronées qui leur sont associées et, par conséquent, favoriser une pratique responsable du jeu chez les jeunes adultes.

Par ailleurs, la consultation du site a aussi permis à ses utilisateurs d'indiquer des ressources offrant de l'aide aux joueurs. Ce résultat est intéressant puisqu'aucune ressource n'était citée sur le site évalué; la section sur les ressources n'étant pas disponible au moment de l'évaluation. Il est donc possible que les informations contenues dans le site aient amené les participants à réfléchir sur la problématique du jeu, les aidant ainsi à se remémorer certaines ressources qu'ils connaissaient déjà. Comme Fortin et Rousseau (1989) le soulignent, l'exposition à une information générale prédispose à un meilleur rappel des informations déjà connues, mais non accessibles à la mémoire au premier abord. Il est important de noter ici que seules les ressources concernant les joueurs semblent avoir été sollicitées par ce rappel mnémonique. Aucune amélioration n'a été notée quant aux ressources s'adressant aux proches de joueurs et aux jeunes. On peut penser que les participants ne connaissaient pas les informations sur ces ressources plus spécifiques. Ceci n'est pas étonnant puisque les publicités annuelles faisant connaître aux joueurs les services d'aide visent davantage les adultes et les joueurs eux-mêmes plutôt que les proches et les jeunes. Ceci étant dit, les connaissances générales présentées sur le site Internet peuvent favoriser la compréhension de la réalité des joueurs excessifs et proposer des gestes concrets qu'un proche peut poser s'il désire aider le joueur. Ainsi, la formule d'un tel site permet à la population générale d'acquérir des connaissances qui peuvent contribuer à aider des joueurs à risque et en difficulté. Bien que les mesures suggérées sur le site ne puissent être discutées avec un professionnel, elles offrent

tout de même un répertoire d'interventions intéressantes aux usagers du site qui désirent s'aider ou aider un proche à trouver des ressources pertinentes sur le jeu.

Cette étude avait comme objectif secondaire l'estimation de la satisfaction des utilisateurs quant à la qualité de la présentation visuelle du site et sa facilité d'utilisation. La satisfaction des participants est bonne sur ces deux points (variant de moyenne à élevée). À la lumière de ces résultats, on peut penser que les internautes qui visiteront le site porteront attention à son contenu. Cette satisfaction favorisera possiblement la consultation d'un plus grand nombre de sections destinées à sensibiliser les internautes (Bach & Scapin, 2003). Selon Khazaal et ses collaborateurs (2008), la qualité de la présentation visuelle et la facilité d'utilisation font partie des éléments primordiaux à considérer lors de la conception d'un site Web de sensibilisation au jeu et, dans le cas qui nous préoccupe, ces caractéristiques ne peuvent qu'encourager sa fréquence de consultation.

Limites

Bien que les résultats indiquent que le site Web est efficace pour transmettre de l'information adéquate sur le jeu, l'étude présente certaines limites. D'abord, les participants étaient majoritairement des étudiants, donc les résultats ne peuvent être généralisés aux jeunes adultes qui ne fréquentent pas le milieu universitaire. De plus, le protocole utilisé ne permettait pas de déterminer si les changements observés à la suite de la consultation du site se maintiennent dans le temps. Notons également que le contexte simulé d'étude en laboratoire qui permet de contrôler certaines variables nécessaires à l'évaluation de l'effet de la consultation du site (ex. : temps consacré à la consultation, obligation de la consultation des parties pour les proches et les joueurs) a un effet sur la validité écologique de l'étude. Par conséquent, la présente étude ne permet pas de savoir si les participants visiteraient le site spontanément, s'ils resteraient aussi longtemps sur le site et s'ils auraient le même niveau de concentration lors d'une consultation à la maison. Seule une expérimentation incluant un accès au site à partir de la maison permettrait de vérifier dans quelle mesure la consultation est influencée par le contexte expérimental. Malgré ces limites, il est important de prendre en considération le caractère innovateur de cette étude puisque peu de programmes de sensibilisation ont été évalués avant d'être mis en ligne.

Conclusion

Cette étude, une des premières du genre, se proposait d'évaluer si l'information d'un site Web de sensibilisation au jeu pathologique permettait d'améliorer les connaissances des jeunes adultes sur la problématique du jeu. Grâce, entre autres, à sa méthodologie utilisant un groupe contrôle, l'étude a permis de démontrer que la transmission d'informations par le biais d'un site Web peut s'avérer efficace dans une visée de sensibilisation au jeu pathologique chez les étudiants de 18 à 25 ans. De ce fait, les informations du site ont permis à ses utilisateurs de bien distinguer les

mythes des réalités et d'acquérir des connaissances factuelles et objectives à l'égard des JHA. Bien qu'il soit impossible de contrôler totalement l'influence de facteurs biopsychosociaux sur l'émergence de fausses croyances, la consultation du site ne peut que contribuer à modifier les perceptions erronées que les gens peuvent entretenir sur les JHA. Les recherches futures devront vérifier si les connaissances acquises par l'entremise d'un site Web se maintiennent à long terme et si un tel médium peut aider à modifier les comportements au jeu.

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The Real of problem gambling households

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Abstract

In this article, problem gambling stories of eight Norwegian households are interpreted in the light of Jacques Lacan's concept of the Real. It is argued that the concept of the Real may help us to see, formulate, and visualize aspects of these stories that usually elude our attention: the hidden and incomprehensible order of a household that impacts its members' everyday lives and concepts of self.

Résumé

Dans cet article, l'histoire de huit foyers norvégiens ayant connu des problèmes liés au jeu est soumise à une interprétation reposant sur le concept de Réel élaboré par Jacques Lacan. On y défend l'idée selon laquelle le concept lacanien de Réel peut contribuer à voir, à formuler et à envisager différentes facettes de ces histoires qui habituellement échappent à notre attention. Ces facettes sont liées à un ordre familial caché et incompréhensible qui exerce une influence sur la vie quotidienne des membres de la famille et la constitution de leur personnalité.

Introduction

If you ask problem gamblers why they gamble or why they keep on gambling even though they know how damaging it is, they may have no answer. Likewise, if you ask spouses if they know why their partner gambles or if their partner has stopped gambling, they probably do not know. Indeed, they may refer to theories of addiction and relapse statistics, but for some reason the lack of answer and the "I-do-not-know" seem more convincing, more to the point, than the clever explanations. And as you listen to their stories about what problem gambling does to a household, you realize that these households, more than any other, know how it

is to live under insecure household conditions of not knowing what the household's situation is, how it got to this point, and if and how it will change in the future.

The research question of this article is: how do households¹ experience and handle gambling problems? The analysis draws on typical problem gambling stories, as told by eight Norwegian households in which one adult member (in all cases the man) had been in group therapy for gambling addiction. The households' stories are interpreted in light of Jacques Lacan's term *the Real*, in brief referring to parts of our existence that have not been wholly perceived or interpreted. It is argued that the concept of the Real may help us to see, formulate, and visualize aspects of problem gambling at home that usually elude our attention: the hidden and incomprehensible aspect of problem gambling that impacts the household members' everyday lives and concepts of self.

Over the last decades, problem gambling at home has been researched in a number of contributions (for a literature review, see, for example, Abbot, Cramer, & Sherrets, 1995; Gaudia, 1987; Kalischuk, Nowatzki, Cardwell, Klein, & Solowoniuk, 2006; McComb, Lee, & Sprenkle, 2009; Shaw, Forbust, Schlinder, Rosenman, & Black, 2007). A common notion is that problem gambling is an addiction that has an impact on households financially, socially, legally, medically, emotionally, and existentially (see, e.g., Abbott et al., 1995; Custer & Milt, 1985; Franklin & Thoms, 1989; Gaudia, 1987; Lorenz, 1987; Øren & Bakken, 2007; Shaw et al., 2007). Households with gambling problems go through phases of denial, stress, and exhaustion (e.g., Dowling, Smith, & Thomas, 2007). Spouses of problem gamblers may experience a loss of trust that can "never be restored" (Dickson-Swift, James, & Kippen, 2005, p. 8). Children may feel "a pervasive loss [that] encompassed both physical and existential aspects of the child's life, including their parent(s), relationships, trust, security, sense of home, and material goods" (Darbyshire, Oster, & Carrig, 2001, pp. 23–24). Yet, although previous gambling studies have given valuable insight into the impact of problem gambling on households, very few, if any, have seriously discussed the hidden and incomprehensible aspects of problem gambling and its impact on the household's everyday life and self-concept. In this respect, this research dealing with the Real of problem gambling households fills a gap in previous gambling studies.

¹In contrast to most researchers studying problem gambling, I prefer to use the term "household" rather than "family". One reason is that I, inspired by the theories of Roger Silverstone (1994), see a household as a unit that functions as an economy, a home, a family, and a way of organizing the routines and rituals of everyday life. According to this perspective, the function of being a family is one of the many functions of a household. Second, whereas the term family usually covers units consisting of multiple members, the term household also covers units consisting of a single member. Third, the term household is more strongly associated with economic conditions than is the term family (Silverstone, 1994), that is, with the conditions that are particularly important in a study of problem gambling.

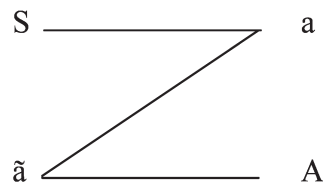
The Real is the most difficult and at the same time the most fascinating concept of Jacques Lacan's theories. The theories, which can be described as re-readings of Sigmund Freud's psychoanalysis combined with ideas from scholars such as Edmund Husserl, Marcel Mauss, Claude Lévi-Strauss, and Ferdinand de Saussure, had great influence on intellectuals in the 1960s and the 1970s. Today, psychoanalytic theories have been used to describe a variety of topics, including problem gambling (e.g., Bjerg, 2008, 2009; Jacobs, 1986; Livingstone, 2005; Schüll, 2006). As the theories may be new for some readers, the first part of this paper presents the basic concepts of Lacan's psychoanalysis. Special attention is given to the Real and its closest related terms, the symbolic and the imaginary. The second part provides a brief description of the sample on which the analysis is based. The third part analyses problem gambling stories of eight Norwegian households in the light of the Real. The last section summarizes, concludes, and raises questions for further research.

Lacan's Psychoanalysis and the Concept of the Real

Jacques Lacan's theories are part of a long philosophical tradition in which human existence is understood as based upon a desire for existential meaning and completeness (Rekdal, 1992). Some of its most basic components can be introduced by using Lacan's *schema L*.

S refers to the subject, *a* to the mother, who is also called "the thing" (that which the subject desires) or the "objet petit a" (the cause of desire), and $\tilde{a}$ to the real father (the ego ideal). *A* refers to the symbolic father, also called "the symbolic order," "the Other," "the name of the father," and "the law" (of which the incest taboo is the most original prohibition of all). As a starting point, the child (the subject) desires the mother. However, at some point, the child starts separating from the mother, partially because it begins to see itself as being different from her (amongst other things, because she lacks a phallus), and partially because the child realizes that the mother cannot be possessed (amongst other reasons, because she is hindered by the law). When the child separates from the mother, its desire changes from being directed towards the mother to being directed towards the object of the mother's desire: first the real father, and then the symbolic father. This separation from the mother creates a feeling of absence and a lack that is articulated both as a trauma and as a longing for total pleasure, existential meaning, and wholeness (Bjerg, 2008,

Figure 1. Schema L.



2009; Rekdal, 1992). During a process often referred to as “the symbolic castration,” the subject accepts the absence, the lack, and the law and becomes part of the symbolic order, that is, the social context of which the subject is a part. As the thing (the object of desire) cannot be attained, it is by means of fantasy replaced by a substitute that first has a sexual component, and then is transformed to other forms of desire – art, work, family, money, consumption, gambling, and so forth. Subjects who refuse the symbolic castration may become psychotic. The symbolic castration is, in this respect, decisive in terms of the formation of subjects and cultures.

As indicated here, Lacan’s theory of psychoanalysis is based upon the idea that the thing is the object of desire, but as the thing cannot be attained, the desire cannot be satisfied. The thing plays a role in the three dimensions of human existence: the Real, the symbolic, and the imaginary. The Real is the experience of the missing thing. The imaginary masks the absence of the thing and is the illusionary experience of wholeness, despite the lack. The symbolic accepts this lack and replaces it with a substitute (Rekdal, 1992). The next sub-sections provide a more detailed description of the Real, the symbolic, and the imaginary order. Although the three orders are heavily simplified and tentatively translated from an individual or social level onto a household level, much effort is made to keep their original meanings intact. To show how my use of the terms differs from their original meaning, each sub-section starts with a brief presentation of how the terms were originally used.

The Real

A social constructed reality is a reality primarily based on language. What cannot be symbolized, that is, expressed verbally, bodily, or materially, is not part of the reality. Yet, while most social constructivist theories focus on the symbolized parts of our existence – on “Reality” – Jacques Lacan also paid attention to that which is not being symbolized. Inspired by Heidegger’s term “ex-ist,” he reserved a special term for it, the Real, in brief, referring to an “ex-istence” outside or apart from Reality (Fink, 1995). Although the term changed meaning throughout Lacan’s career, its basic function remained the same, to name the part of our existence that resists symbolization, “that” which may be approached, but never grasped (Evans, 1996; Homer, 2005; Lacan, 1977).

Although Lacan placed the Real “outside” Reality, parts of the Real are here placed “inside” the household’s Reality, representing that which has not been wholly perceived or interpreted by its members. The household’s Real has two modalities, one that is not perceived at all, and one that is partially perceived and interpreted (Žižek, 1991). Whereas the not-perceived Real represents black holes that by virtue of being “nothing” can be filled with anything – meaninglessness, hopes, dreams, horror, and anxiety (Bjerg, 2008; Fink, 1995; Lacan, 2006) – the partially perceived Real represents grey holes of “something” that can be sensed and acknowledged but never wholly comprehended (Fink, 1995; Lacan, 2006; Žižek, 1991). The Real’s

modality and its content change throughout a household's problem gambling career. For instance, before the problem gambling is discovered, the Real is disputable – sensed but neglected (Real₁). However, after the problem gambling is discovered, it is indisputable – acknowledged but incomprehensible (Real₂; Fink, 1995; Lacan, 2006). The moment in which the problem gambling is discovered should not be underestimated. To illustrate the drama of the discovering, by Hook (2003) called “the moment of collapse”, I draw on an example from Lacan, in which he describes Freud's experiences as his patient, Irma, opens her mouth and exposes her inner body:

There's a horrendous discovery here, that of the flesh one never sees, the foundation of things, the other side of the head, of the face, the secretory glands *par excellence*, the flesh from which everything exudes, at the very heart of the mystery, the flesh in as much as it is suffering, is formless, in as much as its form in itself is something which provokes anxiety. Spectre of anxiety, identification of anxiety, the final revelation of *you are this* – *You are this, which is so far from you, this which is the ultimate formlessness*. (Lacan, 1988, pp. 154–155)

As Irma opens her mouth, Freud gets a glimpse into the Real and sees something he has never seen before, “the most horrific sight” (Hook, 2003), the other side of Irma's head, the ultimate formlessness that he – in a spectre of anxiety – recognizes as himself: This, which is so far from him, is also him.

A Real is, in other words, basically referring to “the other side of the household,” the unknown nothing or incomprehensible something that has an impact on the household members' everyday lives and concepts of self. From Lacan's point of view, the Real is supposed to influence the symbolic and imaginary order from its “outer” position without being mutually impacted upon (see, e.g., Fink, 1995). In accordance with the basic social constructivist view, however, processes of symbolization are based on previous experiences – on experiences that, in the terminology of Lacan, are placed in the symbolic or the imaginary. For instance, if the symbolic does not offer any models explaining the Real, it will not be symbolized, but remains Real. In this respect, the resistance may not be located in the household's Real, but in the symbolic.

The Symbolic

The symbolic, introduced in the 1950–60s, essentially refers to an order of signs (“signifiers”), linguistics, and discourses, including “the unconscious,” “the Other,” and “the law”. The symbolic order is based on a social exchange of signs structured by laws. Each sign exchanged gets most of its meaning in relation to other signs. “Presence” is, for instance, understood as the opposite of “absence,” “ordinary” as the opposite of “deviant,” and so forth (Evans, 1996). The subject is an effect of the symbolic order and is, like its source, split (Rekdal, 1992). Although Lacan primarily saw the symbolic as an order of signs, linguistics, and discourses, it here

refers primarily to the household's order of practices – the routines and rituals of everyday life – which again is shaped and reshaped by the order of signs, linguistics, and discourses. The order of practices constitutes, in other words, not only the behavioural articulation of the order of the signs, linguistics, and discourses, but also the Reality in which their order is rooted. Hence, in contrast to the theory of Lacan, the symbolic order of a household operates at two levels, both as an order of signs and as an order of practices. Behind this radical change is the idea that a practical order may seem strange in a theory about the human psyche, but is decisive in a theory about household structures.

Like Lacan's order of signs, linguistics, and discourses, the household's order of practices is supposed to be based on social exchange. The exchanged signs get most of their meaning in relation to other signs, particularly their oppositions. The idea of a dysfunctional and chaotic "problem gambling household" may, for instance, be regarded as the opposite of the vital and harmonic "non-problem gambling household." Yet, even though households may be regarded either as imbalanced and dysfunctional or as balanced and vital, they are, according to Lacan's theories of the subject, split; that is, they are both dysfunctional and chaotic and vital and harmonic at the same time. As all household members have undergone the same process of separation, both the non-problem gambling household and the problem gambling household are traumatized. However, whereas problem gambling households may attempt to handle this trauma, non-problem households may neglect it.

The Imaginary

The imaginary is most essentially associated with Lacan's concept of "the mirror stage," first introduced in the 1930s, in which the subjects look at themselves in the mirror and learn to distinguish themselves from the Other (symbolized with the mother). The separation from the Other is associated with a trauma. When subjects look at themselves in the mirror and compare what they see with how they experience themselves and others, some spots, the Real, are missing. Although some of the missing spots are filled in and smoothed out with ideas from the symbolic, others remain a Real. The Real constitutes in this respect an important part of a subject's self-understanding, representing the genuine I and me: that part of ourselves that can be neither articulated nor grasped (Bjerg, 2008).

In this article, the imaginary primarily refers to the household's self-concept. When household members look at the household in the mirror, missing parts are filled with images shaped and reshaped in the household's symbolic order. For instance, before the problems are discovered, the Real may be filled with images of the non-problem household. After the problems are discovered, however, it may be filled with images of the problem gambling household. The change from being a non-problem household into being a problem gambling household is thereby assumed to be experienced as a traumatic, irretrievable loss of a previous household image, the thing, the household that once was or could have been.

Whereas Lacan insisted on distinguishing between the Real, the imaginary, and the symbolic (Lacan, 1977), the limits between them are here regarded as blurred. The concepts put forward by Lacan must not, of course, be seen as actual orders of the households, but as analytical tools for helping us to approach problem gambling in households.

Method

This research is part of the project entitled “Digital Adventure-Oriented Media: Content and Context” (DigitAdvent), which was led by The National Institute for Consumer Research (SIFO) in cooperation with Norsk Tipping, Norsk Rikskringkasting, and Telenor from 2003–2007. My part of the study was to focus on the contextualization of gambling in households with, and without, gambling problems. This article reports the main results from a qualitative research study dealing with problem gambling in households.

Recruiting

Six households were recruited through a public clinic that offers group therapy. Two were recruited through a self-help group for relatives of problem gamblers. As I (the researcher) am not a therapist and have no relationship with the counselling service in any way, contact with the recruitment centres was established through meetings in which I interviewed a therapist and a member of a group of relatives of gambling addicts. The therapist and the member of the relative group informed problem gamblers about the research project and asked them to contact me if they wanted to be interviewed. Married or cohabiting gamblers were encouraged to ask their partner to participate in the conversation. A recruiting criterion was that the gamblers should have been undergoing group therapy or group meetings for some time and should be accustomed to telling their stories about problem gambling in front of others. By interviewing “experienced” group members, I hoped to avoid difficult emotions and situations that the informants and I were not professionally trained to tackle.

The Sample

A detailed description of the sample is provided in Table 1.

The sample consists of eight Norwegian households in which one adult member, in all cases the man, had been in group therapy for gambling addiction. The spouses had joined them in one meeting. One gambler stated that he had had gambling problems since he was a child. The other gamblers reported that their problem gambling started after their household had been established. However, on this subject, the gamblers might have had a reason to not tell the truth. If their partner had not been informed about the gambler’s habit before the household was established, the household may have been formed on false pretences.

Table 1
Sample of Problem Gambling Households

Interviewee pseudonym ¹	Age(s)	Civil status (# of children living at home)	Main problem gambling activity	Reported gambling debt (USD)	Time of problem gambling discovery
Bibi & Alan	35–45	Married (2)	Slots	–	After marriage (2–3 y)
Zaina & Abaan	25–35	Married (0)	Slots	858,000+	After marriage (2–3 y)
Amina & Pamir	35–45	Married (3)	Slots	85,800+	After marriage (2–3 y)
Liz & Per	55–65	Married (0)	Horses	171,650	After marriage (5–6 y)
Eve (& Leo)	40–50	Married (1)	Slots	–	After marriage (17 y)
Tom (& Aina)	25–35	Live-in (0)	Sports	0–51,500	Before household establish
Kurt	30–40	Single (2)	Sports	171,650	Not discovered
Ben	35–45	Single (2)	Slots	51,500	After household established (2–4 y)

¹ Pseudonyms shown in parentheses indicate person was not present at the interview with their partner.

Note. Dashes indicate that the data were not reported; y=years; ages of respondents are estimated.

All of the gamblers had lived with a partner while they were gambling excessively. Two of the households had split up by the time the interviews took place, one of them allegedly because of problem gambling. Five couples were still married or cohabiting. Four of the married gamblers were interviewed together with their partners. Two single gamblers, one cohabiting gambler, and one spouse of a gambler were interviewed alone. Five households included children. None of the children were present during the interview sessions. One household, the household of Zaina and Abaan, reported having 858,000 US dollars in gambling debts. The debt of the remaining households was between 0 and 171,650 US dollars. For most gamblers, their main problem was related to slot machines, but two were related to sports betting and one to betting on horses. Most of the informants were between 30 and 60 years old. On the basis of the homes' locations and interiors, as well as on the informants' education and occupations, most of the households could be associated with Bourdieu's (1992) concepts of "working-class" or "lower-middle class". For example, only one gambler had been educated at a higher level than secondary school. Three were clerical assistants, two were transport workers, two were on social security, and one was a student. The partners' education and occupations did not differ significantly from those of the gamblers. This is in line with previous research, indicating that gambling problems are higher among less educated and low-income groups (e.g., Pran & Ukkelberg, 2010). It should, however, be noted that the sample had some characteristics that distinguish it from other problem gambling households. For instance, whereas previous gambling studies indicate that at least one third of problem gamblers are women (Martins, Lobo, Tavares, & Gentil, 2002), this sample contained no female problem gamblers. Whereas previous research also shows that some spouses knew about a partner's problem gambling before a household is established (e.g., Heineman, 1992), all but one spouse in this

sample discovered the problem after the household was formed. Third, whereas some gamblers resolve their problems without their spouse knowing about it (e.g., Anderson, Dobbie, & Reith, 2009), all but one spouse in this sample discovered the problems before they were resolved. Finally, whereas previous gambling studies show great variation as to how hard the impact is on households (e.g., Anderson et al., 2009), all households in this sample seemed to be relatively moderately hit – too seriously hit to get rid of the problems by their own means, but not so seriously hit that they needed debt settlement.² One exception was Zaina and Abaan’s household, which was so financially disturbed that its problems could hardly, if ever, be resolved.

The Interviews

All but one of the households was located in the Oslo region. Four of them were interviewed at home, two at cafés, and two in an office. The households were encouraged to tell their gambling stories as freely as possible. The interviews took 1.5 and 2.5 hr each, and were all tape-recorded and transcribed by the researcher. As problem gambling in households is a sensitive issue, I had “a balancing interview style” (Borch, 2010) through which I attempted to support the informants’ stories rather than questioning them. Questions, comments, laughter, and jokes were used to navigate the conversation into safe areas.

Data Analysis

The research design was primarily exploratory, meaning that the themes of the analysis and the research questions were not set before the interviews were conducted, but deduced from experiences that occurred before the interviews. From previous gambling studies, I was taught that excessive gambling was a form of “addiction”. The interviews, however, gave me the impression that neither gamblers nor their partners knew why the gambler gambled or why he kept on gambling even though he knew how damaging it is. As these hidden and incomprehensible aspects of problem gambling hardly (if ever) have been the subject of research in gambling studies, I decided to interpret the households’ gambling stories in light of Jacques Lacan’s concept of the Real.

The households’ stories contained both unique and common aspects. As I hoped to grasp how the Real was experienced and handled by most households in the sample, the common aspects of the households’ stories formed the focal point of the study. In order to distinguish the common aspects from the unique ones, each household’s story was first read vertically (one by one) and then horizontally (across). From the horizontal reading, a generalized version of the households’ stories was written

²Although Norwegian legislation offers possibilities for bankruptcy, the only way for over-indebted private individuals to get out of their difficulties is through a debt settlement, in which private individuals can have their debt cancelled if they commit themselves to a thrifty life for a period – normally 5 years (Poppe, 2008).

down and illustrative examples and quotations were added to the text. As we will see, the generalized version of the households' stories did not differ significantly from those reported in other countries (Custer & Milt, 1985; Franklin & Thoms, 1989; Lorenz, 1987). The stories might therefore be regarded as typical, both in terms of representing the generalized version of the sample's stories and in terms of being reported in previous research.

An important question during the analysis was how to interpret the households' stories. Should they, for instance, be interpreted as reflections of reality, as discursive data in social research are usually based on the concept of "scientific realism" (Hacking, 2000), or should they rather be analysed from a socially constructivist point of view, suggesting that the households' stories were based on the informants' subjective interpretations? My choice was twofold. As a general rule, the households' stories were interpreted as if they were descriptions of events that had really taken place in the informants' lives. However, as all of the stories may have contained a fantastic component, the main function of which was to mask the households' trauma (Rekdal, 1992), the households' stories were sometimes interpreted as if they were subjective interpretations of real events. This social constructivist approach is also evident in my interpretation of problem gambling, as I, on the basis of the informants' own statements, do not regard it as a form of addiction, but as an absence of knowledge – a Real – that is filled with theories of addiction that help household members to deal with the households' traumas.

Ethics

Ethical considerations were made during the whole research process. As previously mentioned, initial contact with the informants was established through a therapist. In order to reduce the pressure to participate, potential informants were asked to contact me, and not the therapists, if they wanted to participate. The fact that very few patients contacted me might indicate that the pressure was not too strong.

When first contact was established and before the interviews started, the informants were informed about the project, their right to remain anonymous, and their right to withdraw from the interviews. They were also encouraged to tell the interviewer if the conversation touched upon issues they did not want to talk about. Having received the information, the informants formally consented to participate.

As previously mentioned, the gamblers were accustomed to telling their stories in front of others. The partners, however, had joined them in only one meeting. Therefore, a great deal of effort was made during the interview sessions to avoid difficult situations. Even though the informants could be emotional, the situation was never out of control. In fact, all the interviews went smoothly. One reason for this might be that the informants knew that they had a fascinating and important story to tell. Another might be that the gamblers, as a result of group therapy, had learned to tell a story that others would believe to be reliable and would want to

hear. A third might be that my moral opinion of problem gambling was easy to predict. Problem gambling is, in contrast to the ordinary consumption of gambling, always “bad.” If the interviews had dealt with ordinary consumption, the informants might have wondered if I regarded their practices as good or bad.

Results

The Disputable Real of Households

According to the households’ stories, seven of the eight gamblers had developed gambling problems after the households were established. Seven of eight kept their gambling hidden. Common hiding strategies were to lie or utilize the household routines or “right for privacy” (Borch, 2010):

Kurt: Our finances were good. I worked a lot. It was no problem explaining why I was late, why I was not at home, why the money was gone. I became an excellent liar. It was no problem making excuses.

Per: My wife’s mother lived in the cellar apartment. When my wife visited her mother in the evening, there was some serious gambling going on upstairs.

Alan: My wife was not allowed to open my letters from the bank. I knew what was in them.

The spouses may have sensed that something was wrong. It was something to do with money. There was not enough money to go around. Although some spouses broke into the gamblers’ privacy and searched their pockets and mobile phones for signs, most spouses neglected the signs and excused them as the result of stress, health problems, and so forth. A typical example of such neglecting strategy is given in the story of Bibi and Alan:

Bibi: Shortly after we met, I got pregnant and we moved in together. One year after, we split.

Me: May I ask you why you split?

Bibi: It had nothing to do with money. Well, yes, in fact it had something to do with money; because I felt that he was irresponsible...He was not clever with money. He earned 3,431 USD a month, yet he was always broke. So I broke with him. He was not the man I...Actually, I saw that he was fond of gambling when I met him. He was always standing next to the machines. But I never suspected that...or, in some way, my unconsciousness suspected that...but I have never believed that it was about so much money...In fact, my uncle used to tell me that Alan was a compulsive gambler. “You must get rid of that guy,” he said. “He always plays the slot machines.” I did not like him saying that. Then I forgot all about it...Personally, I don’t think I wanted to know.

Me: That it was a kind of mental blocking?

Bibi: Yes, because that famous Monday I remember telling a girlfriend that 429 USD had disappeared from our bank account. She suggested that Alan might have gambled it away, but I said no, he cannot have gambled away that much money. When she left, I was thinking about what my uncle used to say. I was not allowed to open Alan's post, but then, for the first time, I opened his bank statements, one after another, and realized that this must be a gambling problem. Then I called him.

Hence, rather than tracing the Real, Bibi filled the missing spots with images of the non-problem household. The neglecting of a partner's problems must not necessarily be regarded as a naive reaction. In fact, without this capacity to fill the household's Real with pleasant images, hopes, and dreams, most households might never have been established. Previous gambling studies are sometimes based on the assumption that the household's troubles are caused by the problem gambling (see, e.g., Darbyshire et al., 2001; Dickson-Swift et al., 2005). In accordance with Lacan's theories, however, the main function of problem gambling is to be the substitute that replaces the thing, the object of desire that cannot be attained. In this respect, the main function of problem gambling is to mask an even greater trauma in the gambler's past.

The Discovering – The Most Horrific Sight

No matter how the problem gambling was discovered, the one event that actually made the household members *see* the problem gambling marked the beginning of a long recovery process in which the household members, step by step, acknowledged the gambling as a problem and started to de- and reconstruct the household. As often exemplified in previous gambling studies (e.g., Custer & Milt, 1985; Dowling et al., 2007; Franklin & Thoms, 1989; Lorenz, 1987), the acknowledgement tended to be described as a process. In the light of the concept of the Real, the process might be divided into three:

The moment of collapse, in which the problem gambling is discovered. The spouses get their first insight into the Real, and all previous meaning about their husband, their household, and their life falls apart.

The big talk, in which the household's Reality is discussed. The spouse feels relieved that the gambler seems to have realized how irrational, irresponsible, and damaging the gambling is. The gambler feels relieved that the spouse did not leave him after all. The air is cleared. The couple mobilizes. The solution seems simple: The gambler must stop gambling. For only if the gambler stops gambling can the household get back on track and return to the ordinary household it used to be.

The first relapse refers to the point in time when the first relapse is discovered. For the spouse who hoped and believed that the gambler had stopped gambling, this second moment of collapse is as agonizing as the first. As the gambler keeps on

gambling, the couple realizes that a problem gambling Reality is based on another logic, another way of thinking and acting that cannot be understood by means of Western ideas of rational and responsible behaviour.

Although the first moment of collapse may constitute a narrative height in the households' stories, the drama of the event was seldom emphasized. A possible exception is the story of Liz:

Liz: Per had disappeared. I didn't know where he was. One of the employees told me that he was in a meeting with the franchise company. The employee was concerned because Per the day before had told her to help me take care of the shop. I called the company, and asked them if they knew where Per was. They told me that one of Per's bosses was on his way to visit me. Why would he visit me? Finally he came. He wouldn't tell me where Per was, but gave me this letter. I opened the letter and started to read, but I couldn't... Then the boss said that Per had embezzled because of problem gambling, that the business was..., and that Per was at the hospital because of a nervous breakdown...(cries)...Can you believe it! In any other arena he is a reasonable man.

As Liz told her story, her hands and voice were shaking, as if she relived the moment, her first glimpse into the household's Real, the other side of *her* husband, of *her* household, of *her* life. Although some glimpses vanish after a second or so, others eat into the spouses' retina and become part of their side-view for years, like "a reminder which persists alongside the symbolic" (Fink, 1995, p. 27).

The Indisputable Real of Problem Gambling

As the problem gambling is discovered, parts of the household's Real become indisputable – not to be denied. Yet, even though the problem gambling is acknowledged, the gamblers may not know why they gamble and why they keep on gambling even though they know how damaging it is:

Me: Why do you gamble?

Pamir: I don't know. I have been addicted so long that I no longer know why I gamble.

Me: Why did your gambling get out of control right then?

Alan: I don't know. It's strange isn't it? I was about to marry. It was a happy time.

Me: Your gambling seems to have caused a lot of trouble. Why do you keep on gambling?

Lars: I do not know. That is what we're trying to figure out now, my therapist and I.

Nor do the spouses understand why their husbands gamble:

Liz: It is so idiotic. It is like burning your own money. Very few people can understand that. I mean, you can understand that people like gambling, but not that the gambling jeopardizes everything – kids, family...

Hence, even if the gambling problem is sensed and acknowledged, part of it remains unsymbolized, not necessarily because it resists symbolization, but because it is refused by the symbolic. In Western countries, problem gambling is hard to understand. Not only does it break with fundamental norms telling us that we should not spend more on gambling than we can afford to lose, but it also violates our expectations of how rational and responsible people act. So, even though the problem is partially acknowledged, it is too irresponsible and too irrational to be comprehended – it is, so to speak, not of this world. By virtue of being outside Reality, problem gambling was often approached as an outer force, an alien creature – a bastard, a devil, a monster – that had taken place in the gambler's brain, controlling his actions:

Liz: I have been so pissed off. That bastard! He only lies and lies and lies to me. I have had my turns, sleepless nights. I have been really down, taken pills, prayed to God... It was not so much the money. There was this sorrow. I had lost the husband I could trust.

Per: Can you believe it! Here I have been living this decent life for 50 years. It was like the Devil took hold of my head. When I am 70, I will start smoking hash.

Amina: It is like a monster is inside his brain. If it hadn't been for his gambling, my life could not have been better. I had everything – love, money, a social life.

As indicated here, the incomprehensible aspects of problem gambling not only threatened the household's *raison d'être*, but more fundamentally, it also threatened the household members' prospects of life – what the situation is, how it got to this point, if and how it will change in the future. When the household members looked at themselves in the mirror, the missing spots were no longer filled with images of the non-problem household, but of the problem gambling household. The household members felt disillusioned and deceived. If I understand them correctly, the spouses believed that their husbands' gambling had reduced their chance of living "the perfect life" – the life that they could have had if the gambler had not gambled. From a Lacanian perspective, however, the husbands' gambling does not destroy the concept of a perfect life, but rather makes it possible to keep the idea alive. If the husbands had not gambled, then their spouses might have been forced to realize that the perfect life is an ontological impossibility.

Centre of Gravity

Problem gambling has been discovered and yet not comprehended. At this point, some of the informants reported finding themselves overwhelmed by the problem

gambling, problem gambling so frightening, amoral, and shameful that it has to be hidden from the children:

Abaan: I could stop gambling, one month, two months, three months, but I always started again. “I save money, and you throw it all away!” she used to say. I had no answer. It was just how it was. I couldn’t stop. She tried to get my cards, so that I couldn’t get money from the cash dispenser.

Interviewer (Me): How did you react to that?

Abaan: I got grumpy.

Me: Grumpy?

Zaina: Fought.

Me: You got violent? Hit her?

Abaan: Hit her, no. Pushed her, yes. I pushed her on the bed when she tried to stop me.

Me: Then you got the cards and ran out?

Abaan: Maybe not that night, but the next. I always had an excuse to get the cards back. I gambled two-three days, went back for one night, and then out again. In the worst periods I could spend NOK 20–25,000 (USD 3,526–3,527) on gambling per night. I wasn’t much at home. I didn’t see much of the children.

Zaina: I called him at night, again and again, but he never took the phone. I couldn’t sleep. I knew he was gambling all the money away.

Me: Did the children know anything about the problem?

Zaina: No! This is not for children!

Me: Why?

Zaina: They can’t understand it. Maybe when they are 8 or 9 years...? This is not good for children! A mama and papa not talking with each other, just fighting.

The problem gambling gets the whole household’s attention and becomes, as Fink (1995, p. 28) formulates it, a “centre of gravity, a Real₂, around which the symbolic order is condemned to circle”:

Eve: It is all about getting him well.

When the household members look in the mirror, the missing spots, the Real, might seem more threatening than ever. Inspired by Lacan’s theories, it may be argued that the household’s loss of previous image causes a lack and becomes an object of desire that the household members try to attain by means of different reconstructing

strategies, for example, by theorizing on the household's Real, reorganizing the symbolic, and balancing the imaginary.

Filling the Real

One coping strategy is to reduce the harm of the problem gambling Real by filling it with reliable theory. Through Norwegian news and therapy, the gamblers and their spouses have learned to understand their experiences of gambling as a kind of addiction (Borch, 2006; Reith, 2004):

Me: Why do you gamble?

Pamir: I do not know. I have been addicted so long that I no longer know why I gamble.

Me: It is a kind of escape?

Pamir: No, not for me.

Amina: Do you get kicks from it?

Pamir: No, no kicks.

Me: Is it a habit?

Pamir: Yes.

Me: A relief from the strenuous everyday life?

Pamir: Yes, it satisfies the body, in a way.

Me: You feel it physically?

Pamir: Yes.

Amina: Yes, because we went to group therapy once. They focused a lot on abstinences. Problem gambling is like alcoholism and drug abuse. You get the same kinds of abstinences.

Pamir: When I quit gambling, I struggled mentally, fought against myself – “now I want to gamble,” “no, you don’t.” I was in constant dialogue with myself.

Amina: The same happened to me when I quit smoking.

Pamir: Yes, you sweat and tremble.

Amina: Yes, I woke up nights, had nightmares, sweated and trembled. So it is absolutely a chemical reaction. It happens so much in the brain, so it must be...

Pamir: It is like the brain is producing something.

Me: What?

Pamir: I do not know...Actually, you are at home, thoughts strike your brain. You hardly notice them, but when you know about them, you can recognize

them. You are at home, a thought strikes your mind, and all of a sudden you find yourself in front of a machine: “Wow, why am I here?”

Amina: These are the thoughts that you are supposed to control.

Pamir: Yes.

Amina: It is horrifying. No family should experience this. His addiction is like cancer. It destroys families, like drugs.

Pamir: Yes, there *is* something inside me that I cannot control. But I do get better. I used to think that I would win [on slot machines]. Now I think that I will lose, lose, lose. Yes, I relapsed and gambled on the Internet two weeks ago. But I will be totally abstinent.

According to the theory of addiction, problem gambling is regarded as a disease presumably caused by inner biological forces – genetic disposition and chemical reactions in the brain – making some people vulnerable to being addicted, and outer social forces – the government, gambling businesses, and others – making “the drug” available to them. A common assumption is that gambling addiction can never be totally cured (“once a gambler, always a gambler”). On the other hand, it can be held in check, for example, through natural recovery, participation in Gambling Anonymous, pharmacotherapy, cognitive and cognitive-behavioural therapy, and motivational enhancement interventions (Petry, 2009). Filling the Real with the theory of addiction has several implications for households. First, because the gambling problem is regarded as an addiction, some of the responsibility, blame, and shame is transferred from the gamblers and the immediate family to those who have made the gambling services available (Borch, 2006). Second, because the household’s enemies in this respect are located outside the home, the bonds inside the home may be strengthened. Third, because gambling is caused by inner and outer forces beyond the gambler’s control, the problem may be easier to accept and forgive. And fourth, because the addiction can be held in check, the problem can be regarded as temporary. As indicated by Amina, filling parts of the household’s Real with theories of addiction may legitimate a spouse’s choice to stay:

Amina: I do get angry and frustrated because of his gambling sometimes. But I know that it is a disease that he cannot control himself...That is why I have not left. Many would have given up. But I manage to put myself into his situation.

Possible dangers may, however, be that too much responsibility falls on other household members, in this case the spouse, and that parents may start worrying about their children’s genetic disposition towards addiction.

Eve: I don’t like my kid using the Internet too much, even though I know he is just doing his homework. What if he is disposed towards addiction like his father?

Reorganize the Symbolic

If the gambler cannot have access to money, another reconstructing strategy is to reorganize the household's symbolic order, that is, to put the household under another member's administration, in this case the spouse (Custer & Milt, 1985). The reorganizing strategy is particularly evident in the story of Amina and Pamir. To help Pamir to recover, Amina has taken control over Pamir's finances and time. She has informed possible lenders – the bank, family and friends – about Pamir's problem. If Pamir needs money, she gives him pocket money – the exact amount in cash. At her request, he has stopped driving taxis, as this made the slot machines more available (Revheim & Buvik, 2009), and is taking courses at a school for adults instead. Also at her request, he does body building and trains two sports teams for kids in his spare time. A new baby is expected. “Hopefully,” Amina maintains, “that will keep his hands even busier.”

Me: You seem to have taken control over his finances and time. Don't you feel that you have put him under guardianship?

Amina: I help him, and by doing that, I put him under my guardianship, yes. I am the stronger. If it hadn't been for me, this family would have fallen apart.

As indicated here, the reorganizing of the household's symbolic order has increased Amina's power. Not only does she control Pamir's resources, but by taking his burdens on her shoulders and playing the role of a martyr she also puts him in serious debt to her, a debt that is unlikely to be repaid (Mauss, 1954):

Pamir: I am very thankful. She is very patient with me.

Me: How come?

Pamir: Well, you know, because of the gambling. She has sacrificed a lot for me. Sometimes I do not think I deserve her.

The shift of power may affect the intimacy and mutual respect between the partners (e.g., Steinberg, 1993):

Eve: We became like mother and son. Well, to put it like this: You do not have sex with your own son...How can you respect a husband who cheats on you? How stupid does he think I am?

In Eve's case, the shift of power had changed the relationship between the partners, from a symmetric (female-male partner) to an asymmetric (mother-son) one (Kalischuck et al., 2006). Because this form of infantilization (where a grown-up is given the position of a child) usually is ascribed to women (e.g., von der Lippe, 2006), the shift of power might also involve a femininization of the man and corresponding masculinization of the woman. Eve also seems to relate the change to the incest taboo, indicating that her increased power and the infantilization of her

husband break fundamental laws of the symbolic order of the household and, presumably, of society as a whole. In one or two households, the change of power was openly articulated. In most households, however, it was made a taboo – banished from the household’s discursive order. The households’ self-imposed censorship was particularly evident in the case of Liz and Per. When Per embezzled money to pay the household’s gambling debt, Liz took over the household’s finances and Per’s franchised business. She therefore moved from being his wife and employee to being his mother and boss. Yet, although the power between them had obviously shifted, both Liz and Per maintained that the problem gambling had not influenced the power between them:

Me: Has the power between you changed because of the problems?

Per: No.

Me: What do you think, Liz?

Liz: No, I do not think so.

Me: (Teasing.) You haven’t felt tempted to dupe him once?

Per: She is not that kind of woman!

Liz: (Teasing.) I could have duped you.

Per: If you did, this relationship would have been history by now! You have done everything right. You are perfect!

(Silence)

Liz: You know what? The more I think of it, the more I ask myself why I haven’t shown him my anger and despair. But I need him to be strong.

When I questioned the power between them, Per refused to discuss the subject. The refusal was harsh, almost formulated like a threat: If we keep on discussing the subject and come to the conclusion that he is subordinate to his wife, he will revalue his view on the household and on Liz. Although Liz seemed to admit that she was superior to her husband (“I could have duped you”) and to realize that it was her “right” to show him her anger and despair, she seemed not to have used her position to make him feel bad about himself, ostensibly because “she needed him to be strong”. Both seemed, in other words, to have a common interest in keeping the question of power unspoken, a censorship that according to the theories of Foucault (1979) and Butler (1990, 1993) may confirm dominating gender discourses and hence the power structure between genders in households and in society at large. Common to all informants was a longing for the household and its structure of gender and power to be as they used to be. For some informants, this involved a longing for a household model that may be associated with Parsons’s (1955) “total integration of roles”:

Liz: I’ve always been strong and done my best. Per was just like me. Together we were dynamite!

For other informants, it involved a longing for a household model based on “role segregation” (Parsons, 1955):

Amina: I really look forward to the day he is cured, when he can do something on his own, when he can have his own bank account, bank card, and money, and when he can invite me to a restaurant or a holiday abroad.

Indeed, the reorganizing of the household’s symbolic order might have given the women increased power. Because, however, the power was not based on their free will, but forced on them because of a difficult situation, it could be seen as a sign of powerlessness:

Amina: I am supposed to be the stronger, but I do not feel that I am. His problems suck all my energy. It is a continuous fight. I am tired now.

As here indicated, being responsible for another member’s recovery involves a transfer of work from the gambler to the spouse. Because the problem gambling is the centre of gravity around which the household revolves, other people, tasks, and needs – children, job, and own health – get less attention. One of the spouses, Bibi, pushed the line too far and burned out:

Bibi: I was totally exhausted. On top of this, one of my kids nearly drowned in a lake nearby. I hit the wall and got a sick note from my doctor.

To Bibi, the situation was unbearable. The strategy was clear. As soon as her husband had proved that he could have access to money, the household would organize back to the household it once was.

Balance the Imaginary

To become the households they used to be, a third recovering strategy is to balance the households’ realities – live as ordinarily as possible, but keep their problem gambling Reality at a bearable distance. For spouses, this implies living two parallel realities, one non-problem Reality they share with the husband they once chose as partner, and one problem gambling household they share with a stranger, a heavy gambler, whom they hardly know. Finding the right balance between them seemed important: If they let the unproblematic Reality dominate, they may show too much trust, and the gambler may relapse. But if they let the problematic Reality dominate, the emotional bond may weaken, and the household’s *raison d’être* is at risk. Living two realities seemed, however, difficult:

Liz: Anything you do seems wrong. It is extremely difficult. I feel that, and that is probably the worst, that you are supposed to trust and not trust at the same time, and when he tells you that he is innocent, you don’t want to be suspicious,

because then everything gets worse. It is quite insane... I really can't stand the idea of Per gambling again.

Me: Him relapsing, is this something you think of often?

Liz: No! I cannot keep on digging our own grave. I have chosen to believe that he has stopped. That he is that brave! But if it happened again, it would not be a bombshell. I am prepared! How I will take it, is something quite different. But I am prepared!

As indicated here, households may choose to let the unproblematic Reality dominate and keep the problematic Reality as a possibility. Keeping the problem gambling at a bearable distance is not always easy, however, as reminders of the Real – the thought of a husband's relapse, a notion of being poor, a kid absorbed in his Game Boy – may keep on paying visits:

Bibi: In the beginning [after Alan had stopped gambling], I was scared to death when I knew he was close to a slot machine.

Zaina: Our children want more space, nice things, Barbie dolls. I wanted to give them everything.

Bibi: Watching him play the Game Boy can make me furious. That is something I have to work with.

Getting reminders from the Real is, of course, highly unpleasant, as they impose navel-gazing questions like: Is this what the household really is? Why can't I stop worrying? Would it be better if I left? In the light of modern theories, the reminders of the Real could be seen as hindrances that reduce a household's possibility to move back to the household they once were or could have been. From a Lacanian perspective, however, they may rather be seen as hindrances reminding them about what they really are: a split between the dysfunctional and the vital, the chaotic and the harmonic. From this perspective, the household members' nostalgia for the household they once were or could have been does not necessarily represent a movement towards the household they really are, but rather a movement away from it. On the presupposition that problem gambling households can never return to the household they once were or could have been (Dickson-Swift et al., 2005), the illusionary image of the previous household can never be reached. In that case, the balancing of the household imaginary order and the repression of the Real have a traumatic character, a character that seemed to be masked by the imaginary in all households, even the household of Zaina and Abaan, which was so financially disturbed that its problems hardly (if ever) could be resolved. According to Abaan, the household had 171, 650 US dollars in gambling debt. Both Zaina and Abaan lived on social security. Even if they got a job, their income would not cover the bank interest. And even if they had their bank loans settled, their private loans from family and friends and the loans from bookmakers at illegal casinos downtown would remain unpaid. Yet, when I asked Zaina if she believed that the household's financial problems would be resolved, she confirmed: "Yes," she said, "at the longer sight."

Summary, Conclusion, and Questions for Further Research

In this paper, I have addressed the question of how household members experience and handle gambling problems. The analysis has drawn on the problem gambling stories of eight Norwegian households interviewed in 2005. The households' stories have been analysed in the light of the Lacanian concept of the Real. The choice of theory is based on the observation that the problem gamblers and the spouses interviewed in this research tended not to know why the gamblers gambled and why they kept on gambling even though they seemingly knew how damaging it can be. The problem gambling thereby caused an existential insecurity regarding the household's situation – a black hole of uncertainty that the concept of the Real could help us see, formulate, and visualize.

The analysis suggests that the modalities of the Real change throughout a household's problem gambling career. Before the problem gambling was discovered, the Real was sensed but neglected. After the problem was discovered, it became acknowledged but not comprehended. Missing spots in the mirror were no longer filled with images of an ordinary household, but of a problem gambling household. Rather than being adjusted to the household's everyday life, gambling became the centre of gravity around which the household's everyday life revolved. To reduce the harm of the Real and return to the household they once were or could have been, the household used different strategies. One was to fill the household's Real with theories on which household members can agree. Another was to reorganize the household's symbolic order, that is, to put the household's administration under the responsibility of the spouse. A third strategy was to balance the household's imaginary order, that is, to be a non-problem household and keep the image of the problem gambling household at a bearable distance. On the presupposition that problem gambling households can never return to the household they once were or could have been (Dickson-Swift et al., 2005), the balancing of household images had a traumatic character, a character that seemed to be masked by the imaginary in all households, even those hardest hit.

Over the last decades, the impact of problem gambling on households has been the subject of social research. Although these studies have given valuable insight into the study of gambling, very few, if any, have seriously discussed the hidden and incomprehensible aspects of problem gambling. In this respect, this research fills a gap in previous research. Yet, even though the concept of the Real has illuminated aspects of problem gambling that usually elude our attention, there are still areas to be explored. This research has dealt with the Real in households in which one member, in all cases the man, has been to group therapy for gambling addiction. The fruitfulness of adapting a Real perspective on other households, for example, in problem gambling households in which no one has been to therapy, or in households in which the problem gambler is a female, a child, or a parent, remains to be explored.

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Shame-prone gamblers and their coping with gambling loss

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Abstract

Applying recent research on self-conscious emotions (e.g., Tangney & Dearing, 2002) to the literature of gambling, the proposal that painful self-conscious emotions brought about by chronic awareness of personal inferiority and inadequacy, deemed as a major predisposing factor for problem gambling (Jacobs, 1986), appears to be compatible with the chronic affective trait of shame-proneness but incompatible with guilt-proneness. This premise led to the hypothesis that shame-proneness is strongly associated with problem-gambling severity, whereas guilt-proneness is minimally associated with problem gambling. Further, it was hypothesized that shame-prone gamblers frequently use avoidant coping strategies following gambling loss and chase losses, whereas this tendency is minimal among guilt-prone gamblers. These hypotheses were supported by the data from a retrospective survey of recent gambling loss occasions ($N=284$). The findings indicate that shame-proneness is one of the predisposing risk factors for problem gambling, whereas guilt-proneness may mitigate gambling problems.

Keywords: shame-proneness; problem gambling; gambling loss; avoidant coping

Résumé

L'application aux études sur le jeu des résultats de recherches récentes sur les émotions liées à la conscience de soi (p. ex., Tangney et Dearing, 2002) a permis de faire la constatation suivante : la proposition selon laquelle ces émotions, lorsqu'elles sont douloureuses et provoquées par un sentiment chronique d'infériorité et de mésadaptation, seraient un important facteur prédisposant au jeu compulsif (Jacobs, 1986) semble se vérifier chez les personnes ayant comme trait affectif chronique une propension à la honte, mais ne pas s'avérer juste chez celles ayant une propension à la culpabilité. Cette prémisse a mené à la formulation de l'hypothèse selon laquelle la propension à la honte est fortement associée aux problèmes graves de jeu compulsif, alors que la propension à la culpabilité n'est

associée au jeu compulsif que de façon minimale. Il a également été postulé que les joueurs ayant une propension à la honte usent fréquemment de stratégies d'évitement après avoir connu des pertes ou tenté de récupérer des sommes perdues, et qu'inversement cette tendance est peu présente chez les joueurs ayant une propension à la culpabilité. Une étude rétrospective de nombreux cas de pertes au jeu ($N=284$) a été effectuée afin de corroborer ces hypothèses, et les résultats de cette étude indiquent que la propension à la honte est un des facteurs de risque prédisposant au jeu compulsif, tandis que la propension à la culpabilité pourrait avoir pour effet d'atténuer les problèmes de jeu.

Introduction

The account of gambling as a means of dealing with negative affect, such as depressive states and boredom (McCormick, 1988), is well-established in the gambling literature. Hull's (1981) self-awareness model of alcohol addiction and Jacobs' (1986) general model of addiction are particularly noteworthy in that they clearly single out aversive affect arising from deep feelings of inferiority and inadequacy as one of the major predisposing factors for alcohol addiction and problem gambling. Specifically, according to Jacobs (1986), preoccupied with the conviction that "they are inferior, unwanted, unneeded and/or generally rejected by parents and significant others" (p. 17), these individuals engage in gambling activities and/or other addictive behaviors in order to escape from painful self-awareness. McCormick's (1988) subtype of "recurringly depressed pathological gamblers" is thematically consistent with Jacobs' (1986) model in that these gamblers tend to "generalize the impact of a setback in one part of their life to other parts, and they believe that things have always been bad and will continue to be so" (p. 260).

The central role of deep feelings of personal inadequacy in the development of behavioral addiction in Jacobs' (1986) model is echoed by Heatherton and Baumeister's (1991) escape theory. Heatherton and Baumeister (1991) posit that some individuals are vulnerable to negative self-awareness since they focus on personal inadequacies and blame the self for failure. Chronic high levels of self-awareness produce such painful negative feelings that these individuals are motivated to escape from self-awareness. To escape from painful feelings of failure, they tend to engage in cognitive narrowing, which refers to the narrowing of one's attention to "the immediate present, concrete, low-level thinking, and the refusal of broadly meaningful thought" (Heatherton & Baumeister, 1991, p. 8). Cognitive narrowing helps individuals temporarily forget aversive self-awareness by facilitating absorption in immediate sensations. Heatherton and Baumeister (1991) explain how binge eating and drinking result from the process of cognitive narrowing in response to painful self-awareness. It is highly plausible that gambling provides

another mechanism of escaping from the chronic experience of painful negative self-awareness posited by Heatherton and Baumeister (1991).

Although the central role of negative self-regard and painful self-awareness in the development of gambling and addictive behaviors has been acknowledged, recent theories and empirical findings on self-conscious emotions (for reviews, see Tangney & Fischer, 1995; Tracy, Robins, & Tangney, 2007) have not been incorporated in gambling research. In this article this gap was filled by explicitly considering *individual differences* in the chronic tendency to be prone to distinct types of negative self-conscious emotions, namely, guilt- and shame-proneness, in the context of gambling. Although the terms guilt, shame, and embarrassment are often used interchangeably by researchers and lay people, it has been found that these emotions have different antecedents, phenomenology, and action tendencies. This line of research is useful in establishing the conceptual link between shame- versus guilt-proneness and frequent aversive self-awareness as well as the sense of inferiority, which are posited as a predisposing factor for problem gambling (Jacobs, 1986; McCormick, 1988).

The shame versus guilt distinction

A thorough review of previous gambling literature found that when the reference to gamblers' experience of self-conscious emotions due to negative self-awareness is made, the term guilt is commonly used. For example, Lesieur (1992) states that some individuals gamble as a way of relieving guilt along with anxiety, depression, and feelings of helplessness. Similarly, Gupta and Derevensky (1998) report that problem gamblers "show tendencies towards being guilt-prone and insecure" (p. 26), and that adolescents with gambling problems experience "guilt associated with their gambling problems" (Gupta & Derevensky, 2000, p. 44). Furthermore, one of the items used in the Canadian Problem Gambling Index (Ferris & Wynne, 2001) specifically asks about the frequency of "feeling guilty about your gambling." In contrast, the experience of shame due to chronic aversive self-awareness is rarely mentioned in the gambling literature. Moreover, the experiences of guilt versus shame in the context of gambling have rarely been separately discussed with a notable exception of Rosenthal and Rugle (1994). They observed that problem gamblers tend to experience guilt when they feel they can undo problems and losses. In contrast, shame is experienced when they feel that things cannot be undone and gambling offers an escape from painful awareness of shameful feelings. However, no further discussion of distinct effects of experiencing shame and guilt in the gambling context was offered by Rosenthal and Rugle (1994).

The lack of distinction between shame and guilt in the gambling literature is at odds with the recent conceptualization of shame versus guilt in the self-conscious emotion literature. Following H. B. Lewis's (1971) pioneering research on guilt and shame, researchers have reached the consensus that the key difference between guilt and shame rests in the role of the self in these experiences (Tangney & Dearing, 2002). According to Lewis (1971), the experience of shame is "directly about the self, which

is the focus of evaluation,” while in guilt, “the self is not the central object of negative evaluation, but rather the thing done or undone is the focus” (p. 30). Lewis further argues that in the experience of guilt, “the self is negatively evaluated in connection with something but is not itself the focus of the experience” (p. 30). In other words, guilt involves preoccupation with a specific transgression (“I did that horrible *thing*”), whereas the experience of shame derives from negative evaluation of the global self (“I did that horrible thing”) (Tangney & Dearing, 2002). Furthermore, shame is experienced when people attribute negative events to perceived deficiencies of the core self (Klass, 1990) and perceive that their deep-seated flaws are revealed to oneself or others (Miller & Tangney, 1994). In contrast, guilt is experienced when individuals attribute setbacks and transgressions to specific and unstable internal factors (e.g., temporary slips) (Hoblitzelle, 1987). Devaluation of the global self that accompanies the experience of shame makes this emotion more debilitating and painful than guilt, and thus shame has been associated with the perception of helplessness and paralysis (e.g., “I couldn’t have done differently even if I had pressed myself to”) (Tangney & Dearing, 2002).

Theories and empirical research on this distinction between guilt and shame as emotional states offer a fruitful avenue for future research on gambling. For example, a recent study (Yi & Kanetkar, 2011) showed that following gambling losses, problem gamblers experienced more intense shame than low-risk gamblers, whereas the intensity of guilt following gambling losses did not differ. Future research should investigate the possibility that an acute experience of shame may trigger the desire to gamble in problem gamblers.

Shame- versus guilt-proneness as affective trait

Although guilt and shame were initially conceptualized as temporary emotional *states*, emotion researchers have also theorized the chronic propensity to guilt and shame as an individual difference construct (i.e., *trait*). In other words, shame-proneness and guilt-proneness are traits that reflect individual differences in cognitive, affective, and behavioral responses to transgressions and setbacks (see Tangney, Youman, & Stuewig, 2009, for a review). Shame- and guilt-proneness are believed to be developed by middle childhood, after the development of the cognitive representation of the self concept. Children’s shame-proneness has been associated with detrimental family dynamics and parenting styles such as parental hostility, little recognition of positive outcomes, and harsh and inconsistent parenting (Gilbert, Allan, & Goss, 1996). In contrast, parents of guilt-prone children were less likely to ignore their children or express disgust at them and more likely to use behaviour-focused messages rather than person-focused messages when disciplining them (Tangney & Dearing, 2002). Once developed, shame- and guilt-proneness remain relatively stable over a life span. According to a longitudinal study reported in Tangney and Dearing (2002), shame-proneness and guilt-proneness at age 12 were quite predictive of shame-proneness and guilt-proneness at age 18 ($r=.38$ and $.41$, respectively).

Furthermore, shame-proneness is associated with a more maladaptive style of attribution than guilt-proneness. Specifically, shame-prone individuals chronically make internal, stable, and global attributions for setbacks and transgressions, whereas guilt-proneness is associated with the tendency to make internal, temporary, and specific attributions (Tangney & Dearing, 2002). In other words, shame-prone individuals are likely to engage in *characterological* self-blame after committing transgressions, whereas guilt-prone individuals are likely to use *behavioural* self-blame (Janoff-Bulman, 1979).

Moreover, there is growing evidence that shame-proneness is associated with more negative psychological outcomes than guilt-proneness. For example, Tangney, Wagner, and Gramzow (1992) report that shame-proneness is positively correlated with low self-esteem, impaired empathy with others, difficulty in dealing with anger, and interpersonal problems, whereas guilt-proneness is not significantly correlated with these problems. Furthermore, shame-proneness is positively correlated with addictive behaviours such as alcohol problems and substance use (Dearing, Stuewig, & Tangney, 2005) and eating disorder symptoms (Sanftner, Barlow, Marschall, & Tangney, 1995). In contrast, guilt-proneness was either unrelated or negatively related to these behaviours.

Applying previous research on guilt- and shame-proneness to the context of problem gambling, two research questions are examined in this article. The first research question is to investigate the relationship between problem gambling and shame- versus guilt-proneness. Based on the differences between guilt and shame summarized above, it is likely that shame-prone individuals' maladaptive attributional style and characterological self-blame would increase their vulnerability to the use of gambling as an escape mechanism. Considering that the act of gambling and its immediate environment is sensory-rich and attention-grabbing, gambling appears to be an ideal avenue for shame-prone individuals who seek cognitive narrowing. In contrast, guilt-proneness is closely associated with a chronic tendency to make internal, temporary, and specific attribution, which protects the self from unwarranted global devaluation following setbacks and failures. Therefore, guilt-prone individuals are likely to be relatively impervious to the acute experience of painful self-awareness posited as a proximal trigger of gambling and other addictive behaviour (Jacobs, 1986; Heatherton & Baumeister, 1991).

H1: Shame-proneness will be positively associated with problem gambling severity. In contrast, guilt-proneness will be either negatively or minimally associated with problem gambling severity.

Shame- versus guilt-proneness and coping with gambling loss

Another research question pursued in this article is the possibility that once gambling losses are incurred, shame- versus guilt-prone gamblers may cope with them differently. To the extent that the odds of loss are higher than those of gain in

all forms of commercial gambling, how gambling losses are dealt with appears to be important to individuals' well-being and subsequent gambling patterns. Even though the construct of coping (Lazarus & Folkman, 1984) has been applied extensively to the study of gambling, few researchers have investigated how individuals cope with gambling losses. Two studies that are notable exceptions (Shepherd & Dickerson, 2001; Yi & Kanetkar, 2011) are briefly summarized below.

Shepherd and Dickerson (2001) tested the hypothesis that impaired control over gambling would be positively associated with the use of avoidant coping strategies (e.g., mental disengagement, behavioral disengagement, denial, wishful thinking) in response to specific gambling loss episodes. Although this hypothesis received support, the use of problem-focused coping strategies in response to gambling loss was also greater among individuals with impaired versus intact control over gambling. This unexpected finding was deemed partly due to the use of the COPE inventory (Carver, Scheier, & Weintraub, 1989), which was developed to assess coping with general life stressors. Specifically, some items in the COPE inventory are worded in such an abstract way that they can be interpreted in multiple ways in the gambling context. For example, the item "I made a plan of action to deal with the loss" can be construed either "as planning to secure more funds for the purpose of future gambling and recouping the loss" or "as planning to reduce future gambling activities" (Shepherd & Dickerson, 2001, p. 167). These findings suggest that the use of the inventory specifically designed to assess coping efforts in response to gambling loss is warranted.

In order to address this gap, the author has been developing an instrument designed to assess the coping with gambling loss. These coping strategies were used in a separate paper (Yi & Kanetkar, 2011) to investigate the relationship between the intensity of shame versus guilt experienced following gambling loss (i.e., shame and guilt as emotion *states*) and the subsequent use of coping strategies. We found that the use of avoidant coping strategies was positively predicted by the intensity of shame following gambling loss, whereas it was not associated with the intensity of guilt. Furthermore, it was found that the intensity of shame partially mediated the effect of problem gambling severity on the use of avoidant coping strategies.

Unlike the previous paper (Yi & Kanetkar, 2011), the main focus of the current article is to investigate the relationship between shame- versus guilt-proneness (i.e., shame and guilt as chronic affective *traits*) and the use of different types of coping strategies following gambling loss. To the extent that shame-proneness is highly associated with the maladaptive tendency of attributing setbacks and transgressions to the core self (Tangney & Dearing, 2002), it is likely that shame-prone individuals would predominantly use avoidant coping strategies (i.e., wishful thinking, nondisclosure, and mentally distorting loss) to deal with gambling loss. In contrast, since guilt-proneness is associated with the chronic tendency of attributing negative events to unstable and specific aspects of the self (e.g., temporary slips), guilt-prone individuals are less likely to use avoidant coping strategies. Instead, guilt-proneness

is likely to be positively associated with the frequent use of nonavoidant coping strategies in response to gambling loss, such as planful problem solving and seeking social support.

H2: The use of avoidant coping strategies following gambling loss will be positively associated with shame-proneness, whereas it will be either negatively or minimally associated with guilt-proneness.

H3: The use of nonavoidant coping strategies will be positively associated with guilt-proneness, whereas it will be either negatively or minimally associated with shame-proneness.

Another hypothesis tested in the current article is that chasing, defined as the attempt to recover one's gambling losses by further gambling (O'Connor & Dickerson, 2003), would be more frequent among shame-prone individuals than guilt-prone individuals. Based on research on the motivation of shame (Lindsay-Hartz, de Rivera, & Mascolo, 1995; Tangney, Miller, Flicker, & Barlow, 1996), shame-prone individuals are likely to be motivated to chase losses in order to counter acute feelings of failure that arise due to gambling loss. This possibility is echoed by Rosenthal and Rugle's (1994) comment that the defense against shame is to "counter feelings of weakness, impotence, and paralysis" (p. 34) by further gambling. On the other hand, guilt-proneness is likely to motivate genuine attempts to repair and discontinue the harm due to gambling loss, which is incompatible with chasing.

H4: Chasing loss will be positively associated with shame-proneness, whereas it will be negatively related to guilt-proneness.

Method

Survey methodology was used to test the hypotheses and develop the coping instrument. Specifically, a retrospective approach was used in which gamblers recalled a recent gambling loss experience and reported the range of coping strategies they used in the wake of this loss.

Participants

Participants were recruited by running advertisements in local newspapers and websites that carry classified advertisements. Three-hundred twenty-one individuals participated in the online study in exchange for having their names entered into a drawing for cash prizes. The odds for winning the prize were 1 out of 20. Participants had to be at least 23 years old to be eligible for the survey. Furthermore, to qualify, participants had to have spent at least \$80 on a single gambling occasion within the last three months and have felt badly about it. Thirty-seven participants did not answer a substantial number of questions and had

to be removed from further analysis; therefore, the data of the remaining 284 participants were used in the analysis. Sixty-two percent of the participants were male. About 39% of the participants were under the age of 30, 26% were between 30 and 39, 23% were between 40 and 49, and 12% were 50 and over. Sixty-eight percent of the participants reported gambling at least once a month.

Procedure

Upon completing the consent form, participants were asked to think back to the last time they gambled a significant amount of money at a casino or an online gambling site. At the outset of the survey, participants were asked to describe the gambling loss occasion in detail (e.g., where and when it occurred, how much they lost, who they were with). Participants' coping efforts were assessed using a coping scale specifically intended to assess coping efforts to deal with negative emotions in the gambling loss context. Participants were then asked to complete a series of individual difference measures as described below. Participants exited the survey after providing demographic data (i.e., age and gender).

Measures

Shame- and guilt-proneness. Shame-proneness and guilt-proneness were measured using the Test of Self-Conscious Affect ver. 3 (TOSCA-3, Tangney, Dearing, Wagner, & Gramzow, 2000). TOSCA-3 is a self-report measure in which respondents are asked to indicate how they would respond in 16 vignettes describing common day-to-day situations. Guilt- and shame-proneness subscales in TOSCA-3 are known to have high test-retest reliability as well as convergent and divergent validity (e.g., Tangney et al., 1992). As in previous studies, shame-proneness was moderately correlated with guilt-proneness ($r=0.57$, $p<.001$). The internal consistency of shame- and guilt-proneness was also high in this study (Cronbach alpha=0.83 and 0.86, respectively).

Problem gambling severity. Problem gambling severity was measured with the Problem Gambling Severity Index (PGSI) of the Canadian Problem Gambling Index scale (CPGI: Ferris & Wynne, 2001). Developed based on DSM-IV (APA, 1994), the PGSI consists of nine items measured on a 4-point scale (0=never, 1=sometimes, 2=most of the time, 3=almost always). Participants were asked to indicate the frequency of engaging in thoughts and behaviors commonly associated with problem gambling (e.g., “bet more than you could really afford to lose”) within the last 12 months. One advantage of the PGSI is that the total score, ranging from 0 to 27, denotes the continuum of problem gambling, but it can also be used to create four discrete categories: nongamblers (0), low-risk gamblers (1–2), moderate-risk gamblers (3–7), and problem gamblers (8–27). The PGSI is reported to have sound psychometric properties (Ferris & Wynne, 2001). The PGSI showed a high internal consistency in this study (Cronbach alpha=0.82). The mean of PGSI was 7.34, and its standard deviation was 5.76 in this study.

Coping. The coping instrument used in this study was specifically designed to assess coping efforts that deal with negative emotions in the gambling loss context. This scale has been reported on elsewhere (Yi & Kanetkar, 2011). The scale was still being developed during this study, and 34 coping items were included in the instrument. These items were intended to assess the frequency of using avoidant coping strategies and nonavoidant coping strategies following gambling losses. The 34 coping items were subsequently reduced to 21 items, and the process of refining this instrument is reported in the Results section.

Seeking social support (3 items, e.g., “I sought sympathy and understanding from someone”), planning to make up for monetary loss (3 items, e.g., “I tried to cut back on other expenses in order to make up for the lost money”), and rationalization (4 items, e.g., “I told myself I deserve to spend money on gambling from time to time”) were nonavoidant coping strategies. Avoidant coping strategies included wishful thinking (3 items, e.g., “I wished that the lost money would somehow be recovered”), nondisclosure (4 items, e.g., “I kept others from knowing how bad things were”), and cognitive distortion of loss (4 items, e.g., “I thought that sustaining some losses is the only way to win big”). Each coping item was measured on a 5-point scale (1 = “not at all/does not apply”, 5 = “to a great extent”). The coefficient alphas of the coping factors were satisfactory: seeking social support (.73), planning to make up for monetary loss (.72), rationalization (.82), wishful thinking (.77), nondisclosure (.81), and cognitive distortion of loss (.84).

Chasing. Two items were used to assess the extent to which respondents attempted to chase loss following the recalled gambling loss episode. Participants were asked to indicate the extent to which “they decided to gamble in the following days or weeks in order to recoup the money they lost” and the extent to which “they tried to borrow money from others or get money some other way in order to gamble and recoup this loss” using a 5-point scale (1 = not at all, 5 = to a great extent). Responses to the two items were averaged to form an index of chasing (Cronbach alpha = 0.64).

Results

Relations between problem gambling severity and shame- and guilt-proneness

First, bivariate correlations between the problem gambling severity score and shame-proneness and PGSI score and guilt-proneness, respectively, were computed. Problem gambling severity was positively correlated with shame-proneness ($r = 0.16$, $p = .009$) and negatively correlated with guilt-proneness ($r = -0.21$, $p < .001$). To control for a correlation between shame- and guilt-proneness, semipartial correlations were computed. When guilt-proneness was controlled for, shame-proneness was highly correlated with the problem gambling severity ($r = 0.34$, $p < .001$). When shame-proneness was controlled for, guilt-proneness was negatively correlated with gambling severity ($r = -0.36$, $p < .001$). These findings provided support to H1.

Overall, the participants reported significantly greater guilt-proneness than shame-proneness [$M=3.81$ vs. 3.06 ; $t(1, 259)=16.76$, $p<.001$]. The means of shame-proneness and guilt-proneness were compared across three categories of CPGI status (see Table 1). To control for the positive correlation between shame- and guilt-proneness, guilt-proneness was used as a covariate when shame-proneness was subjected to a one-way ANCOVA with CPGI status as a predictor variable. The omnibus F test associated with CPGI status was significant [$F(2, 256)=19.20$, $p<.001$], and guilt-proneness was a significant covariate [$F(1, 256)=169.62$, $p<.001$]. As expected, shame-proneness was significantly higher among problem gamblers than among moderate-risk gamblers, followed by low-risk gamblers (see Table 1).

Likewise, guilt-proneness was subjected to a one-way ANCOVA, with CPGI status as a predictor variable and shame-proneness as a covariate. The omnibus F test associated with CPGI status was significant [$F(2, 256)=21.98$, $p<.001$], and shame-proneness was a significant covariate [$F(1, 256)=169.62$, $p<.001$]. It was found that guilt-proneness was significantly lower for problem gamblers than for either moderate-risk gamblers or low-risk gamblers, and moderate-risk gamblers and low-risk gamblers did not statistically differ with respect to guilt-proneness.

Development of the coping instrument

The initial list of coping efforts consisted of 66 items, which were generated by adapting existing coping scales [e.g., Folkman & Lazarus's (1988) Ways of Coping Questionnaire, and Carver, Scheier, & Weintraub's (1989) COPE inventory] to fit the gambling loss context and by conducting a series of one-on-one interviews with gamblers. A separate sample of 181 undergraduate students had been used to reduce the number of items and to check the initial structure of coping. The use of exploratory factor analysis had reduced the number of items to 34 in seven factors: seeking social support, planning to make up for monetary loss, rationalization, wishful thinking, nondisclosure, cognitive distortion of loss, and behavioural

Table 1
Shame- and guilt-proneness per CPGI status

	# of participants	Shame-proneness	Guilt-proneness
Problem gamblers	117 (41.2%)	3.32 _a (0.80)	3.55 _a (0.77)
Moderate-risk gamblers	95 (33.5%)	2.94 _b (0.84)	3.96 _b (0.76)
Low-risk gamblers	72 (25.3%)	2.71 _c (0.78)	4.11 _b (0.60)
Total	284	3.06 (0.82)	3.81 (0.75)

Note: Means that bear different letter subscripts under each column significantly differ at $p\leq 0.05$. Numbers in parentheses refer to standard deviations.

disengagement strategies (e.g., overeating and using alcohol to avoid thinking about the stressor). This 34-item coping scale was administered to the present sample.

With the use of exploratory factor analysis and an oblique Promax, the number of items in the coping instrument was reduced from 34 to 21 for the current study by deleting items that had a low item-to-total correlation and/or substantial cross-loadings on nontarget factors. The six-factor solution was deemed most interpretable, and the extracted factors were consistent with those identified in the small undergraduate sample. The only exception was that behavioural disengagement did not emerge as an interpretable factor. The exploratory factor analysis showed that each item loaded most highly on the hypothesized factor and that there were relatively few cross-loadings (4, or 2.6%, of all possible nontarget loadings were greater than .3, the highest being .45). The average loading on target factors was .74 (the minimum was .47) and the six factors accounted for 67% of the variance in the observed measures. The scale items were reported in a separate paper (Yi & Kanetkar, 2011).

Overall, wishful thinking was the most frequently used coping strategy, whereas seeking social support and mental distortion were the least frequently used (see Table 2). The correlations among the six coping strategies are also reported in Table 2. As expected, the three avoidant coping strategies (i.e., wishful thinking, nondisclosure, and cognitive distortion of loss) were positively correlated with one another. In addition, seeking social support and planning to make up for monetary loss were moderately correlated with the three avoidant coping strategies. On the other hand, rationalization was only weakly correlated with the other strategies except for cognitive distortion of loss.

Table 2
Coping dimensions: Means and correlations

	Means (SD)	1	2	3	4	5	6
1. Seeking social support	1.82 (0.91)						
2. Planning to make up for monetary loss	2.89 (1.09)	0.31*					
3. Rationalization	2.88 (1.06)	0.11	0.14*				
4. Wishful thinking	3.24 (1.17)	0.20*	0.41*	0.02			
5. Nondisclosure	2.80 (1.81)	0.20*	0.42*	0.17*	0.53*		
6. Cognitive distortion of loss	2.27 (1.03)	0.41*	0.30*	0.43*	0.32*	0.34*	

Note: Correlations that bear an asterisk are significant at $p \leq .01$.

Relationships between shame- and guilt-proneness and coping strategies

To test H2 and H3, zero-order and partial correlations between each of the coping strategies and shame- and guilt-proneness, respectively, were computed (see Table 3). When guilt-proneness was controlled for, shame-proneness was positively correlated with avoidant coping strategies, namely, wishful thinking, nondisclosure, and cognitive distortion of loss. In contrast, when shame-proneness was controlled for, guilt-proneness was negatively correlated with nondisclosure and cognitive distortion of loss. This finding provided strong support to H2. In contrast, none of the nonavoidant coping strategies were positively correlated with guilt-proneness. Unexpectedly, seeking social support was negatively correlated with guilt-proneness. In addition, when guilt-proneness was controlled for, shame-proneness was positively correlated with seeking social support and planning to make up for monetary loss. As such, H3 was not supported.

Relationships between shame-proneness and chasing

To test H4, zero-order and semipartial correlation between chasing behavior and shame- and guilt-proneness, respectively, were computed (see Table 3). When guilt-proneness was controlled for, chasing was positively correlated with shame-proneness. When shame-proneness was controlled for, chasing was negatively correlated with guilt-proneness. This finding provided strong support to H4.

Discussion

Based on the premise that problem gambling is motivated by a need to escape from the sense of personal inadequacy and inferiority (Jacobs, 1986; Lesieur & Custer,

Table 3

Correlations between shame- and guilt-proneness and coping strategies and chasing

	Shame-proneness (bivariate)	Guilt-proneness (bivariate)	Shame-proneness (semipartial)	Guilt-proneness (semipartial)
Seeking social support	0.18***	−0.12*	0.31***	−0.28*
Planning to make up for monetary loss	0.21***	0.11	0.17***	−0.01
Rationalization	0.004	0.04	−0.02	0.04
Wishful thinking	0.40***	0.19*	0.35***	−0.04
Nondisclosure	0.21***	−0.07	0.30***	−0.23*
Cognitive distortion of loss	−0.01	−0.17*	0.12*	−0.21*
Chasing	0.02	−0.25***	0.20**	−0.32***

Note: * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

1984), the goal of this study was to explore the possibility that a chronic affective propensity to experience shame in setbacks, namely, shame-proneness, might be strongly associated with problem gambling severity. Specifically, following the theoretical frameworks of the chronic affective propensity to distinct self-conscious emotions pioneered by H. B. Lewis (1971) (e.g., Tangney, Youman, & Stuewig, 2009), it was proposed that shame-proneness would be strongly associated with problem gambling severity, whereas guilt-proneness would be minimally associated with it.

The hypothesized relationship between shame-proneness and problem gambling (i.e., H1) was confirmed by the finding that problem gambling severity was positively correlated with shame-proneness when guilt-proneness was controlled for. In contrast, guilt-proneness was negatively correlated with problem gambling when shame-proneness was controlled for. This finding is consistent with the premise that gambling activities help shame-prone individuals temporarily escape from aversive self-awareness by narrowing their attention to immediate, low-level tasks (Heatherton & Baumeister, 1991; Jacobs, 1986). An important contribution of this study is that it pinpoints the chronic propensity to shame as a potential risk factor of problem gambling, whereas its close cousin, guilt-proneness, is negatively correlated with problem gambling.

This finding may be surprising given that shame and shame-proneness are much less frequently mentioned than guilt and guilt-proneness in the literature of problem gambling. This is probably because the terms guilt and shame are often used interchangeably by gamblers and researchers. In this regard, Rosenthal (1986) rightly observed that when some problem gamblers talk about guilt, “their guilt is a sham” (p. 114). According to Rosenthal (1986), they are very good at blaming others as well as themselves for their gambling problems, and they do not have concern for what they have done, nor do they make a real effort at making reparations. The current finding suggests that these gamblers are likely to have high shame-proneness and low guilt-proneness.

Although the correlational data cannot cast light on the issue of causality, it is more likely that shame-proneness is an antecedent to the development and/or escalation of problem gambling than that problem gambling precedes the development of shame-proneness. Since shame-proneness is relatively stable once it is developed in middle childhood (i.e., about age 10–12, Tangney & Dearing, 2002), shame-proneness is likely to precede habitual use of gambling as an escape mechanism, which is reported to develop during or after adolescence. However, it is not possible to completely rule out the possibility that problem gambling may contribute to further increases in shame-proneness. Furthermore, previous research suggests that other maladaptive personality traits are associated with the increased risk of problem gambling. For example, several individual difference variables such as chronic depression (Blaszczynsky & McConaghy, 1989) and narcissistic personality (Rosenthal, 1986) have been linked to problem gambling. Hence, it would be

reasonable to posit that shame-proneness and the chronic tendency of global self-devaluation could be factors that contribute to depression and narcissistic personality. This proposition is based on the views that narcissism is often conceptualized as a defense against excessive shame (Lewis, 1987; Wright, O'Leary, & Balkin, 1989) and that characterological self-blame, which is an essential component of shame-proneness, is theoretically and empirically linked to chronic depression (for a review, see Robins, 1988). The hypothesis that narcissism may mediate the effect of shame-proneness on problem gambling severity is worthy of investigation in the future.

Another research question addressed in this article concerns whether shame-prone gamblers use different sets of coping strategies to deal with gambling loss episodes than those used by guilt-prone gamblers. The current data clearly indicates that the use of avoidant coping strategies after gambling loss, namely, wishful thinking, nondisclosure, and cognitive distortion of loss, was positively correlated with shame-proneness, while their correlation with guilt-proneness was negative. Previous research in other domains found that frequent use of avoidant coping strategies in response to stress provided only short-term relief and was followed by maladaptive consequences in the long term (e.g., Suls & Fletcher, 1985; Aldwin & Revenson, 1987). Extending these findings to the gambling loss context, it is reasonable to presume that shame-prone individuals' frequent use of avoidant coping in response to gambling loss is likely to be followed by negative long-term outcomes such as the accumulation of debt, conflict with significant others, and helplessness. A longitudinal panel study would be necessary in order to formally test this possibility. On a different note, it is notable that even though the association between shame-proneness and avoidant coping *style* (i.e., coping as a trait) has been reported by previous researchers (e.g., Rubeis & Hollenstein, 2009), this article is the first to report the link between shame-proneness and the use of avoidant coping (i.e., coping as a state) in response to an adverse event. As such, this finding helps fill this gap in the coping literature.

On the other hand, the current data did not lend support to the hypothesis that nonavoidant coping strategies would be strongly associated with guilt-proneness (H3). It was found that guilt-proneness was not positively associated with planning to make up for monetary loss. Another unexpected finding was that seeking social support was positively associated with shame-proneness and negatively associated with guilt-proneness. At first blush, this finding does not appear to be consistent with the traditional conceptualization of seeking social support as a type of nonavoidant coping strategy. If anything, seeking instrumental and emotional support from others seems to be more in line with the action tendency of guilt (i.e., confessing, apologizing, and repairing the harm) rather than shame. However, together with the finding that shame-proneness was positively correlated with nondisclosure, this finding seems to suggest that shame-prone individuals seek social support to a great extent but they are selective in seeking support. For example, since some of the seeking social support items did not specify the person from whom

participants sought social support,¹ shame-prone participants may have expressed their frustration to gambling pals to a great extent while not disclosing this loss to significant others. To secure the validity of the assessment of seeking social support, it would be necessary for researchers to clearly specify the source of social support sought in the coping questionnaire.

Lastly, the data provided support for the hypothesis that chasing loss would be positively associated with shame-proneness, while it would be negatively related to guilt-proneness (H4). The link between shame-proneness and chasing appears to be consistent with Rosenthal and Rugle's (1994) view that chasing is a desperate attempt to "counter feelings of weakness, impotence, and paralysis" (p. 34) that lie at the root of the chronic experience of shame. In contrast, the chronic tendency to attribute adverse events to internal, temporary, and specific factors (e.g., temporary slips) associated with guilt-proneness appears to reduce the tendency to chase loss. However, it should be acknowledged that the measure of chasing fell short of assessing actual chasing behavior and simply gauged the desire to chase loss. A more definite test of this hypothesis would be possible by measuring the frequency of within-session and across-session chasing following a session of gambling loss (e.g., O'Connor & Dickerson, 2003).

These findings may appear to be similar to the recent findings that problem gamblers experienced more intense shame following gambling loss than low-risk gamblers, and that the use of avoidant coping was more strongly predicted by the intensity of shame versus guilt experienced following gambling loss (Yi & Kanetkar, 2011). However, it should be noted that shame-proneness is a distinct construct from the intensity of experienced shame in that the former is a dispositional tendency (i.e., trait), whereas the latter is a temporary emotional state. Furthermore, shame is not necessarily consciously experienced following setbacks in highly shame-prone individuals since they may regulate it through suppression, externalization, and self-aggrandizement before the sting of shame is consciously experienced (Lewis, 1987). Thus, the main distinct finding from this study relative to the findings from Yi and Kanetkar (2011) is that individuals with higher shame-proneness tend to use more avoidant and nonavoidant coping following gambling loss regardless of the intensity of self-conscious emotions experienced in this situation.

However, this study is not free of limitations. First, even though the coping scale used in this study provided the unique benefit of assessing coping efforts that are specific to the gambling loss context, its convergent validity and its discriminant validity have not been established. This scale needs to be further refined and validated against multiple

¹Only one of the items used to measure seeking social support specified the person from whom social support was sought (i.e., "I asked people who have had similar problems what they did to deal with this problem"). The other items did not specify the source of social support (i.e., "I discussed my feelings with someone"; "I sought sympathy and understanding from someone").

samples of gamblers. More importantly, since all the variables were collected in a retrospective survey, findings from this study may be subject to common method bias and memory bias. As such, it was not possible to ascertain the temporal and/or causal relationships between shame-proneness and the use of avoidant coping strategies. Also, since these findings were obtained in the context of a single gambling loss, it was not possible to verify whether the obtained pattern is consistent across multiple gambling loss episodes. The use of a prospective research design such as the ecological momentary assessment (EMA) methodology (Stone, Shiffman, & DeVries, 1999) is warranted in order to track the consistency of coping attempts used to deal with multiple gambling loss episodes over a length of time.

Another limitation is that because only individuals who felt badly about a recent gambling loss were eligible to participate in the current study, findings from this study are not generalizable to gambling loss episodes that do not evoke considerable negative affect. This eligibility criterion was a deliberate choice in that the construct of coping would be meaningless for occasions in which gambling loss did not elicit any negative emotions and thus did not considerably tax individuals' mental resources. Unfortunately, there is a paucity of systematic research on the frequency and intensity of negative affect following gambling loss occasions across individuals and within the same individual over time. However, it should be acknowledged that gambling loss does not necessarily elicit negative emotions and subsequent coping efforts. For example, a few clinicians have observed that some problem gamblers who experience dissociative states while gambling (i.e., "being in a trance") do not keep track of time or money won or lost (e.g., Jacobs, 1988), which implies the lack of intense negative feelings following their immediate gambling loss, at least in the short term. Future research is necessary to explore situational variables that intensify and/or dampen negative affect following gambling loss and intra-individual variability in the intensity of negative emotions across multiple episodes of gambling loss.

Despite these limitations, this study provides strong evidence for the claim that shame-proneness increases the risk of problem gambling and that unlike guilt-prone individuals, shame-prone individuals frequently use various coping strategies and chase losses. Furthermore, even though the use of gambling as an escape mechanism has been recognized in the gambling literature (e.g., Jacobs, 1986; McCormick, 1988), the empirical link between the chronic affective propensity to shame and problem gambling severity has not been made before. As such, this article provides important contributions to the discipline of gambling research.

Lastly, the distinction between guilt- and shame-proneness has important clinical implications. To the extent that the chronic propensity to shame precipitates the need to use gambling as an escape mechanism, it is important for clinicians to address the problem of chronic experiences of shame and self-loathing. Specifically, since aversive self-awareness results from a chronic tendency to attribute major and minor adverse events to the flawed self, it is advisable for clinicians to help rebuild patients' self-worth in counseling sessions. For example, clinicians should probe

sources of patients' aversive self-awareness (e.g., patients' childhood and adolescent experience of feeling neglected by caregivers) and assist them to reaffirm their self-worth. In addition, it is important to avert the chronic experience of shame by encouraging patients to try to attribute adverse events not to the flawed self but to internal, temporary, and specific factors that they are able to control (e.g., temporary slips or the lack of effort). Moreover, clinicians may consider focusing their therapy on reducing the patients' preoccupation with their self and personal inadequacies and on increasing gamblers' empathy with significant others who suffer from the consequences of their gambling (e.g., Pattison, 2000). Once chronic experience of shame and self-loathing is lowered, interventions that focus on specific behavioral changes are likely to become more effective.

Furthermore, findings from the current study suggest that it is important to reduce gamblers' use of avoidant coping strategies and chasing in the event of gambling loss. One way of reducing these maladaptive coping strategies is to encourage gamblers to attribute the loss of control in the previous gambling session to temporary and specific factors (e.g., "I should have stopped gambling when my spouse left the casino") rather than to stable and global factors (e.g., "I can't seem to control my gambling no matter what I do"). This exercise will help gamblers to avert acute experience of shame and to realize that personal control over their gambling is within their reach if they adopt specific contingency action plans. Success of this exercise will depend on frequent monitoring of the extent to which they stick to contingency action plans after experiencing gambling losses.

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Gambling motives and symptoms of problem gambling in frequent slots players

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Abstract

Motives for gambling were examined among patrons of slots venues who reported playing electronic gaming machines at least weekly ($N=849$). According to scores on the Problem Gambling Severity Index (PGSI), there were 331 (39.0%) participants at low risk, 330 (38.9%) at moderate risk, and 188 (22.1%) at high risk of Pathological Gambling. Scores on the Coping and Enhancement scales of the Gambling Motives Questionnaire (GMQ) had independent effects on PGSI scores. Cluster analysis of Coping and Enhancement scores identified Low Emotion Regulation (LER; $n=189$), Primarily Enhancement (PE; $n=338$), and Coping and Enhancement (CE; $n=322$) subtypes. More CE gamblers (80.1%) had PGSI scores that suggested problem or Pathological Gambling than the PE (56.8%) or LE (36.0%) subtypes. Gamblers who frequently play slot machines are at elevated risk of Pathological Gambling if they play slots as a means of self-regulating their negative emotional states.

Résumé

Cet article présente les résultats d'une étude sur les motivations au jeu des clients de différents espaces de jeu ayant indiqué utiliser des appareils électroniques de jeux de hasard au moins une fois par semaine ($N=849$). Selon l'Indice de gravité du jeu compulsif (IGJC), 331 (39,0 %) participants à l'étude présentaient un risque faible de développer un problème de jeu pathologique, 330 (38,9 %) un risque moyen et 188 (22,1 %) un risque élevé. Les résultats obtenus sur les échelles du Gambling Motives Questionnaire (Questionnaire sur les motivations au jeu) mesurant l'adaptation et la valorisation ont donné lieu à des effets indépendants sur l'IGJC. Une analyse par grappe des résultats concernant l'adaptation et la valorisation a permis de cerner différents sous-types de motivation : la régulation émotionnelle (RE; $n=189$), la valorisation principalement (VP; $n=338$) et enfin l'adaptation et la valorisation (AV; $n=322$). Les joueurs associés au sous-type AV ont obtenu en plus grand nombre

(80,1 %) un IGJC signalant la possibilité d'un problème de jeu ou de jeu pathologique que les joueurs associés aux sous-types VP (56,8 %) et RE (36,0 %). Les joueurs qui jouent fréquemment aux machines à sous présentent un risque plus élevé de développer un problème de jeu pathologique si le jeu constitue pour eux un moyen de réguler leurs états émotionnels négatifs.

Introduction

Pathological gambling has symptoms that resemble some substance use disorders (Petry, 2002), and it is widely anticipated that the next edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000) will classify gambling disorder as an addictive disorder (Petry, 2010). The notion of excessive gambling as a mental disorder akin to drug addiction implies that abnormal gambling behavior is sustained by addiction-like motivational dysfunction. People may consume psychoactive drugs or gamble for a variety of reasons, and heterogeneous subtypes have been proposed for both alcohol dependence (Epstein, Labouvie, McCrady, Jensen, & Hayaki, 2002) and problem gambling (Milosevic & Ledgerwood, 2010). The present study investigated this issue by measuring correlations between the symptoms of problem gambling and the social, hedonic enhancement, and emotional coping motives that have been previously found to correlate with symptoms of both alcohol dependence and pathological gambling.

This study focused on the responses of frequent gamblers to the Gambling Motives Questionnaire (GMQ; Stewart & Zack, 2008), which was adapted from the Drinking Motives Questionnaire (DMQ; Cooper, Russell, Skinner, & Windle, 1992). It is a multidimensional self-report instrument with three scales designed to measure *Social* motives for gambling (e.g., “Because it makes a social gathering more enjoyable”), as well as hedonic *Enhancement* (e.g., “Because it’s exciting”), and maladaptive strategies for emotional *Coping* (e.g., “To forget your worries”). It should be noted that high scores on the Coping scale do not indicate adaptive coping mechanisms. By contrast, high scores on this scale indicate the maladaptive use of gambling as a means of coping with negative emotional states.

In a community sample of 39 nonpathological and 154 pathological gamblers, Stewart and Zack (2008) found that all three GMQ scales correlated with gambling frequency and scores on the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987). The interitem reliability of all three scales was acceptable, with Cronbach’s $\alpha = .86, .91$, and $.81$ for the Coping, Enhancement, and Social scales, respectively. Regression of SOGS scores onto the three GMQ scales found that the Coping scale explained a substantial proportion of unique variance ($\beta = .365$), Enhancement

accounted for a small but significant proportion of variance ($\beta=.156$), and the Social scale was not a significant predictor of SOGS score variance.

To investigate the similarity of motives for excessive gambling and drinking, Stewart et al. (2008) examined 158 community volunteers who drink when they gamble. These people were sorted into groups according to a cluster analysis of their responses to the Inventory of Gambling Situations (IGS; Turner & Littman-Sharp, 2006). As noted in a review by Milosevic and Ledgerwood (2010), the three groups that emerged (i.e., Low Emotion Regulation gamblers, Enhancement gamblers, and Coping gamblers) corresponded conceptually with Blaszczynski and Nower's (2002) Behaviorally Conditioned, Antisocial Impulsivist, and Emotionally Vulnerable subtypes of problem gamblers, respectively, in their Pathways Model of problem and pathological gambling. The motives for excessive gambling in the Enhancement and Coping groups appear to be similar to the motives for excessive drinking among people with alcohol dependence (Cooper, Frone, Russell, & Mudar, 1995). Despite their label, the Coping gamblers had somewhat elevated scores for positively reinforcing gambling situations from the IGS as well as very high scores for negatively reinforcing gambling situations on the IGS scale. There was no subtype identified with high scores only for gambling in negatively reinforcing situations. The Coping gamblers also had the most severe symptoms of problem gambling, and the Low Emotion Regulation gamblers had the fewest symptoms.

The three-factor structure of the GMQ has also been found among people who do not gamble excessively. Dechant and Ellery (2011) analyzed responses to the GMQ given as part of a telephone population survey of gambling activity and limit-setting (Manitoba Gaming Control Commission, 2009). Although no measure of problem gambling symptoms was included in that study, cluster analysis was conducted in order to classify participants on the basis of their participation in 12 forms of legal gambling. The cluster analysis identified a group of "normal" gamblers (Currie, Hodgins, Wang, el-Guebaly, Wynne, & Chen, 2006) who reported gambling an average of 2.3 times per month. There were also three groups of high-frequency players who reported engaging in some form of gambling 21.04 times per month, 67.37 times per month, or 351.91 times per month, respectively. Dechant and Ellery (2011) examined the factor structure of the GMQ among their normal group ($N=839$) and found support for the three-factor structure identified by Stewart and Zack (2008). Although the interitem reliability of the Coping scale was acceptable (Cronbach's $\alpha=.76$), there was lower reliability of the Enhancement ($\alpha=.57$) and Social ($\alpha=.67$) scales in their sample. Nevertheless, Dechant and Ellery's normal gamblers had substantially lower scores on the Coping ($M=5.59$, $SD=1.34$), Enhancement ($M=7.49$, $SD=2.91$), and Social ($M=7.02$, $SD=2.37$) scales than Stewart and Zack's (2008) sample, who had substantially higher scores on the Coping ($M=10.09$, $SD=4.03$), Enhancement ($M=13.26$, $SD=4.75$), and Social ($M=9.95$, $SD=3.48$) scales. The normal gamblers in Dechant and Ellery appear most similar in terms of their gambling motives to the Low Emotion Regulation type identified by Stewart et al. (2008).

The present descriptive study builds upon previous findings by Dechant and Ellery (2011), Stewart and Zack (2008), and Stewart et al. (2008). We used the GMQ to measure the Coping, Enhancement, and Social motives for gambling in a large sample of patrons of two slots venues in Ontario, Canada. Unlike the Dechant and Ellery (2011) study, which investigated primarily low-frequency normal gamblers, we limited our sample to high-frequency players who reported playing electronic gaming machines weekly or more. Our sample of frequent slots players is very different from Dechant and Ellery's normal gamblers, of whom only 0.8% (i.e., 7 of 839 participants) reported playing casino slot machines weekly or more. To ensure that such "normal" gamblers were not included in the present sample, we analyzed only the responses from those who reported playing slot machines at this very high level. Together, these two studies may give a clear picture of motivational differences between people at these two extremes of gambling involvement.

Characterizing the motives of high-frequency gamblers is important because their heavy involvement in slot machine gambling may place them at risk for developing symptoms of pathological gambling (Dowling, Smith, & Thomas, 2005). As a measure of the severity of problem gambling symptoms, the participants also completed the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001). On the basis of the results of Stewart and Zack (2008) and Stewart et al. (2008), we predicted that the Coping and Enhancement motives would be strongly associated with elevated PGSI scores but that the Social motive would not be. Finally, we used cluster analysis to explore the possibility that there might be subgroups of frequent slots players who have different motives for their gambling, as is predicted by the Pathways Model (Blaszczynski & Nower, 2002) and supported by the findings of Stewart et al. (2008).

Method

Participants

Patrons ($N=1503$) of two horse-racing facilities in Ontario, Canada, were recruited upon their entry into the slots areas of the venues. Data from participants without complete age, gender, and questionnaire responses were excluded. To limit the study to frequent players of electronic gaming machines, only data from participants who reported playing slots weekly or more frequently within the past 30 days were included in the analysis. The final sample of high-frequency slots players ($N=849$) included 505 women aged 19–90 years ($M=55.5$ years, median=56.0, $SD=13.68$) and 344 men aged 19–86 years ($M=55.4$ years, median=57.0, $SD=14.83$).

Procedures

All procedures were approved by the University of Waterloo's Office of Research Ethics. Participants were recruited at the entrance of two slots venues in Ontario, Canada, during the baseline testing phase of a larger study (Harrigan, MacLaren, &

Dixon, 2010). A recruitment poster advertised the need for people who gamble “at least once or twice per month” to participate in exchange for a \$20 coffee shop gift card and possible inclusion as a paid participant in the larger study. After signing informed consent letters, the participants were accompanied by research assistants to a testing room where they were seated at tables with laptop computers. They then completed a computer administered test battery that included demographics questions, a measure of gambling frequency, the Gambling Motives Questionnaire (GMQ; Stewart & Zack, 2008), and the Problem Gambling Severity Index of the Canadian Problem Gambling Inventory (PGSI; Ferris & Wynne, 2001).

Measures

Gambling frequency. Participants were asked to indicate “About how many times did you gamble at a slot machine venue in the past 30 days?” with six response options: (1) never, (2) once, (3) twice, (4) once a week, (5) more than once a week, and (6) everyday. Participants who indicated that they had gambled at a slots venue once a week ($N=433$), more than once a week ($N=396$), or everyday ($N=20$) were identified as “frequent” slots players. Those who reported playing never, once, or twice in the past 30 days were excluded from further analyses.

Problem Gambling Severity Index. The nine-item Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001) is a self-report scale used to assess symptoms of problem gambling. The scale is reliable and valid when used in nonclinical settings, and its questions concern problematic gambling behavior in the past 12 months. The nine items are about the following pathological gambling symptoms: exceeding spending limits, increasing expenditures, chasing losses, incurring debt or selling possessions, self-identification as a problem gambler, criticism from others about gambling, feelings of guilt, health problems from gambling, and financial insufficiency. Items were rated on a four-point Likert scale: (0) never, (1) sometimes, (2) most of the time, and (3) almost always. Participants were classified into one of three levels of gambling severity according to their PGSI scores: those with scores of 0, 1, or 2 were classified as being at “Low” risk of being pathological gamblers, those with scores of 3–7 as being at “Moderate” risk of being pathological gamblers, and those with scores of 8–27 as being at “High” risk of being pathological gamblers. Internal consistency of the PGSI across the two venues was Cronbach’s $\alpha=.91$.

Gambling Motives Questionnaire. The Gambling Motives Questionnaire (GMQ; Stewart & Zack, 2008) is an adaptation of the Drinking Motives Questionnaire (Cooper, Russell, Skinner, & Windle, 1992) that measures Coping, Enhancement, and Social motives for gambling. Each of the three subscales contains five items that were rated on a four-point Likert scale: (1) never, (2) almost never, (3) sometimes, and (4) almost always. The internal consistencies of the Coping, Enhancement, and Social scales were all acceptable at .78, .75, and .73, respectively.

Results

Among this sample of 849 frequent slots venue patrons, there were 331 (39.0%) with PGSI scores indicating low risk for pathological gambling, 330 (38.9%) with moderate risk of pathological gambling, and 188 (22.1%) who were at high risk for pathological gambling. The average PGSI scores of these three gambling severity groups were $M=1.0$ ($SD=0.80$), $M=4.5$ ($SD=1.36$), and $M=12.3$ ($SD=4.75$), respectively. The GMQ scores for the three groups are given in Table 1.

All statistical tests were performed with α at .001 to minimize type I errors in this large sample. There were significant Pearson correlations between continuous PGSI scores and the Coping ($r=.42$), Enhancement ($r=.32$), and Social scales ($r=.13$). The three GMQ scales were also intercorrelated, with significant correlations between the Coping and Enhancement ($r=.55$), Coping and Social ($r=.40$), and Enhancement and Social ($r=.35$) scales.

Those in the High PGSI group had significantly higher scores on Coping, Enhancement, and Social scales than those in the Moderate and Low groups. The Moderate group had significantly higher Coping and Enhancement scores than the Low group (see Table 1).

To assess the independent contributions of the GMQ scales as determinants of PGSI scores, a regression analysis was conducted using simultaneous entry of the three GMQ scales. The equation was significant [$R^2=.19$, $F(3, 845)=65.73$, $p<.001$]. The Coping scale explained the largest proportion of unique variance ($\beta=.367$, $t=9.52$, $p<.001$), followed by Enhancement ($\beta=.140$, $t=3.73$, $p<.001$). The Social scale ($\beta=-.065$, $t=-1.90$, $p=.057$) did not uniquely predict PGSI score variance.

Cluster analysis was used to explore the possibility that there might be three subtypes of frequent slots players with different motives for their gambling, as is predicted by the Pathways Model (Blażczynski & Nower, 2002; Milosevic & Ledgerwood, 2010) and supported in the findings of Stewart et al. (2008). We performed a K-means cluster analysis (SPSS v19, SPSS, Inc., Chicago, IL), on the GMQ Enhancement and Coping

Table 1

Problem gambling severity and mean (SD) scores on the Gambling Motives Questionnaire among 849 frequent slots players

GMQ scale	PGSI group							
	Low	Moderate	High	$F_{(2,846)}$	p	$d_{(M-L)}$	$d_{(H-L)}$	$d_{(H-M)}$
Enhancement	12.8 (3.26) ^A	14.3 (2.62) ^B	15.4 (2.94) ^C	52.8	<.001	.49	.76	.39
Coping	8.7 (3.23) ^A	10.3 (3.37) ^B	12.9 (3.71) ^C	91.9	<.001	.47	1.06	.70

Note: Superscripts indicate significant Bonferroni-adjusted group differences with overall $p<.001$. Cohen's d indicates effect size of contrasts between Low (L), Moderate (M), and High (H) groups.

scores (the Social scores were not used because the previous regression analysis found the Social scale to be a nonsignificant predictor of gambling problem severity). The cluster analysis was constrained to a three-cluster solution following the previous findings by Stewart et al. (2008) and Dechant and Ellery (2011). The GMQ scores of the three clusters are given in Table 2. The first cluster represented 22.3% of the sample ($n=189$) and was characterized by relatively low scores on both the Enhancement and Coping scales. Following the terminology of Stewart et al. (2008), this cluster was labeled “Low Emotion Regulation” (LER). The second cluster represented an additional 39.8% of the sample ($n=338$) and was characterized by high scores on Enhancement but not on Coping. This cluster was labeled “Primarily Enhancement” (PE). The third cluster represented the final 37.9% of the sample ($n=322$) and was characterized by elevated scores on both Enhancement and Coping. This cluster was labeled “Coping and Enhancement” (CE). As in Stewart et al. (2008), no cluster having high Coping but low Enhancement was observed in this data set. However, also like Stewart et al. (2008), the greatest magnitude difference between the CE and PE groups was on the Coping scale (see Table 2).

A one-way ANOVA conducted on PGSI scores of the LER ($M=2.78$, $SD=4.23$), PE ($M=3.91$, $SD=3.74$), and CE ($M=6.99$, $SD=5.52$) groups was significant [$F(2, 846)=61.01$, $p<.001$]. Bonferroni-adjusted post hoc tests with overall $\alpha=.05$ found significant contrasts between the LER and PE gamblers ($p=.021$), LER and CE gamblers ($p<.001$), and PE and CE gamblers ($p<.001$).

The frequencies of respondents within the LER, PE, and CE subtypes who were at low, moderate, and high risk of pathological gambling are given in Table 3. The percentage of people at either moderate or high risk of pathological gambling (i.e., so-called “problem gamblers”) was higher among the CE subtype (80.1%) than the PE group [56.8%; $\chi^2(1)=87.3$, $p<.001$] or the LER group [36.0%, $\chi^2(1)=38.9$, $p<.001$]. The difference between PE and LER subtypes was nonsignificant [$\chi^2(1)=0.09$, $p=.760$].

Table 2
Mean (SD) GMQ scores of respondents in three motivation clusters

GMQ scale	GMQ cluster							
	Low Emotion Regulation	Primarily Enhancement	Coping and Enhancement	$F_{(2,846)}$	p	$d_{(PE-LER)}$	$d_{(CE-LER)}$	$d_{(CE-PE)}$
Enhancement	9.5 (2.00) ^A	14.5 (1.71) ^B	15.9 (2.18) ^C	653.3	<.001	1.66	1.72	.68

Note: Superscripts indicate significant Bonferroni-adjusted group differences with overall $p<.001$. Cohen’s d indicates effect size of contrasts between Low Emotion Regulation (LER), Primarily Enhancement (PE), and Coping and Enhancement (CE) groups.

Table 3

Frequencies of respondents at three levels of gambling severity within each cluster

Gambler subtype	PGSI severity		
	Low	Moderate	High
Low Emotion Regulation	121 (64%)	51 (27%)	17 (9%)
Primarily Enhancement	146 (43%)	148 (44%)	44 (13%)

Discussion

This study tested associations between the three subscales of the GMQ and vulnerability to pathological gambling measured by the PGSI in a large sample of frequent slots players. The participants in this study were recruited and tested inside two slots venues, and all of the included cases reported that they had played slot machines weekly or more frequently within the previous 30 days. This supports their status as frequent slots gamblers, and our results give important insights into the motives for gambling in this at-risk population. These results complement the findings of Dechant and Ellery (2011) of low-frequency normal gamblers. The stability of our findings is likely to be very high because of the large sample, but there is a possible sampling bias that may have been introduced by our methods of selecting and recruiting participants. The sample consisted mostly of older adults who play very frequently, which may have contributed to an overrepresentation of individuals with Enhancement and Coping motives, as some retired people might visit slots venues in search of excitement or to alleviate their boredom. However, the results of Stewart and Zack (2008) and Stewart et al. (2008) converge very well with the present findings and suggest minimal sampling bias in these studies which used very different sampling methods.

The degree to which the current study replicated Stewart and Zack (2008) and Stewart et al. (2008) is striking. The GMQ scores of this sample were similar to those of Stewart and Zack (2008) and were substantially higher than the “normal” gamblers examined by Dechant and Ellery (2011). Respondents with PGSI scores indicating high risk of pathological gambling had significantly higher scores on the Coping, Enhancement, and Social scales than those in the moderate-risk and low-risk groups. Furthermore, the moderate-risk group had significantly higher Coping and Enhancement scores than the low-risk group. When viewed as a continuous variable, regression of gambling severity (i.e., PGSI scores) onto the three GMQ scales found results very similar to those of Stewart and Zack (2008), with similar β weights for Coping (i.e., .350 vs. .365) and Enhancement (i.e., .136 vs. .156). The Social scale was not a significant predictor in either study.

We also examined the possibility that there might be distinct subtypes among the population of frequent slot players who differ in their motives for gambling

excessively. Cluster analysis identified the LER, PE, and CE subtypes which appear to correspond with the Low Emotion Regulation, Enhancement, and Coping subtypes identified by Stewart et al. (2008) using the IGS (although we acknowledge that we made the *a priori* decision to limit our cluster analysis to a three-cluster solution). Furthermore, our results replicated their finding that Coping gamblers are at greatest risk for pathological gambling. Among the CE gamblers, 39% had PGSI scores indicating high risk of pathological gambling compared to 13% of PE gamblers and 9% of LER gamblers. Even among this population of high-frequency slots players, the CE gamblers were over four times as likely to be at high risk for pathological gambling as the LER gamblers.

It is possible that individual differences may contribute to vulnerability to pathological gambling through distinct motivational pathways. The content of the Enhancement scale (e.g., “To get a ‘high’ feeling”) suggests that it might tap the elevated impulsivity and reward sensitivity of frequent gamblers (Goudriaan, Oosterlaan, deBeurs, & van den Brink, 2006; Loxton, Nguyen, Casey, & Dawe, 2008; MacLaren, Fugelsang, Harrigan, & Dixon, in press; Mercer & Eastwood, 2010; O’Connor, Stewart, & Watt, 2009). Likewise, the Coping scale (e.g., “Because it helps when you are feeling nervous or depressed”) might mediate the effects of negative affective traits found in pathological gamblers. As is the case with substance use disorders (Kotov, Gamez, Schmidt, & Wilson, 2010), pathological gambling coincides with substantially elevated scores on traits similar to Neuroticism, as well as low Agreeableness and Conscientiousness (MacLaren, Fugelsang, Harrigan, & Dixon, 2011; see also Reid, Li, Lopez, Collard, Parhami, Karim & Fong, 2011). This same pattern of personality traits is found in people who tend to rely on maladaptive ways of coping with their problems, such as “disengagement” or substance use (Connor-Smith & Flachsbart, 2007).

High Neuroticism and low Conscientiousness have effects on alcohol use that are mediated by Coping and Enhancement measured by the DMQ (Goldstein & Flett, 2009; Kuntsche, von Fischer, & Gmel, 2008; Mezquita, Stewart, & Ruiperez, 2010; Theakston, Stewart, Dawson, Knowlden-Loewen, & Lehman, 2004). Future research may explore the relationships between individual player characteristics, motives, and involvement in various forms of gambling. The mechanisms by which different forms of gambling satisfy a pathological gambler’s mood enhancement or emotional coping needs are largely unknown. Specific game features that satisfy such needs (e.g., frequency of reinforcement, near misses, etc.) may contribute to the potential addictiveness of the games if they have differential effects on the most vulnerable players.

The present study replicated the results of Stewart and Zack (2008) and Stewart et al. (2008) in a large and unique sample of slots venue patrons. However, it should be remembered that these were self-report data that have not been corroborated by behavioral measures of gamblers’ motives and behavior. It is also not known how many of the participants in this study were primarily slot machine gamblers and how

many were primarily horse-racing betterers who also play slots because the slots venues are co-located at horse-race tracks. It is possible that different patterns might emerge if the motives of gamblers who prefer different types of gambling were examined. The frequent slots players in this study are likely to represent an extreme subgroup within the larger population of gamblers and these results may not generalize to less involved gamblers. Nevertheless, this study gives insight into the motives of people who play electronic gambling machines weekly or more and who are a particularly high-risk population in terms of their vulnerability to pathological gambling.

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A French adaptation of the Gambling-Related Cognitions Scale (GRCS): a useful tool for assessment of irrational thoughts among gamblers

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Abstract

Irrational thinking might be central in the maintenance of pathological gambling and should therefore be assessed, as other gambling-related cognitions (GRC), before treatment, especially when cognitive-behavioural therapy is proposed. Assessment tools investigating GRC exist but none are in French. Raylu and Oei have developed the Gambling-Related Cognitions Scale (GRCS), consisting of 23 items and a five-factor model. We aimed to determine if the French version of the GRCS had psychometric properties similar to those of the original version. Three hundred seventy-nine undergraduate students and 13 problem/pathological gamblers seeking treatment at the University Hospital of Nantes completed the GRCS. Confirmatory factor analysis, exploratory factor analysis, and multitrait analysis were performed. The French adaptation of the GRCS is a useful instrument for assessing GRC in order to appreciate the severity of pathological gambling, and it has the potential capacity to measure the treatment effect. Other studies are required to confirm test–retest reliability and sensitivity to change.

Résumé

La pensée irrationnelle est susceptible de jouer un rôle central dans la persistance des problèmes de jeu pathologique, c'est pourquoi elle devrait, tout comme les autres processus cognitifs liés au jeu, faire l'objet d'une évaluation avant tout traitement, plus particulièrement lorsque le traitement proposé consiste en une thérapie cognitivo-comportementale. Il existe des outils d'évaluation des processus cognitifs liés au jeu, mais il n'y en a aucun en version française. Raylu et Oei ont élaboré la Gambling-Related Cognitions Scale (GRCS), une échelle d'évaluation des processus

cognitifs liés au jeu comprenant 23 questions et reposant sur un modèle à cinq facteurs. Notre objectif est de déterminer si la version française de la GRCS possède les mêmes propriétés psychométriques que la version originale. Nous avons demandé de remplir le questionnaire de la GRCS à 379 étudiants de premier cycle et à 13 personnes ayant un problème de jeu ou de jeu pathologique venues suivre un traitement au Centre hospitalier universitaire de Nantes. Les résultats ont été soumis à une analyse factorielle confirmatoire, à une analyse factorielle exploratoire et à une analyse multicritère. Selon ces analyses, l'adaptation française de la GRCS est un outil efficace pour l'évaluation des processus cognitifs liés au jeu et l'appréciation de la gravité d'un problème de jeu pathologique. Également, elle présente potentiellement la capacité de mesurer les effets d'un traitement. D'autres études sont cependant nécessaires pour confirmer sa fiabilité de test-retest et sa sensibilité au changement.

Introduction

Although the history of gambling in France goes back a long way, it is only in the 20th century that it became widespread. Over the years, the range of games available has increased, as has access to them. This is in line with the shift in other European countries and explains why increasing numbers of French people gamble and that overall the stakes have increased considerably (Expertise-Collective, 2008; Welte, Wieczorek, Barnes, Tidwell, & Hoffman, 2004). French gamblers display characteristics that are sensibly identical to those of the broader population, and gamblers are found in all age brackets, socioprofessional categories, and both genders. Studies on ethnic minorities are banned in France on ethical grounds, unlike in other countries, where it has been shown that belonging to a racial or cultural group is a factor that favours both the practice of gambling and the development of gambling problems (Raylu & Oei, 2004a).

Pathological gambling is defined as “persistent and recurrent maladaptive gambling behaviour” that the gambler is unable to control (APA, 1994). Although gambling is a harmless leisure activity for most people, for some it can become problematic. International studies estimate that around 0.2–3% of the population suffers from this disorder (Ladouceur, Jacques, Chevalier, Sevigny, & Hamel, 2005; Petry, Stinson, & Grant, 2005). Recently, the first study on the prevalence of gambling problems in France was carried out. Without waiting for the results, France, like most Western countries, implemented a “responsible gambling” policy, with the aim of preventing gambling problems.

Many theoretical models of pathological gambling have been developed (for review, see Blaszczynski & Nower, 2002). While each of these is conceptually interesting, they fail to explain the heterogeneity of pathological gambling. It seems important

to think of it as a complex, multifactorial disorder, one that depends on both individual and environmental characteristics and that involves predisposing, starting, persistence, and relapse factors. An integrative approach has been put forward, taking both clinical and biological inter-individual differences into consideration (Blaszczynski & Nower, 2002). Three pathways are described, with additional vulnerabilities, corresponding to three subgroups of pathological gamblers: behaviourally conditioned, emotionally vulnerable, and antisocial impulsivist. The starting point, in addition to environmental factors, is a classical and operant conditioning. Irrational thoughts are inevitably amplified over time and contribute to the persistence of gambling problems. These gambling-related cognitions (GRC) reflect the failure to understand or take into account the random and uncontrollable nature of chance (Ladouceur, 2004). The main GRCs involved are the illusion of control, a greater expectancy of success than the actual probability, and omission or denial of the independence of events (Ladouceur & Walker, 1998; Langer, 1975; Toneatto, Blitz-Miller, Calderwood, Dragonetti, & Tsanos, 1997; Walker, 1992). Although the majority of gamblers experience GRC, especially during a gambling session (Gaboury & Ladouceur, 1989), pathological gamblers seem to have more GRCs and to be more convinced of the truth of their perceptions than the nonproblem gamblers (Ladouceur, 2004). They continue to gamble because they are convinced that they will eventually win. This conviction is revealed through chasing, one of the main diagnostic criteria for DSM-IV pathological gambling (APA, 1994). Higher levels of GRC are correlated with increased frequency of gambling, gambling problems, and negative psychological states (Breen & Zuckerman, 1999; Raylu & Oei, 2004b).

Treatment implications are based on the pathway model of pathological gambling (Blaszczynski & Nower, 2002). Approaches to clinical intervention differ according to the subgroup of gamblers, the form the therapy should take (counselling, minimal intervention, psychodynamic therapy, behavioural $\pm$ cognitive therapy), and what its content should be (imaginal desensitization, exposure and response prevention, cognitive restructuring, psychotherapeutic strategies designed to enhance coping skills, problem solving, or impulse control) (Toneatto & Millar, 2004). Cognitive-behavioural therapies (CBT) have a predominant position in the clinical management of pathological gamblers over the last two decades. Coded, evaluated, and effective therapeutic methods stem from behavioural and cognitive theories of pathological gambling (Breen, Kruegelbach, & Walker, 2001; Ladouceur, *et al.*, 2001; Petry, *et al.*, 2006). CBT are based on restructuring, which aims to help individuals recognize the dysfunctional character of their thoughts and to modify them with the aim of giving up gambling or at least reducing the irrational hope of winning and chasing. These therapies focus on GRC and are most often centered around a relapse prevention component and sometimes a behavioural component (Toneatto & Millar, 2004). One feature of CBT is the need to assess subjects from pre- to post-treatment, with the aim of measuring its effect. Assessment is generally focused on mood and anxiety states, gambling severity, and self-recording of gambling behaviours. CBT manuals rarely refer to specific GRC assessment, even

when GRCs are preferential targets of the cognitive approach. Nevertheless, assessment tools investigating GRC do exist (Breen & Zuckerman, 1999; Jefferson & Nicki, 2003; Raylu & Oei, 2004b; Steenbergh, Meyers, May, & Whelan, 2002; Zimbardo & Boyd, 1999). Some have also demonstrated predictive validity (higher levels of GRC can predict gambling problems) (Breen & Zuckerman, 1999; Raylu & Oei, 2004b). One of them seemed to have good sensitivity to change (Breen, Kruegelbach, & Walker, 2001). To date, none of these assessment tools has been translated into and validated in French. Given the link between GRC and pathological gambling and the appeal of the cognitive approach, the availability of a French validated self-report questionnaire for investigating GRC is a necessary preliminary step toward any research on GRC or on the efficacy of CBT in this area. The Gambling-Related Cognitions Scale (GRCS) (Raylu & Oei, 2004b), one of the most recently developed tools, appears to be particularly well suited on account of its multidimensional structure. The aim of the authors was to develop a questionnaire that can help screen for those individuals in the community that may be at risk of developing gambling problems. Its psychometric properties are described in the “Materials and methods” section. The original validation study was carried out in Australia. The games practised in Australia are almost the same as those practised in France, and have widespread access. The Australian society is a patchwork of numerous cultures and ethnicities, each founded on their own beliefs and values. France also has for many years welcomed immigrants from different parts of the world. In this sense, both countries contain a degree of diversity, with widespread practice of the same types of game. Our hypothesis is that use of the GRCS can be extended to the French population, transcending some sociocultural differences that are probable but which cannot readily be evaluated. Thus, the first aim of the present study was to explore the psychometric properties of a French adaptation of the GRCS scale and to confirm that they are consistent with those of the original study (Raylu & Oei, 2004b). Another aim was to replicate the original study and to compare GRCS scores in various groups of gamblers according to the severity of the gambling problems and according to gender.

Materials and methods

Participants

For the Raylu and Oei study, 379 students (Faculty of Sciences, Faculty of Medicine, and Faculty of Pharmacy) were asked to participate in the study regardless of their gambling frequency. The study was proposed orally during lectures by one of the authors of the paper. The French version of the GRCS was also applied to 47 problem/probable pathological gamblers seeking treatment in a specialized ambulatory care centre. All the participants were French people living in the region of Pays de la Loire. The anonymity of the participants was guaranteed. They were not reimbursed for their participation.

Instruments

The questionnaires were distributed at the same time: either a paper questionnaire (138 individuals: 32%) or a web questionnaire (288 individuals: 68%), depending on the way the participants were recruited. To help increase the participation rate, the participants had the choice of completing a pen-and-paper questionnaire immediately or a web questionnaire later.

Few questions about gender, age, frequency of gambling in the past year, and favourite type of game were asked at the beginning of the assessment. We did not ask any further questions of the students to avoid increasing the time spent to complete the questionnaire, again with the aim of increasing the participation rate. More detail on sociodemographic and gambling characteristics was asked of the clinical group.

Each of the participants completed the following assessments:

The South Oaks Gambling Scale (SOGS) (Lesieur & Blume, 1987) is a 20-item self-report questionnaire based on DSM-III criteria for pathological gambling (APA, 1980). Using the scoring suggested by the authors, the SOGS successfully distinguishes three categories of gamblers: nonproblem (score ≤ 2), problem (score of 3 or 4), and probable pathological gamblers (score ≥ 5).

The Gambling-Related Cognitions Scale (GRCS) (Raylu & Oei, 2004b), in its first version, consisted of 59 items and assessed various classical categories of GRC (cf. above) and other categories that are less specific but also relevant. The latter are common to other addictions, reflecting gambling-related expectancies and a perceived inability to stop gambling. Following assessment of clarity and relevance for each item, a 53-item GRCS was drawn up by the two authors and two other independent evaluators and tested on volunteers (community-based population and students). Exploratory factor analysis (EFA) followed by a varimax rotation was used to determine the structure of the final questionnaire. This resulted in a shorter version of the GRCS, consisting of only 23 items. It is a self-rated questionnaire that asks respondents to agree or disagree with several statements using a 7-point Likert scale. Analyses of the 23-item GRCS were conducted. EFA indicated five factors: IB, interpretative bias; IC, illusion of control; PC, predictive control; GE, gambling-related expectancies; and IS, perceived inability to stop gambling (see Appendix). These accounted for 70% of the total variance. Confirmatory factor analysis (CFA) confirmed that the five-factor solution fit the data most effectively. Cronbach's alpha coefficient for the factors ranged from 0.77 to 0.91 and was 0.93 for the overall scale. Concerning the concurrent validity, the total score correlated significantly with anxiety, depression, gambling behaviour, and motivations toward gambling. With respect to the criterion-related validity, participants were divided into two groups based on their scores on the SOGS (0 or ≥ 4). There was a significant difference between the groups in regard to their total score and their subscale scores.

Males had higher GRCS scores than females, excluding the GRCS-IC score (Raylu & Oei, 2004b).

GRCS French version: The French version of the GRCS comprised the 23 items proposed by Raylu and Oei translated into French. A French-English bilingual professional translator translated it back into English, and then the two English versions (original and back-translated) were compared. For more validity, two French-English bilingual colleagues, experts in the treatment of and research on gambling problems, gave their opinions about the French version and suggested some adjustments: a reformulation of the instructions and of the introduction of the definition of a gambling game. The French version of the GRCS is given in the Appendix.

Statistical analysis

Data were analysed by a CFA (Schumacker & Lomax, 2004) with the expected structure based on the structure retained in the English version of the questionnaire. The goodness of fit was tested with the χ^2 test (a nonsignificant value corresponds to an acceptable fit). However, the χ^2 test is known to increase with sample size, and it is common to obtain a significant χ^2 when performing CFA on self-report questionnaires. As a consequence, other fit indexes were used (Hu & Bentler, 1999): the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR), with values <0.05 interpreted as a good fit and values <0.08 as a correct fit; and the Goodness of Fit Index (GFI), the Comparative Fit Index (CFI), and the Normed Fit Index (NFI), with values >0.9 interpreted as good.

A multitrait analysis (Fayers & Machin, 2007) was conducted. We computed the correlation coefficient between each item and the score of each dimension (for the dimension to which the item belongs we used the rest score, i.e., the score computed without the item). The convergent validity is considered respected if all the correlations between each item and the dimension to which the item belongs is greater than 0.4, and the divergent validity is considered respected if each item is more correlated to each dimension of its own than to the dimensions of others. The correlation coefficients between the obtained scores and the total score were then computed.

For each dimension of the selected structure, Cronbach's alpha (Cronbach, 1951) and Loevinger's H coefficients (Sijtsma & Molenaar, 2002) were computed. Cronbach's alpha measures the internal consistency of the dimension and Loevinger's H measures the scalability of the scale. A Cronbach alpha >0.7 is considered an acceptable value (Fayers & Machin, 2007; Nunnally, 1978) and a Loevinger H >0.3 is a correct scalability, H >0.4 is a good scalability, and H >0.5 a strong scalability.

In order to evaluate the discriminating validity of the obtained scores, participants were assigned to four categories according to the frequency of their gambling and

the severity of their gambling disorder (SOGS score). Group 1 consisted of students who had no gambling disorder ($\text{SOGS} < 3$) but who gambled occasionally (less than one time a month). Group 2 consisted of students who had no gambling disorder ($\text{SOGS} < 3$) but who gambled regularly (at least once a month). Group 3 consisted of students who suffered from a gambling disorder ($\text{SOGS} \geq 3$). Group 4 (clinical group) consisted of problem/probable pathological gamblers seeking treatment ($\text{SOGS} \geq 3$). The mean scores and standard errors were computed for each category and compared by analysis of variance (ANOVA).

As in the Raylu and Oei paper, the mean scores and standard deviations were computed by gender and by dividing the sample into two groups ($\text{SOGS} < 3$ and $\text{SOGS} \geq 3$) and comparing them using ANOVA.

A multitrait analysis was used to explore the links between the SOGS score and the GRCS total and subscales scores.

Insofar as the participants without a gambling disorder were mostly females and the participants with a gambling disorder were mostly males, we wanted to investigate the interaction between gender and SOGS scores. A multivariate ANOVA was conducted including a gender effect, a SOGS effect (< 3 or ≥ 3), and an interaction. A significant result for the parameter associated with this interaction can be interpreted as a gender effect different for the two groups defined by the SOGS and *vice versa*.

The missing values of the GRCS items were imputed by following the classical rules only if less than 50% of the 23 items were missing for an individual; the imputation was realized by a personal mean score, which consists of imputing the mean values of the answered items of the individual (Fayers & Machin, 2007).

Statistical analyses were performed using SAS 9.1 and Stata 11.

Results

Description of the groups

The sample of students was 36.4% male. The ages of the participants ranged from 18 to 41 years (mean=20.9, standard deviation [SD]=2.5, median=20). More than half ($N=202$) were able to determine their favourite type of game: most students (95%) had a preference for the “pure chance games” (scratch cards, lottery games, slot machines) and only a minority made bets on sports and horseracing (5%).

The sample of patients was 85.1% male. The ages of the participants ranged from 19 to 55 years (mean=42.3, SD=12.3, median=42). The data related to their sociodemographic and gambling characteristics are given in Table 1.

Table 1

Sociodemographic and gambling characteristics of the problem/probable pathological gamblers seeking treatment (N=47)

	Mean (SD) or percentage
Sociodemographic characteristics	
Gender	
Males	85.1%
Females	14.9%
Age (years)	42.3 (2.3)
Marital status	
Single, divorced, widowed	38.3%
Married, living common law	61.7%
Educational level	
Not a high school graduate	53.2%
High school graduate	46.8%
Professional status	
Worker, employee	76.6%
Executive, professional	23.4%
Working status	
Working	55.3%
Unemployed, retired, disabled, on sick leave	44.7%
Gambling characteristics	
Severity of the gambling disorder (categorical approach)	
Problem gamblers (SOGS score=3 or 4)	4.3%
Probable pathological gamblers (SOGS score $\geq$ 5)	95.7%
Severity of the gambling disorder (dimensional approach)	
SOGS score (/20)	10.2 (3.4)
Favourite type of game	
Pure chance games ^a	44.7%
Chance games with quasi-skill ^b	48.9%
Chance games with elements of skill ^c	6.4%
Usual medium of game	
Offline	68.1%
Online	31.9%
Gambling trajectory (years)	
Age at gambling first experience	19.4 (10.2)
Age at onset of regular gambling	23.8 (10.1)
Age at onset of the gambling disorder	35.7 (13.0)
Age at onset of specific care	41.7 (12.1)
Duration of the first stage	4.4 (5.6)
Duration of the second stage	11.7 (11.0)
Duration of the third stage	5.6 (5.6)

^a Pure chance games=scratch cards, lottery games, slot machines

^b Chance games with quasi-skill=sports and horseracing bets, black jack

^c Chance games with elements of skill=poker

The responses of the participants were compiled ($N=426$). Among those, 411 (96%) responded to all 23 items, 11 (3%) had one missing answer, and 4 (1%) had between 2 and 20 missing answers. After imputation of the missing data, the scores were computed for all the individuals except one who had 20 missing answers. The overall response rate was 93% for the SOGS. After imputation, 98.6% of the SOGS score could be computed. The SOGS scores identified 11.3% of participants (3 students and 45 patients) as “probable pathological gamblers,” 2.8% (10 students and 2 patients) as “problem gamblers,” and 85.9% (366 students) as “nonproblem gamblers.”

Confirmatory factor analysis

The results of the CFA about the expected structure are given in Table 2. The SRMR and the RMSEA were less than 0.08, which signifies a correct fit. CFI and NFI were 0.93 and 0.97, respectively, which represents a good fit, whereas GFI was just under 0.9, which is the threshold generally used to interpret the fit as good. Globally, the fit of the expected structure could be interpreted as correct.

Convergent validity and divergent validity

As seen in Table 3, all items except item 23 (“If I keep changing my numbers, I have less chance of winning than if I keep the same numbers every time”) were moderately or strongly correlated with their own dimension (>0.4). Globally, the questionnaire has a good convergent validity. Nevertheless, we detected five items that were more correlated with other scores than the score of their own dimension: items 4, 9, 11, 14, and 22. Item 11 (“Gambling makes the future brighter”) is attached to the GE and is correlated to its dimension with a correlation similar to the scores IS and IC. Items 4 (“Losses when gambling are bound to be followed by a series of wins”), 9 (“A series of losses will provide me with a learning experience that will help me win later”), 14 (“When I have a win once, I will definitely win again”), and 22 (“I have some control over predicting my gambling wins”) are attached to

Table 2

Results of the CFA on the expected structure of the questionnaire

	Expected structure	Original version ^a
χ^2 (p value)	633.79 (220 df, $p<0.001$)	–
RMSEA	0.068	0.06
SRMR	0.051	0.07
CFI	0.98	0.92
GFI	0.88	–
NFI	0.97	

^a Raylu & Oei, 2004b

Table 3

Multitrait analysis: values are the correlation coefficients between the responses to each item and the score (or the rest score for the dimension of the item) computed in each dimension

	Items	Gambling-related expectancies	Incapacity to stop gambling	Illusion of control	Predictive control	Interpretation bias
Gambling related expectancies	6	0.636	0.540	0.524	0.572	0.585
	11	0.599	0.614	0.605	0.550	0.585
	1	0.569	0.470	0.386	0.425	0.525
	16	0.544	0.465	0.397	0.432	0.445
Incapacity to stop gambling	12	0.588	0.833	0.559	0.556	0.606
	17	0.529	0.763	0.499	0.497	0.527
	7	0.539	0.721	0.532	0.534	0.553
	21	0.499	0.656	0.497	0.482	0.425
	2	0.587	0.627	0.446	0.433	0.477
Illusion of control	13	0.501	0.558	0.763	0.602	0.539
	18	0.470	0.515	0.697	0.565	0.552
	3	0.573	0.630	0.648	0.570	0.533
	8	0.477	0.384	0.632	0.562	0.524
Predictive control	4	0.481	0.504	0.573	0.584	0.549
	14	0.552	0.531	0.513	0.558	0.627
	22	0.519	0.549	0.562	0.513	0.533
	9	0.507	0.476	0.505	0.493	0.641
	19	0.267	0.280	0.390	0.446	0.358
	23	0.270	0.188	0.303	0.388	0.274
Interpretative bias	5	0.546	0.453	0.487	0.574	0.639
	10	0.500	0.566	0.594	0.588	0.617
	15	0.569	0.463	0.471	0.558	0.616
	20	0.551	0.528	0.511	0.588	0.613

the PC dimension and are more strongly correlated to the score IB. Items 9 and 22 are more correlated to the scores IC and GE.

The correlation coefficients between the five subscale scores were between 0.61 and 0.73, showing positive links between the five dimensions. Furthermore, all five subscales scores were very correlated to the total score (coefficients between 0.81 and 0.87).

Internal consistency and scalability

Values of Cronbach's alpha and of Loevinger's coefficients for each dimension of the GRCS are presented in Table 4. All the subscales presented a correct internal

Table 4
Cronbach's alpha and Loevinger's H coefficients

	Cronbach's alpha	Cronbach's alpha Original version ^a	Loevinger's H
Gambling-related expectancies	0.79	0.87	0.537
Incapacity to stop gambling	0.90	0.89	0.686
Illusion of control	0.84	0.87	0.598
Predictive control	0.75	0.77	0.349
Interpretative bias	0.80	0.91	0.522
Total	0.94	0.93	0.438

^a Raylu & Oei, 2004b

consistency (Cronbach's alpha >0.7) and a correct scalability (H>0.3). Concerning the internal consistency, the results are coherent with the values of Raylu and Oei (2004).

Discriminating validity

Means and standard deviations of the scores are displayed in Table 5 by category of respondents. We highlighted differences between the two groups of students with no gambling disorder according to their gambling frequencies: Compared to the students who gambled occasionally, the students who gambled regularly had a higher score for the GE, PC, and IB subscales. We also demonstrated some differences between the two groups of participants who had a gambling disorder: Compared to the rest of the students, the problem/probable pathological gamblers seeking treatment had a higher score for the IS subscale. Means and standard deviations of the GRCS subscales and total scores for each of the SOGS groups (<3 and ≥3) are also given in the Table 5. There was a significant difference between the two groups with respect to the score for each subscale and the total score. As seen in Table 5, all the scores, with the exception of the GRCS-IC subscale, had significant differences between males and females.

Concurrent validity

We found a significant correlation between the SOGS score and the GRCS total and subscales scores, even if the correlation coefficient sometimes was low (between 0.21 and 0.64). The highest correlation coefficient (0.64) was between the SOGS score and the GRCS-IS score and the lower (0.21) was between the SOGS score and the GRCS-IC score.

Gender × SOGS interaction score

Results of the multivariate ANOVA are given in Table 6. In these results, the constants can be interpreted as the mean scores (in each subscale) for the reference

Table 5
Mean (and standard deviation) of the scores by category of respondents, by gender, and by SOGS score

	Gambling-related expectancies (/28)	Incapacity to stop gambling (/35)	Illusion of control (/28)	Predictive control (/42)	Interpretative bias (/28)	Total (/161)
General mean ($n=426$)	9.30 (5.09)	8.91 (6.59)	6.60 (4.36)	13.96 (6.87)	9.31 (5.45)	48.08 (23.99)
Group 1 ($n=285$)	8.31 (4.56)	7.23 (4.84)	6.24 (4.09)	12.82 (6.64)	8.12 (4.89)	42.71 (21.77)
Group 2 ($n=78$)	9.82 (4.70)	7.45 (3.51)	6.53 (3.97)	14.63 (5.63)	9.71 (4.63)	48.13 (16.89)
Comparison of groups 1 and 2 (p values)	0.014	0.730	0.604	0.033	0.013	0.051
Group 3 ($n=13$)	11.23 (6.71)	12.31 (7.23)	8.54 (6.91)	18.31 (8.53)	14.92 (6.90)	65.31 (30.72)
Group 4 ($n=47$)	14.02 (5.53)	20.77 (7.35)	8.28 (5.26)	18.47 (7.36)	14.13 (5.68)	75.66 (24.59)
Comparison of groups 3 and 4 (p values)	0.063	<0.0001	0.847	0.938	0.613	0.127
Comparison of the 4 groups (p values)	<0.0001	<0.0001	0.0048	<0.0001	<0.0001	<0.0001
Males ($n=176$)	10.77 (5.62)	11.23 (7.93)	6.98 (5.01)	15.35 (7.33)	11.02 (5.90)	55.35 (26.85)
Females ($n=245$)	8.27 (4.41)	7.31 (4.88)	6.31 (3.82)	12.95 (6.37)	8.02 (4.70)	42.80 (20.34)
Student's t -test (p value)	<0.0001	<0.0001	0.1179	0.0004	<0.0001	<0.0001
SOGS <3 ($n=362$)	8.58 (4.51)	7.20 (4.35)	6.24 (3.90)	13.14 (6.33)	8.40 (4.77)	43.56 (20.04)
SOGS ≥ 3 ($n=60$)	13.42 (5.86)	18.93 (8.07)	8.33 (5.60)	18.43 (7.55)	14.30 (5.91)	73.42 (26.11)
Student's t -test (p value)	<0.0001	<0.0001	0.0004	<0.0001	<0.0001	<0.0001

Group 1: students having no gambling disorder (SOGS<3) and who gambled occasionally (less than one time a month).

Group 2: students having no gambling disorder (SOGS<3) and who gambled regularly (at least once a month).

Group 3: students having a gambling disorder (SOGS ≥ 3).

Group 4 (clinical group): problem/probable pathological gamblers seeking treatment (SOGS ≥ 3).

Table 6
Multivariate ANOVA according to gender and SOGS score

	Gambling- related expectancies (/28)	Incapacity to stop gambling (/35)	Illusion of control (/28)	Predictive control (/42)	Interpretative bias (/28)	Total (/161)
Constant (males, SOGS<3)	9.61	8.09	6.24	14.03	9.60	47.76
SOGS ≥ 3	4.07 (<0.001)	11.07 (<0.001)	2.09 (<0.001)	4.63 (<0.001)	5.01 (<0.001)	26.73 (<0.001)
Females	-1.58 (0.002)	-1.35 (0.011)	NS	-1.36 (0.048)	-1.86 (<0.001)	-6.42 (0.004)
Females $\times$ SOGS ≥ 3	NS	NS	NS	NS	NS	NS
R^2	0.135	0.408	0.030	0.084	0.175	0.215

group (males with SOGS<3). Gender parameters can be interpreted as the differences of the means between males and females in the reference group for the SOGS (<3), and the SOGS parameters can be interpreted as the differences between the two groups (SOGS<3 or ≥ 3) for the reference group for the gender (males). The interactions allowed testing if these differences of means were different in the others groups.

No interaction was significant, showing independence of the gender and SOGS effects. Consequently, we can assume that the overrepresentation of females among the participants who had no gambling disorder and the overrepresentation of males among the participants who had a gambling disorder do not cause major bias.

Discussion

The psychometric properties of a French adaptation of the GRCS (Raylu & Oei, 2004b) were analysed, knowing that the original structure of this instrument has been confirmed. The fitness of this structure is correct (RMSEA<0.08, RMR<0.08, CFI>0.9, NFI>0.9, and GFI $\sim$ 0.9), and the dimensions obtained have good internal consistency (Cronbach's alpha >0.7) and correct scalability (Loevinger's H>0.3). All dimensions have good convergent validity. However, items 4, 9, 14, and 22 are well represented on both the PC (to which they belong) and IB dimensions, which indicates links between the two dimensions and that these items are not clearly associated to one or the other. All dimensions have correct divergent validity.

Above all, good discriminating validity of the French adaptation of the questionnaire was demonstrated. The GRCS total score and the GRCS subscales

scores allow differentiating categories of gamblers or distinguishing nonproblem gamblers from problem/probable pathological gamblers. This confirms that GRC and gambling disorder are closely associated, but also that the level of GRC changes according to gambling frequency, even if there is no gambling problem. In particular, the GRCS-GE, GRCS-PC, and GRCS-IB scores have the ability to discriminate between nonproblem gamblers according to gambling frequency. Only the GRCS-IS scores seem to differentiate the students who have a gambling disorder and the problem/probable pathological gamblers seeking treatment. We can assume that the problem/probable pathological gamblers seek help when they become aware of their inability to stop gambling. Furthermore, this dimension covers failure to control the behaviour, a major characteristic of the addictive process (Goodman, 2008). It is also the dimension with the greatest correlation to the severity of the gambling problem evaluated by the SOGS. Similar to the Raylu and Oei results, the scores obtained by males and females were different among all dimensions except for IC.

The French adaptation of the GRCS was verified to have good psychometric properties, with minor differences from the original version that potentially can be explained by the complex formulation of some items (in particular, item 23, which was the last question, and the subjects' attention was waning).

The French adaptation study was conducted on a sample of students and to a certain extent on patients. The sample was relatively similar to that of Raylu and Oei (2004b). It is important to note that their aim was to “develop and validate a measure to screen for a range of gambling-related cognitions in gamblers” drawn from a community-based population. The added value of our study was that it tested the psychometric properties of the French version of the GRCS in a sample of problem/probable pathological gamblers. We confirmed the usefulness of this tool for screening the broader population to identify those who are likely to have gambling problems.

The French version of the GRCS is useful to therapists insofar as the five dimensions of the original tool are found, because it makes it possible to differentiate the GRC in each patient with a variable degree of conviction. Psychotherapeutic interventions can thus be targeted specifically toward cognitive restructuring.

These results must be viewed in the context of several limitations. First, a possible bias may lie in the fact that slot machines are very widespread in Australia (e.g., hotels and bars), while in France they are allowed only in casinos. There may well be GRCs that are specific to this type of game. The difference between the two countries is offset by the fact that our study was carried out in a region that is particularly well endowed with casinos, so slot machines are very widely available. Second, the question is whether the French adaptation of the GRCS can be used in other French-speaking countries. All the participants were French people. France is a relatively small country compared to

Australia, Canada, or the USA. There are no really marked disparities of language from one region to another. We are sure that the findings of this study can be generalised to the whole of the hexagon. Moreover, one of the experts in the treatment of and research on gambling problems who gave his opinion about the French version is a Canadian psychologist, who lives in Montreal and is French-English bilingual. He proposed some adjustments to the French version so it will be understandable in Canada and faithful to the original version. We can legitimately assume that the questionnaire can be used in Canada. Third, the sample size of the clinical group was relatively small, but it also reflected the difficulty in recruiting problem/probable pathological gamblers seeking treatment. It is indeed estimated that only 3–11% of problem/probable pathological gamblers seek treatment (Sullivan, McCormick, Lamont, & Penfold, 2007). Finally, this study included participants who could complete a pen-and-paper questionnaire or respond on a website. Among the sample, there was no significant difference (at 5%) in the mean of the five scores and of the total score between these two kinds of questionnaire. We note that the two versions of the questionnaire (paper and website) were strictly identical.

In the future, we aim to study the test-retest reliability and sensitivity to change of the French version of GRCS. A significant decrease in the GRCS score at the end of CBT (with the idea that cognitive restructuring is efficient) would show its ability to detect the impact of treatment. Another potential area of research is the distinction between the subjects' favourite game (slot machine, sport pools, poker) based on specific GRC, and analyse whether the GRCS is relevant or not in all forms of pathological gamblers.

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Appendix: French adaptation of GRCS

Echelle des cognitions liées au jeu

Pour les questions 1 à 23, merci de noircir le cercle approprié pour décrire à quel point vous êtes d'accord avec la proposition indiquée à chaque ligne.

NB : par jeu, on entend les jeux de hasard et d'argent, tels que les jeux de cartes, de dés, les machines à sous, ou tous les types de jeux pour lesquels vous misez de l'argent ou faites des paris.

Vous ne devez choisir qu'une seule réponse et vous avez le choix entre les propositions suivantes :

(Désaccord total=1; Désaccord fort=2; Désaccord moyen=3; Ni accord, ni désaccord =4; Accord moyen=5; Accord fort=6; Accord total=7)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Jouer me rend plus heureux.	☐	☐	☐	☐	☐	☐	☐
2. Je ne peux pas fonctionner sans jouer.	☐	☐	☐	☐	☐	☐	☐
3. Prier m'aide à gagner.	☐	☐	☐	☐	☐	☐	☐
4. Les pertes au jeu doivent être suivies par une série de gains.	☐	☐	☐	☐	☐	☐	☐
5. Relier mes gains à mon adresse et mes capacités me fait continuer à jouer.	☐	☐	☐	☐	☐	☐	☐
6. Jouer améliore l'apparence des choses.	☐	☐	☐	☐	☐	☐	☐
7. Il m'est difficile d'arrêter de jouer étant donné que je perds le contrôle.	☐	☐	☐	☐	☐	☐	☐
8. Des nombres ou des couleurs particulières peuvent aider à augmenter mes chances de gagner.	☐	☐	☐	☐	☐	☐	☐
9. Une série de pertes me procurera un apprentissage qui m'aidera à gagner par la suite.	☐	☐	☐	☐	☐	☐	☐
10. Relier mes pertes à de la malchance ou de mauvaises circonstances me fait continuer à jouer.	☐	☐	☐	☐	☐	☐	☐
11. Jouer rend l'avenir plus prometteur.	☐	☐	☐	☐	☐	☐	☐
12. Mon désir de jouer est tellement plus fort que moi.	☐	☐	☐	☐	☐	☐	☐
13. Je collectionne des objets particuliers qui aident à augmenter mes chances de gagner.	☐	☐	☐	☐	☐	☐	☐
14. Lorsque je gagne une fois, je gagnerai sûrement encore.	☐	☐	☐	☐	☐	☐	☐
15. Relier mes pertes aux probabilités me fait continuer à jouer.	☐	☐	☐	☐	☐	☐	☐
16. Etre en train de jouer aide à réduire la tension et le stress.	☐	☐	☐	☐	☐	☐	☐
17. Je ne suis pas suffisamment fort pour arrêter de jouer.	☐	☐	☐	☐	☐	☐	☐
18. J'ai des rituels et des comportements particuliers qui augmentent mes chances de gagner.	☐	☐	☐	☐	☐	☐	☐
19. Il y a des moments où je me sens chanceux(se) et je ne joue qu'à ces moments-là.	☐	☐	☐	☐	☐	☐	☐

Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
20. Me souvenir de la somme que j'ai gagnée la dernière fois me fait continuer à jouer.	☐	☐	☐	☐	☐	☐	☐
21. Je ne serai jamais capable d'arrêter de jouer.	☐	☐	☐	☐	☐	☐	☐
22. Je possède une certaine capacité à prédire mes gains au jeu.	☐	☐	☐	☐	☐	☐	☐
23. Si je change tout le temps mes numéros, j'ai moins de chance de gagner que si je conserve les mêmes numéros à chaque fois.	☐	☐	☐	☐	☐	☐	☐

Scoring

To obtain the raw subscale scores, add values of items for each subscale. To obtain total raw GRCS score, add the five raw subscale scores. To obtain mean subscale scores, divide each of the raw subscale scores by the number of items of each subscale. To obtain a total mean GRCS score, add the five means subscale scores. The items that belong to each subscale are:

- **Gambling expectancies (GE)** (relates to individual's perceived expectations about the effects of gambling): 1, 6, 11, 16
- **Illusion of control (IC)** (reflects a belief that one could control gambling outcomes via personal skill, ability, or knowledge): 3, 8, 13, 18
- **Predictive control (PC)** (reflects means by which an individual could predict gambling outcomes): 4, 9, 14, 19, 22, 23
- **Inability to stop gambling (IS)** (relates to one's perceived ability to resist gambling in high-risk situations): 2, 7, 12, 17, 21
- **Interpretative bias (IB)** (consists of reframing gambling outcomes that would encourage continued gambling despite losses): 5, 10, 15, 20

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Ethics approval: The French legislation on biomedical research did not require Competent Authorities authorization and Ethics Committee approval for the clinical research entitled “A transversal study for the French version of two assessments tools of gambling related cognitions (GRCS and GABS).” However, this clinical research has been validated by the local scientific committee: the evaluation done by this committee of independent experts entails review and approval of the trial protocol, relevant background information, proposed plans for informing participants about the trial, and any other procedures associated with the trial. According to the French legislation, participants were informed about the research and expressly agree orally to participate to the study.

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Internet Poker: Examining Motivations, Behaviors, Outcomes, and Player Traits using Structural Equations Analysis

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Abstract

Hypotheses explaining outcomes from internet poker were tested by using structural equations modeling: Personal characteristics and traits were proposed to influence motivation, leading to gaming behavior and then to outcomes. One hundred ninety-four participants from an internet poker forum completed online assessment. Three separate outcomes were supported: social-emotional gains, monetary winnings/losses, and negative experiences. One third of the participants reported some negative outcomes and 12% said these were significant; two thirds indicated no negative outcomes. Problems were most linked to the trait of Neuroticism, younger age, and more hours played, but unrelated to amounts won or lost. Gaming for social-emotional benefits mediated fewer negative outcomes. Financial gain motivation was a key mediator for gaming behavior. Findings were consistent with research showing negative emotionality and youth to be associated with poor gambling outcomes. The model suggests concrete actions that can be taken to minimize problem gaming while maximizing healthier involvement with online poker.

Résumé

Diverses hypothèses concernant les effets des jeux de poker en ligne ont été mises à l'épreuve au moyen d'une modélisation par équation structurelle : il a été proposé que différents traits de personnalité influencent la motivation au jeu, la décision de jouer et enfin les effets du jeu. Un nombre de 194 participants à un forum internet sur le poker ont rempli un formulaire d'évaluation en ligne. Trois types distincts d'effets ont été observés : des gains socio-affectifs, des pertes ou des gains en argent, et des expériences négatives. Un tiers des participants ont indiqué avoir subi des effets négatifs et 12 % que ces effets négatifs étaient importants. Les deux autres tiers ont dit n'avoir subi aucun effet négatif. Les problèmes étaient majoritairement liés au névrosisme, à un jeune âge et à un nombre d'heures de jeu plus important, mais étaient sans lien avec les sommes perdues ou gagnées. Jouer dans le but d'en tirer un

avantage de nature socio-affective a donné lieu à moins d'effets négatifs, tandis que la motivation liée à la perspective d'un gain financier s'est révélée être un médiateur essentiel des comportements associés au jeu. Les conclusions de l'étude concordent avec les recherches qui montrent qu'un état affectif dépressif et un jeune âge sont associés aux effets négatifs que peut entraîner le jeu. Ce modèle permet de croire qu'il est possible de prendre des mesures pour minimiser les problèmes de jeu tout en favorisant de façon optimale une saine participation aux jeux de poker en ligne.

Introduction

Playing poker on the internet represents one of the most popular online gaming activities, the growth of which may coincide with (a) substantially increased availability of casino table gaming across much of North America (Wood & Williams, 2007) and (b) popularization of poker playing itself on television, in films, and through any number of online media (Bradley & Schroeder, 2009). Although the numbers of people participating in online poker can be difficult to estimate, one of the most popular internet poker rooms (i.e., www.pokerstars.com) typically reports 200,000 concurrent players on Sunday, its busiest day of the week (Pokerstars, 2009). Even though Pokerstars might represent the most frequented internet poker room, it is certainly not the only one available. Hundreds of online opportunities exist where interested persons can play, observe, study, and communicate regarding internet poker (e.g., see www.pokersites.com).

Many individuals play online poker for actual money—buying credits and then using them to place bets on their virtual cards. The number of online gamers playing for real money appears to have increased significantly over the past several years (Romer, 2005), likely in proportion to the growth of online poker overall. Even though only about 1% or less of adults typically report involvement with online gambling (Wood & Williams, 2007), the steady growth of internet gaming has invariably led to concerns about problems that might be associated with its spread. Recent meta-analyses regarding all forms of problem gambling (whether online or not) suggest that approximately 4% of adults in North America exhibit symptoms of pathological gambling (Shaffer & Hall, 2001).

Of greater concern has been research suggesting that younger players, especially on college campuses, might gamble online more than other groups and experience increased levels of problem gambling as a result. For example, Petry and Weinstock (2007), in a sample of more than 1,300 undergraduates, found that one fourth of the students had ever gambled on the internet, with about 6% doing so weekly; two thirds of such regular gamblers met criteria for pathological gambling compared with a third of that number for infrequent gamers and only 5% of non-internet

student gamblers. The reasons for their increased level of problem gambling relative to other groups are not well understood.

Although a body of published research has examined pathological gambling and online gaming, much less work has focused specifically on any one particular type of game—despite the likelihood that significant differences exist between game types and that individual factors might interact with game-specific elements in terms of how one might approach and react to a given gambling format (Petry & Weinstock, 2007). Researchers have tended to aggregate data across all of the various formats, with much less work conducted relative to internet gambling, perhaps because of its relative novelty compared with in vivo gaming and because most gamblers still seem to gamble in physical spaces such as casinos. What this means is that relatively little work has been published specifically on poker (despite its immense popularity) and even less regarding individuals who play poker online. Given the probability that different games played in different venues might exhibit various outcomes and/or attract persons with disparate characteristics, there exists a need to conduct studies that focus more specifically on given activities (poker) occurring in a defined context (the internet).

Moreover, the great majority of published studies have addressed the problems associated with gambling, with much less attention paid to nonproblem gambling or the motivations that might lead one to start gaming in the first place. Most of these studies have focused on identifying correlates of higher risk gambling behavior such as youth risk factors (Lusier, Derevensky, Gupta, Bergevin, & Ellenbogen, 2007) or substance use (Ladd & Petry, 2003). Little work has been done specifically with people gaming on the internet and even fewer studies have focused on nonproblem online gamblers to better understand how this large group of individuals pursues their interest without reporting significant difficulty as a result. In the important work of preventing, identifying, and remediating problem gambling behavior, it would seem necessary to understand how many individuals can engage in online gaming without developing pathological behavioral patterns.

Personality may also be a key factor in mediating problem versus nonproblem gaming behaviors, though it has not been well studied with respect to internet gambling. When personality has been considered in relation to internet gaming, it has primarily been with respect to pathological gambling. More generally, the five-factor model (McCrae & Costa, 1987) of personality has been used to explore problem gambling, with recent research showing that aspects of the traits of Neuroticism (negative emotionality and emotional instability) and Extraversion (positive emotionality and social involvement) may be especially relevant in identifying subtypes of problem gamblers (Vachon & Bagby, 2009). Thus, it would be logical to examine online gaming behavior with respect to these personality traits, given that individual expression of traits may influence other tendencies that impact gaming behavior and its potential positive and negative outcomes.

We propose that a structural equations modeling (SEM) approach would be an effective means to examine motivations and outcomes related to playing poker online. Further, SEM simultaneously considers the intercorrelations between a set of variables so as to test the fit between a proposed model and one's actual observations; it is excellent at exploring the mediating effects so vital to a complex understanding of human behavior. Thus, our study assessed several personal characteristics (age, income, education, and personality), motivations for playing poker online (earning money, relaxing, or socializing), behavior associated with online play (studying the game, amounts wagered, and hours playing), and potential outcomes from play (money won or lost and negative experiences). We do not specifically address the issue of gambling or internet *addiction*, but instead focus on *life outcomes* related to playing online poker in order to take a broader view of internet gaming, in which problems could certainly occur among a universe of possibilities.

It is our belief that in examining the relationships among this entire set of variables as a whole, we may be more able not only to identify cofactors for problem online poker outcomes and associated behaviors, but also to begin to discover more about the relationship between the factors that lead to these outcomes. Further, and perhaps of equal importance, we want to begin delineating the motivations, characteristics, and behaviors of online poker players who do *not* report significant levels of difficulty associated with internet poker. By examining both sets of circumstances, we seek a more balanced view of online gaming in terms of what players hope to gain from the game, as well as its negative impacts.

Method

Participants

Volunteers for the study were recruited from an internet-based poker forum, internet Texas Holdem (ITH, www.internettexasholdem.com), where interested individuals register for information and web-based discussion about matters related to playing poker online. Members of this forum are individuals from across the world, of varying ages and backgrounds, and with different motivations to play. To qualify for participation, individuals needed to (a) be registered members of ITH (in order to access the website and receive recruitment emails); (b) have made at least 10 postings to the ITH forum before enrolling in the study; (c) be at least 18 years of age; and (d) be playing or have played online poker for actual monetary gain and/or loss. We excluded individuals with 10 or fewer ITH postings, as many of these represent spam—posting under false pretenses. We wanted to increase the likelihood that individuals responding to our solicitation actually played poker online and were more than incidental participants so that the results would more validly address our research questions. With the large number of attributes we assess in our survey, we needed to ensure a large enough sample to have sufficient power.

Table 1
Demographic Characteristics of the Sample (N=194)

Variable	Number	Percentage
Gender		
Female	5	2.6
Male	189	97.4
Age		
18–25	20	10.3
26–35	63	32.5
36–50	86	44.3
51+	25	12.9
Education		
High school or less	16	8.2
Vocational, associates, or some college	63	32.5
College degree	65	33.5
Graduate degree	50	25.8
Employment		
Full time (40 hr+)	142	73.2
Part time (1–39 hr)	36	18.6
Not working	16	8.2
Annual Income in US\$ (N=190)		
0–50k	67	35.3
51k–99k	59	31.0
100k–199k	50	26.3
200k +	14	7.4

Over a 4-week period, 194 ITH members completed the survey. As shown in Table 1, most people in the sample were men ($N=189$, 97.4%) in their late 30s (mean age 38.0 years, $SD=10.51$). They were typically employed full time ($N=169$, 87.1%) and earned a median yearly income of US\$70,000 (ranging from no income to US\$600,000 per year). About 20% of participants had been self-employed in the past, with another approximately 20% of the sample currently self-employed. Twenty participants were aged 25 years or younger (10.3%), with five participants (2.6%) aged 62 years or older.

Participants reported high levels of education, with 91.8% ($N=178$) completing at least some college and 59.3% ($N=115$) having attained a college degree or higher. Eight participants (4.1%) were currently enrolled in college classes. Only two (1%) had not completed their high school diploma. The majority of participants resided in the United States ($N=118$, 60.8%), with the second and third most frequent countries of residence being the United Kingdom ($N=46$; 23.7%) and Canada ($N=12$, 6.2%), respectively (these three accounting for 90.7% of the total sample).

Materials

Participants completed an internet-based survey through the Survey Monkey web service, an online survey company that charges a small fee to format and administer questionnaires. All monetary amounts were denominated in or converted to US dollars.

Informed consent. Given the nature of this study as an internet-based project, face-to-face discussion of informed consent was not possible. Thus, information that outlined procedures, risks, and benefits related to the study was presented in detail to participants via the first web page that they saw. Participants needed to mark a checkbox to indicate their understanding of the study, its contents, and confidentiality protections before they could continue to the survey. They were further informed that a donation (US\$2.00) would be made to a children's charity (Colombianitos, a group providing assistance to children and families in Colombia) for each person who enrolled in the study. Individuals reaching the end of the survey were able to register for a small stake in winnings earned by a well-known player during an upcoming online poker tournament. For this incentive, participants would need to enter their ITH screen name so that they could be contacted should the player win. Screen names were stored in a file that was separate from the survey data.

Survey items. After confirming that they currently played online poker for actual money or had done so in the past, participants were asked a series of questions about their demographics, when they started playing, when they began to play for real stakes, and the amount they had won or lost during the past 6 months. In the next series of questions, participants indicated how much time they played and the amount they wagered on internet poker during a "typical" week, both overall and in four different types of online poker games (*limit*—players are limited in the amount they can wager in any round of betting; *multi-table tournaments*—players compete against dozens, hundreds, or even thousands of players in a contest in which the prize money is awarded to the top finishers; *no-limit*—players are not limited in the amount they can wager; and *sit-and-go*—a tournament that typically has only one table of players and in which prize money is awarded to the top finishers).

The last section of the survey addressed the benefits and problems that participants associated with playing online poker and assessed two personality traits (Emotional Stability and Extraversion). For the cost-benefit items (see Table 2), participants rated a series of statements using a 7-point scale based on the degree to which each statement matched the participant's self-perception (1=*not at all like me*, 4=*somewhat like me*, and 7=*exactly like me*). Negative outcome items were based on a subset of difficulties experienced by individuals with problem gambling behaviors (*Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., text rev.; American Psychiatric Association, 2000) believed to most interfere with adaptive functioning and social relationships; consideration was given to maintaining relative brevity in

Table 2
Items Assessing Negative and Positive Experiences from Online Poker

Negative Experiences

1. I spend too much time playing online poker
2. I spend too much money playing online poker
3. I find myself playing online poker when I should be doing something else
4. When I can't play I find myself getting upset or down
5. I find it hard to cut back on the amount of time that I play
6. Playing has left less time for personal relationships

Positive Experiences

1. I've made a good number of friends playing online poker
 2. Socializing with other players is a main reason I play online poker
 3. I get a sense of accomplishment playing online poker
 4. Online poker helps me to relax and unwind
 5. Online helps me earn money for the "extras" in life
 6. Online poker helps to pay the monthly bills like food, rent, utilities, etc.
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the research instrument. Negative outcome (i.e., "cost") items demonstrated a good level of internal consistency ($\alpha=.850$) and were reliable enough to use as a single scale. However, reliability analysis of the perceived benefit items suggested that they did not assess a unitary construct ($\alpha=.481$); there appeared to be more than one concept being measured by this scale. We therefore conducted a principal components analysis of the perceived benefits scale by using a varimax rotation to produce orthogonal components (i.e., the model would be resolved such that individual items tended to load on only one of the components). This analysis resulted in the three-component solution (using .500 as the loading criterion for placement into a component) shown in Table 3. No item exceeded the criterion for more than one component and the model accounted for 69.7% of the overall variance. Given the items loading onto each component, we labeled the first as "Financial Gain," the second as "Socializing," and the third as "Relaxation." These three components have been used in subsequent data analyses in place of the total score for the perceived benefits scale.

Table 3
Component Loadings of the Positive Experience Items

Perceived benefit items	Financial Gain	Socializing	Relaxation
Sense of accomplishment	.504	.282	.452
Earn money for extras	.857	-.014	.044
Earn money for bills	.772	.115	-.260
Made friends playing	.093	.824	.100
Socializing with players	.047	.850	-.087
Relaxation	-.140	-.050	.861
<i>Proportion of variance in model</i>	.269	.249	.179

Emotional Stability and Extraversion were assessed by using items combined from the International Personality Item Pool (Goldberg, et al., 2006), a well-established public domain resource providing banks of individual items and scales for various personality traits. We selected scales designed to assess the personality traits of Neuroticism and Extraversion in accordance with the five-factor model (McCrae & Costa, 1987). Ten questions for each trait were paired into five composite items per trait. Participants used a 7-point scale to indicate the degree to which they were more similar to one statement or the other (e.g., “seldom feel blue” vs. “often feel blue” for Emotional Stability and “am the life of the party” vs. “keep in the background” for Extraversion). Both of these personality scales demonstrated good levels of internal consistency and were deemed reliable measures (Extraversion, $\alpha=.903$; Neuroticism, $\alpha=.843$).

Procedure

The owner of ITH was approached as a community partner for conducting this research project. He was involved in reviewing the informed consent documents, developing incentives, and approving survey items. He posted an advertisement for the project on the ITH website and allowed the investigators to send two recruitment emails to all registered members with more than 10 forum postings (1,505 email addresses, yielding a response rate of 13.9%). Note that the owner of ITH did not request any changes in the survey, did not have access to the data once collected, and did not review the results. Advertisement and recruitment emails contained information about the study and a clickable link to the study’s web page via Survey Monkey. Items were designed such that they could not be left blank, although participants could “click out” of the survey whenever they wished. Participants who exited the survey by closing their web browser would not have necessarily viewed a debriefing page. All procedures were approved by the Susquehanna University Human Subjects Research Committee.

Results

General Findings—Descriptives

Hours played. Participants reported playing internet poker a median of 6 to 10 hr during a typical week during the past 3 months, with about a third of the sample playing more than 11 hr per week. There was a fairly equal distribution of time across the four game types, although individuals tended to favor multi-table tournaments and sit-and-go games over the other two formats. Participants typically devoted 1 to 5 hr per week to a given format. Lastly, individuals played in several types of games per week, competing in an average of three of the four game types during a usual week during the past 3 months.

Those playing more hours in sit-and-go games also tended to play multi-table games more, $r(194)=.238$, $p<.001$, but stayed away from no-limit games, $r(194)=-.182$,

$p=.011$. Playing more frequently in limited betting games was inversely associated with time playing unlimited betting games, $r(194)=-.336$, $p<.001$. Hours playing multi-table games were not associated with the amount of time spent in limit or no-limit poker games. Thus, players in the no-limit games tended not to participate in the sit-and-go or limit game formats.

No-limit and sit-and-go games also showed different patterns of association with respect to age: The younger an individual, the more time they spent in the no-limit format, $r(194)=-.209$, $p=.003$, whereas older individuals tended to play more in sit-and-go games, $r(209)=.174$, $p=.015$. There was no association between hours played and age for the other game types. Two other demographic variables were significantly associated with time played. Employment status was negatively related to playing sit-and-go games, $r(194)=-.204$, $p=.004$, perhaps because these players also tended to be older. Second, education level was negatively associated with playing multi-table tournaments, $r(194)=-.171$, $p=.017$.

Amounts wagered, won, and lost. Participants were first asked whether they won money or lost money overall from playing poker over the past 6 months. Participants were then asked to report how much they won or lost. The median winnings during the past 6 months for all participants were US\$250. However, the range of winnings and losses was quite large, with 10 (5.2%) participants reporting losses equal to or greater than US\$1000 (the maximum reported loss was US\$20,000). Fifty-one (26.2%) participants reported winnings at or exceeding US\$1000, with nine (4.6%) of this group reporting gains of US\$10,000 or more (to a maximum of US\$50,000) in the past 6 months.

Amounts wagered and won or lost were associated with several of the game types and with overall hours of play. Winnings were positively associated with the number of hours spent playing multi-table, $r(194)=.227$, $p=.001$, and no-limit, $r(194)=.221$, $p=.002$, formats. Time spent in multi-table games was also associated with greater amounts wagered, $r(194)=.318$, $p<.001$. However, playing more in the sit-and-go format was associated with decreased winnings, $r(194)=-.155$, $p=.031$, but higher levels of wagering, $r(194)=.147$, $p=.041$. There were no significant associations between hours played in the no-limit format with winnings or amounts wagered.

Motivations and negative outcomes. As noted, perceived motivations for and negative outcomes from playing internet poker were assessed by using the items presented in Table 2. Because motivation items reflected three separate components, analyses for these items were conducted on the basis of each of the components individually. Given their acceptable level of internal consistency, results for the negative outcome items were determined through the use of the total score for those items as a scale.

Motivations—Perceived Benefits: The Financial Gain, Socializing, and Relaxation components evidenced fairly normal distributions around their means. Mean scores

for the Financial Gain (3.51, $SD=1.31$) and Socializing (2.63, $SD=1.42$) components suggested that the average participant endorsed these outcomes as being “somewhat like me” and “usually not like me,” respectively; 16% ($n=31$) of participants endorsed “usually like me” for Financial Gain and 10% ($n=19$) endorsed this for Socializing (a score of at least 6 of 7) or higher. The mean score for Relaxation was somewhat higher, with the average participant endorsing this reason for playing as being “somewhat like me” (4.20, $SD=1.64$) and 23% ($n=45$) of the sample scoring at least 5 of 7 (“usually like me”) in this area.

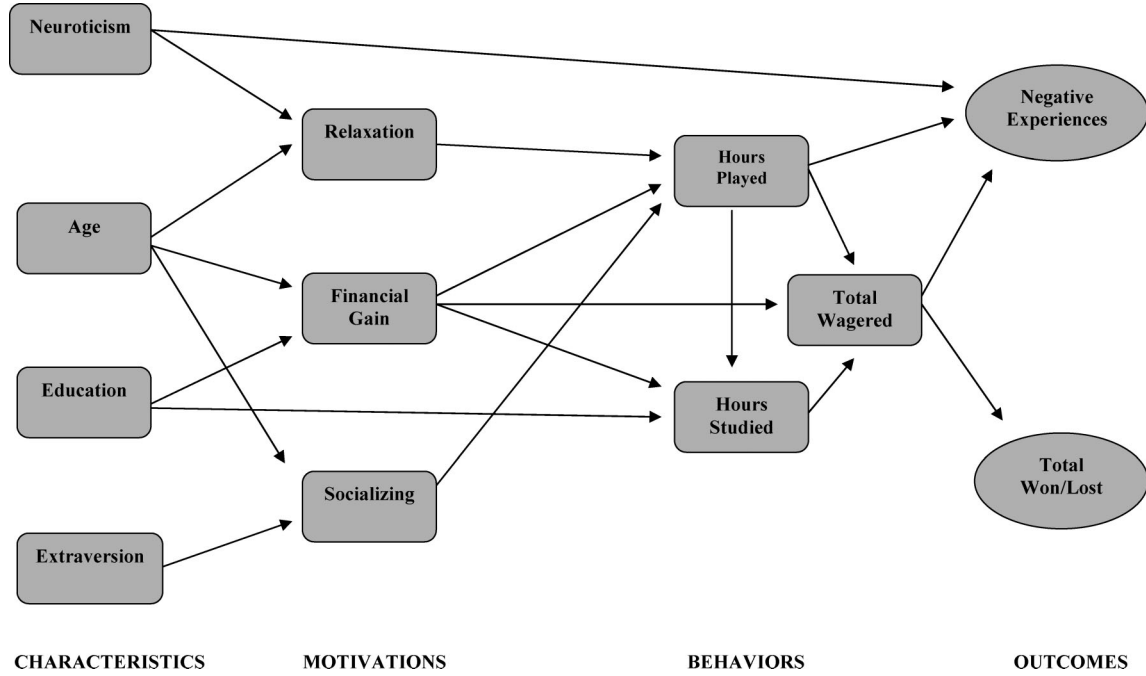
Negative Outcomes—Perceived Downsides: The distribution of the total score for perceived negative outcomes from playing poker online was clustered around a mean score of 2.31 ($SD=1.16$), corresponding to “not like me” on the 7-point scale. A total of 12 players (6% of the sample) evidenced average scale scores of 5 or higher for negative outcomes, suggesting that the concerns described by scale items were “usually like me” or more. Moreover, 53 participants (27%) had an average score of 4, which indicated that the issues presented by the items were “somewhat” typical of their own situations. Combining these two groups, about one third of the sample endorsed some level of significant downside as a result of playing online poker, although the degree of these negative outcomes was not assessed.

A Structural Equations Model of Motivations and Negative Outcomes

The SEM procedure for this analysis was conducted with Amos 17.0, using maximum likelihood estimation in a measured variable model, which used factor scores to represent multi-item scales to capture the common variance in each construct. An initial conceptual model (see Figure 1) was developed that linked dependent variables with likely mediating elements, which would then predict a number of outcomes of interest. In this model, we suggested that personality traits (Extraversion and Neuroticism) and demographic characteristics (age, income, and education) would form a set of preconditions that impacted motivations for playing poker online (Relaxation, Socializing, and Financial Gain). In turn, these motives were hypothesized to affect playing behaviors and, through them, one’s winnings/losses and gambling problem outcomes. The null hypothesis in the structural equation modeling approach assumes that the model generated from this set of theoretical relationships will match the covariance matrix produced by using one’s actual sample data. Thus, if the null hypothesis were supported ($p>.05$ in a chi-square test between the two covariance matrices), there would be no statistical difference between the theoretical model and one’s research data—the data could be said to match the proposed model. The chi-square value divided by its degrees of freedom should also approximate 1.00 for a model to be considered to match the data set.

Further tests of the research model were conducted through “fit indices” that described the degree to which a preconceived research model matches the data that has been collected. Amos 17.0 uses the goodness of fit index (GFI), the adjusted

Figure 1. Initial model: understanding online poker outcomes as functions of personality, age, education, motivation, and gaming behavior

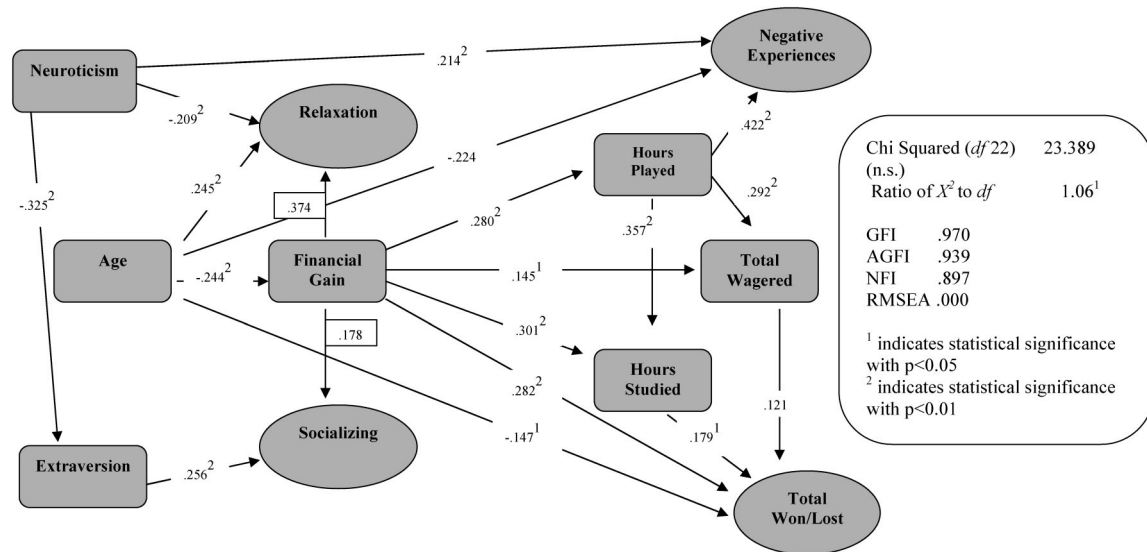


goodness of fit index (AGFI), the normed fit index (NFI), and the root mean square error of approximation (RMSEA) to assess the degree to which a proposed model corresponds to actual empirical results. It is generally assumed that the GFI and AGFI should equal or exceed .900, whereas the NFI should approach or pass .950; RMSEA should fall below 0.05 (see Arbuckle, 2008, for a complete discussion of Amos 17.0 fit indices). Approximation of these expectations is usually considered sufficient to accept the validity of a structural model.

Our proposed model was not found to completely fit the data. We therefore amended the model, keeping our hypotheses in mind, with the addition and removal of linkages between variables to achieve better fit indices—an empirical and iterative approach during which one maintains fidelity to initial constraints (i.e., characteristics + demographics → motivations → gaming behaviors → outcomes) while making adjustments. The resulting model is presented in Figure 2. As can be seen in the inset, the final model met five of the above criteria: (a) the null hypothesis could not be rejected, as $p = .479$; (b) χ^2/df approximated 1.00; (c) $GFI > .900$ (actual $GFI = .970$); (d) $AGFI > .900$ (actual $AGFI = .939$); and (e) the RMSEA of 0.000 fell below 0.05. The model also nearly met the sixth criterion: $NFI = .897$, as opposed to equaling or surpassing .950. Values at these levels represent a good degree of model fit with the data.

The final model preserves relationships between most of the internal characteristics, motivations, behaviors, and outcomes, as well as the relationships between the

Figure 2. Final structural equations modeling (SEM) solution showing standardized coefficients. GFI=goodness of fit index; AGFI=adjusted goodness of fit index; NFI=normed fit index; RMSEA=root mean square error of approximation



Financial Gain motivation and behaviors and outcomes. Associations among behaviors and outcomes were little altered. However, note that education fell out of the final model completely; it was not significantly predictive of downstream elements. Another difference between the final and conceptual model was that the Relaxation and Socializing motivations were not significantly related to poker-playing behaviors, nor did they significantly predict winnings and losses or undesirable outcomes from playing internet poker; they were endpoints in and of themselves. It should be emphasized that the actual amount of money that participants said they won or lost was *not* related to their report of difficulties resulting from online play, nor was the degree to which participants wagered real money or spent time in building poker-playing skills. No significant predictive pathways were found with respect to these potential relationships (all $ps > .05$).

To present this complex set of relationships, we will start by considering the outcomes from playing poker online and then work backward through behavior, motivation, and personal characteristics. It appears that the model of best fit is one in which participants reported three sets of outcomes: social-emotional gains, monetary winnings and losses, and negative life experiences associated with playing internet poker.

Social-emotional gains. Table 4 presents unstandardized and standardized regression weights, critical ratios (which approximate t values), standard errors, and significance levels of the critical ratios for each of the linkages present in the model of best fit, whereas Table 5 presents the bivariate correlations for all of the variables in the final model. The Relaxation and Socializing factors were not related

to the poker-playing behavior variables, winnings and losses, or negative life experiences resulting from internet gambling, and the hypothesized pathways between them and total hours played were not found to be significant. Linkages representing these relationships have been dropped, as neither predicted playing behavior. Thus, these motivational factors appeared to be outcomes as well as incentives for playing poker online. Examination of the social-emotional factors shows that different types of participants were seeking out one or the other (or perhaps both). Persons reporting Relaxation as a primary motivation tended to be older ($\beta=.245$, $p<.001$) and to exhibit lower scores on Neuroticism ($\beta=-.209$, $p=.001$); that is, they evidenced higher levels of emotional stability and more positive emotionality. However, those reporting more of a Socialization motivation tended to score higher, not surprisingly, on Extraversion ($\beta=.256$, $p<.001$). The final model accounted for 20% of the variance in Relaxation and 10% of the variance in Socializing. Further, it should be noted that individuals who reported playing internet poker for financial gain were not exclusively seeking monetary winnings. At least some individuals also played in order to obtain social and emotional benefits through interactions with other players, as seen in the significant pathway leading from Financial Gain to Socializing ($\beta=.178$, $p=.01$). Some also may have been seeking and obtaining stress relief from playing internet poker, a finding evidenced in the observed relationship leading from Financial Gain to Relaxation ($\beta=.374$, $p<.001$).

Table 4
Statistical Values for Relationships Specified in the Final SEM Solution

Relationship	B	SE B	β	CR	p
Age→Financial Gain	-.092	.027	-.244	-3.457	<.001
Age→Negative Experiences	-.150	.042	-.224	-3.622	<.001
Age→Relaxation	.054	.015	.245	3.638	<.001
Age→Total Won/Lost	-76.056	34.016	-.147	-2.236	.035
Extraversion→Socializing	.100	.027	.256	3.688	<.001
Financial Gain→Hours Played	.188	.047	.280	4.003	<.001
Financial Gain→Hours Studied	.344	.074	.301	4.658	<.001
Financial Gain→Relaxation	.217	.039	.374	5.559	<.001
Financial Gain→Socializing	.130	.051	.178	2.562	.010
Financial Gain→Total Wagered	.482	.235	.145	2.052	.040
Financial Gain→Total Won/Lost	387.924	99.250	.282	3.909	<.001
Hours Played→Hours Studied	.610	.110	.357	5.536	<.001
Hours Played→Negative Experiences	1.122	.164	.422	6.837	<.001
Hours Played→Total Wagered	1.443	.350	.292	4.118	<.001
Hours Studied→Total Won/Lost	214.456	83.822	.179	2.558	.011
Neuroticism→Extraversion	-.410	.087	-.325	-4.720	<.001
Neuroticism→Negative Experiences	.257	.074	.214	3.477	<.001
Neuroticism→Relaxation	-.082	.026	-.209	-3.209	.001
Total Wagered→Total Won/Lost	50.047	27.203	.121	1.840	.066

Note. CR=critical ratio; SEM=structural equations modeling.

Table 5
Pearson Correlations between Variables Included in the Final SEM Model

	Age	Extraversion	Neuroticism	Relaxation	Financial Gain	Socializing	Hours Played	Total Wagered	Hours Studied	Negative Experiences	Total Won/Lost
Age	1.000										
Extraversion	-.065	1.000									
Neuroticism	.096	-.331**	1.000								
Relaxation	.122	.064	-.206**	1.000							
Financial Gain	-.237**	.072	.316**	.316**	1.000						
Socializing	-.104	.265**	-.022	.154*	.203**	1.000					
Hours Played	.041	.100	.069	.091	.278**	.021	1.000				
Total Wagered	-.165*	.169*	-.096	.077	.230**	.201**	.317**	1.000			
Hours Studied	.085	.016	.138	.418**	.220**	.443**	.187**	.187**	1.000		
Hours Studied	.085	.016	.138	.418**	.220**	.443**	.187**	.187**	.243**	1.000	
Negative Experiences	-.181*	.005	.242**	.100	.442**	.212**	.243**	.243**	.243**	.243**	1.000
Total Won/Lost	-.244**	.029	-.043	.104	.415**	.133	.116	.242**	.324**	.090	1.000

Note. SEM=structural equations modeling.

* $p < .05$. ** $p < .01$.

Monetary winnings and losses. The model accounted for approximately 24% of the variance in the amount of money participants won or lost playing internet poker. The SEM solution in Figure 2 shows that the number of hours one spent playing was not directly related to winnings and losses—only through the total amount wagered and the number of hours spent educating oneself about the game did the number of hours playing online have a mediating influence on financial outcomes. The more hours one played poker online, the more one tended to wager ($\beta = .292$, $p < .001$) and to engage in poker self-improvement activities ($\beta = .357$, $p < .001$), both of which were positively related to the amount won ($\beta = .121$, $p = .066^1$; $\beta = .179$, $p = .011$, respectively). As suggested in the initial conceptual model, all three of these behavioral elements were predicted by a motivation for Financial Gain such that the more one sought financial gain, the more hours one played poker online ($\beta = .280$, $p < .001$), the more money was wagered ($\beta = .145$, $p = .04$), and the more hours one spent in skill development activities ($\beta = .301$, $p < .001$). Moreover, one's winnings or losses were directly related to being motivated by the monetary aspects of the game ($\beta = .282$, $p < .001$) in addition to the mediating relationship that monetary motivation had upon playing behaviors.

Age again represented a significant influence on a participant's winnings and losses, both in a direct and a mediating sense. The younger a player, the more they tended to express Financial Gain as a key motivation for playing poker online ($\beta = -.244$, $p < .001$). Given the relationship between Financial Gain and winnings, it appears that a money motivation partially mediated the impact of age upon reported poker earnings through the behavioral variables. Further examination of participant age with analysis of variance (ANOVA), using Bonferroni-adjusted post hoc analyses, showed that for Financial Gain, it was those in the youngest age group (18–25 years) who expressed earning money most strongly as a reason for playing internet poker, $F(3, 190) = 4.76$, $p = .003$, significantly more so than those in the two older groups. In fact, the means for Financial Gain among the four age groups declined as participants got older (18–25 years, $M = 13.15$; 26–35 years, $M = 10.90$; 36–50 years, $M = 10.06$; 51 and older, $M = 9.60$).

In addition to having this indirect influence on winnings through the Financial Gain motivation, age also directly and inversely predicted the total amount won or lost playing internet poker games ($\beta = -.147$, $p = .025$); higher total winnings were associated with younger players. The two youngest age groups (18–25 and 26–35 years) won significantly more money than the two older groups (36–50 and 51+ years), $F(3, 190) = 5.93$, $p = .001$. Neither personality variable was related to poker winnings or losses.

¹Normally one would have excluded this nonsignificant association. However, doing so reduced the fit indices. Thus, we kept the linkage in the final model and noted that it approached significance at the $p = .05$ level.

Negative life experiences. The total score on the 6-item scale assessing negative outcomes from playing online poker was directly predicted by the total number of hours one spent playing ($\beta=.422$, $p<.001$), the score on Neuroticism ($\beta=.214$, $p<.001$), and age ($\beta=-.224$, $p<.001$). The model incorporating these relationships accounted for 29% of the variance in negative online poker outcomes. The number of hours playing poker on the internet evidenced the strongest relationship with negative life experience, as did higher levels of emotional instability and negative emotionality (i.e., a higher Neuroticism score). With respect to age, younger players evidenced more problems than did older players. An ANOVA of total negative outcome scores by age showed that players aged 35 years and younger were significantly more likely to report internet poker-related difficulties ($M=15.40$, $SD=7.15$) than players aged 36 years or older ($M=12.77$, $SD=6.63$), $F(1, 192)=7.01$, $p=.009$.

Discussion

This project sampled the membership of an online internet poker players' forum in order to model how personal characteristics, motivations for play, and playing behaviors were related to two outcomes: (a) amounts of money won and lost and (b) negative personal impacts from playing internet poker. Both of these were maintained in the final SEM solution. However, we also found a third outcome, social and emotional gains from playing (the Socializing and Relaxation factors), which had originally been proposed as motivational influences but which the data instead (or also) showed to be end points. The data also suggested that participants played poker online for a relatively substantial number of hours per week, with one third averaging more than 10 hr per week. Most people played in more than one of the gaming formats, with older players showing somewhat more variety in their gaming practices than younger players, who tended to cluster in games that did not have preset wagering limits.

Other age differences also emerged. Younger individuals appeared to play more from a desire to win money, and they actually did earn more money as a result of their play. Participant age was both a direct predictor of amount won or lost and an indirect influence, mediated through the Financial Gain motivation and total amounts of money wagered during play. Older players were less interested in playing poker to earn money. They expressed more motivation for using online poker as a way to relax, wagering and winning less money than younger individuals.

Personality factors were directly related to playing motivations and outcomes. Not surprisingly, scores on Extraversion were directly related to the desire of individuals to play in order to socialize with other people—more extraverted persons being attracted to group interactions that generate positive emotions. On the other hand, people expressing more of the Neuroticism trait appeared to use online poker less for relaxation than did people with lower scores on this trait. Other research has suggested that a positive relationship would have been more likely (e.g., McGrath,

Stewart, Klein, & Barrett, 2010; Stewart, Zack, Collins, & Klein, 2008). However, in this study, the single item measure of relaxation may not have been associated with its negative reinforcement value vis-à-vis stress and instead may have been more related to gambling as a pleasant activity (i.e., its positive reinforcement value). Thus, gamers with a higher score on Neuroticism would be thought of as seeking out internet poker less for enjoyment than for other affective reasons.

In our original model, we had anticipated that Extraversion would be mediated through social motivation to predict an increased number of hours playing and would therefore be related to negative outcomes. Some previous research with alcohol and drug use had shown support for the idea that problem use was related to the social orientation of one's personality (Kilbey, Downey, & Breslau, 1998; Nezlek, Pilkington, & Bilbro, 1994). However, this was not the case in our sample. Instead, it was Neuroticism (negative emotionality) that was directly predictive of outcomes associated with gambling problems. Research has previously demonstrated such a link between negative emotionality and the problem use of substances, but typically as a less common route than the social influence pathway (Baer, 2002). That the current study did not evidence social influence as a factor in the emergence of problems related to internet poker may suggest differences in developmental processes between online gaming behaviors and in vivo difficulties. It may also point to individual differences in the types of people who are more attracted to online versus actual environments in which potentially risky outcomes may occur.

We had originally proposed three motivational factors to mediate playing behavior and thereby outcomes. However, only the motivational factor for Financial Gain proved to be related to playing behavior and hence to winnings, losses, and negative personal experiences. Financial Gain mediated amounts won and lost by participants, as well as doing so indirectly by influencing the amounts of money wagered and the number of hours spent improving poker skills. The number of hours playing, although influenced by Financial Gain, was not related to amounts won or lost, but did mediate negative outcomes along with the personality trait of Neuroticism and a younger age. The Financial Gain motivation itself was not directly related to negative outcomes.

Overall, the results show that relatively few people (5% of the sample) experienced the most significant negative consequences from playing poker online, but that a somewhat larger group (though still a minority at 27%) reported some downsides resulting directly from their playing. Consistent with other research examining problem gambling (e.g., Holtgraves, 2009), our data strongly suggest that people may have gotten into trouble with poker because they spent too many hours involved in play and not primarily because of the amounts of money that they wagered or lost. In fact, neither the amount of money lost (or won), nor the type of online poker game played, nor the time spent studying poker was found to be associated with negative personal outcomes. We speculate that this may indicate

that too much time devoted to playing poker online may significantly interfere with adaptive behavior—it would take time from relationships, work, study, or other tasks that lead to success and satisfaction. As other priorities fall to the wayside, difficulties emerge as a result.

Results from this study suggest that players with higher levels of negative experiences appear to fall into a time trap as a result of wanting to earn money from online poker, a relationship that is especially true for younger individuals and for people who tend to be more pessimistic, moodier, or emotionally negative (the Neuroticism trait). Showing the strongest regression coefficient, the relationship between time played and negative experiences was especially important, the single largest regression value in the entire model. Time taken from other adaptive activities interacted with youth and emotional negativity to result in negative experiences for the online poker player. It may be that the younger or more emotionally vulnerable player could be especially prone to disruption of their daily lives by spending too much time gaming online. Time that could be spent coping with other exigencies may be spent gaming, leading to accumulating problems.

Younger persons may not have been as able to manage time demands as well as older individuals, or may have shown increased motivation for earning money through poker in order to supplement their incomes in ways that older people did not (especially because younger people tend to have less income). Less emotionally positive individuals could use online poker in an escapist manner to avoid stress in other areas of their lives (Nelson, Gebauer, LaBrie, & Shaffer, 2009). In fact, Neuroticism was related to two different outcomes: using poker less for relaxation while experiencing more problems as a result of play. Persons with higher Neuroticism scores played poker less for relaxation and showed more problems from it, whereas those with lower scores on this trait showed the reverse; they played more to unwind and had fewer problems with it. The combination of younger, more emotionally vulnerable individuals with spending a good number of hours playing poker online represented the most likely pathway for developing significant problems with the game.

Participants less likely to show problems were older and expressed more positive emotion and optimism. A subgroup of nonproblem players also seemed to play online poker for the social-emotional advantages of the game in terms of relaxation and the opportunity to socialize with other players. Among those participants with fewer gaming-related problems who also reported more interest in financial gain, the more “studious” players and those somewhat less motivated by winnings seemed to show the fewest difficulties. Financially motivated players who studied the game more, but who wagered less, tracked toward winning more money without developing problems from their participation in online poker. It really does seem that the key behavioral link in our sample between financial motivation and gaming-related problems was the number of hours one spent playing, especially for the younger and more emotionally negative players.

Although these findings seem to be fairly robust within our data set, one should exercise caution in generalizing to larger populations. The response rate to our email solicitation was lower than we had hoped, adding to the healthy skepticism that should always be used regarding nonrandom sampling methods. We also collected data from a website used by players to discuss and learn the game, not from one where people actually played poker online. This may add a second level of selection bias, possibly skewing results toward a more serious and/or experienced poker player with perhaps relatively less participation from more casual or less experienced individuals. In hindsight, it would have been useful to more carefully assess the impact of negative poker outcomes in order to parse them with more detail. We also might have used a more established means of assessing problem gambling behaviors, such as the South Oaks Gambling Screen (Lesieur & Blume, 1987), although the purpose of the study did not include identification of individuals who might have met the criteria for pathological gambling. It also may have been useful to assess additional personality characteristics (such as Conscientiousness) from the five-factor model that could affect measured outcomes. Further, one should note that the large majority of the sample were men; women were nearly absent from our participant group. Although, as we noted earlier, there is some reason to believe this proportion may reflect actual gender disparities with internet poker, it still raises two problems: (a) We cannot be completely sure that such gender disparities exist, and (b) it means that we are largely unable to comment upon the characteristics of the women who do play poker online. Such shortcomings could be addressed by future research in this area. Last, our factor for relaxation constituted only one item in the scale, and it is difficult to assess exactly what participants were ranking as “relaxation” when answering this item.

Despite these concerns in the present study, we believe its findings offer evidence for pathways through which some individuals develop problems playing poker online, especially for younger individuals and for those playing Internet poker who think that their time spent playing Internet poker (regardless of how long they play) negatively impacts their ability to fulfill other obligations and needs. The relationship between age and problem gaming is particularly noteworthy given the number of young people thought to be accessing online forms of gaming, including poker (Jacobs, 2000; Shaffer & Hall, 1996). Many internet gambling websites appear to specifically cater to younger individuals (Messerlian, Byrne, & Derevensky, 2004). Further, earlier risky involvement with problem gambling appears to be associated with more severe difficulties in future years, especially for those who have other psychosocial difficulties (Winters, Stinchfield, Botzet, & Anderson, 2002)—which is troubling, given that the current study found a link between emotional instability and negative outcomes from online poker.

Players become involved with online poker for a variety of often overlapping reasons and bring with them personal characteristics that affect their vulnerability to negative outcomes. In better understanding these motivations, behaviors, and characteristics, we could more effectively assist those at risk of developing gaming

difficulties and enhance the experience for everyone involved by tailoring the virtual environment accordingly. Providing players with ways to more effectively manage their online time, deal with stress and negative emotions, and focus on healthy social-emotional outcomes all appear likely to mitigate problems somewhat independently of how much money is wagered, won, or lost.

The results found in this paper should inform many areas. First, several online poker sites (e.g., www.fulltiltpoker.com and www.pokerstars.com) have some responsible gaming features. For example, both www.pokerstars.com and www.fulltiltpoker.com allow a player to exclude him- or herself from the site. A better understanding of which players are likely to develop problems may be useful to sites that do care about the long-term health of their players. Some literature may also be informed by these results. Those who do research in problem gambling should better delineate those factors that predict problem involvement with online gaming while recognizing that most players probably will not develop negative outcomes from Internet poker. In so doing, we would have a much clearer understanding about the factors that attract nonproblem players to the online gaming environment. We could then work to create virtual experiences to promote healthier gaming and thus minimize the likelihood that vulnerable individuals would experience serious negative outcomes because of their involvement with Internet poker.

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The Effect of Mere Presence on Electronic Gaming Machine Gambling

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Abstract

Intensification of gambling behavior may partly result from arousal caused by the mere physical presence of others in the gaming venue moving through the gaming floor on their way to enjoy other amenities. In an experiment, 56 male and 76 female participants ($N=132$) gambled on a laptop-simulated electronic gaming machine (EGM), either alone or with a simulated crowd of 6 or 26 others who were wearing blindfolds and earphones. These crowds of other persons were falsely said to be participating in another experiment on sensory deprivation. Among players with preexisting gambling problems, the results showed that these crowds contributed to a particular style of gambling whereby players generally bet smaller amounts but were more persistent as losses mounted. These changes in persistence occurred despite the inability of these others to witness or evaluate the participants. The experiment suggests that the mere presence of others in a gaming venue can affect EGM betting behavior.

Résumé

Il est possible que l'intensification des comportements associés au jeu soit partiellement liée à la stimulation que provoque la simple présence physique dans un espace de jeu d'autres personnes déambulant dans le même lieu et profitant d'autres services et installations. Dans le cadre d'une expérience, nous avons demandé à 56 hommes et 76 femmes ($N=132$) de s'adonner au jeu depuis un ordinateur portable simulant un appareil électronique de jeux de hasard. Les participants étaient dans un lieu où il n'y avait personne d'autre, ou encore dans un lieu où il y avait une fausse foule composée de 6 ou de 26 personnes avec les yeux bandés et des écouteurs, et croyant faussement participer à une autre expérience sur la privation sensorielle. Parmi les joueurs ayant déjà un problème de jeu, les résultats ont montré que la présence d'une foule favorise un style de jeu particulier en fonction duquel les joueurs misent de plus petites sommes, mais font preuve d'une

plus grande obstination à mesure que les pertes augmentent. Cette modification quant à la ténacité des joueurs s'est produite malgré l'incapacité des autres personnes présentes à voir ou à évaluer les participants. Les résultats de l'expérience laissent ainsi entendre que la simple présence d'autres personnes dans un espace de jeu peut avoir un effet sur la façon de miser d'un joueur utilisant un appareil électronique de jeux de hasard.

Introduction

At first glance, gambling on electronic gaming machines (EGMs) appears to be an asocial activity in which interaction with the machine is favored over interactions with other players. EGM betting is nevertheless profoundly impacted by social forces (Rockloff & Dyer, 2007; Rockloff & Greer, 2010). Past research indicates that information about the wins of other players magnifies gambling intensity by increasing the persistence of betting in the face of mounting losses (Rockloff & Dyer, 2007). Rockloff, Greer, and Fay (2011) likewise found increased gambling intensity in the presence of other players in the form of gambling persistence, faster betting speed, and greater total losses. One component leading to the social facilitation effect is the informational content transmitted by the broadcasting of wins within the venue by way of lights and winning bells. A greater number of simultaneous players within a venue necessarily means that more wins will be broadcast within any given time period and thus could potentially alter patrons' perceptions about the likelihood of winning. Another component to social facilitation is the audience effect, whereby players are aware that their betting behavior may be monitored by others, including both other players and nonplayer observers. Rockloff and Greer (2011) suggested that the audience effect may inhibit rather than encourage intense gambling. Lastly, the drive theory of social facilitation suggests the possibility that the mere presence of other people may motivate behavior by raising arousal levels, thereby facilitating dominant responses (Zajonc, 1965). The current mere-presence study examines the influence that crowds of other people have on EGM gambling in the absence of their being able to observe the actions of the gambler.

Even if other people in the gaming environment are not betting (and thus providing no information on the likelihood of winning) and cannot observe the betting of the target player (and thus do not contribute to a fear of negative appraisal), the mere presence of other people in the gaming venue may still act to intensify individual betting behavior. This study is important on theoretical grounds, but also has a practical interpretation. Foot traffic unrelated to gambling is common in many commercial gaming venues. This foot traffic results from patrons moving through the gaming area to access other amenities at the site, including restaurants and live entertainment. If the mere presence of others intensifies betting behavior, there is a

potential to alter the design of gaming floors to limit such nongambling-related foot traffic.

Mere Presence

Several theoretical accounts of the social facilitation effect have included some aspects of cognitive mediation whereby the actor adheres more closely to a salient standard of performance (Carver & Scheier, 1981), or is motivated by a need for social approval (Cottrell, Wack, Sekerak, & Rittle, 1968), or is driven by distraction (Baron, Moore, & Sanders, 1978). Zajonc, Heingartner, and Herman (1969) provided convincing animal evidence that *no* cognitive mechanism is necessary to generate social facilitation effects. Using cockroaches as a model, Zajonc et al. created “simple” and “complex” mazes into which a torch (flashlight) was shown into one side of the maze. The cockroaches, as a dominant response, would race to a darkened chamber at the terminal of each maze. Zajonc et al. found that cockroaches ran faster when placed in a simple maze with an audience of other cockroaches being in view through plexiglass. Conversely, cockroaches ran slower in complex mazes in the presence of others. Obviously, cockroaches lack the mental capacity to fear evaluation of their performance by the other animals. According to Zajonc’s drive theory (1965), the “mere-presence” of other conspecifics increased the drive of the animal to produce a dominant response (running to a dark chamber), rather than a more complex cognitively mediated response.

Evidence for social facilitation effects in humans has proved more difficult, as it is hard to eliminate the possibility that humans might believe themselves to be judged on any performance-related task. Guerin (1986) identified 13 studies that adequately tested for the mere-presence effect in people and concluded that social facilitation only occurred in situations of mere presence in which others were a source of uncertainty for the actor. Thus, for humans, it appears that the mere presence of other people in the environment can sometimes—but not always—produce uncertainty. The uncertainty, by provoking a state of arousal and drive, facilitates performance on easy or well-learned tasks and inhibits performance on complex or novel tasks.

Hypotheses

Gambling is an easy and well-learned task for most regular players. As such, it is reasonable to hypothesize that betting behavior on EGMs should be intensified by the mere presence of others, as long as that mere presence also creates an environment of uncertainty in the gambler. Gambling intensity is defined here as any marker or trace of behavior that would contribute to long-run gambling losses. As the expected return in a commercial gaming venue is always negative, betting larger amounts, playing faster, and placing more bets will contribute to greater losses in the long run. Likewise, final payouts are a direct measure of gambling losses. In the current mere-presence study, the participants were predicted to gamble

more intensively on these measures in the presence of larger crowds of nonevaluative others.

Methods

Participants

One hundred thirty-two participants, including 56 males and 76 females, were recruited from newspaper-flyer advertisements in Bundaberg, Australia. The average age of the subjects was 52.3 years ($SD=16.7$, range 18–71). The cultural backgrounds of the participants included the following: 114 (86.4%) Australian, 10 (7.6%) English, 2 (1.5%) Assyrian, and 6 (4.5%) other (unspecified). The Problem Gambling Severity Index (PGSI) (Ferris & Wynne, 2001) indicated that the problem-gambling status of the participants included 58 (43.9%) nonproblem gamblers, 28 (21.2%) low-risk gamblers, 31 (23.5%) moderate-risk gamblers, 8 (6.1%) problem gamblers, and 7 (5.3%) unclassified due to incomplete questionnaires.

The Simulated EGM

The study used a laptop-simulated EGM created in Visual Basic by the first author (cf. Rockloff, Greer, Fay, & Evans, 2011). The EGM was a traditional three-reel design, with three fruits on each reel. The player had the choice of betting 25, 50, or 100 cents on each trial (spin), and payoffs were 10 times the amount bet (i.e., \$2.50, \$5.00, or \$10.00, respectively). Starting credits were \$20 (2,000 cents), and the machine was rigged with a short sequence of five wins in the first 20 trials (on spins 4, 7, 14, 18, and 20), with losses programmed thereafter. The theoretical maximum payout was \$61.50, calculated as follows: \$20 starting bankroll plus \$50 maximum wins less \$8.50 in minimum bets required. The EGM produced the typical sounds of play, including the music of spinning reels and winning bells.

Design and Procedure

In the alone control condition, subjects were given \$20 compensation and completed a basic demographic questionnaire as well as the PGSI (Ferris & Wynne, 2001). Subjects in the alone condition proceeded immediately to the EGM task ($n=41$). By random assignment, other participants were placed in the six-person mere-presence condition (five-person video plus one live confederate, $n=43$) or the 26-person mere-presence condition (25-person video plus one live confederate, $n=48$). In the two mere-presence test conditions, subjects sat alongside one live confederate (a fake subject), who was described as participating in a separate study on sensory deprivation. The experimenter stated, “I’ll be running both studies today.” Both the participant and the confederate were given \$20 as compensation for their arrival at the session.

Participants were given brief instructions on how to operate the EGM and told that they could quit playing at any time. They were shown how to signal the experimenter from outside the room by pressing a call button fixed to the table (a remote doorbell alarm). Subjects were informed that they would receive any amounts remaining on the EGM at the conclusion of play and that they would receive one ticket in a \$500 grand lottery for each \$1 they had remaining on the machine at the conclusion of play. This lottery draw was introduced to provide an incentive to conserve some money, as the low stakes of the game might otherwise cause subjects to expend their entire initial stake regardless of condition (a ceiling effect).

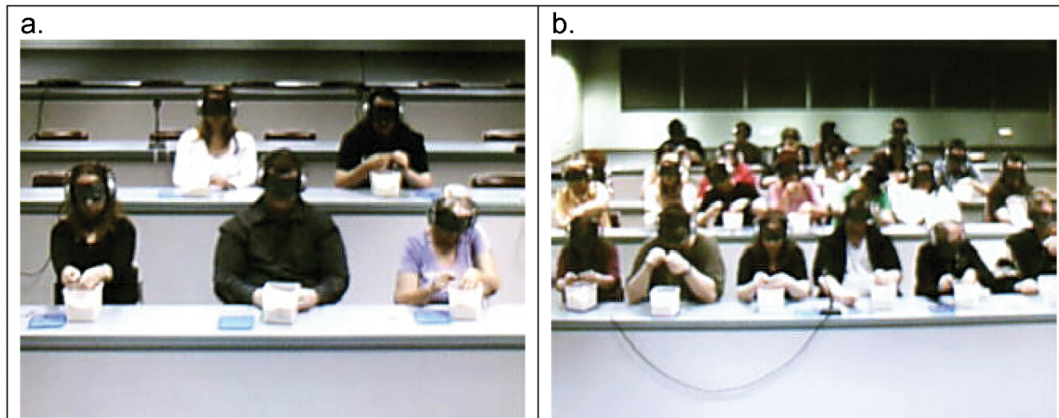
For the benefit of the subject who was listening, the confederate was told in a scripted dialogue that she would be participating in a study exploring the “effect that visual and audio-sensory deprivation has on tactile tasks.” She was told that she would be wearing headphones and a blindfold so that she could not see or hear anything around her. The task was to thread beads and safety pins from a container filled with rice and to string them onto a short length of fishing line. The confederates’ stated objective (ostensibly) was to thread as many beads and pins onto the line as possible until the experimenter indicated that it was time to stop. The confederate was told that a “group of participants on the Rockhampton campus (approximately 290 km distant) would also be doing the sensory deprivation experiment at the same time live via videoconference.”

A short questionnaire was completed by both the subject and the confederate. The subject’s questionnaire contained basic demographic questions as well as the PGSI (Ferris & Wynne, 2001). The confederate completed her (fake) survey slowly to allow the real subject ample time to finish.

After the completion of the questionnaires and informed consent documents, the experimenter announced: “We are going to start the sensory deprivation experiment first.” The experimenter told the confederate to place the blindfold over her forehead and to wait for the experimenter to signal for her to cover her eyes and begin the task. The experimenter instructed the confederate to put on earplugs and full ear-covering headphones. Up-tempo classical music (*Cardio Classics—Orchestral Workout!*, 2008) was played into the headphones at a volume that allowed the music to seep out. The full-ear covering headphones were specifically chosen to leak audio and thus create the impression that the music was being played at high volume.

The experimenter started the fake videoconference by using an Access Grid videoconference system (Suarez, 2007), which included one of two prerecorded videos for the “remote” site (see Figure 1). Each videoconference session included a camera view of the confederate and the subject projected onto the wall (and thus presumably also broadcasted to the remote site). On the basis of an audio cue embedded in the video (a book drop), the experimenter signaled the confederate to

Figure 1. Frame capture from prerecorded videos of five (a) and 25 persons (b) participating in a fake sensory-deprivation task



begin the task with hand gestures, while persons in the video also began the fake sensory deprivation task. The experimenter said to the real participant: “I want you to ignore this other experiment. They can’t see or hear you.”

The \$20 compensation was retrieved from the participant after he or she was asked: “Are you ready to gamble with this \$20 on the EGM for the chance to win up to \$62 and the possibility of \$500 in a jackpot draw?” These instructions were intended to create the (correct) impression that subjects were gambling with their own money. Participants were reminded that they could quit the game at any time and that they would receive the full amount remaining on the EGM in cash, as well as one ticket in a \$500 jackpot draw for every \$1 remaining on the machine. The experimenter left the room after starting the EGM, which had a 30-sec countdown to allow sufficient time to leave.

Confederates

Because of an unanticipated lack of availability of the first confederate past June 2009, a second confederate was employed to complete data collection. The first confederate was a 44-year-old blonde female who completed 50 sessions (including 23 of the six-person crowd and 27 of the 26-person crowd). The second confederate was a 40-year-old blonde female who completed 41 sessions (including 20 of the six-person crowd and 21 of the 26-person crowd).

Results

Data Analysis

The outcomes of bet size, speed of betting, total trials, and final payouts were analyzed with an analysis of covariance (ANCOVA) model. The independent variables included condition (alone, six-person crowd, 26-person crowd) and PGSI

gambling status (Ferris & Wynne, 2001), as well as the covariates of age and gender. PGSI gambling status was coded as two categories for the purposes of the analysis (no problems, or one or more problems), as there were only eight subjects with severe gambling problems, and this limitation of range prevented a finer analysis of this variable.

Bet Size

There was no significant main effect for condition, $F(2,117)=0.18$, $p=.83$, *ns*, or PGSI status, $F(1,117)=1.03$, $p=.31$, *ns*, on the outcome of bet size, nor were there any significant simple effects. However, there was a significant interaction between condition and PGSI status, $F(2,117)=3.25$, $p=.04$ (see Figure 2). Participants with some preexisting gambling problems bet smaller amounts in the mere presence of confederates compared with the alone condition. In contrast, participants with no identifiable preexisting problems bet larger amounts in the mere-presence condition compared with the control. There was no significant effect for either age, $F(1,117)=1.91$, $p=.17$, *ns*, or gender, $F(1,117)=1.24$, $p=.27$, *ns*, on the outcome of bet size.

Speed of Betting

Bets per minute was a variable calculated as the average number of bets placed by each participant in 1 min of play, with higher means indicating faster speeds. There was a significant main effect for condition, $F(2,117)=5.23$, $p<.01$, on the speed of betting (see Figure 3). Tests of simple effects revealed a significant increase in bet speed from the alone condition to the six-person crowd, $p<.01$, and a significant decrease from the six-person crowd to the 26-person crowd, $p=.01$. There was no significant main effect for PGSI status, $F(1,117)=0.04$, $p=.85$, *ns*, and no significant interaction between condition and PGSI status, $F(2,117)=2.12$, $p=.13$, *ns*. There

Figure 2. Bet size by condition and PGSI problem-gambling status. PGSI=Problem Gambling Severity Index

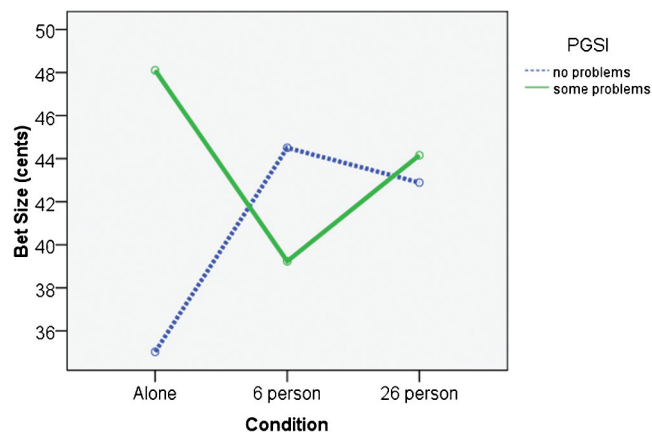
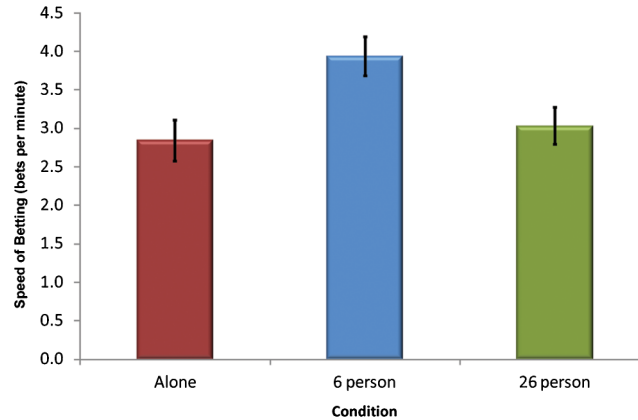


Figure 3. Speed of betting by condition

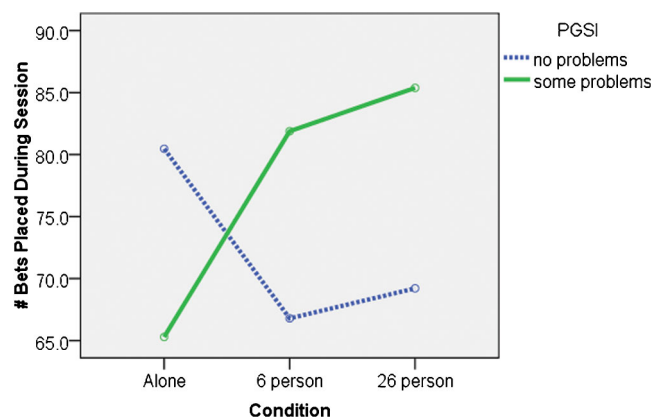


were also no significant effects for either age, $F(1,117)=0.11$, $p=.74$, *ns*, or gender, $F(1,117)=0.25$, $p=.62$, *ns*.

Total Trials

There were no main effects for condition, $F(2,117)=0.26$, $p=.77$, *ns*, or PGSI status, $F(1,117)=1.03$, $p=.31$, *ns*, on the total trials played (or bets placed in a session), nor were there any significant simple effects. However, there was a significant interaction between condition and PGSI status, $F(2,117)=3.83$, $p=.02$ (see Figure 4). Gambling persistence increased for players with some preexisting gambling problems in the mere presence of others compared with the alone condition. Conversely, persistence decreased for players with no identifiable problems in the mere presence of others compared with the alone condition. There was a significant effect for age, $F(1,117)=7.83$, $p<.01$, such that older players

Figure 4. Total trials by condition and PGSI problem-gambling status. PGSI=Problem Gambling Severity Index



tended to place more bets. There was no significant effect for gender, $F(1,117)=0.10$, $p=.76$, *ns*.

There was a significant raw correlation between bet size and total trials, $r(130)=-.24$, $p<.01$. It is therefore reasonable to suspect that persistence, as measured by total trials, may be influenced by a player's initial choice of bet size and subsequent history of wins. That is, those who bet more and win more in the first 20 trials are tempted to quit early to lock in their gains. An ANCOVA model was run to repeat this analysis, but with the additional covariate of bet size. The overall pattern of results was identical to those in Figure 4, although the condition by PGSI-status interaction was no longer significant, $F(2,116)=2.66$, $p=.07$, *ns*.

Final Payouts

There were a total of 60 (45.5%) participants who continued to play the EGM until there were no credits remaining. As such, the final payouts variable was converted into rank scores to make it amenable to analysis with the ANCOVA model. There were no significant effects for condition, $F(2,117)=3.26$, $p=.07$, *ns*, or PGSI status, $F(1,117)=3.26$, $p=.07$, *ns*, on final payouts, and there was no interaction between these variables, $F(2,117)=1.44$, $p=.24$, *ns*. However, there was a significant main effect for age, $F(1,117)=6.91$, $p=.01$, such that older players had lower payouts. Lastly, there was no significant effect for gender on final payouts, $F(1,117)=0.02$, $p=.90$, *ns*.

Discussion

The results of the mere-presence study did not conform well to initial predictions. The mere presence of other people who were falsely presented as participating in another experiment on sensory deprivation did not cause a uniform increase in gambling intensity among the subjects. Prior research on the mere-presence effect suggests that the mere presence of others can cause uncertainty in the actor in some situations and that this uncertainty is necessary for social facilitation effects to occur (Guerin, 1986). It is important to note that there is no measure of “uncertainty” in this experiment, and it is only an assumption that this might be a driving force in producing the observed changes in behavior. The apparent absence of other plausible evaluative sources of influence, however, implicates uncertainty as the active ingredient of change. In the present study, mere presence clearly had some impact on gambling behavior, although some of the results were unexpected.

Speed of Betting

As expected, betting speed was higher in the mere presence of six people compared with the alone control, which suggests some “energizing” or arousing effect created by the mere presence of others (see Figure 3). Unexpectedly, however, the 26-person mere-presence condition failed to show greater speed than that in the alone

condition. It is possible that the six-person condition created more uncertainty in the subjects than the 26-person condition because the uniformity of their actions (i.e., threading beads and pins on a fishing line) enhanced the impression that no individual would suddenly “do something” or act out of character with the demands of the situation. It is also possible that a larger crowd created a greater feeling of anonymity on the part of the subject, so that the consequence of any imagined disturbance in the 26-person condition would have less impact on them than a disturbance in the six-person condition.

Bet Size

The assumed potential for uncertainty created by the mere presence of others may be a source of autonomic arousal that influences betting behavior. The results of bet size conform well to previous work that specifically investigated the influence of autonomic arousal on bet size. Rockloff, Signal, and Dyer (2007) blasted a loud “white noise” at players during their betting session on a similarly structured EGM task. In this prior study, persons with many gambling problems had lower average bet sizes in the white-noise condition compared with the alone control, whereas those with few or no problems had higher average bet sizes. The results of the current mere-presence study conform to these prior findings. Gamblers with preexisting problems had lower bet sizes in the mere presence of others compared with those in the alone condition, whereas those with no preexisting problems had higher bet sizes in the mere presence of others (see Figure 2). It is likely that a similar explanation is applicable to these results. Mere presence, much like the white-noise event, creates autonomic arousal that influences gambling. Some of the arousal caused by the mere presence of others can be misattributed to the gambling task (cf., Schachter & Singer, 1962). In a study investigating imagined gambling sessions, Sharpe (2004) found that social gamblers become more aroused, as measured by galvanic skin response, when imagining situations in which they had won at gambling compared with imagining losses. In contrast, problem gamblers were equally aroused by imagining both wins and losses. Thus, gamblers with preexisting problems are more likely to associate physiological arousal with losing and thus to moderate their betting accordingly. In contrast, players without problems associate arousal exclusively with winning and therefore bet larger amounts to capitalize on this assumed luck.

Total Trials

Persistence at gambling, as measured by total trials (or bets placed during the session), is another feature of gambling intensity. As the EGM was rigged with indefinite losses past the 20th trial, this variable captures persistence in the face of mounting losses. For players with preexisting gambling problems, persistence at betting was greater in the mere-presence conditions than in the alone condition. It is possible that the greater potential for uncertainty, and the accompanying arousal, was interpreted as a signal that their luck might soon change for the better as play

progressed. In contrast, for players with no identifiable problems, gambling persistence was lower in the mere-presence conditions compared with the alone condition. Initial confidence, as represented by bet size, appears to dissipate with mounting losses; players without problems quit early in the mere presence of others.

The results for total trials, interpreted in terms of intensity, contrast with those of bet size. Players with preexisting problems bet small amounts in the mere presence of others, but failed to quit as losses mounted. In contrast, players without identifiable problems bet large amounts in the mere presence of others, yet quit early when losses began to accumulate. Future research can explore reasons behind these results. It may be, for instance, that different salient aspects of performance (Carver & Scheier, 1981) are active for problem players (e.g., staying in the game) versus nonproblem players (e.g., maximizing profits).

Age

Older players in the mere-presence study tended to place more bets and lose more money overall. These results were unexpected, as younger players are often cited as betting more intensely and being more likely to have gambling problems. However, the results may only reflect a peculiarity of this sample.

Limitations

There are limits to extending the results of the study to natural environments, such as commercial gaming venues. The abstract nature of the mere-presence condition, being a fake sensory-deprivation experiment, is clearly not representative of the precise social situations experienced in real gaming environments. Instead, the research relies on a tradition of experimental realism that has proved successful in past social psychological research. The fake sensory-deprivation experiment was introduced to create an environment in which the subjects could gamble in the presence of other people without the fear or expectation that these others would judge their behavior. In fact, our postexperiment debriefings indicated that subjects believed this to be the case, although it is impossible to entirely discount some unexpressed fears of evaluation by others. As such, the mere-presence study was intended to be a psychological equivalent of foot traffic, or crowds, moving through a casino floor, but not necessarily attending to the activities of gamblers. This can happen in gaming venues, where patrons move through the gaming-floor space on their way to enjoy other facilities such as dining and live entertainment.

A further impact on the realism of the experiment was the award of lottery tickets to players for each dollar remaining at the end of play. This procedure is not representative of the situation faced by gamers in commercial venues. The lottery ticket award was intended to reduce the overall experiment-wide persistence of gambling to aid in the detection of potential differences between conditions, but also

clearly contributed to some disconnect between the incentives faced by gamblers in the experiment and those faced by gamblers in real-world environments.

Foot traffic in real venues may have a larger or smaller effect on actual gambling behavior in venues. In particular, past research has suggested that mere presence has an influence on the social facilitation of behavior only if those others contribute to an environment of uncertainty. Foot traffic may create larger or smaller effects on the gambler than was present in this experiment as a result of differences in socially generated uncertainty. Lastly, the experiment does not provide any enlightenment with regard to which aspects of uncertainty may be impacting player behavior and therefore implicitly defines uncertainty only as the absence of some informational or evaluative component of social facilitation.

Implications and Conclusions

Mere presence has an influence on gambling behavior, although the influence is not as simple as intensifying gambling on all measures of behavior. Instead, the effects of mere presence appear to have different influences on gamblers with and without preexisting gambling problems. Gamblers with preexisting problems display a particular style of gambling in the mere presence of others whereby they bet smaller amounts, but are resistant to quitting while losing money. Persistence is not simply a consequence of relatively lower bet sizes and modest initial wins, as the pattern of persistence is maintained after statistically controlling for bet size. In contrast, players without identifiable gambling problems choose to bet large amounts, but quit early in the face of mounting losses. The results of this study suggest that changes in gambling behavior arising from social facilitation are not solely due to informational effects (from coactors) or evaluation by others (from an audience), but can be a consequence of the mere presence of others in the venue who can neither see nor hear the actions of the gambler. Future research may be able to identify why mere presence has these contradictory effects on measures of gambling intensity.

Acknowledgements

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Contributors: Dr. Rockloff was involved in conducting the research study, analyzing the data, drafting the initial manuscript, and editing final versions of the manuscript. Nancy Greer and Lionel Evans were involved in data analysis and in writing and editing the manuscript.

Dr. Matthew Rockloff received a PhD in social psychology from Florida Atlantic University in 1999. He is Deputy Director of the Institute for Health and Social Science Research, one of Australia’s leading providers of applied social research. Dr. Rockloff has been honored as a Jack Walker Scholar and twice as an Aurel B. Newell Fellow.

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critique de film

La Tueuse

Un film de Rodolphe Tissot. (2009). Paris: Shiro Films et Arte France. ISBN 3770002624012.

Critique rédigée par: Michael Cantinotti, Ph.D., Département des Sciences de la santé, Université du Québec à Chicoutimi, Québec, Canada

Film français se déroulant à Paris, *La Tueuse* met en scène une tranche de vie de Mathilde, une jeune femme qui découvre l'univers du Texas Hold'em alors qu'elle est sans emploi et enceinte de son premier enfant. Dans le contexte d'une situation financière précaire, sa rencontre avec le poker représentera une occasion d'émerger dans un monde de joueurs où les femmes sont quasiment absentes, leur rôle se limitant à celui de croupière. Dans cet univers misogyne, être une femme qui joue, c'est déjà sortir du lot. *La Tueuse*, c'est donc aussi l'histoire d'une femme qui se fait une place dans un monde masculin et qui refuse d'être cantonnée dans le rôle d'une mère au foyer, revêtant progressivement une aura de Dame de pique fatale pour ses adversaires.

Le parcours de Mathilde sera celui d'un intérêt qui se transformera rapidement en une activité passionnée dans laquelle la joueuse investit toute son énergie, son temps et son argent. D'une situation où l'aspect ludique du poker s'inscrit dans le temps des rencontres sociales entre amis et avec d'autres joueurs, Mathilde développe peu à peu une passion obsessive (Vallerand et al., 2003) pour le jeu. Celui-ci occupe progressivement une place prépondérante dans son existence; sa vie sociale, personnelle et familiale paraît se ternir, laissant toute la place à la joueuse en elle. Le film parvient avec succès à illustrer ce rétrécissement graduel et exclusif de la vie de la joueuse autour du poker. S'ensuit une descente progressive dans le cercle vicieux des mensonges et de l'endettement, qui caractérise la pratique excessive du jeu lorsque la personne ne discerne plus rationnellement l'ampleur des risques encourus par les décisions qu'elle prend en situation de mise. Paradoxe de cette Dame de pique qui domine avec subtilité ses sentiments et ses émotions autour d'une table ovale, Mathilde semble perdre tout sens de la mesure lorsque l'occasion de jouer au poker se présente.

Outre les tournois impliquant des adversaires en face à face, Mathilde s'initie également au poker en ligne. Elle fait d'ailleurs la distinction entre les personnes s'adonnant à ces deux types de jeux, associant les joueurs en ligne à une incapacité à

bluffer, contrairement à ceux qui ont l'habitude de s'affronter en face à face. Au-delà des différences entre le jeu en personne et le jeu en ligne, la difficulté de Mathilde à résister à l'envie de parier continuellement renvoie au problème de l'offre de jeu accrue sur Internet qui a émergé à l'échelle mondiale au cours des dernières années et dont l'ampleur des impacts sociosanitaires à long terme est actuellement inconnue.

Le film pourra surprendre par son final s'écartant du scénario à la Dan Mahowny (Camon, Hamori, McLean, et Kwietniowski, 2003), qui optait pour la rédemption par le traitement. Si *La Tueuse* est un film sur le poker qui permettra aux intervenants, aux décideurs ou aux chercheurs de se familiariser avec l'univers codifié du poker, en particulier au niveau de la scène parisienne, il présente néanmoins un parcours singulier : celui d'une femme qui finira par envisager sa vie comme une partie de poker.

Le film comporte certaines zones d'ombre, comme en témoigne le fait que le réalisateur a décidé de ne pas expliquer le talent quasiment inné, du moins en apparence, de Mathilde pour le poker. Le spectateur doit ainsi deviner comment elle a pu passer du statut de débutante chanceuse à celui de joueuse aguerrie. Mais est-elle réellement devenue une « experte », ou simplement une joueuse chanceuse qui maîtrise les rudiments du poker? Aborder le sujet du poker implique nécessairement de se questionner sur la part de hasard et d'habileté dans les résultats monétaires obtenus à ce jeu. Contrairement à certains jeux de hasard et d'argent comme les appareils électroniques de jeu et la loterie, où le hasard est totalement maître du jeu, est-il possible pour un joueur de poker de développer une expertise et d'être gagnant sur le plan monétaire à long terme? Le film ne propose pas de solution à cette épineuse question, bien que le personnage principal se prononce indirectement à plusieurs reprises sur ce sujet. Mathilde affirmera entre autres : « Si t'aimes pas le hasard, tu ne joues pas au poker, tu joues au bridge », rappelant ainsi que la prise de risques et de décisions en situation d'incertitude reflète une dimension centrale de ce jeu. Dans un contexte où le poker représente une activité attrayante pour de nombreux jeunes qui pourraient y voir une opportunité de réaliser des gains substantiels advenant une maîtrise suffisante du jeu, il paraît nécessaire de rappeler que ce dernier est avant tout basé sur un tirage aléatoire de cartes. Bien que les dimensions interpersonnelles (ex.: bluff, *slowplay*, *floating*...) et la connaissance des probabilités associées aux combinaisons de cartes au Texas Hold'em puissent influencer l'issue du jeu, la notion d'expertise au poker demeure actuellement davantage un acte de foi que le fruit d'une démonstration scientifique rigoureuse. Un article paru dans la revue *Chance* (Berthet, 2010), publiée par l'*American Statistical Association*, conclut plutôt que c'est la valeur des cartes d'un joueur qui détermine de manière prépondérante l'issue du jeu. Ainsi, bien que le poker soit un jeu qui n'est pas purement déterminé par le hasard, il n'en demeure pas moins nettement dominé par ce dernier.

Présentant le portrait d'une joueuse passionnée qui finit par épouser l'étiquette de tueuse qu'on lui a accolée à ses débuts, au point où elle fera le choix de continuer à

bluffer pour tenter de reprendre les rênes de sa propre vie, *La Tueuse* est un film intelligent qui dépasse les clichés sur la face sombre du poker lorsqu'il devient une passion obsessive.

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book review

What is Addiction?

Edited by Don Ross, Harold Kincaid, David Spurrett, Peter Collins. (2010).
Cambridge, Mass. and London, England: The MIT Press. ISBN 978-0-262-51311-1.
Paperback.

Reviewed by Dean R. Gerstein, Claremont Graduate University

This is a serious programmatic book intended mainly for an academic research audience. There is food for thought here, some of it quite interesting for clinicians, although there is only a glancing attention to clinical cases, programs, or approaches. The editors who commissioned these chapters (with each one also contributing one) are an unusual foursome of philosophers and economists, one of whom directs the Centre for the Study of Gambling at University of Salford, U.K. They have assembled an international array of faculty (albeit all in predominantly English-speaking countries), mainly from the disciplines of neuroscience, behavioral psychology, behavioral economics, and philosophy.

The authors focus broadly on the addictions, but virtually every one considers pathological gambling to be a fully fledged member of that family. The ideas formulated and discussed throughout can be readily understood as a short suite of potential answers to the question, “What is gambling addiction?” In the introduction, editors Ross and Kincaid go so far as to acknowledge, “Some readers may be surprised by the degree of attention devoted in this book to pathological gambling.” (p. ix)

Aside from the dearth of clinical studies, there is another area that gets limited attention. As another of the editors acknowledges, “There is little direct discussion in this volume of social factors in addiction” – while hastening to note, “Whether it is needed is, of course, an open question” (Kincaid and Sullivan, p. 368). The question is not so open here—most of these authors implicitly concur in the severe logic of one explicit critical judgment, namely that “diagnostic criteria must not make reference to factors extrinsic to the subject,” such as the state of the subject’s social relationships resulting from or relating to their gambling activities (Manson, p. 378).

There is, to be sure, plenty left to talk about in the book’s sixteen chapters (by thirty authors), which comprise well over 400 pages of small print in a 7x9-inch format.

The editors have done an excellent job with technical wordsmithing, assuring that dense material is as clear and assimilable to the patient reader as material that is lightweight. The key to the density of the material lies in the two most paginated entries in the index: “anticipation/prediction” and “hyperbolic intertemporal discounting.” Exemplary of the lighter strains is a chapter whose leading and concluding sentences open notably often with the observation, “Intuitively...”

In general, the editors set out to document (mostly as proponents rather than observers or critics) a fairly big claim in the field of addiction studies, namely, that the junction between cognitive neuroscience and behavioral economics is not simply one of the respectable peripheries or disciplinary territories of the field, but is its very core, with scientific hegemony over the definition, investigation, and management of addiction.

This goes beyond the familiar NIDA-forged legitimating slogan that addiction is a brain disease (a millennial wrinkle on the old saw that “alcoholism is not a disease of the elbow”). According to most of the authors here, addiction derives from a revealing aberration in the workings of an intricate organic timepiece—specifically, the biological clock that measures the passage of future time in the brain’s temporal imaging center. The addict’s sufferings—which, in the view of most contributors and summarized in the final “policy implications” chapter by editor Collins, are greatly amplified by an irrational set of modern public policies—are rooted in a fundamental feature of mental calculation. Our imaginations march to a relativistic drumbeat, in which time is not a straight line but a curved one—possibly two curved ones—disappearing around the bend, and this leads to characteristic instabilities in all of our preferences over time, and particularly a tendency to overvalue in the present experience that happens “shorter, sooner” rather than “longer, later.” In the silent calculations that compose our imagination, the future arrives at the wrong speed—and from this flows nearly everything that goes wrong in addiction. And this tendency is easily exploitable by pitiless marketers to turn us into “money pumps,” to their pecuniary benefit—although, again, the nature and control of markets for addictive games or items are not dimensions that these authors, by and large, are interested in pursuing.

So this is the news brought to us by cognitive neuroscience. The evidence behind it, although diligently pursued, is thinner than the theoretical constructs. By and large, this book provides a fine tour of these interesting research areas. But those looking for direct clinical or policy applications guidance will have to look elsewhere.

book review

Pathways to excessive gambling: A societal perspective on youth and adult gambling pursuits

By Charlotte Fabiansson. (2010). Burlington, VT: Ashgate Publishing Company.
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Although Australia is, in population and economic terms, a relatively small country compared with many of the other G-20 countries, it is a major player in the area of gambling. It is well known that Australians have the highest per capita expenditure on gambling of any country in the world. Several Australian companies are leading innovators in gaming machine technology, and gambling-related taxation (particularly from gaming machines) provides a crucial source of revenue for state governments. Gambling is a major feature of everyday community life in Australia. With the exception of Western Australia, most community clubs and hotels in Australia have gaming machines and other gambling facilities. It is, therefore, very difficult for Australians to avoid being exposed to opportunities to gamble when they go out for drinks, to social functions, or on family outings at licensed venues. Over 70 percent of Australian adults gamble at least once per year, and this behaviour often starts early, because young people grow up in families where gambling is seen as an acceptable and enjoyable part-time and social activity (Productivity Commission, 2010).

In general, this is the central argument advanced by Charlotte Fabiansson in her new book, *Pathways to excessive gambling*. Spanning more than 200 pages, Fabiansson's book is a sociological account of the rapid global expansion of the gambling industry over the last two decades, but it is also a critique of more individualistic or psychological approaches that have tended to dominate the field of gambling research since its inception. In Fabiansson's view, gambling is a multi-faceted phenomenon that needs to be understood in a broader social, economic, and political context. The causes of problem gambling lie not just with individuals, but in these broader factors and influences. Similarly, when one considers the harms resulting from gambling, one must also consider how the community and the social fabric is affected, rather than merely focussing on the consequences for the individual gambler.

In support of her argument, Fabiansson's book includes four chapters relating to the social and economic significance and history of gambling. Chapter 1 is an introduction to the topic of gambling (its definition and nature), while Chapter 2 examines the links between gambling and broader social and recreational pursuits. Chapter 3 provides a summary of developments at a global level, while Chapter 4 provides an overview the situation in Australia, with a particular focus on developments in her home state of New South Wales. Together, these chapters highlight the rapid growth in gaming machine revenue, the nature of regulatory processes, developments in responsible gambling, and how gambling contributes to state taxation.

In Chapter 5, she summarises the findings of a substantial research project involving a survey of 754 young people (mostly younger than 18 years) from two Queensland communities about their gambling habits. Chapter 6 includes findings from a qualitative study involving 19 problem gamblers derived from a multi-cultural help service in Sydney. The youth gambling survey is impressive, because it has a very high response rate and examines young people's participation in a wide range of different activities. Similarly, I found impressive the range of issues explored in the qualitative interviews and in the clarity of the analysis, although this would have been stronger if there had been greater integration between the two separate studies. For example, interviews with adults in the regional areas where the youth study was conducted would have strengthened the author's conclusions.

The final two chapters are devoted to summarising the findings and the implications for future gambling research in Australia.

In many ways, this is a timely book because relatively little sociological analysis of this kind has been undertaken in Australia. Both Australian and international readers will find the summaries of gambling statistics useful and be able to draw upon the literature review as a source of material illustrating the contrasts between gambling in Australia and elsewhere in the world. Another useful element of the book is the fact that the studies of youth gambling are based on regional and rural schools, such that it provides one of the few comprehensive sociological analyses of gambling outside the major metropolitan areas. In non-metropolitan communities, clubs and hotels often provide a focal point for a considerable amount of community life, so it is not surprising to find high levels of gambling involvement here, despite the absence of major casinos. The book also makes the important point that links exist between the behavior/activities of adults and young people's receptivity to gambling, while providing useful descriptive information concerning the social pathways into gambling and problem gambling.

I generally agreed with most of the arguments advanced in this book, but I was neither entirely convinced that a divide exists between psychological and sociological research, nor that social and community factors have been under-emphasised in previous studies. Several of the youth gambling studies undertaken in Australia

have been ones with which I personally have been involved (e.g., Delfabbro & Thrupp, 2003; Delfabbro, Lahn, & Grabosky, 2005; Moore & Ohtsuka, 1997); these are clearly very social in their focus. All discuss the important role of social and familiar influences in youth gambling. Yet another study overlooked by Fabiansson includes qualitative focus groups with discussions of gambling pathways (Lambos, Delfabbro, & Pulgies, 2007). Even the often-quoted national definition of problem gambling (from Neal, Delfabbro, & O’Neil, 2005, p. 21) specifically refers to the effects of problematic behaviour on other people and the community. Moreover, I was mystified not to find a single reference to the work of Jan McMillen, who has conducted extensive socio-political analysis of gambling in Australia for more than 20 years. Many of the arguments about the importance of broader contextual factors, not to mention the need for multi-disciplinary approaches, have been frequently articulated in her publications (e.g., McMillen, Woolley, O’Hara, & Jackson, 1999). Given this, it almost seems ironic that the major study described in this book utilises the same individual-level survey approach that is often criticised by sociological researchers.

To my mind, the principal limitation of this book is the quality of the exposition in a few places. While the broad structure and ordering of material is sensible and logical, the progression of ideas within individual chapters and across paragraphs was sometimes difficult to follow. Different countries, years, and topical areas are combined in the same paragraph, such that comparisons are not necessarily being made between facts or findings that are immediately comparable or logically ordered. In the descriptions of youth gambling research, for example, it would have been much better in my view to have described the overseas studies first and then summarise Australian findings. In the chapter describing the survey study, the methodology section could be much clearer. I had immediate difficulties in trying to locate the sample size, understand exactly what questions had been asked, and follow the overall findings. For example, a table describing overall gambling participation rates is not presented until later in the chapter, long after other more specific findings have been discussed. The book also includes a considerable amount of repetition, some odd statements (e.g., the DSM-IV is described as a gambling screen¹; peer influences are discussed as if they are not risk or protective factors; and individualistic approaches make surprise re-appearances, such as “The drive to compete and win is an intrinsic trait in humans” [p. 37]). In another place, problem gambling screens are described as measures of “gambling propensity” (p. 109). Furthermore, there is no mention of Derevensky, Gupta, and Winters’ (2003) analysis of the Ladouceur critique of the SOGS-RA, and Moore and Ohtsuka’s (1997) paper is described as being about “hidden gambling,” although the study also included a sample of young adult gamblers aged 18 to 25 years.

¹Fabiansson writes, “and the screen more commonly used in the USA, the Diagnostic Criteria for Pathological Gambling (DSM-IV, Diagnostic and Statistical Manual of Mental Disorders) (American Psychiatric Association 1994)” (p. 17).

Despite these concerns, the book provides a useful contribution to the existing literature on gambling in Australia, while underscoring the importance of utilising multi-disciplinary approaches and perspectives in the analysis of the causes and consequences of gambling.

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