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An Examination of Gambling Behaviour in Relation to Financial Management Behaviour, Financial Attitudes, and Money Attitudes

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Abstract This study was designed to examine the relationship between gambling behaviour (gambling frequency and problem gambling severity) and financial management practices (cash management, risk management, and general management), financial management attitudes, and money attitudes (materialism, achievement, budget, obsession, and anxiety) in a sample of 118 participants (45 males, 73 females) recruited from a university. The findings revealed that gambling frequency was not significantly associated with any financial management, financial attitude, or money attitude variable but that problem gambling severity was significantly positively associated with financial management attitudes and obsession and negatively associated with budget. However, problem gambling severity scores were no longer significantly correlated with these factors after controlling for demographic and socio-economic factors. It was concluded that future research evaluating multiple dimensions of practices and attitudes with reliable and valid standardised instruments in large community or clinical samples is required in order to design cognitive interventions for problem gambling that facilitate changes in general beliefs about the importance of money.

Keywords Problem gambling · Financial management behaviour · Financial attitudes · Money attitudes

Recent decades have witnessed a rapid expansion of gambling opportunities in western countries, predominantly as a result of legalisation of gambling and popularisation of gambling as a normal pastime (Productivity Commission 2010). Easy access and

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availability to gambling venues and opportunities have led to a wide acceptance of gambling and a proliferation of gambling-related problems (Productivity Commission 2010). International surveys generally reveal that 1% to 2% of the general population experience gambling-related problems (Jackson et al. 2009).

Financial loss is the most obvious and detrimental consequence of problem gambling, with the potential to trigger other potential harmful consequences (Ladouceur et al. 1994; Productivity Commission 2010). There is considerable evidence that problem gambling is associated with high preoccupation with accessing money, tolerance, chasing losses, resorting to illegal behaviour to obtain money, and relying on bailout to relieve a desperate financial situation (American Psychiatric Association 1994). Problem gamblers are also more likely to have more credit cards, have more sources of credit, and are more likely to borrow money (Engwall et al. 2002). Financial issues are one of the main reasons for seeking treatment (Conventry and Brown 1997; Jackson et al. 2000).

It has been argued that gambling is about money irrespective of the underlying primary motivation for participation (Blaszczynski and Nower 2008) and that analysis of persistence among problem gamblers confronting large losses underpins the understanding of their behaviour (Ladouceur et al. 2003). Winning money is a primary gambling motivation for both recreational and problem gamblers and there is some evidence that problem gamblers are more likely to report winning as the strongest motive than recreational gamblers (Adebayo 1995; Clarke 2003; Delfabbro and Thrupp 2003; Moore and Ohtsuka 1997; Toneatto 1999; Wood and Griffiths 2002). The definitions, diagnostic criteria, measurement tools, and theoretical models employed to describe or explain problem gambling generally view the financial consequences of winning and losing as critical in the development of problem gambling and emphasise financial losses as the core consequence of problem gambling behaviour. For example, behavioural models posit that gambling is a learned maladaptive behaviour resulting from a combination of classical and operant conditioning, whereby the primary positive reinforcement is the variable ratio schedule of "random" financial gain (Sharpe and Tarrier 1993), while cognitive theories propose that invalid beliefs based on false assumptions and biased interpretation of evidence explain why problem gamblers overestimate future wins and underestimate future losses (Toneatto 1999).

Early economic literatures have suggested that gambling can be conceptualised as a form of economic behaviour (Becker and Murphy 1988; Friedman and Savage 1948; Furnham 1986). Within the rational addiction framework proposed by Becker and Murphy (1988), gamblers are regarded as rational and forward-looking utility maximisers, who base decisions on full knowledge of the consequences of the gambling behaviour. Further, past consumptions of potentially harmful gambling are likely to stimulate current consumption by increasing the marginal utility of current consumption (e.g., more wins or reversing past losses) more than the potential harm from future consumption (Baltagi and Griffin 2002). It has also been suggested that gamblers only behave rationally as a function of a lifetime budget constraint and the accumulation of income, whereby the maximum utility is obtained (Mobilia 1993).

Furnham (1986) argued that gambling can be understood in much the same way as other behaviours such as saving, budgeting, and spending and that gambling might be related to broader socialization processes involving the provision of parental advice and instruction about economic concepts and financial management. Specifically, children of parents who emphasise financial management strategies such as saving or budgeting will have higher levels of money awareness and spending caution and will perceive gambling as a less desirable choice that wastes money. In contrast, children with parents who fail to emphasise

such strategies might assume less responsible attitudes towards money and consider gambling as a more attractive activity with the potential of monetary return.

More recently, Blaszczynski and Nower (2008) discussed the potential applicability to gambling of two conceptual models explaining the reinforcing properties of money: the Tool Theory and the Drug Theory (Lea and Webley 2006). These models attempt to account for the hoarding or acquisition of money for its own sake, rather than the use of money as an instrument to acquire goods and services. The Tool Theory proposes that money is used instrumentally to achieve certain commodities such as materialism or status/egotism. Blaszczynski and Nower (2008) argue that gambling represents an opportunity to enhance personal wealth and quality of life, either through the acquisition of additional goods and services or the reduction of financial pressure. Using an operant conditioning framework, they argue that money becomes conditioned as a secondary reinforcer through repeated association with the excitement of winning rather than the reinforcement of goods acquisition and consumption. In contrast, the Drug Theory proposes that money is a metaphorical equivalent of a drug that affects neural, behavioural, or psychological functioning. Blaszczynski and Nower (2008) argue that a physiological reward state is elicited by the unpredictability of the act of gambling in its own right rather than from other reinforcements such as entertainment, money, or escape and that winning money is simply the means of gaining further rewards.

It has also been suggested that problem gambling can develop, in part, as a result of inappropriate financial management strategies (Rosenthal 1986). Financial counselling programs, which have been established within specialized counselling services for the treatment of problem gambling behaviour, generally provide information and advice, debt counselling, financial management strategies, advocacy, financial assistance, personal finance reorganisation (Coman et al. 2003; Crisp et al. 2001, 2004; Pentland and Dorsten 1996). Techniques to control cash flow and spending, manage finances, and repay debts have also been included as components in several cognitive-behavioural interventions for problem gamblers (Dowling et al. 2006, 2007, 2009; Petry et al. 2006). Despite the assumptions underpinning these programs, very few studies have examined the role of financial management practices in the development of problem gambling behaviour.

Despite the integral role money plays in gambling, there are surprisingly few empirical studies that evaluate the influence of the psychology of money on gambling and problem gambling behaviour. Delfabbro and Thrupp (2003) investigated a process of economic socialization, whereby beliefs about money may be socially transmitted from parents to children in the form of advice, information, and behaviour. The findings revealed that gambling frequency was unrelated to adolescents' attitudes about the importance of money management issues or whether adolescents were taught about these money management issues by their parents. However, adolescents who reported that their parents taught them about money management strategies were less likely to express an intention to gamble regularly in the future.

Blaszczynski and Nower (2008) conducted a preliminary study exploring the relationship between attitudes to money and gambling in a sample of 127 gambling venue patrons using multiple measures of money attitudes. Univariate analyses revealed that problem gamblers scored significantly higher than other groups on subscales that measure the degree to which individuals use money to impress and influence others as a measure of success and power. Problem gamblers also scored higher on a subscale that measures overall preoccupation with money (obsession), higher on a subscale that measures worry or concern over financial security and frugality (anxiety), and lower on a subscale that measures the degree to which participants believed they have insufficient money to meet

their needs (inadequacy). A logistic regression comprising all money attitudes revealed that anxiety over money was the best predictor of problem versus non-problem gamblers and that viewing money as an instrument of influence and power was characteristic of problem versus moderate-risk gamblers. Blaszczynski and Nower (2008) argue that these findings support the Drug Theory of Money developed by Lea and Webley (2006).

Taken together, these studies suggest that money practices and attitudes may, in part, be involved in the acquisition and/or maintenance of problem gambling behaviour. This study was designed to examine the relationship between gambling behaviour and financial management practices, financial management attitudes, and money attitudes. Specifically, it was hypothesized that indices of gambling behaviour (gambling frequency and problem gambling severity) would be negatively associated with financial management practices (cash management, risk management, and general management), financial management attitudes, and the money attitude of budget; and positively associated with the money attitudes of materialism, obsession, and anxiety.

Method

Participants

The sample was comprised of 118 participants (45 males and 73 females) recruited through a Melbourne university using snowball and online methodologies. The mean age of the sample was 27.2 years (*SD* = 10.3, median age = 23.0 years). Most of the sample (84%) was born in Australia. The majority of participants were employed (25% casually, 22% on a part-time basis, and 37% on a full-time basis), and most of them had a weekly income over AU $200. Of all participants, 55% had a borrowing history and 35% had a current loan (with most of them borrowing or loaning from banks and parents/family). The majority of people (72.4%) reported that the largest amount of money they had ever borrowed was under AU$10,000, although a substantial proportion (15.6%) had borrowed over AU$50,000.

Measures

Participants completed a brief self-administered questionnaire that consisted of a series of questions assessing demographic/socio-economic information, gambling behaviour, financial management practices, financial management attitudes, and money attitudes.

Demographic and Socio-Economic Information Participants were required to provide information about demographic factors (age, gender, and country of birth), income information (money/income sources, and work situation), and loan and borrowing behaviour (sources of borrowing, reasons for borrowing, and sources of current loans).

Gambling Frequency A gambling frequency scale was designed to measure gambling activities (scratch tickets, sports betting, on-course horse/dog race betting, off-course horse/dog race betting, online/Internet gambling, casino table games, bingo, lotteries, and electronic gaming machines [EGMs]). Respondents were required to answer how often they were involved in each activity in the previous 12 months by indicating (0) *not at all or rarely*, (1) *less than once a month*, (2) *less once a week*, or (3) *more than once a week.* All answers were summed to produce a gambling frequency score between 0 and 27, whereby

higher scores represented higher gambling frequency. The internal consistency reliability of this scale was adequate (α=.62).

Problem Gambling Severity The Problem Gambling Severity Index (PGSI) of the Canadian Problem Gambling Index (CPGI: Ferris and Wynne 2001) was utilised to measure severity of problem gambling behaviour. The PGSI is a screening questionnaire with nine items designed to be indicative of more severe gambling behaviour. Respondents indicated how often each item had applied to them in the last 12 months by answering (0) *never*, (1) *sometimes*, (2) *most of the time*, or (3) *almost always*. Scores for this scale can range from 0 to 27. The gambling behaviour of participants can be classified into groups using PGSI scores: *non-problem gambling* (score of 0), *low risk gambling* (scores of 1–2), *moderate risk gambling* (scores of 3–7), and *problem gambling* (scores of 8 and above). The PGSI has demonstrated high internal consistency (Cronbach's α=.84) and good content, criterion, predictive, and construct validity (Ferris and Wynne 2001). The internal consistency reliability of this scale in the current sample was very good (α=.86).

Financial Management Practices Selected subscales of the Financial Management Scale (Parrotta and Johnson 1998) were employed to examine the financial management practices of participants: Cash Management (13 items), Risk Management (3 items), and General Financial Management (6 items). The scale comprises 5-point responses, ranging from (1) *strongly disagree to* (5) *strongly agree*. Participants were asked to indicate the degree to which each item was typical of them. Negatively worded items were reverse scored and individual scores for each subscale were summed, with higher scores indicating a higher level use of financial management practices. In the current study, the subscales displayed adequate internal consistency: cash management (α=.75), risk management (α=.70), and general management (α=.80). The remaining subscales of the Financial Management Scale (credit management, capital accumulation, and retirement/estate planning) were not evaluated due to their poor internal consistencies.

Financial Management Attitudes Relevant financial management attitudes underlying financial management practices were examined using the Financial Management Attitudes Scale (Parrotta and Johnson 1998). This scale measures financial management attitudes that can be considered as an expression of one's internal psychological tendency in evaluating recommended financial management practices (Eagly and Chaiken 1993). This 15-item scale requires a response on a 5-point scale from (1) *strongly disagree* to (5) *strongly agree*. Some items were reverse scored. Scores for this scale can range from 15 to 75, with higher scores indicating agreement with favourable attitudes towards financial management practices. The Cronbach's alpha for this scale was reported to be good (α=.75) in previous studies (Parrotta and Johnson 1998) and in the current sample (α=.77).

Money Attitudes Money attitudes were evaluated using the Material Values Scale (short form) (MVS: Richins 2004) and the Attitudes Towards Money scale (Lim and Teo 1997). The MVS defines materialism as the importance ascribed to the ownership and acquisition of material goods in achieving major life goals or desired states, and conceptualises material values as encompassing three domains: the use of possessions to judge the success of others and oneself, the centrality of possessions in a person's life, and the belief that possessions and their acquisition lead to happiness and life satisfaction (Richins and Dawson 1992). The 15-item short form MVS employs a five-point response format from (1) *strongly disagree* to (5) *strongly agree*. Scores on this scale can range from 15 to 75, whereby higher

scores represents higher materialism as a facet of consumer behaviour. This version of the MVS displays good internal consistency (α=.85) and validity (significant correlations with a range of criterion variables and other measures related to materialism) (Richins 2004). The internal consistency reliability of this scale in the current sample was good (α=.86).

Integrating and providing a further refinement to the dimensions yielded by other existing money instruments, Lim and Teo (1997) devised a scale to measure money attitudes, which offers parsimony and a higher degree of explained variance. The current study employed four subscales: Achievement (the extent to which individuals perceive the amount of money earned as an indicator of success) (4 items), Budget (saving habits and ability to budget money) (4 items), Obsession (the degree of concern or preoccupation with thoughts about money) (7 items), and Anxiety (the extent to which individuals think and worry about money) (3 items). The items are scored on a seven-point scale ranging from (1) *strongly disagree* to (7) *strongly agree*. In the current study, these subscales displayed adequate internal consistency: Achievement (α=.82), Budget (α=.88), Obsession (α=.86), and Anxiety (α=.74). The remaining subscales of the scale (Evaluation, Retention, and Non-Generous) were not evaluated in this study due to their poor internal consistencies.

Procedure

Following approval from the Monash University Standing Committee on Ethics in Research on Humans, participants were recruited from multiple campuses of a university in Melbourne, Australia. Participants were recruited via a number of methods: (1) advertisements were placed around campuses, (2) students on campus grounds were directly invited to participate by the researchers, and (3) a 'snowball' technique, whereby recruited participants were asked to invite any other interested person to participate in the study.

Participants were able to view the explanatory statement and complete the questionnaire either online or in hard copy. Participants completing hard copy questionnaires provided written informed consent, whereby the consent form was returned separately to the questionnaire, thereby ensuring confidentiality and anonymity of all responses. Completed questionnaires and consent forms were returned to the researchers by post using separate reply-paid envelopes. Participants concerned about their problem gambling behaviour could request to be contacted should they report high levels of problem gambling. In the case where participants requested to be contacted, coded questionnaires and consent forms (with matching identification numbers) were provided. The process for participants completing the online questionnaire employed a similar procedure.

Data Analyses

Prior to analysis, all relevant variables were inspected for accuracy of entry, missing values, and violation of any assumptions associated with subsequent analyses. Missing data was managed using a combination of casewise exclusion and person mean substitution. Given missing data represented less than 5% of the data and appeared to be at random (Pallant 2007), it was not considered as a serious threat to data integrity (Tabachnick and Fidell 2007). Standardised residuals and Mahalanobis distances were utilised to detect potential outliers (Tabachnick and Fidell 2007). Two outliers were detected and subsequently excluded. In total, 116 cases were included in the final analyses.

The distributions of the continuous variables revealed significant skewness and kurtosis on gambling frequency, PGSI problem gambling severity, risk management, and financial management attitude scores. Square root transformations and cosine transformations were attempted with aforementioned variables (Tabachnick and Fidell 2007); however, transformations did not substantially improve the normality of these variables. Data analyses were therefore conducted on the non-transformed variables.

The gambling activities of the participants and the pattern of participants classified within each PGSI risk category were described. A series of Spearman's correlations were employed to investigate the relationship between the indices of gambling behaviour (gambling frequency and PGSI problem gambling severity) and the financial management, financial attitude, and money attitude variables. A series of partial correlations between these variables were then conducted after controlling for demographic and socio-economic variables (age, gender, debt, salary, cohabiting status, and employment status).

Results

Table 1 displays the gambling activity participation of the sample. An examination of Table 1 reveals that the most common forms of gambling were lotteries, EGMs, and scratch tickets.

Participants were grouped according to PGSI categories. In this sample, 80.2% of participants were classified as non-problem gamblers (n=93), 6.9% were classified as low-risk gamblers (n=8), 11.2% were classified as moderate-risk gamblers (n=13), and 1.7% were classified as problem gamblers (n=2).

The Spearman correlations between the indices of gambling behaviour (gambling frequency and PGSI problem gambling severity) and financial management, financial attitude, and money attitude variables are displayed in Table 2. Examination of Table 2 reveals that gambling frequency was not related to any of the financial management, financial attitude, and money attitude variables. However, PGSI problem gambling severity scores were significantly related to financial management attitudes, budget and obsession. Specifically, problem gambling severity displayed a very weak positive correlation with financial management attitudes, a weak negative correlation with budget, and a weak positive correlation with obsession.

The partial correlations between the indices of gambling behaviour (gambling frequency and PGSI problem gambling severity) and financial management, financial attitude, and

Table 1 Gambling activities in previous 12 months (N=116)

Gambling activities	Not at all or rarely n (%)	Less than once a month n (%)	More than once a month n (%)
Scratch tickets	102 (87.9%)	7 (6.0%)	7 (6.1%)
Sports betting	107 (92.2%)	8 (6.9%)	1 (0.9%)
On-course horse/dog race betting	109 (94.0%)	7 (6.0%)	–
Off-course horse/dog race betting	112 (96.6%)	4 (3.4%)	–
Online/Internet gambling	112 (96.6%)	4 (3.4%)	–
Casino table games	107 (92.2%)	7 (6.0%)	2 (1.8%)
Bingo	115 (99.1%)	1 (0.9%)	–
Lotteries	97 (83.6%)	16 (13.8%)	3 (2.6%)
EGMs	97 (83.6%)	15 (12.9%)	4 (3.5%)

Table 2 Spearman correlation matrix (N=116)

Variables	1	2	3	4	5	6	7	8	9	10	11
1 Gambling frequency	–	.30**	.03	−.07	.01	.09	.08	.14	−.01	.11	.05
2 PGSI problem gambling		–	.26	.05	.10	.19*	.15	.06	−.21*	.33*	.05
3 Cash management			–	−.22*	−.17	.04	.04	.01	.09	.06	.13
4 Risk management				–	.45**	.05	−.02	−.21*	−.41**	−.01	−.10
5 General management					–	.06	−.15	−.24**	−.61**	.07	.02
6 Financial management attitudes						–	.20*	.22*	−.33**	.36**	.10
7 Materialism							–	.53**	−.04	.48**	.30**
8 Achievement								–	.02	.56**	.33**
9 Budget									–	−.28**	−.07
10 Obsession										–	.46**
11 Anxiety											–

**p<0.01, *p<.05

money attitude variables after controlling for demographic and socio-economic variables (age, gender, debt, salary, cohabiting status, and employment status) are displayed in Table 3. Examination of Table 3 reveals that PGSI problem gambling severity scores were no longer significantly correlated with financial management attitudes, budget, and obsession after controlling for demographic and socio-economic variables.

Discussion

The main objective of this study was to investigate problem gambling behaviour from a financial perspective. Specifically, the study examined the associations between gambling

Table 3 Partial correlation matrix (N=116)

Variables	1	2	3	4	5	6	7	8	9	10	11
1 Gambling frequency	–	.27	−.04	.01	−.05	−.10	.20	.18	.01	.20	.15
2 PGSI Problem gambling		–	.07	.05	.02	.20	.10	.05	−.23	.27	.18
3 Cash management			–	−.05	−.09	.18	.08	.11	−.09	.24	.18
4 Risk management				–	.43	−.09	−.10	−.27	−.40	−.14	−.14
5 General management					–	−.08	−.16	−.28	−.58	−.01	.02
6 Financial management attitudes						–	.08	.17	−.24	.32	.08
7 Materialism							–	.49	.00	.46	.29
8 Achievement								–	.01	.63	.40
9 Budget									–	−.23	−.14
10 Obsession										–	.56
11 Anxiety											–

behaviour (gambling frequency and problem gambling severity) and financial management practices (cash management, risk management, and general management), financial management attitudes, and money attitudes (materialism, achievement, budget, obsession, and anxiety). The findings revealed that gambling frequency was not significantly associated with any financial management, financial attitude, or money attitude variable. PGSI problem gambling severity scores were significantly positively associated with financial management attitudes and the money attitude of obsession (the degree of concern or preoccupation with thoughts about money) and negatively associated with the money attitude of budget (saving habits and ability to budget money). However, PGSI problem gambling severity scores were no longer significantly correlated with these variables after controlling for demographic and socio-economic variables (age, gender, debt, salary, cohabiting status, and employment status).

The hypotheses that there would be a negative association between gambling behaviour (gambling frequency and problem gambling severity) and financial management practices and attitudes were not supported. The findings revealed that none of the financial management practice domains were significantly associated with either gambling frequency or problem gambling severity. These findings are generally inconsistent with limited evidence suggesting that problem gamblers are more likely to have more credit and loans (Engwall et al. 2002) and the finding by Delfabbro and Thrupp (2003) that adolescents with good money management strategies reported that they were less likely to gamble regularly in the future. However, they are consistent with Delfabbro and Thrupp's failure to find a significant relationship between being taught money management strategies and current gambling frequency. Further, the current study found a significant *positive* correlation between problem gambling severity and financial management attitudes that failed to remain consistent after controlling for demographic and socio-economic factors. Although unexpected, this finding is again somewhat consistent with that reported by Delfabbro and Thrupp (2003) that gambling frequency of adolescents was not associated with attitudes about the importance of money management issues.

Taken together, these findings call into question the suggestion that problem gamblers display deficits in financial management strategies and attitudes (Rosenthal 1986). It may be that financial management strategies are neither antecedent nor consequent of frequent or problem gambling or that frequent or problem gamblers are highly aware of the necessity of good financial management practices and attitudes given their gambling-related financial difficulties. These findings also challenge the application of financial management strategy techniques in financial counselling programs (Coman et al. 2003; Crisp et al. 2001, 2004; Pentland and Dorsten 1996) and cognitive-behavioural programs for problem gambling (Dowling et al. 2006, 2007, 2009; Petry et al. 2006). Of course, both financial counselling and cognitive-behavioural programs for problem gambling employ many other strategies, such as information and advice, debt counselling, advocacy, repayment strategies, and personal finance reorganisation (Coman et al. 2003; Crisp et al. 2001, 2004; Dowling et al. 2006, 2007, 2009; Pentland and Dorsten 1996; Petry et al. 2006).

However, the finding that there is no significant association between gambling behaviour and financial management practices and attitudes should be treated with caution given the multi-dimensional nature of financial management. In this study, only cash management, risk management, and general management practices were evaluated. Other aspects of financial management such as credit management, capital accumulation, and retirement/estate planning (Parrotta and Johnson 1998) were not evaluated due to the poor reliabilities of the available measurement instruments. Similarly, although the scale employed in this study to evaluate financial management attitudes reflect six dimensions

(Parrotta and Johnson 1998), the scale does not provide a separate evaluation of each facet. It seems reasonable to assume that evaluation of different dimensions of financial management practices and attitudes might explain the inconsistent findings across the limited available literature. Further research is required to examine the degree to which specific facets of financial management practices and attitudes are related to gambling and problem gambling behaviour. This research would benefit from the development of reliable and valid standardised instruments measuring multiple dimensions of financial management practices and attitudes.

This was one the first empirical studies to examine attitudes towards money in relation to gambling and problem gambling behaviour. The findings revealed that among the money attitudes of achievement, budget, obsession, anxiety and materialism, none were significantly correlated with gambling frequency and only obsession and budget were significantly correlated with problem gambling severity. The finding in relation to the money attitude of budget is interesting, given the lack of association between problem gambling severity and financial management practices. According to Lim and Teo (1997), the items in the Budget scale reflect respondents' saving habits and their ability to budget money. It also evaluates the prudent use of money as well as the need to save money, so that individuals with high scores on this dimension would be "compelled to bargain and get the best price for anything they buy" (p. 376). This scale, which is seemingly more behavioural than attitudinal, appears to measure a narrow conceptualisation of financial management behaviour relating to money management. The finding that this scale, but not the Financial Management Scale subscales, was significantly related to problem gambling severity adds further weight to the argument that different aspects of financial management practices may be related to problem gambling behaviour and suggests that there is a need to develop reliable and valid instruments to evaluate specific dimensions of financial management practices.

The findings of the current study also suggest that obsession (i.e., concern or preoccupation with thoughts about money) may be important in the development or maintenance of problem gambling behaviour. This finding is consistent with a previous finding reported by Blaszczynski and Nower (2008) that problem gamblers scored higher than all other groups on a subscale that measures overall preoccupation with money. According to Lim and Teo (1997), individuals with high scores on the obsession subscale can endorse beliefs such as that money can solve all their problems, that money is the only thing they can count on, that money can buy anything, that money is the most important goal in life, and that time should be spent making money. They argue that individuals who score highly on this scale may do practically anything legal for money and can often fantasise about what they could do with money. These findings are unsurprising given that financial loss is the core consequence of problem gambling behaviour (Productivity Commission 2010; Ladouceur et al. 1994) and that financial issues are one of the main reasons that problem gamblers seek treatment (Conventry and Brown 1997; Jackson et al. 2000). Moreover, problem gamblers are heavily motivated to win money (Adebayo 1995; Clarke 2003; Delfabbro and Thrupp 2003; Moore and Ohtsuka 1997; Wood and Griffiths 2002) and engage in a pattern of chasing to win back the money they have lost (APA 1994). Indeed, preoccupation with thinking of ways to get money with which to gamble is a criterion in the diagnosis of pathological gambling (APA 1994).

Due to the cross sectional nature of this study, it is not possible to provide causal statements concerning the direction of the relationship between problem gambling and the money beliefs of budget and obsession. For example, it is possible that problem gambling may function as an antecedent stimulus, whereby these beliefs about money are elicited as

the end result of the excessive financial losses produced by problem gambling. Alternatively, it is possible that these obsessional beliefs about money may form independent antecedent conditions that may predispose or promote vulnerability to gambling behaviour. Moreover, it is likely that any pre-existing beliefs about money and problem gambling mutually and reciprocally interact and escalate in a complex way. It is evident that prospective research is required to elucidate the temporal sequence of this relationship.

The findings of this study extend the findings of previous research (Blaszczynski & Nower, 2008) by indicating that the relationships between problem gambling severity and financial/money attitudes failed to remain significant after controlling for demographic and socio-economic factors. These findings suggest that these attitudes do not have an association with problem gambling independent of these factors. However, this study was limited to a small sample recruited through a university. Caution should therefore be observed in generalising the findings to problem gamblers in the general community or to those presenting to treatment agencies. Moreover, only a subset of different aspects of financial management practices and money attitudes were examined in this exploratory study. There are several other practices and attitudes that may be relevantly examined in this type of investigation. Future research should investigate the relationships between problem gambling severity and these factors in larger community or clinical samples. The findings of such research should be employed to design cognitive interventions for problem gamblers that facilitate changes in general beliefs about the importance of money, in addition to the more traditional cognitive interventions that target gambling-related beliefs about randomness and chasing losses (Dowling et al. 2006, 2007, 2009; Petry et al. 2006).

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