

Gambling Behaviour and Motivation in an Urban Sample of Older Adult Gamblers

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Due to low rates of gambling participation among older adults (65+ years), little is known about gender differences in their gambling behaviour and reasons for gambling. Also, little is known about differences in their motives for different forms of gambling. Following motivational theory, the present study compared the behaviour and motivation of 41 male and 63 female gamblers in Hamilton, New Zealand where a casino was recently opened. Ages ranged from 66 to 87 years. Gambling for rewards was the strongest motivation for both sexes, followed by boredom. There were no significant gender differences, nor interactions between gender and skill/chance preferences on motivation. Regular continuous gamblers had stronger preferences for horse/dog races, scratch tickets or non-casino gaming machines, and had a higher expenditure rate than regular non-continuous gamblers who more strongly preferred Lotto. They also had significantly higher scores on curiosity, stimulation, escape and apathy. Longitudinal and observational studies were suggested to examine the impact of new casinos in towns with large numbers of older adults, and to monitor potential symptoms of problem gambling.

Prevalence rates of gambling among older adults (65 years of age and older) in New Zealand, Australia and North America, have been the lowest of all age groups. For example, from the 1999 representative national New Zealand Gaming Survey (Abbott & Volberg, 2000) approximately 80% of older adults gambled for money within the previous 6 months, compared to 85-88% of the other 10-yearly age groups. The prevalence rates from other countries' national samples within the previous 12 months were 74% (vs. 82-85%) in Australia (Productivity Commission, 1999), 72% (vs. 73-84%) in Canada (Marshall & Wynne, 2004), and 72% (vs. 79-90%) in the United States (Gerstein et al., 1999).

Over the last few decades, the incidence or growth rate of participation in gambling in other countries has been the highest among older adults, particularly among older women (Gerstein et al., 1999; McKay, 2005; Morgan Research, 1997). In the United

States, the number of older adults (65+ years) gambling had more than doubled between 1975 and 1998 (Gerstein et al., 1999), and older adults form the largest age group of annual visitors to Las Vegas (McNeilly & Burke, 2002). The incidence seems to be concomitant with the increasing availability of electronic gaming machines (EGMs), casinos and commercial lotteries (Boreham et al., 2006; Delfabbro, 2000; Govoni et al., 2001; McKay, 2005; Morgan Research, 1997), and with their declining interest in scratch tickets, sports betting and charity events (Alberta Alcohol and Drug Commission, 1998; Munro et al., 2003).

In New Zealand incidence rates among older adults have fluctuated. From a report on people's participation rates between 1985 and 2000 (Amey, 2001), Lotto participation in the national samples of older adults increased from 69% in 1990 to 77% in 1995, then dropped to 72% in 2000. From 1990 to 2000 their participation rates for scratch

tickets dropped from 56% to 39%, non-casino gaming machines from 13% to 10% and housie (bingo) from 5% to 3%. Their bets on horse or dog races increased from 12 to 18%, and casino participation from 2% in 1995 when casinos were first established in New Zealand to 6% in 2000. The 1999 report (Abbott & Volberg, 2000) noted that there was a moderate increase in older adults' average monthly expenditure between the 1991 and 1999 national surveys, and a decrease for the 18-24 year age group. More recently, a gambling participation rate of about 64% was found among older adults in New Zealand (Ministry of Health, 2003), with Lotto (58%) more popular than scratch tickets (19%), track betting (9%) and non-casino EGMs (6%).

Gambling activities have been dichotomized into continuous and non-continuous forms. Continuous forms of gambling include scratch tickets, EGMs, track betting and casinos, whereby winnings can be immediately risked again within the same session (Abbott, 2001). From the 1991 and 1999 New Zealand Gaming Surveys (Abbott & Volberg, 2000), respondents, not specifically older adults, who gambled regularly in the previous 6 months on any continuous activity at least weekly (*regular continuous gamblers*) were slightly more likely to be male and have a higher expenditure rate than those who gambled regularly only on non-continuous activities (*regular non-continuous gamblers*). They were more likely to gamble for stimulation, entertainment and socialising, and less likely for rewards. These findings suggest that their motives may be

different from non-continuous gamblers and that gambling is intertwined with their lifestyles. A longitudinal survey of a sub-sample of the 1991 group (Abbott et al., 2004) found that the majority of regular continuous gamblers gambled infrequently or on non-continuous activities seven years later, despite the increasing availability of EGMs in casinos and non-casinos, suggesting that involvement in continuous forms of gambling may be decreasing in New Zealand.

The 1999 survey (Abbott & Volberg, 2000) found that approximately 32% of older adults gambled weekly or more frequently within the previous 6 months on non-continuous activities and 9% on continuous activities, with an average monthly expenditure of approximately NZ\$30. The most popular forms of gambling for both sexes were Lotto, other lotteries/raffles, instant scratch tickets and tebingo. Horse/dog races, bets with friends and EGMs in a casino were less popular. Older men were more likely than older women to bet on horse/dog races and EGMs not in casinos, while older women were more likely to gamble on instant scratch tickets and EGMs in casinos.

Most of the research on gambling behaviour has focused on problem gambling rather than on gambling as a leisure activity. Older adults are not a high risk group for problem gambling. Instead, they may be a population segment that receives considerable health benefits from participating in gambling activities. Activity theory postulates that people who are active in younger years will continue to be active in older age (Longino & Kart, 1982). They should be more satisfied with life and enjoy better health as older adults than less active older adults. Recreational gambling provides them with opportunities for increased social integration, self-esteem, activity, travel, sensory and cognitive stimulation (Desai et al., 2004; Hope & Havir, 2002; Korn & Shaffer, 1999; McNeilly & Burke, 2002; Munro et al., 2003; Potenza et al., 2002; Vander Bilt et al., 2004; Wiebe et al., 2004). Casinos and racinos (horse/dog racing and slot machine facilities combined) offer incentives such as free transportation, subsidized meals and discount coupons (Boreham et al., 2006;

McKay, 2005; McNeilly & Burke, 2001; Neufeld & Burke, 1999; Stitt et al., 2003; Tan & Wurtzburg, 2004).

The theory assumes the need for social activity in later years, but individual differences such as motivation and the meaning of gambling need to be considered, because attitudes and expectations may be more important for physical and mental health than participation in the activities (Zarank & Chapleski, 2005). The present study examined gender differences in a sample of older adults' gambling behaviour, preferences and motivation. For gamblers who played weekly or more frequently, it also compared their motives for gambling on activities in which winnings can be immediately risked again such as EGMs to the motives of those who gambled only on activities such as Lotto for which winnings are delayed.

Motivational Theory of Gambling

Motivation involves both internal and external forces that trigger, direct, intensify and lead to persistence of a behaviour. Derived from motivational theory (Deci & Ryan, 1991), three types of gambling motivation have been identified in the development of the Gambling Motivation Scale (GMS; Chantal & Vallerand, 1996; Chantal et al., 1994, 1995; Ladouceur et al., 1997): *intrinsic motivation* (IM), *extrinsic motivation* (EM) and *amotivation*. IM consists of three facets: (1) toward *knowledge* via learning or curiosity, (2) toward *accomplishment* of things such as improving one's skills in a betting activity, and (3) toward *stimulation* excitement or entertainment. EM involves positive and negative reinforcement: receiving or avoiding something. It also consists of three facets: (1) gambling for rewards (*external regulation*), (2) gambling to relax, escape problems or release tension (*introjected regulation*), and (3) gambling for internal values such as social recognition (*identified regulation*). Amotivation occurs when one does not perceive relations between one's own actions and gambling outcomes. It pertains to activities that are neither intrinsically nor extrinsically motivated,

and is characteristic of gamblers who continue to gamble for something to do, with no real purpose and with little sense of meaning (Chantal & Vallerand, 1996).

In a review of sociological and psychological literature on gender differences in gambling, Delfabbro (2000) noted that men in general tend to be internally motivated toward perceived *skill* activities (e.g., races, card games, sports betting), whereas women are more externally motivated toward *chance* activities (e.g., Lotto, lotteries, raffles, scratch tickets, EGMs, bingo). Women appear to gamble to escape everyday problems (introjected regulation) and thus may avoid skilful activities which may be inconsistent with this motivation. For example, in a study of motivation for casino gambling, 900 patrons in two Canadian metropolitan areas participated in a telephone survey (Walker et al., 2005). Men rated excitement and learning skills higher than women, while women's motives varied. The women's motives included gambling to escape and to gain some sense of control in their lives. Similarly, Australian women's club members gambled to escape boredom and take time out from family responsibilities (Hing & Breen, 2001).

Older Adults' Gambling Motivation

A few studies have examined the motives of older adults for gambling. In Nebraska, older gambling patrons at commercial and charitable bingo parlours, and at a casino were more likely to gamble to have fun (stimulation), to relax and get away for the day (introjected regulation), and to pass the time or relieve boredom (amotivation) than a community group of older gamblers not surveyed in gambling venues (McNeilly & Burke, 2000). The two groups did not place much emphasis on casino gambling promotions and incentives such as free transportation, nor on socializing with their friends. EGMs were the most common activities played in casinos, but the bingo patrons spent significantly more money each time they gambled than the casino patrons.

For older casino gamblers in Minnesota (Hope & Havir, 2002), intrinsic motivation for social stimulation

and for trying something new were much more important (35% and 24% of the sample, respectively) than the extrinsic motivation of winning money (6%). Food and something to do/curiosity (24% each) were also relatively important. Women were more likely than men to gamble for fun, while men were more likely to go for curiosity or something to do. Similarly, from case studies with casino gamblers (McNeilly & Burke, 2002) older adults' focus was primarily on excitement and entertainment rather than on winning money. Compared with younger gamblers, older recreational gamblers in one study (Desai et al., 2004) were less likely to gamble to win money and more likely to report boredom.

Stimulation and socialisation were the most common reasons nominated by older adults in a provincial survey in Alberta, Canada (Munro et al., 2003). From a Manitoba telephone survey of a large sample of older adults (Wiebe & Cox, 2005) stimulation and rewards were frequently expressed by older gamblers. A similar Ontario survey (Wiebe et al., 2004) found that winning money, excitement/fun and opportunity to socialise were common benefits attributed to gambling. A significant proportion of gamblers (39%) indicated that they saw no benefit by gambling (amotivation). Lotteries, raffle tickets, EGMs in casinos and scratch tickets were the most popular activities. Men were more likely than women to prefer perceived skill-based activities, such as betting on races, while women were more likely to prefer EGMs and bingo.

A recent survey of older adults in Queensland (Boreham et al., 2006) reported that winning money was more important than stimulation, socialising, and escaping boredom, loneliness and problems. Earlier studies (Munro et al., 2003) found that stimulation and social reasons were rated higher, but with the increase in EGMs, social interaction is limited (Morgan Research, 1997) and winning becomes more important. The 1999 New Zealand Gaming Survey (Abbott & Volberg, 2000) noted that adults 35 years of age and older were less likely than the group aged less than 35 to gamble for curiosity, excitement, entertainment or socialising, and

more likely to support worthy causes through activities such as raffles. The motives of older adults specifically were not reported in the survey or in the later national survey (Amey, 2001) in which participants were asked why they had *not* gambled in the previous 12 months.

In summary, men in general tend to gamble on perceived skill activities for knowledge and accomplishment, whereas women gamble on chance activities to escape. Older adults' intrinsic motivation to gamble for stimulation seems to be more important than the extrinsic motivation of external rewards in the United States (Desai et al., 2004; Hope & Havir, 2002; McNeilly & Burke, 2000, 2002; Munro et al., 2003). But from recent New Zealand, Australian and Canadian surveys, while stimulation is also relatively important, gambling to win money is more frequently expressed (Abbott & Volberg, 2000; Boreham et al., 2006; Wiebe et al., 2004; Wiebe & Cox, 2005). Gambling for social reasons (identified regulation) was frequently rated lower than amotivation in areas where EGMs and casinos have been established. They might begin gambling for entertainment and social reasons, but after initial wins, they gamble for rewards, something to do and solutions to financial problems (Munro et al., 2003).

The Present Study

Most theories of gambling motivation have been developed to explain the behaviour of problem gamblers and have been based on student or clinical samples, but few have been applied to non-problem or recreational gamblers in the community (Cotte, 1997; Erickson et al., 2005; Hirshorn et al., 2007; Munro et al., 2003; Neighbors et al., 2002; Platz & Millar, 2001; Raylu & Oei, 2002; Walker et al., 2005). Reports based on epidemiological surveys by government agencies generally have not been widely read or subjected to peer reviews, even though they are frequently used to inform decisions and formulate policies (Munro et al., 2003). Activity theory has been used to explain the positive benefits

of gambling for older adults when individual differences are considered (Zaraneck & Chapleski, 2005). Few studies with older gamblers other than national surveys reported gender differences, none used a standardised measure of gambling motivation, none compared the motives of regular continuous gamblers to the motives of regular non-continuous gamblers and none of the New Zealand surveys specifically reported the motives of older adults.

The purposes of the present study were to compare the gambling behaviour and motives of male versus female older adult gamblers using a standardised measure, to compare their preferences for skill and chance activities, and to compare the motives of regular continuous gamblers with those of regular non-continuous gamblers. From the literature, it was predicted that for older gamblers (65+ years):

1. *Men will be more likely than women to participate in perceived skill activities such as track betting and cards, while women will be more likely to participate in chance activities such as raffles, scratch tickets, EGMs in casinos and bingo.*
2. *Men will have stronger internal motivation to gamble for knowledge and accomplishment, whereas women will gamble for tension release and will have stronger amotivation.*
3. *Men whose favourite activities are perceived as skilled will have stronger intrinsic than extrinsic motivation and women whose favourite activities are chance will have stronger extrinsic than intrinsic motivation.*
4. *External rewards and amotivation will be stronger than the extrinsic motivation of identified regulation.*
5. *Regular continuous gamblers will have a higher expenditure rate and stronger motivation towards stimulation and identified regulation, and weaker motivation toward external regulation than regular non-continuous gamblers.*

Method

Participants

The convenience sample was obtained in the city of Hamilton, New Zealand from retirement villages ($n = 147$), senior clubs ($n = 104$), members of the Returned Services Association (RSA) ($n = 15$) and individuals attending the casino who described themselves as aged 65 or older ($n = 25$). The questionnaire was distributed without attempting to obtain numbers of men and women proportionate to the general or Hamilton population. In 2002 a permanent casino opened there, less than two years before the present study was undertaken. Participants were included if they had gambled at least once in the past 12 months, fully completed the anonymous questionnaire and returned the questionnaire by mail.

Of the 291 initially delivered questionnaires, a total of 104 fully completed questionnaires and three incomplete ones were returned by mail. Even though the overall response rate was only 36%, it was above the expected rate of 30% for mailed questionnaires (Shaughnessy & Zechmeister, 1985), particularly in surveys of older adults using the present methodology and looking for specific information (Erickson et al., 2005; Hope & Havir, 2002; Wiebe & Cox, 2005).

The percentages of men ($n = 41$) and women ($n = 63$) in the sample and employment rates were not significantly different from the older adult population in the city of Hamilton (Statistics New Zealand, 2006), but there were significant differences in age, ethnicity, income and marital status (Table 1). Proportionately more of the sample was aged between 70 and 74 years, NZ European, in the middle income range and not married. Ages ranged from 66 to 87 years with a median age of 73 years ($M = 74.59$, $SD = 4.50$). No participants indicated that they were from a Maori or Pacific people's group. To examine demographic differences in gambling behaviour, preferences and motives, age groups were re-coded into categories of 65-74 and 75+, and marital status into married/unmarried.

Materials

In addition to demographic questions, an anonymous questionnaire included measures of gambling behaviour and motivation. The participants indicated which of 13 gambling activities they played for money at least once and the frequency for each activity during the past 12 months, with ratings of 0 (less than weekly) or 1 (once per week or more). Based on the forms of gambling preferred by older adults in other studies, the activities were selected from the 1999 national prevalence survey (Abbott & Volberg, 2000), and appear in Table 2. Two total scores ranging from 0 to 13 were tabulated for each person: the number of activities tried at least once and the frequency for all games played during the past 12 months. The respondents were also asked to indicate

the largest amount of money spent in one gambling session in the past 12 months. They were given six options ranging from NZ\$1 or less through to NZ\$200 or more.

The English language version of the Gambling Motivation Scale (GMS) was obtained from the authors (Chantal et al., 1994). It consists of 28 items with seven sub-scales corresponding to the three types of motivation described above: (1) Intrinsic Motivation (IM) toward Knowledge, toward Accomplishment and toward Stimulation, (2) Extrinsic Motivation (EM) involving External Regulation, Introjected Regulation and Identified Regulation, and (3) Amotivation. At the beginning of the Scale, respondents are asked to select their favourite game from the list of 13 activities and then in answer to

Table 1.

Characteristics of the Sample ($N = 104$) and of the Older Adult Population in the city of Hamilton, NZ ($N = 13,095$)

Characteristic	Present Sample		Population ¹	χ^2	df
	n	%			
Gender				0.37	1
Male	41	39	42		
Female	63	61	58		
Age (years)				95.97***	4
65-69	10	10	28		
70-74	52	50	24		
75-79	23	22	21		
80-84	17	16	15		
85+	2	2	12		
Ethnicity				8.60*	2
NZ European	100	96	87		
Maori	0	0	7		
Other	4	4	6		
Yearly Income (NZ\$)				8.87*	2
<10,000	17	16	13		
10-20,000	67	65	54		
20,000+	20	19	33		
Marital Status				6.91*	2
Widowed/Single/Other	55	53	41		
Married	41	39	52		
Divorced	8	8	7		
Employment				0.84	1
Retired	93	89	81		
Paid	11	18	19		

Note: ¹Data were obtained from Statistics New Zealand (2006) Table Reports. * $p < .05$, *** $p < .001$.

the question, "why have you gambled at your favorite game?", to rate each item on a 7-point Likert-type scale ranging from *Does not correspond at all* (1) to *Corresponds exactly* (7), with *Corresponds moderately* (4) as the midpoint. Examples of EM include "To make money quickly and easily." (External Regulation or Rewards), "Because it's the best way I know for me to relax." (Introjected Regulation), and "Because it's the best way I know to get together with my friends." (Identified Regulation); for Amotivation, "I like to gamble, but sometimes I wonder what it does for me." Scores can range from 4 to 28 on each sub-scale. With data collected from samples of various occupational groups and ages in Québec, Canada, the authors reported adequate construct validity, temporal stability and internal consistency of the scales. Coefficients of internal consistency for the seven sub-scales with the present data ranged from .46 for Identified Regulation to .81 for External Regulation.

Procedure

Before participants were selected, approval for the research was granted by the Massey University Human Ethics Committee (MUAHEC 03/083). Volunteers were treated in accordance with the "New Zealand Psychological Society Code of Ethics" (New Zealand Psychological Society, 2002). An information sheet which included the purposes of the study, the rights of the participants, the researchers' contact details and a note that filling in the questionnaire implied consent, and the questionnaire were placed in a plain envelope and distributed to convenience samples of older adults. Permission was gained from site managers of four retirement villages to place information in all residents' letter boxes and from Sky City Hamilton casino's security manager to approach individuals leaving the casino. Permission was also gained from secretaries of seniors' clubs to attend one of their meetings and distribute questionnaires to their members. Envelopes were given to the secretary of the RSA for distribution to members willing to complete the questionnaire. Patrons exiting the casino who described themselves as aged 65 or older were asked by the

second author if they were willing to complete a questionnaire in their own time that looked at the motives of older gamblers. A pre-paid self-addressed envelope was provided with each information sheet and questionnaire. The participants were not asked from which source group they received the questionnaire. The questionnaire took about 20 minutes to complete.

Data Analysis

Quantitative data were analysed using the Statistical Package for Social Sciences (SPSS) for Windows Version 15. Men were compared to women on gambling participation and frequency for each of the 13 activities, largest amount gambled in a single session, favourite gambling activities and the seven aspects of motivation. Differences between age, income and marital groups were also compared on these variables. The interaction effects of gender and skill versus chance favourites on motivation were computed. Regular continuous gamblers were compared to regular non-continuous gamblers on largest amount spent in a single session and the motivational variables. Means for external regulation/rewards and amotivation were compared with the mean for identified regulation.

Results

Gambling Behaviour

Most of the sample (64%) gambled weekly or more frequently on one or more of the 13 activities, and for most of them (74%) the largest amount spent in one session was NZ\$10 or less. Hence, largest amount spent in a single session was re-grouped into categories of 0 (NZ\$10 or less) and 1 (greater than NZ\$10). The most popular activities for both sexes were Lotto (71%), raffles (67%) and scratch tickets (62%), followed by EGMs in casinos (41%), races (39%), EGMs in lounges, clubs and bars (28%) and bingo (20%). Activities engaged in weekly or more frequently included Lotto (40%), scratch tickets (26%), raffles (14%) and EGMs in casinos (11%).

Proportionately more participants who gambled at EGMs in casinos (78%), EGMs not in casinos (59%),

horse/dog races (59%) and bingo (33%) spent more than \$10, compared with participants who spent \$10 or less on those activities (29%, 17%, 31%, 16%, respectively), χ^2 s (1, $N = 104$) = 19.96, 17.85, 6.66, 3.91, $p < .001$, .001, .01, .05, respectively. There were no significant spending differences in percentages for Lotto (74% vs. 70%), raffles (70% vs. 66%) or scratch tickets (70% vs. 58%), χ^2 s (1, $N = 104$) < 1.20, $p > .05$.

The mean numbers of total activities and frequencies for men ($M = 3.54$, $SD = 2.13$ and $M = 1.02$, $SD = 1.31$, respectively) were not significantly different from the respective means for women ($M = 3.40$, $SD = 1.70$ and $M = 1.24$, $SD = 1.27$), t s(102) = 0.37 and -0.83, respectively, $p > .05$. The percentages of men (34%) and women (44%) who were regular continuous gamblers, mostly on scratch tickets, and the percentages who were regular non-continuous gamblers, mostly on Lotto (22% and 25%, respectively) were not significantly different, χ^2 (1, $N = 67$) = 0.05, $p > .05$. Although the percentage of women (30%) who spent more than \$10 in a single session was larger than the percentage of men (20%), the difference was not statistically significant, χ^2 (1, $N = 104$) = 1.47, $p > .05$.

The first hypothesis was partially supported. In the previous 12 months, a greater percentage of men (49%) gambled on races than women (32%), χ^2 (1, $N = 104$) = 3.05, and proportionately more women (75%) purchased raffle tickets than men (56%), χ^2 (1, $N = 104$) = 3.87, $ps < .05$. But there were no significant differences for Lotto, scratch tickets, EGMs or bingo (Table 2). Women (33%) were more likely than men (15%) to purchase scratch tickets regularly, χ^2 (1, $N = 104$) = 4.52, $p < .05$. Equivalent proportions of men and women nominated continuous and non-continuous forms of gambling (approximately 50% each) as favourite activities, χ^2 (1, $N = 104$) = 0.00, $p > .05$, with slightly more women (21%) than men (15%) preferring EGMs in a casino, and more men (10%) than women (6%) preferring EGMs elsewhere, but the differences were not statistically significant. Between groups analysis with age, income and marital status groups revealed no significant

Table 2

Percentages of Older Adult Men ($n = 41$) and Women ($n = 63$) Gambling for Money by Attempts, Regular Gambling and Favourite Activities in the Previous 12 Months

Activity	At least once		Regularly		Favourite	
	Men	Women	Men	Women	Men	Women
Lotto	71	71	37	43	34	40
Other lotteries or raffles	56	75*	15	13	12	10
Scratch tickets	56	65	15	33*	10	13
Bets on horse/dog races	49*	32	7	6	10	6
EGMs in casinos	44	40	7	13	15	21
EGMs in non-casinos	29	27	7	8	10	6
Bingo (housie)	27	16	5	5	8	3
Other games in casino	7	5	0	0	0	0
Cards for money, non-casino	7	3	2	2	0	0
Telephone competitions	5	3	5	2	0	0
Bets on skill games (pool, bowls)	2	3	0	0	0	0
Bets on sports teams	0	0	0	0	0	0
Internet for money	0	0	0	0	0	0

Note: Percentages were rounded to the nearest whole number.

* $p < .05$

differences for any of the activities, motives or regularity of gambling.

Gambling Motivation

The second and third hypotheses were not supported. A two-way MANOVA and independent samples t-tests showed that there were no significant ($p > .05$) differences in male and female mean scores on any of the motivational variables (Table 3), Wilks' Lambda = .974 $F(7, 94) = 0.36, p > .05$. Nor were there any significant interactions between gender and skill/chance favourites on motivation (data not shown), Wilks' Lambda = .991, $F(7, 94) = 0.12$.

The fourth hypothesis was corroborated. Mean scores for external regulation ($M = 8.18, SD = 5.31$) and amotivation ($M = 5.51, SD = 2.76$) were significantly greater than the mean score for identified regulation ($M = 4.58, SD = 1.48$), $t(206) = 6.66, p < .001$ and $3.03, p < .01$, respectively.

The fifth hypothesis was partially supported. Regular continuous gamblers (43%) were more likely than regular non-continuous gamblers to spend \$10 or more in a single session (41% vs. 12%), $\chi^2(1, N = 67) = 6.07, p < .05$. Table 4 shows that they had significantly higher mean scores than regular non-continuous gamblers on stimulation, $F(1, 65) = 1.93,$

$p < .05$, but there were no significant differences on identified regulation or external regulation, $F_s(1, 65) = 0.44$ and 0.35 , respectively, $p > .05$. There were significant differences in mean scores for knowledge, accomplishment, introjected regulation (relaxation and tension release) and amotivation. The sizes of the significant effects were small ($\eta^2 < .10$).

Discussion

Consistent with the findings from national surveys in New Zealand (Abbott & Volberg, 2000; Amey, 2001; Ministry of Health, 2003), Australia (Productivity Commission, 1999), Canada (Marshall & Wynne, 2004), and the United States (Gerstein et al., 1999), Lotto, raffles and scratch tickets were also the most popular forms of

Table 3

Means and Standard Deviations for Gambling Motivation Scales: Men versus Women

	Men ($n = 41$)	Women ($n = 63$)	t ($df = 102$)
GMS Scale			
Knowledge	M 4.85 SD 1.41	4.73 1.45	0.43
Accomplishment	M 4.07 SD 0.26	4.17 0.77	-0.81
Stimulation	M 4.78 SD 1.82	5.57 3.62	-1.47
External Regulation (Rewards)	M 8.71 SD 6.03	7.84 4.80	0.81
Introjected Regulation	M 4.73 SD 1.48	5.56 2.75	-1.99
Identified Regulation	M 4.46 SD 1.34	4.65 1.57	-0.63
Amotivation	M 5.46 SD 2.27	5.54 3.06	-0.14

Table 4

Means and Standard Deviations for Gambling Motivation Scales: Regular Continuous Gamblers versus Regular Non-continuous Gamblers

GMS Scale		Continuous (n = 42)	Non-Continuous (n = 25)	t (df = 65)
Knowledge	M	5.19	4.52	2.12*
	SD	1.53	1.05	
Accomplishment	M	4.12	4.00	1.95*
	SD	0.40	0.00	
Stimulation	M	5.69	4.56	1.93*
	SD	2.96	1.83	
External Regulation (Rewards)	M	9.60	9.08	0.35
	SD	5.77	5.80	
Introjected Regulation	M	5.81	4.52	2.90**
	SD	2.29	1.36	
Identified Regulation	M	4.55	4.40	0.44
	SD	1.45	1.12	
Amotivation	M	6.00	4.88	1.83*
	SD	3.04	1.97	

* $p < .05$, ** $p < .01$, one-tailed tests

gambling among the present sample. They were likely to spend \$10 or less in a single session on these activities, and to spend more than \$10 on EGMs, races and bingo. Horse/dog races were more popular than in the national surveys, perhaps because the Hamilton area is known for its horse breeding farms. Possibly because of the recently opened casino in the city and day trips to the Auckland casino, EGMs in casinos were more popular than among the national samples which included districts with no casinos. In Ontario where most of the population has access to casinos, participation rates for EGMs in casinos were also high (Wiebe et al., 2004).

As in the New Zealand, Australian and Canadian studies (Abbott & Volberg, 2000; Cotte, 1997; Wiebe et al., 2004), but in contrast to American ones, (Desai et al., 2004; Hope & Havir, 2002; McNeilly & Burke, 2002), gambling to win money was the strongest motive among the sample. Gambling out of boredom or for something to do was prevalent in all four countries.

Because the participants completed the questionnaire within two years of the opening of the Hamilton casino, the novelty effect of try something new (IM knowledge) should have been stronger, but the low internal consistency (.58)

of the scale might have mitigated against the validity of this relationship. Although they had acceptable internal consistencies, IM stimulation (.79) and EM introjected regulation (.67) were strongly related to each other ($r = .78$), indicating that they were measuring a concomitant motive. The older adults gambled for both excitement and relaxation, consistent with the taxonomy of motives (Cotte, 1997) and with activity theory (Zaraneck & Chapleski, 2005).

Gender Differences

In the previous 12 months, older adult men and women in the sample exhibited similar gambling behaviour and motivation. The total numbers of activities tried, the frequency of gambling, the largest amount spent in a single session, favourite gambling activity and all seven aspects of gambling motivation were not significantly different. Equivalent proportions were in the regular continuous gambling and regular non-continuous gambling groups.

However, there was some evidence that men were more likely to participate in perceived skill activities, while women will be more likely to participate in chance activities, as expected from

studies of gamblers in general. Gender roles in society suggest that men are more inclined toward competitive games with an element of perceived skill, while women prefer more passive chance games (Cousins & Witcher, 2007; Delfabbro, 2000; McKay, 2005; Potenza et al., 2001). Proportionately more men than women placed bets on horse/dog races, and more women than men purchased raffle tickets. Women also bought scratch tickets more frequently. In contrast, more men (27%) than women (16%) tried bingo at least once, and preferred it (8% vs. 3%) as their favourite gambling activity. Perhaps bingo offers elements of competitiveness and passivity that are attractive for both sexes in this age group. With a large proportion of unmarried people in the sample, it might also provide an opportunity for both sexes to get together, as in casino gambling (Hirshorn et al., 2007; Vander Bilt et al., 2004; Wiebe et al., 2004). Further, older men might not have the same competitive drive as younger men, might not want to risk limited funds (Zaraneck & Chapleski, 2005) and might gamble out of boredom, as indicated by the sample's higher amotivation for continuous games than for non-continuous ones.

Regular Continuous Gamblers versus Regular Non-Continuous Gamblers

Like the findings with the total sample in the 1999 national survey (Abbott & Volberg, 2000), the regular continuous gamblers were more likely than regular non-continuous gamblers to prefer horse/dog races, scratch tickets or non-casino EGMs. Similarly, they had a higher expenditure rate than regular non-continuous gamblers who more strongly preferred Lotto. They also had stronger motive for excitement, but unlike the national survey the strengths of motivation towards socialising and rewards were not different to a statistically significant level.

They did, however, seek more tension release (introjected regulation) and gambled out of boredom (amotivation), like the female casino patrons in the two Canadian telephone surveys (Walker et al., 2005). Older adult gamblers who gamble regularly on

non-continuous games might have other activities which are more conducive for their health, so that they do not become habituated to continuous ones (Zaraneck & Chapleski, 2005). Possibly because of the recently opened casino, curiosity (IM knowledge) distinguished the two groups.

Limitations and Implications

While the sample was similar in gender and employment status, it was not representative of older adults in the city of Hamilton and the findings can not be generalised to the wider population. It excluded older adults who do not gamble, and included disproportionate numbers of regular continuous gamblers and of unmarried middle income earners, possibly due to the recruitment of participants at casinos and clubs. With proportionately more unmarried middle income participants in the sample, the older adults might have had more disposable funds with which they could gamble for entertainment and socialising. For Maori and Pacific people, very little is known about their older adults' gambling behaviours possibly due to the small samples sizes and low response rates in national surveys (Abbott & Volberg, 2000; Amey, 2001), and none were in the present sample. The survey did not ascertain which casinos the older adults visited or from which sources the questionnaires came, so that their behaviour and motivation associated with the newly opened casino could not be determined. Some of them could have taken day trips to the Auckland casino or direct flights from Hamilton to the Gold Coast of Australia.

Because the reliability of autobiographical memories decreases over time, the older adults might have distorted the details of their gambling behaviour over 12 months (Bradburn et al., 1987; Rubin et al., 1986). Some of them might not see bingo and charity lotteries as gambling (McNeilly & Burke, 2000). The use of self-administered questionnaires might have inflated the correlations among the variables because of participants' attempts to be consistent throughout the questionnaire. Future studies could limit this problem by using informants such as friends and family, or by observing

older adults' gambling behaviour in gambling venues (Cotte, 1997; Wiebe & Cox, 2005).

Some of the variations in older adults' gambling behaviour might be explained by the tendency of people to underestimate their gaming machine and casino gambling. Largest amount spent in single session might have been distorted by self-reports. When official gambling expenditure figures are compared to self-reported expenditures, people tend to underestimate the amount they spend on EGMs and casino gambling, to overestimate amounts on Lotto and other lotteries, and to be reasonably accurate for bets on horse and dog races (Abbott & Volberg, 2000). With the widespread availability of EGMs in pubs, clubs and new casinos since 1995, the incidence of older adults' gambling in New Zealand may be increasing, but under-reporting may mask the incidences. Before 1995 opportunities for gambling involved mainly Lotto, instant scratch tickets, other lotteries and horse/dog races.

Regular continuous gamblers might be reluctant to acknowledge large expenditures due to stigma or shame. This is especially true for older adults since they are more likely to hide or deny their gambling behaviour due to such things as religious beliefs and age related perceptions of how older adults should morally and ethically behave (Bazargan et al., 2000). The phrasing of questions in future studies should ascertain on what activities amounts are spent or have participants keep a diary of moneys spent for each activity over a period of time, preferably over 6 or 12 months to align the data with previous data from surveys, research and industry expenditure.

Because the participants did not indicate the recruitment source, it was not possible to compare retirement villages, RSA clubs or casinos on the gambling behaviour and motives. As indicated by the small effect sizes, the number of participants was too small to relate motives to each major gambling activity or to detect significant differences among age, income and marital groups (Hirshorn et al., 2007). For example, all of the gender differences in percentages predicted in the first hypothesis were in the expected direction, but the differences in participation and

frequency rates were significant for only some of the activities. Similarly, only stimulation and not rewards or socialisation significantly distinguished regular continuous gamblers from regular non-continuous gamblers. Response rates from older adults are usually low, particularly with mail survey methods (Hope & Havir, 2002). Telephone surveys and interviews may boost rates (Abbott & Volberg, 2000; Wiebe & Cox, 2005). Future research with larger samples of older adults could ascertain frequencies, preferences and motives in different gambling venues. For example, if gambling motives are associated with frequencies of casino visits and activities participated in (Cotte, 1997; Hirshorn et al., 2007).

Although there were significant differences in motivation between regular continuous gamblers and regular non-continuous gamblers, the results need to be treated with caution. The internal consistency of the Amotivation scale was satisfactory, but marginal (.69). For IM knowledge and accomplishment, and for EM identified regulation, the internal consistencies of the GMS scales (.58, .53, and .46, respectively) were low, so that the relationships among curiosity, feelings of accomplishment, social recognition and gambling preferences might not be reliably ascertained. Further, motives can change over time, particularly after big wins (Munro et al., 2003).

Because the data in the present study were cross-sectional, the direction of associations between behavioural and motivational variables could not be determined. Hence, the relationships among the variables need to be tested in longitudinal and prospective designs. For example, longitudinal and observational studies could examine the impact of new casinos in towns with large numbers of older adults (Morgan Research, 1997). One longitudinal study of some older adult casino gamblers in Minnesota (Hope & Havir, 2002) found that they were well aware of the signs of problem gambling, set a budget before going to a casino and benefitted socially from gambling in casinos.

Gambling behaviour, including motivation and activities should be assessed within 12 months rather than over a lifetime for more reliable

data. Incentives such as cheap meals, transportation to gambling venues and promotions targeting older adults also need to be incorporated into the research designs (McKay, 2005). However, incentives do not necessarily motivate older people to start or continue gambling (McNeilly & Burke, 2000) and individual motives such as those examined in the present study may be stronger (Morgan Research, 1997).

While not the focus of the present report, problem gambling among older adults needs to be considered, particularly because little is known about the relationship between recreational and problematic gambling in this age group (Desai et al., 2004). Even though prevalence rates of problem gambling among older adults have been lower than among the general population (Abbott, 2001; Gerstein et al., 1999; Korn & Shaffer, 1999; McNeilly & Burke, 2001; Wiebe, 2000, 2003), frequent gambling may lead to serious financial and personal problems for a minority of older gamblers.

Future research needs to study the relationship between disorders such as dementia and gambling behaviour, because a memory disorder may impair judgment about risks and spending with limited incomes. From a health perspective, further research should also examine the impact and costs of older adults' gambling in communities, and the prevalence of problem gambling in areas with and without casinos (Productivity Commission, 1999; Ladouceur, et al., 1994).

Routine medical examinations should include questions about older adults' activities (Desai et al., 2004), and about the availability of social support from family and friends (Productivity Commission, 1999; Winslow, 2002). Signs of problem gambling might include gambling to escape problems and negative feelings (introjected regulation), and gambling out of boredom (amotivation) (Clarke, 2007). Because problem gambling may be a hidden problem among some older adults, education and publicity about the risks of problem gambling could be explored. Alternative activities such as volunteer work for stimulation, accomplishment, social contact and relieving boredom could be encouraged

for healthy older adults who seem to be increasingly reliant on gambling for their entertainment and meaning of life. For example, older adults in Detroit were less likely to go to a casino and more likely to agree that being an older adult was the best time of their life, if they enjoyed a variety of other social activities (Zaraneck & Chapleski, 2005). In contrast, those with lower incomes and poor mental health were more likely to be frequent visitors to a casino.

Conclusion

Like other gamblers, older adults gamble with a mixture of motives, with different strengths depending upon preference for continuous or non-continuous forms of gambling. The present study provided evidence for the consideration of individual differences in normal older adults' gambling behaviour and motivation that are not included in activity theory. Boredom and escape from everyday problems as well as stimulation are important motivational variables related to their gambling on continuous activities such as gaming machines and bingo. The results were similar to findings with older gamblers in Australia and Canada, indicating that similar behaviour and motivation may be present among older New Zealand adults, particularly in urban areas where casinos have been introduced. The overall implications of this study point to need for examining the different motives for their choices of different forms of gambling. Knowledge and understanding of the reasons why older adults gamble on different forms of gambling may be useful not only for the leisure industry but also for education, prevention programmes and interventions with older gamblers who run into problems with their gambling.

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Acknowledgements

This report was based on data collected for a thesis by the second author in partial fulfilment of the requirements for the degree of Master of Arts in Psychology at Massey University.

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Gambling behaviour and motivation in an urban sample of older adult gamblers

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2008-03-01
