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Does one shoe fit all? Impacts of gambling among four ethnic groups in New Zealand

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Abstract

The aim of the current study is to examine the impacts of gambling among four different ethnic groups within New Zealand (i.e., Maori, Pakeha, Pacific peoples, and Chinese and Korean peoples). Four thousand and sixty-eight Pakeha, 1,162 Maori, 1,031 Pacific people, and 984 Chinese and Korean people took part in a telephone interview that assessed their gambling participation and their quality of life. Results showed a number of differences between ethnic groups. For the Maori and Pacific samples, there were significant associations between gambling participation (especially time spent on electronic gaming machines) and lower ratings in a number of life domains. In contrast to the findings for the Maori and Pacific peoples, which showed predominantly negative associations between gambling modes and people's self ratings of their domains of life, the findings for Pakeha and for Chinese and Korean peoples were more mixed and the associations predominantly positive.

Keywords: gambling, quality of life, ethnicity, New Zealand

Introduction

Past research has shown that certain ethnic groups are disproportionately harmed by gambling. This may be related to their socio-economic and political position within a society, access to gambling venues, cultural beliefs and values, culturally determined help-seeking attitudes, and the process of acculturation (Clarke et al., 2006; Raylu & Oei, 2004; Reith & Scottish Executive Social Research, 2006).

In New Zealand, the disproportionate effect of gambling is particularly evident among Maori (the indigenous people of New Zealand who account for approximately 15% of the total New Zealand population), Pacific peoples (who represent about 7% of the total population), and recent migrant groups such as Chinese and Koreans (according to the 2006 census, Asian people represent 9% of the total population, and the largest Asian ethnic group is

Chinese, constituting 42% of the Asian population). These groups accounted for over half of the country's problem gamblers in recent studies of gambling in New Zealand (Abbott & Volberg, 2000; Dyall & Hand, 2003; Ministry of Health, 2009; Statistics New Zealand, 2007; Tse, Wong, & Chan, 2007).

Maori

Dyall and Morrison (2002) highlighted the fact that, as with alcohol and tobacco, the regulatory and legislative regimes that govern gambling activity in New Zealand have never included requirements to actively protect or promote the interests of Maori or ensure the participation of Maori in the process of policy development. This is despite the fact that previous research has suggested that Maori are at particular risk for the adverse impacts of gambling and are at greater risk of problem gambling than are non-Maori (Abbott & Volberg, 2000; Dyall, 2004, 2007).

The 2006/07 New Zealand Health Survey showed that Maori are disproportionately affected by problem gambling (Ministry of Health, 2009). Maori not only had higher current gambling participation rates (71.8%) than the national average (65.3%), but also had significantly higher problem gambling rates (1.7%), as defined by the Canadian Problem Gambling Index, compared with the total population (0.4%). In addition, this survey suggested that Maori made up approximately half of problem gamblers in New Zealand in 2006/07 even though they represented only 11.4% of the total adult population.

Abbot and Volberg (Abbott & Volberg, 2000; Volberg & Abbott, 1997) estimated that Maori spent more on gambling than did Pakeha even though household incomes of Maori were significantly lower. Dyall and Hand (2003) undertook a qualitative survey of participants who worked with Maori *whanau* (families) and suggested that gambling eroded social capital and Maori cultural and family values; it also reduced time and money available to families. These findings are supported by a study on the social impacts of gambling in Manukau City, New Zealand (Rankine & Haigh, 2003), which found that harms to children, loss of *mana* (respect and status), and theft and misappropriation of goods to pay for gambling, are common.

Clarke and colleagues (2006) suggested that the main reasons for Maori to start and continue gambling were the desire to win big money; easy access to gambling activities, especially electronic gaming machines (EGMs); and as a way to escape from stress, troubles, and loneliness.

Pacific Peoples

Pacific peoples encompass numerous ethnicities from the South Pacific. The five largest Pacific groups in New Zealand are the Samoans, Cook Islanders, Tongans, Niueans, and Fijians (Statistics New Zealand, 2007).

The 2006/07 New Zealand Health Survey revealed that although a large proportion of Pacific peoples do not gamble (Pacific peoples had a lower current gambling participation

rate [55.2%] compared with the national average), those who do gamble were at greater risk of developing problem gambling. In comparison with the total population, Pacific peoples were approximately 4 times more likely to be problem gamblers; to be more precise, 1.7% of Pacific peoples compared with 0.4% of the total population were classified as problem gamblers (Ministry of Health, 2009). Pacific peoples made up 21.1% of problem gamblers in New Zealand while representing only 5.3% of the total adult population.

Cultural beliefs and practices may influence Pacific people's attitudes to and participation in gambling. There is a history of gambling in Niuean culture; however, problem gambling is a more recent development (Collaborating Pacific Contributors, 2004). Bellringer, Perese, Abbott, and Williams (2006) found that migrant Pacific mothers were more likely to gamble than were New Zealand-born Pacific mothers. Another finding was that Pacific mothers who followed the cultural practice of gift giving were more likely to gamble and spend over $20 a week on gambling. A concentration of non-casino EGMs has been cited as a problem for Tongan communities (Guttenbeil-Po'uhlia, Tu'itahi, Hand, & Htay, 2004). Furthermore, Tongan communities were found to hold many misconceptions about how gaming machines worked that fostered false beliefs in control and the amount of money returned to the community (Guttenbeil-Po'uhlia et al., 2004). Some of their cultural values also facilitate gambling, for example, the value of *feinga* (persistence courage, determination, and exhausting all options). For many Tongans of low socio-economic status, this supports gambling as a final chance to succeed financially (Guttenbeil-Po'uhlia et al., 2004).

The impacts of gambling on Samoan communities have included breakdown in family relationships in terms of honesty, trust, and spending time together with partners; providing for the needs of children; extra financial and care-giving burdens placed on extended family members; financial management problems, leading to loss of possessions or eviction; and declines in levels of health, employment, education, and contribution to the community (Perese & Faleafa, 2000). Similar problems were noted in Tongan communities. Expectations of life in New Zealand have changed as "the dreams of some Tongan migrants for a better life have been transferred from participation in the economy and social life of New Zealand to the sites of the gambling industry, Casinos and Pokies machines" (Guttenbeil-Po'uhlia et al., 2004, p. 10).

Clarke and colleagues (2006) suggested that the main reasons for Pacific peoples to start and continue gambling in New Zealand were the need for money to meet traditional obligations to family (close, extended, and non-blood links) and ethnic communities, limited entertainment options, and the easy access to gambling activities.

Asian Peoples

The Asian community is also made up of numerous ethnicities. The five largest communities in New Zealand are the Chinese, Indians, Koreans, Filipinos, and Japanese (Statistics New Zealand, 2007). The majority of Asians in New Zealand (78%) were born overseas (Statistics New Zealand, 2002).

Data on people accessing gambling-help services in New Zealand indicated that increasing numbers of Chinese and other Asians are presenting with gambling problems. In 2005, Asian people made up 8.1% of new clients to Gambling Helpline, and they were the only ethnic group to increase in absolute numbers and as a proportion of clients for both the Helpline and the face-to-face services. In addition, in contrast to the reduced numbers of clients using the national Helpline, the Auckland-based Asian Gambling Hotline had 263 new callers in 2005, an increase of 11% from 237 in 2004 (Ministry of Health, 2006). In 2007, the percentage of new Helpline gambler clients who identified as Asian declined slightly to 6.9%, but the proportion of new Asian clients presenting to face-to-face intervention services continued to increase (from 6% in 2005 to 7.6% in 2007; Ministry of Health, 2008). Asian clients reported substantially higher losses of money than other ethnicities. According to the *Problem Gambling Intervention Services in New Zealand: 2007 Service-User Statistics* report, the median amount of money lost by Asian people was $4,000 (in the 4 weeks prior to assessment) compared with an overall median of $1,000. Asian clients represented just 11% of clients contributing to these data while accounting for 41% of reported losses (Ministry of Health, 2008).

Research overseas has demonstrated similar troubling patterns with regard to Asian gambling in Western countries. In Canada, the Chinese Family Service of Greater Montreal (as cited in Papineau, 2005) reported a higher prevalence of compulsive gambling in the Chinese population that it studied than for the Quebec population as a whole. Similarly in Australia, the Victorian Casino and Gaming Authority (2000) found that Chinese-speaking communities had the highest frequency of individuals classified as probable problematic gamblers compared with the general Victorian sample and other ethnic groups. Moreover, for those who participated in gambling activities, Chinese tended to spend considerably more money per week than the general community.

One of the contributing factors to Asian gambling in New Zealand could be the acculturation process. Many of the clients seeking treatment reported that they did not have gambling problems prior to coming to New Zealand. Gambling in their homeland consisted of playing games (such as mah-jong) with family and friends rather than with strangers in casinos (Wong & Tse, 2003). It has also been suggested that lack of experience in gambling as it exists in New Zealand, spare cash, and free time may be the reasons that some Asian immigrants developed problem gambling (Wong & Tse, 2003). Limited English ability, difficulty in gaining employment, disconnection from family support, and shift work with nothing to do afterwards may lead to social isolation for new immigrants, and this feeling of isolation can be eased through gambling games that require no language skill and are provided in venues where other Asians meet (Clarke et al., 2006; Li & Chan, 2006; Wong & Tse, 2003). This can result in a negative cycle in which stress leads to gambling, which leads to more money loss, which creates more stress. The lack of a tradition of help-seeking outside the family and unfamiliarity with available services can lead to reluctance to seek help (Li & Chan, 2006; Wong & Tse, 2003).

Newly arrived immigrants may find that loss of money through gambling jeopardises their ability to begin employment or study, essential to establishing a life in New Zealand (Wong & Tse, 2003). Chinese international students in New Zealand reported problems with

money, health (weight loss, stress, lower self-esteem, depression, increased smoking and drinking), their studies, and legal concerns (Li & Chan, 2006).

Pakeha

The majority of the New Zealand population is Pakeha (i.e., people of European descent), who brought gambling to New Zealand as part of their culture early in the 18th century (Dyall, Tse, & Kingi, 2009).

The 2006/07 New Zealand Health Survey indicated that although Pakeha were more likely to have participated in gambling in the past 12 months compared with the general population (67.6% vs. 65.3%), they were significantly less likely to be problem gamblers (0.2%).

Research has suggested that the main reasons for Pakeha to start and continue gambling were the desire to win big money, easy access to gambling facilities, and as a way of coping with stress and boredom. Family, peers, and advertising were also noted as contributing factors for Pakeha gambling (Clarke et al., 2006).

Impacts Related to Different Types of Gambling and Their Availability

Statistics on people seeking treatment indicate that primary modes of problematic gambling vary by ethnicity. Maori (75.1%) and Pakeha (70%) clients were more likely to report non-casino EGMs as their primary mode of gambling. Casino tables were the primary mode of gambling for half of the Asian respondents (50%). Asians (35.4%) and Pacific peoples (33.6%) were more likely to report casino EGMs as their primary mode of gambling than were other ethnicities (Ministry of Health, 2007).

It is unclear from the existing gambling literature, however, whether different gambling modes have different impacts on people's domains of life because of their ethnic background. This study, therefore, is an attempt to increase our understanding of the role of culture in gambling and to shed light on this under-explored area. Specifically, it tries to answer the following question: Will the impact of different modes of gambling on quality of life differ for different ethnic groups? The answer to this question has important implications for policy and service providers in effectively reducing gambling harms in different ethnic groups and in designing interventions that address the specific needs of people in their respective ethnic communities.

Methodology

Participants

The sample consisted of 4,068 Pakeha (46% male); 1,162 Maori (47% male); 1,031 Pacific peoples (51% male); and 984 Chinese and Korean peoples (49% male) who were aged between 15 and 80 years and had lived in New Zealand for at least 12 months. The mean age of the participants was 48.15 years ($SD = 18.25$) for Pakeha, 40.85 years ($SD = 15.40$)

for Maori, 35.30 years ($SD = 11.04$) for Pacific peoples, and 40.08 ($SD = 12.17$) for Chinese and Korean peoples.

Procedure

Data collection took place from May 2007 to November 2007 with a computer-assisted telephone interview system. A stratified sample design was used to reflect the New Zealand population on the basis of geographic regions and level of urbanisation. The strata, when combined, covered the whole of New Zealand. Level of urbanisation was divided into metropolitan (i.e., the Auckland urban area) and large cities such as Hamilton, Christchurch, and Wellington; smaller main urban areas; large towns; small towns; and rural areas. The strata were derived from local calling areas, adjusted to match main urban areas where possible.

Telephone numbers were randomly generated. Randomly generated phone numbers have the advantage of including both published and unpublished phone numbers and therefore having greater coverage of the sampling frame than occurs with the use of non-randomly generated listed telephone numbers. Telephone numbers were screened against the Yellow Pages (to remove business numbers). Phone numbers were distributed in proportion to the usually resident population aged 15 to 80 years with a landline telephone across the 33-area strata.

Each number was called at least 10 times at different times and days of the week until contact was made. The final stage of sampling involved the random selection of one respondent from those eligible in each household. The number of eligible people living in each household was established and listed so that the data collection software could select one respondent at random (no prior reduction in the number of eligible people took place and the data were weighted appropriately prior to analysis to take account of interviews being conducted with one person per household).

The sampling for the Maori sample utilised the Maori electoral roll, and the sampling for the Pacific sample and for the Chinese and Korean sample included the use of a lexicon approach. This lexicon sample was essentially a list-based frame of electoral households where there were published telephone numbers and people with Pacific or with Chinese or Korean-seeming names. A list of words that could trigger a possible Pacific or a Chinese or Korean name is matched against all the names (not just surnames) on the electoral roll to look for households where there might be Pacific or Chinese or Korean people.

The response rate was 62% for the general population sample, 74% for the Maori sample, 64% for the Pacific sample, and 62% for the Chinese and Korean sample.

Survey Instrument

The survey was developed from the existing survey instrument produced from the pilot qualitative study previously conducted by SHORE and Whariki (2006). This pilot study included three components: (a) a review of the available literature about methodologies

and approaches used for measuring the social and economic impacts of gambling; (b) data collection with various stakeholders from the gambling industry and qualitative interviewing of people from different ethnic groups who participated in gambling, as well as with those affected by the gambling of others, to provide insights into the nature and range of gambling impacts within New Zealand; and (c) development and piloting of a quantitative data collection instrument to assess the social and economic impacts of gambling in New Zealand (SHORE & Whariki, 2006). The survey instrument was piloted thoroughly and found to be largely successful in its aims. The current study builds on the survey designed as part of this pilot project. The survey covers the following areas:

Participation in gambling. It was first ascertained whether respondents had gambled in the previous 12 months. This was established by asking respondents if they had gambled using eight specified (and mutually exclusive) modes or venues of gambling plus any additional types of gambling they used. These modes or venues were buying lottery products, playing EGMs in a bar, playing EGMs in a club, playing EGMs in a casino, gambling at casino table games, playing poker or other card games for money, betting at a race track, betting at the TAB, playing housie (bingo) for money, and gambling on the Internet for money.

For each mode or venue in which a respondent reported gambling (excluding lottery products), they were asked how often they had gambled using that mode or venue in the last 12 months, how much time they would spend gambling on a typical occasion for that particular mode or venue, and the longest amount of time they had spent gambling on any one occasion in the last 12 months.

Quality of life. Respondents rated themselves on a 5-point scale (from very poor to very good) on a number of domains of life, including physical health, mental well-being, relationships with family and friends, feelings about oneself, overall quality of life, financial situation, material standard of living, performance in study or employment-related training, performance at work, ability to take care of children, and ability to take care of the elderly. Each domain reported on was measured with a single question, such as "In general, in the last 12 months would you say your physical health has been very good, good, adequate, poor, or very poor?" and "Thinking about your relationships with people that are close to you, in the last 12 months how would you rate your relationships with family and friends? (very good, good, adequate, poor, or very poor)." Respondents also rated themselves (from very dissatisfied to very satisfied) on how satisfied or dissatisfied they were with their lives in general ("Taking everything into account, how satisfied or dissatisfied would you have been with your life in general these days?"). Correlations between quality of life domains are shown in Table 1.

Control variables. Three gambling related variables were controlled for in the regression analysis to isolate an independent impact of gambling modes or venues on people's quality of life.

One variable is people's overall gambling involvement. Respondents who have not participated in any gambling activity in the last 12 months were coded 1 (no gambling).

Table 1
Correlation matrix of quality-of-life measures

	Physical health	Mental well-being	Relation-ships	Feelings about self	Overall quality of life	Overall satisfaction with life	Financial situation	Housing situation	Material standard of living	Work performance	Study performance	Care giving - children	Care giving - elderly
Physical health	-												
Mental well-being	.45	-											
Relation-ships	.21	.31	-										
Feelings about self	.32	.48	.39	-									
Overall quality of life	.32	.38	.38	.49	-								
Overall satis-faction with life	.25	.36	.32	.45	.50	-							
Financial situation	.30	.33	.24	.37	.41	.32	-						
Housing situation	.23	.31	.31	.31	.43	.30	.38	-					
Material standard of living	.25	.30	.28	.37	.48	.34	.52	.44	-				
Work performance	.18	.29	.28	.37	.33	.27	.24	.23	.27	-			
Study performance	.17	.26	.28	.34	.29	.23	.25	.20	.26	.41	-		
Care giving - children	.19	.26	.35	.35	.34	.26	.20	.25	.28	.34	.24	-	
Care giving - elderly	.17	.20	.26	.33	.34	.22	.18	.17	.21	.28	.27	.40	-

Respondents who participated only in lottery products in the last 12 months were coded 2 (lottery only). Respondents who had participated in at least one gambling activity other than lottery products up to a total of 3 hr and with losses of less than 5% of personal income were coded 3 (low gambling involvement). Respondents who had gambled more than 3 hr per week or who had lost more than 5% of their personal income were coded 4 (high gambling involvement). Lottery products were kept as a separate category because they are non-continuous forms of gambling and are therefore considered less harmful.

Another gambling-related variable controlled for was the total net money gain or loss. This was assessed with the question: "Think about what you spent on gambling in the last 12 months; overall do you think you have made money or lost money?" (made money/broken even/lost money/don't know). Those who responded "made money" or "lost money" were asked to recall their total net gain (i.e., the total amount made less the total amount bet over the last 12 months) or their total net loss (i.e., the total amount lost after total winnings have been added over the last 12 months).

The third variable controlled for was the prevalence of other heavy gamblers in one's life. All respondents, including non-gamblers, were asked if they had had any people in their lives whom they considered to be fairly heavy gamblers in the last 12 months (yes/no).

Questionnaire translation. In order to reach a higher number of Chinese and Korean respondents, the survey instrument was translated from English to Chinese and Korean. It was then translated back to ensure the accuracy and the linguistic equivalence of the translation.

Results

Ethnicity and Modes of Gambling

The results showed that Chinese and Korean peoples and Pacific people were less likely to participate in gambling activities; 56.3% of Chinese and Korean and 50.1% of Pacific people had not gambled in the last 12 months (compared with 35.1% Pakeha and 29.5% Maori).

Table 2 shows the prevalence of gambling modes in each ethnic group. Compared with other ethnic groups, Pakeha were more likely to bet at a race track and Maori were more likely to buy lottery products; bet at the TAB; play EGMs in clubs, bars, and casinos; play poker or card games at their own or someone else's house; and gamble on the Internet for money. Pacific people were more likely than other ethnic groups to play housie (in community centres, clubs, or bars), whereas Chinese and Koreans were more likely than others to gamble at casino table games.

Table 2
Prevalence of gambling modes in each ethnic group

Ethnic group	Gambling mode									
	EGMs in bar	EGMs in club	EGMs in casino	Casino tables	Race track	TAB	Poker	Housie	Internet	Lottery products
Pakeha										
Percentage	7.0	4.4	7.8	2.9	8.4	8.7	3.4	1.7	0.7	58.8
Median frequency (times/year)	7.5	4	1.5	1.5	1.5	7.5	4	1.5	1.5	18.5
Median time (min)	37	37	90	90	150	7.5	150	90	22	
Maori										
Percentage	15.2	6.4	10.3	2.9	6.0	12.6	7.3	4.9	0.9	63.6
Median frequency (times/year)	7.5	4	1.5	1.5	1.5	5.5	4	4	7.5	29.5
Median time (min)	37	37	90	90	150	7.5	270	150	90	
Pacific										
Percentage	8.5	2.4	9.2	2.6	2.4	7.0	5.7	5.0	0.7	45.0
Median frequency (times/year)	4	4	1.5	1.5	1.5	14.5	4	7.5	1.5	29
Median time (min)	37	22	90	90	270	15	150	90	90	
Chinese and Korean										
Percentage	3.2	0.6	9.4	6.2	1.0	3.5	5.9	0.5	0.5	34.8
Median frequency (times/year)	4	4	1.5	4	1.5	7.5	4	1.5	29.5	11.5
Median time (min)	22	90	52	90	150	7.5	150	37	90	

Note. Percentages do not sum up to 100 because respondents could choose multiple gambling activities. EGM = electronic gaming machine.

Impacts of Gambling Mode on Domains of Life Within Each Ethnic Group

Table 1 shows the correlations between the 13 domains of life measures. The results suggested that these variables were only minimally to moderately correlated ($r < .60$); therefore each domain of life was examined separately in the following regression analysis.

Multinomial logistic regressions (with stepwise model selection) were used to assess the impact of gambling modes[1] on the modelling of domains of life. Time spent on each gambling mode by each ethnic group (i.e., Pakeha, Maori, Pacific, and Chinese and Korean) was entered into the regression model to assess for any linear relationships with domain-of-life measures. The effects of the following variables were controlled for in order to isolate an independent impact of time spent gambling: age, gender, ethnicity, marital status, education qualification, occupational status, income (with log transformation), overall gambling involvement, net money gain or loss, and prevalence of other heavy gamblers in one's life. Thirteen regression models were conducted (one model for each domain of life); results of these analyses are summarised in Table 3 (please contact the author for full results). Model fit for the gambling variables in the logistic regressions were compared with a null-hypothesis model[2] on a chi-square distribution. The addition of gambling variables significantly improved model fit for every domain-of-life measure (see Table 3).

Pakeha. Results show that Pakeha who spent more time playing EGMs in casinos reported a better financial situation ($p = .002$), better housing situation ($p = .002$), and better material standard of living ($p = .008$) compared with those who spent less time on casino EGMs. Playing casino table games was associated with a better self-reported material standard of living ($p = .035$). Time spent on the race track was positively associated with ratings of participants' physical health ($p = .027$), mental well-being ($p = .045$), and satisfaction with life ($p = .003$). Betting at the TAB was associated with participants' ratings of their financial situation ($p < .001$), material standard of living ($p = .035$), and work and study performance ($p = .031$ and .043, respectively). Playing poker at home or with friends was associated with better self ratings in regard to quality of life ($p = .002$) and care giving for children ($p = .018$). The length of time spent on playing housie was associated with a better self-rated study-related performance ($p = .030$).

For Pakeha, the length of time spent on playing non-casino EGMs had no significant impact on individuals' self ratings of their domains of life.

Maori. Maori who spent a longer time playing non-casino EGMs reported experiencing significantly poorer mental well-being ($p = .007$), poorer feelings about self ($p < .001$), poorer quality of life ($p = .001$), lower overall satisfaction with life ($p = .003$), poorer housing situation ($p = .014$), and poorer material standard of living ($p = .008$), and they rated themselves as a poorer parent or care giver ($p = .047$). Playing EGMs in a casino was associated with poorer self ratings in regard to relationships with family and friends ($p = .001$), and playing casino table games was associated with poorer self-rated work performance ($p = .048$). Time spent on TAB gambling was negatively associated with participants' ratings of their financial situation ($p = .026$).

Table 3
Impact of time spent on each gambling mode on people's domains of life (showing log odds that were statistically significant at the 5% level)[1]

		Domains of life												
Gambling modes		Physical	Mental	Relation-ships	Self	Quality of life	Life satisfn	Financial	Housing	Standard of living	Work	Study	Care-Chil-dren	Care-Elderly
Non-casino EGMs	Pakeha		−.17**		−.28***	−.20***	−.19**		−.16*	−.16**			−.16*	
	Maori	−.26***	−.20*					−.27***						
	Pacific													
	Chinese/ Korean													
EGMs in casino	Pakeha							.20**	.25**	.18**				
	Maori			−.30**										
	Pacific						−.23*							
	Chinese/ Korean													
Casino tables	Pakeha									.25*				
	Maori										−.53*			
	Pacific								.27*					
	Chinese/ Korean													
Race track	Pakeha	.12*	.11*				.16**							
	Maori													
	Pacific					.90**								
	Chinese/ Korean													

Table 3
Continued

Gambling modes		Domains of life												
		Physical	Mental	Relation-ships	Self	Quality of life	Life satisfn	Financial	Housing	Standard of living	Work	Study	Care-Chil-dren	Care-Elderly
TAB	Pakeha							.24***		.13*	.15*	.19*		
	Maori		−.29**					−.22*						
	Pacific													
	Chinese/ Korean													
Poker	Pakeha					.18**							.32*	
	Maori			.19*								−.19*		
	Pacific													
	Chinese/ Korean			.34**		.32**		.25*	.28*			−.39**		
Housie (bingo)	Pakeha											.45*		
	Maori									.20*				
	Pacific				.25*									
	Chinese/ Korean													
Model fit[2]	Chi-square	17.6***	32.0***	26.2***	26.9***	40.8***	24.6***	42.1***	30.0***	28.8***	9.0*	22.2***	11.2**	-
	df	2	4	3	2	4	3	5	4	5	2	4	2	-

[1]The equation $y = \beta_0 + \beta_1 a_1 + \beta_2 a_2 + \beta_3 a_3 + \beta_4 a_0 x + \beta_5 a_1 x + \beta_6 a_2 x + \beta_7 a_3 x$ was used (where y was the logits of Domain of Life (DOL), β_0 was the intercept, a was the ethnicity dummy variable, and x was the time spent on a gambling mode). The coefficients (β_4, β_5, β_6, β_7) were the slope changes of time spent on the odds of "success" in response to DOL measure conditional on ethnicity.

[2] Model fit statistics were calculated by using the chi-square test on the differences of log-likelihood and the degree of freedom. ***$p < .001$. **$p < .01$. *$p < .05$.

Playing poker at home or with friends gave a mixed picture; it was associated with better self-rated relationships with family and friends ($p = .027$) but poorer self ratings in regard to study performance ($p = .039$). The length of time spent on playing housie was associated with better self ratings of material standard of living ($p = .046$).

For Maori, the length of time spent betting at the race track had no significant impact on individuals' self ratings of their domains of life.

Pacific People. Pacific peoples who spent more time playing non-casino EGMs reported poorer physical health ($p < .001$), poorer mental well-being ($p = .011$), and a poorer financial situation ($p < .001$). More time playing EGMs in a casino was associated with poorer self ratings in regard to overall satisfaction with life ($p = .015$).

Betting at the TAB was negatively associated with participants' self ratings of their mental well-being ($p = .002$), whereas playing housie was associated with better self ratings in regard to feelings about self ($p = .018$).

For Pacific peoples, the length of time spent on playing table games at a casino, betting on the racetrack, and playing poker at home or with friends had no significant impact on individuals' self ratings of their domains of life.

Chinese and Koreans. Chinese and Koreans who spent a longer time playing table games at a casino reported a better housing situation ($p = .017$) compared with those who spent less time on casino table games. Time spent on the race track was associated with better self ratings in regard to quality of life ($p = .003$).

Playing poker at home or with friends gave a mixed picture; it was associated with better relationships with family and friends ($p = .002$), a better quality of life ($p = .002$), better financial situation ($p = .022$), and better housing situation ($p = .012$), but a poorer self-rated study performance ($p = .004$).

For Chinese and Korean peoples, the length of time spent on EGMs, betting at the TAB, and playing housie (in community centres, clubs, or bars) had no significant impact on their domains of life.

Discussion

The size of the samples of Pakeha, Maori, Pacific peoples, and Chinese and Korean peoples interviewed in the current study allowed for a detailed analysis of the relationship between their gambling behaviour and their self ratings of their quality of life in various domains. The results reveal a number of similarities and differences between ethnic groups.

The Maori and Pacific samples were very similar in the significant associations found between time spent on EGMs and poorer self-rated quality of life in a number of life domains. Maori who spent a longer time playing EGMs perceived themselves as having significantly worse mental well-being, poorer relationships, worse feelings about self, poorer

overall quality of life, lower satisfaction with life, a poorer housing situation, a poorer material standard of living, and poorer child rearing ability. Pacific peoples reported poorer physical health, worse mental well-being, lower satisfaction with life, and a poorer financial situation.

Past research has revealed that, in New Zealand, non-casino EGMs are disproportionately more likely to be located in areas of low socio-economic status and relative deprivation (Ministry of Health, 2006; Wheeler, Rigby, & Huriwai, 2006). On the basis of 2005 gaming machine data and 2001 census data, approximately 53% of all non-casino EGMs in New Zealand were found to be in the most deprived 30% of communities (Ministry of Health, 2006). Furthermore, Maori and Pacific peoples are substantially over-represented in these socio-economically deprived areas (Wheeler et al., 2006). Given the evidence found in the current study suggesting ethnic inequalities in EGM-related harms, we suggest that more problem gambling services, tighter control, and better policies regarding the number of EGMs allowed in the more deprived areas are needed to effectively reduce gambling harms in Maori and Pacific ethnic communities.

Among the sample as a whole, there were some reported benefits of gambling, but for Maori and Pacific peoples, only a few positive associations were found (i.e., for Maori, poker and housie were positively associated with relationships with family and friends and with material standard of living, respectively; for Pacific peoples, housie was associated with better feelings about self). These findings support the previous research that Maori are at particular risk of experiencing the adverse impacts of gambling (Dyall, 2004) and that Pacific peoples are much more likely than others to develop gambling problems (Abbott & Volberg, 2000). These findings may reflect higher participation levels but also the relative lack of resources available to Maori and Pacific people (Gambling Watch, 2003), meaning that the adverse consequences of gambling are not mitigated. In addition, these findings suggest the value of exploring redistribution effects in future work on the impacts of gambling.

These predominantly negative associations for Maori and Pacific peoples contrasted with the findings for the Pakeha sample, which were all positive. The current study suggested that time spent betting at the race track and TAB, playing EGMs in a casino, playing casino table games, and playing poker and housie were all positively associated with participants' self ratings in regard to a number of life domains, including better physical health, mental well-being, overall quality of life, overall satisfaction with life, financial situation, housing situation, material standard of living, work and study performance, and care giving for children. Unlike other ethnic groups, no negative associations were found between time spent on gambling and Pakeha's domains of life. Even playing EGMs (in casinos) was positively associated with financial, housing, and material domains of life.

The findings from the sample of Chinese and Korean peoples showed some similarities with the Pakeha sample in that gambling participation in some modes was associated with positive ratings of quality of life in some domains. With regard to playing casino table games, longer times were associated with a better self-reported housing situation. Playing poker and card games was associated with better relationships with family and friends, better overall quality of life, a better financial situation and a better housing situation;

furthermore, betting at the race track was associated with better self ratings in regard to overall quality of life.

For Chinese and Korean peoples, study and training performance was the only domain of life that was negatively associated with gambling mode. Furthermore, similar to the case for Pakeha, no significant associations were found between time spent on EGMs and poorer quality of life in life domains. The current study, however, did not ask the respondents to indicate whether they were born in New Zealand or overseas. We recommend that this information be obtained in future research in order to disentangle the impact due to acculturation from the effect of Asian ethnicity.

To conclude, the present study is an attempt to broaden the current understanding of the impact of gambling modes on different ethnic groups in New Zealand by using a less conventional approach. For example, in the present study, a problem gambling screen was not used. Instead, the impact of heavier gambling was investigated by using the time spent in different modes of gambling. Furthermore, new measures of quality of life derived from extensive qualitative questionnaire work were used to measure the impact.

One limitation of the current study, however, is the issue of under-representation of heavy gamblers who are unable to access a landline telephone. Results from a New Zealand survey found that pathological gambling prevalence rates were approximately 3 times higher for the respondents who could not be contacted by telephone and who completed the postal questionnaire (Abbott & Volberg, 2000). It is possible, therefore, that the relationships found with reduced quality of life may be stronger if more of the heavier gamblers were included in the analysis.

In summary, the current study has provided evidence that different gambling modes have different impacts on people's domains of life because of their ethnic background. More research, however, is still needed to further our understanding in the definitions of and pathways to problem gambling in different ethnic communities.

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[1]Internet gambling was not included in this analysis because the number of people in the sample who participated in Internet gambling was too low (0.6%, $n = 42$). EGMs in bars and clubs were combined to form a new variable, "non-casino EGMs."

[2]Logistic regression model without gambling variables.