

EXECUTIVE SUMMARY

Introduction

The first national survey of gambling and problem gambling was conducted in 1991 (Abbott & Volberg, 1991; 1992; 1996; Volberg & Abbott, 1994). This study involved two phases. In the first phase, 4,053 adults were interviewed by telephone to assess their gambling involvement and estimate the prevalence of problem gambling in New Zealand. In the second phase, smaller samples of people were re-interviewed in greater depth, face-to-face.

Four sub-samples were included in the second phase:

- Probable pathological gamblers
- Problem gamblers with less severe problems
- Non-problem gamblers who participated frequently in continuous forms of gambling such as gaming machines and track betting
- Non-problem gamblers who participated frequently in non-continuous forms of gambling such as Lotto (a national lottery) and raffles.

This phase allowed more detailed information to be obtained from problem gamblers and regular non-problem gamblers concerning their gambling participation, problem gambling and the impact that gambling had on various aspects of their lives. It also facilitated independent assessment of the accuracy of the problem gambling measure used in the study.

This was the first national gambling survey, worldwide, to use a validated measure of problem gambling. It was also the first study to assess both current and lifetime problem gambling and employ a two-phase (double sampling) design. The current and lifetime problem gambling measure developed for the 1991 study has since been widely used, enabling comparisons to be made between different jurisdictions as well as over time.

Since the first national survey was undertaken, gambling availability and expenditure increased, albeit at a lower rate than during the three years preceding the initial survey. New forms of gambling were introduced, including casinos in Auckland and Christchurch. Existing forms, most notably non-casino gaming machines, became more widely available.

The present report outlines and discusses the main findings of Phase Two of the second national survey of gambling and problem gambling. The first phase of this study, the National Prevalence Survey (NPS), is described in Volume Three of the New Zealand Gaming Survey (NZGS) (Abbott & Volberg, 2000) report series. The NZGS, commissioned by the Department of Internal Affairs, was undertaken to investigate some of the impacts of the 1990s gambling expansion on the lives of New Zealanders and to advance scientific understanding of gambling and problem gambling. Additional aims of the NZGS are to:

- Provide information that will assist in the development of gaming and related health and social policy
- Contribute to robust frameworks for future studies of the prevalence and wider economic and social impacts of gambling and problem gambling
- Provide a solid baseline to enable assessments of future changes in the prevalence of problem gambling and gambling participation to be made.

The other volumes in the NZGS publication series are:

- Volume One, which provides a critical review of surveys of gambling and problem gambling conducted internationally (Abbott & Volberg, 1999a)
- Volume Two, which is a report on a seven year longitudinal follow-up of 1991 Phase Two participants (Abbott, Williams & Volberg, 1999)
- Volume Four, which outlines and discusses the findings of a national survey of recently sentenced women prisoners (Abbott & McKenna, 2000)

- Volume Five, which outlines and discusses the findings of a survey of recently sentenced inmates in four male prisons (Abbott, McKenna & Giles, 2000).

In addition, a supplementary report has been published that gives a profile of people seeking help for gambling problems from 1997 to 1999 from helpline and counselling services funded by the Problem Gambling Committee (Gruys, Hannifin, MacKinnon & Paton-Simpson, 2000).

A further report, Volume Seven, that provides a synthesis of the major findings from all components of the NZGS will be published in 2001.

All of the NZGS reports are available on the Department of Internal Affairs' website at: <http://www.dia.govt.nz>

The National Prevalence Survey: Phase One

Phase One of the NPS was primarily undertaken to provide reliable estimates of problem gambling in the adult New Zealand population, as well as to provide estimates of the proportions of adults who engage in different forms of gambling at varying levels of intensity. Because it was national in scope and used somewhat similar methodology to that of the previous national survey, it was also intended to give an indication of changes in gambling participation and problem gambling since 1991.

The first phase of the NPS involved telephone interviews with 6,452 adults, aged 18 years and older, who were interviewed during the first quarter of 1999. Statistics New Zealand, the country's official government statistical agency, undertook the survey. The response rate, conservatively defined, was 75 percent. The survey data were subsequently weighted to scale the sample to represent the whole adult population and to account for different probabilities of respondent selection and different rates of non-response between sub-populations. Because a complex sample design was used, this complexity was taken into account in estimating sample errors, determining confidence intervals and conducting statistical analyses. Adjustments were also made to provide appropriate confidence intervals for measures, such as problem gambling, with low proportions.

While the above procedures and other aspects of the methodology resulted in a sound probability survey, probably the most robust to date in the gambling studies field, some groups were not included in the sample. Apart from people under the age of 18 years, excluded groups included people residing in non-residential dwellings such as hospitals and prisons, residents of households without telephones and people with telephone numbers not included in current electronic listings. In addition, response rates for some groups including young adults and Pacific Islanders were lower than those of other respondents. Although weighting of the data adjusts for this lower representation, it cannot correct for differences in gambling participation and problems (if they are present) between survey participants and non-participants in these groups. Furthermore, while internal checks on consistency of responding can be made, it is not possible to independently assess the accuracy of respondent self-reports of gambling and other behaviours and attributes. These considerations are relevant to all probability surveys.

In Phase One of the NPS, it was estimated that 94 percent of New Zealand adults had taken part in at least one type of gambling activity at some time in their lives. Past six months participation in at least one type was 86 percent and regular (weekly or more often) participation was 41 percent. Of those who reported gambling regularly, three-quarters took part regularly only in non-continuous forms, primarily Lotto. The remaining quarter participated regularly in continuous forms. Some of those regular continuous gamblers also participated regularly in non-continuous forms. Similar rates of regular gambling have been found in recent national surveys in Australia and Sweden, although in Australia twice as many participated regularly in continuous forms.

From reports of typical gambling expenditure (total losses) the estimated annual expenditure of New Zealand adults on all forms of gambling was NZ\$1.16 billion, similar to the official Department of Internal Affairs total of NZ\$1.05 billion at that time for major forms of legal gambling. The average monthly reported expenditure per adult was NZ\$41.

In 1999, 0.5 (0.3-0.7 confidence interval) percent of adults were estimated to be current (during the past 6 months) probable pathological gamblers and a further 0.8 (0.6-1.1) percent were estimated to be current problem gamblers with less severe problems.

In 1999, 1.0 (0.7-1.4) percent of adults were estimated to be lifetime probable pathological gamblers and a further 1.9 (1.4-2.5) percent were estimated to be lifetime problem gamblers.

For reasons discussed in the Phase One report, it is considered that these estimates are likely to be conservative, i.e. they probably underestimate the extent of problem gambling in New Zealand, both currently and in the past.

Although current probable pathological and problem gamblers were estimated to constitute only somewhat more than one percent of the adult population, this group was responsible for approximately a fifth of total reported gambling expenditure. Given that expenditure for some forms of continuous gambling including gaming machines is under-reported, this estimate is likely to be highly conservative.

A great deal of additional information about gambling and problem gambling, including risk factors for problem gambling, was obtained from the Phase One survey. This information is outlined and discussed in the Phase One report.

In 1999, some risk factors were found to be the same as those identified in the 1991 national survey, for example Māori and Pacific Island ethnicity and regular participation in non-casino gaming machines and betting on horse or dog races. Others, including male gender, young age and being unemployed were no longer associated with current probable pathological gambling. These changes are consistent with reduced reported gambling involvement and expenditure in these groups from 1991 to 1999.

Contrary to expectation, given the increase in gambling availability and official expenditure since the 1991 national survey, the 1999 Phase One survey obtained somewhat higher population estimates for infrequent gambling and significantly lower estimates for regular participation in continuous forms of gambling and probable pathological and problem gambling. **These findings suggest that high-risk gambling patterns and problem gambling rates have levelled out or declined. However, it would be premature to conclude that this is the case given that there are only two measurement points and that there are some differences between the two studies with respect to their methodologies, samples and statistical treatment of data. For the most part these differences arose from the objective, in 1999, to conduct a high quality probability survey and attain a high response rate.**

Although the problem gambling prevalence estimates are lower than in 1991, they are similar to those obtained in recent surveys conducted in Sweden and in Australian states that have per capita gambling expenditure most similar to that of New Zealand. They are lower than in Australian states and territories with higher expenditure.

The National Prevalence Survey: Phase Two

Description, Response Rate and Sample

The survey described and discussed in this report involved in-depth interviews, conducted face-to-face with 256 Phase One respondents. The Phase Two sample included:

- SOGS-R defined lifetime probable pathological and problem gamblers (n=74)
- Regular continuous gamblers (n=25)
- Regular non-continuous gamblers (n=68)
- Infrequent gamblers (n=89).

Sixty percent of the selected Phase One respondents were re-interviewed four to eight weeks after their initial interviews. Given that these people were drawn from the Phase One sample that had a response rate of 75 percent, the response rate for Phase Two was 45 percent. Although higher

than many previous single phase gambling and problem gambling surveys, this rate increases the potential for non-sampling errors to affect the survey findings.

To assess the representativeness of the study group, 45 comparisons were made between the Phase One and Phase Two samples with respect to various sociodemographic and gambling-related measures. While a small number of statistically significant differences were found, in the case of the problem gambling measures neither the sample as a whole nor any of the major sub-samples differed significantly from the larger Phase One sample.

In contrast to Phase Two of the 1991 national survey, people who reported gambling less than once a week were included. Attempts were made to re-interview all Phase One lifetime probable pathological and problem gamblers. Participants in the three non-problem groups were selected using sampling fractions based on their relative proportions in the 1991 national survey. Although it was expected that this would produce Phase Two sub-samples of a similar size, somewhat more infrequent gamblers and substantially less regular continuous gamblers were recruited than anticipated. This was primarily due to the shift in the proportions of these non-problem groups in the 1999 Phase One sample.

Because only a small number of regular continuous gamblers were selected and interviewed, the two groups of regular gamblers were combined. The major comparisons outlined in this report are between lifetime probable pathological and problem gamblers (problem gamblers), regular continuous and non-continuous gamblers (regular gamblers) and infrequent gamblers. The six percent of people who reported that they had never gambled were not included.

The whole sample and sub-samples were weighted to enable the survey findings to be generalised to the New Zealand adult population that reported having ever gambled. However while most of the findings, typically reported as percentages, can be generalised in this way, it was not feasible to calculate sampling errors and confidence intervals. The main reasons for this were the high level of complexity of the sample and the relatively low response rate. While the magnitude of differences between groups and the number of people involved provide an indication of the confidence that can be placed in reported estimates and differences between groups, their reliability is much less certain than those obtained from Phase One. **Consequently, the study should be regarded as exploratory and the findings tentative pending more detailed examination using larger samples and more rigorous study designs. In some instances differences between sub-samples may be apparent rather than real.**

The Phase Two survey was primarily concerned with providing more detailed information about problem gamblers, non-problem gamblers and the measurement of problem gambling.

Selected Major Findings

Problem Gambling Measurement

Although the Revised South Oaks Gambling Screen (SOGR-R) was the main measure of problem gambling used in the NPS, additional measures were included. For example, in Phase One, apart from the SOGS-R, participants were asked if they, themselves, considered that they had a problem with gambling, at any time during their lifetimes and during the past six months. Although there was only a moderate level of agreement between these two measures, the prevalence estimates for self-assessed problem gambling were similar to those for SOGS-R probable pathological gambling.

In Phase Two, two additional measures were used to identify problem gamblers, the Fisher Screen and interviewer ratings. The Fisher Screen is a psychometric instrument based on the most recent American Psychiatric Association (DSM-IV) diagnostic criteria for pathological gambling. It provides a current (past 12 months) measure of probable pathological and problem gambling. The interviewer ratings use diagnostic criteria for pathological gambling from the earlier DSM-III-R and provide a lifetime measure of probable pathological gambling. The SOGS, from which the SOGS-R was developed, was originally validated against clinical interviews using these criteria.

Moderately high agreement was found between classifications based on the current SOGS-R and Fisher Screen current measure. Somewhat less agreement was found between the lifetime SOGS-R and interviewer lifetime classifications.

Nine of the 11 SOGS-R current probable pathological gamblers were identically classified on the basis of their Fisher Screen scores. The other two were classified as problem gamblers. Seven of the 22 SOGS-R defined current problem gamblers were also assessed as problem gamblers by the Fisher Screen and a further five were assessed as probable pathological gamblers. The remaining ten were not assessed as having problems. In addition, the Fisher Screen classified six SOGS-R defined non-problem gamblers as probable pathological gamblers and a further eight as problem gamblers. Thus, whereas the SOGS-R identified 11 current probable pathological gamblers, the Fisher screen identified 20. Whereas the SOGS-R identified 22 current problem gamblers, the Fisher Screen identified 17. Overall, the Fisher Screen classified somewhat more people as current probable pathological and problem gamblers than the SOGS-R (37 versus 33).

Twelve of the 30 SOGS-R lifetime probable pathological gamblers were similarly classified on the basis of the interviewer DSM-III-R ratings. Three additional participants were rated as lifetime probable pathological gamblers. Two were SOGS-R defined lifetime problem gamblers and one was a non-problem gambler. Thus, whereas the SOGS-R identified 30 people as lifetime probable pathological gamblers, the interviewer ratings identified only 15.

'Revision' of the Phase One SOGS-R Prevalence Estimates

Standard epidemiological procedures were used to revise the original Phase One estimates by incorporating information about the performance of the SOGS-R relative to the Fisher Screen and interviewer ratings. **To conduct these revisions it was necessary to assume that the two alternative measures do not make classification errors.** In reality, however, it is highly likely that they do.

In Phase One, the current SOGS-R probable pathological gambling point prevalence estimate was 0.5 percent and the combined probable pathological and problem gambling estimate was 1.3 percent. Incorporating information relating to the Fisher Screen, the revised current probable pathological gambling estimate is 1.8 percent and the combined current pathological and problem gambling estimate is 5.3 percent.

In Phase One, the lifetime SOGS-R probable pathological gambling point prevalence estimate was 1.0 percent. Incorporating information relating to the interviewer DSM-III-R assessments, the revised estimate is 1.4 percent.

While both the revised current and lifetime estimates are higher than those based on the SOGS-R alone, the assumption that the alternative measures are more accurate than the SOGS-R is most unlikely to be valid. Neither has been as fully validated as the SOGS-R as psychometric instruments and, in the present situation, they produce a current probable pathological gambling prevalence estimate that is somewhat higher than the corresponding lifetime estimate. This is not logically possible unless one or both misclassify to some extent. **For these and other reasons outlined in the report, the revised estimates should not be viewed as being more accurate than those based on the SOGS-R alone. However they do suggest that the SOGS-R based estimates are conservative (as suggested in the Phase One report) and that, had the Fisher Screen been used in Phase One instead of the SOGS-R, the prevalence estimate for probable pathological and problem gambling would have been higher.**

Gambling Preferences and Participation

In Phase One it was found that Lotto was the only form of gambling that a significant proportion of adults (over a third) reported taking part in weekly or more often. TeleBingo and Instant Kiwi were the only other activities engaged in this often by more than five percent of adults.

In Phase Two it was confirmed that only relatively small proportions of people participate weekly or more often in most forms of gambling. However, it was also found that for some of these forms, a moderately high percentage of the people who report taking part do so very often (daily or more than once a week). In other words, while not widely popular, many people who do favour them have a high degree of engagement. Daily Keno stands out in this regard. Taking money bets with friends and

workmates and TeleBingo are also in this category. In the case of TeleBingo, this might help explain the unexpected Phase One finding that this non-continuous form of gambling was associated with problem gambling.

As in Phase One, lifetime probable pathological and problem gamblers (problem gamblers) much more often than non-problem gamblers reported a preference for and regular participation in betting on horse or dog races and non-casino gaming machines. They also more often reported a preference for and regular participation in card games for money, casino gaming machines, other casino games, housie, other sports betting, bets with friends or workmates and residual forms that were not listed separately.

With respect to frequent participation in continuous gambling activities associated with problem gambling, relatively little difference was found between men and women or between younger and older adults on most forms. This suggests that there has been a partial convergence since the 1991 national survey in the gambling preferences and participation of these groups. This is consistent with the failure to find differences in current problem gambling prevalence between these groups in Phase One of the present survey.

In contrast to the situation with gender and age, substantial differences were found between the three ethnic categories that were compared, namely Europeans, Māori and people of other ethnicities. **However, caution is required in interpreting these findings because of the small number of non-Europeans in the sample.**

Length of Typical Gambling Sessions and Expenditure

With respect to their favourite or most frequently engaged in gambling activity, participants were asked how long their typical sessions were and how much they usually spent. Gambling activities of this type averaging 100 minutes or more included casino games other than gaming machines, betting on horse or dog races, playing card games for money, housie and casino gaming machines.

Casino games and casino gaming machines were reported to have by far the highest average reported expenditure per session. However, relative to most other forms of continuous gambling, few people reported taking part in them more than once a month. Non-casino gaming machines, betting on horse or dog races and playing card games for money ranked next in terms of average typical session expenditure. Most forms in the low expenditure category are non-continuous and are not associated with problem gambling.

People Usually Gambled With

Partners or spouses were most often mentioned as being usual gambling companions in all favourite forms of gambling considered. However, Instant Kiwi, other lotteries and raffles, TeleBingo and non-casino gaming machines were more often participated in alone than with partners or spouses. Casino gaming machines were least often participated in alone.

Most forms of gambling were engaged in moderately often with other family members. This was especially so for TeleBingo and betting on horse or dog races. Friends were also mentioned moderately often in this regard for betting on horse or dog races, as well as for casino and non-casino gaming machines. Workmates and other people were seldom mentioned as gambling companions.

Reasons for Gambling

In Phase One over a half of adults said they gambled to win money and over a third said they gambled for entertainment or fun. In Phase Two, questions concerning reasons for gambling were phrased differently and examined separately for each of the major gambling activities.

In Phase Two winning money and entertainment were also most often given as the main reasons for gambling and these reasons retained their top ranking across the gambling status (problem, regular and infrequent gamblers), gender, age and ethnicity groups considered. However, some groups mentioned these reasons relatively more often than others. For example, problem gamblers more often said they

mainly gambled for entertainment than people in either of the non-problem groups did. Men more often said they mainly gambled to win money.

Differences between groups were found for some of the less frequently mentioned reasons for gambling. For example, problem gamblers, women and people of other ethnicities more often said they mainly gambled for excitement. Infrequent gamblers, women and older adults more often said their main reason was to support worthy causes.

In addition to being asked about their reasons for gambling in general, Phase Two respondents were asked why they took part in their favourite (preferred) form of gambling. As the number of people preferring some gambling activities was small, only five forms were examined in this regard. When these forms were considered separately, substantial differences were evident.

It was estimated that over a quarter of people mainly took part in Lotto to win money or prizes and that somewhat more did so because it was convenient or easy to play.

A fifth of people who favoured Instant Kiwi gave low cost as their main reason for participation. Entertainment or it being quick to play was also mentioned by ten percent or more people.

Sixty per cent of people who favoured other lotteries and raffles mainly did so to support worthy causes. Some people also mentioned convenience or ease of play.

As for Lotto, just over a quarter of people played in non-casino gaming machines mainly to win money. A significant minority also mentioned entertainment.

Entertainment and being interested were the reasons most often given by people who preferred betting on horse or dog races. Socialising was the third ranked reason given for participation in this form of gambling. As with Instant Kiwi and other lotteries and raffles, very few mentioned winning money as the main reason for their involvement.

The differences between sociodemographic groups and variations across forms with respect to preferences, frequency of participation, usual people gambled with, session lengths and expenditure, and differences in reasons for participation highlight the heterogeneity of gambling activities. Further research is required to clarify how these differences relate to the development and maintenance of problem gambling as well as to the satisfaction that many people obtain from gambling involvement.

Gambling in Families, with Friends and in the Workplace

It was estimated that substantially more people gambled in their present family than gambled in the family that they grew up in. However, although more people gambled within their present family, most indicated low levels of involvement. On the other hand, although fewer people said there was gambling in the families that they grew up, more said there was a lot or a moderate amount of gambling. People aged 35 years and over, compared to people aged under 35 years, more often reported that there was no gambling in their families of origin. They also more often reported moderate and heavy gambling. **These findings suggest that, although considerably more families gamble today than in the past, fewer do so frequently.**

Problem gamblers, relative to non-problem gamblers, were estimated to have much higher levels of moderate and heavy gambling in the families that they grew up in, in their present families and among their friends.

There appeared to be substantial ethnic differences. Māori appeared to have much higher rates of heavy gambling involvement in their families of origin than Europeans or people of other ethnicities. They also more often reported that there was a moderate amount of gambling in their present families and on the part of their friends and workmates. People of other ethnicities reported a bimodal pattern of involvement in the families that they grew up in, with two-thirds reporting no gambling and a third reporting a moderate amount. In contrast, all of these people said that there was at least some gambling in their present family, although less mentioned moderate or heavy involvement. Europeans displayed more consistency between their families of origin and present families. The major difference was that less said they did not gamble at all and more said they gambled a little. **It is important to recall that**

the Māori and other ethnic group findings need to be treated with extreme caution owing to small sample size.

People generally reported higher levels of gambling involvement among their friends than within their own families, possibly suggesting conservatism in their self-reports.

Retrospective Accounts of Gambling History

A substantial part of the survey questionnaire deals with accounts of gambling involvement at different times in participants' lives and their perceptions of changes in participation over time. Given that this involved participants reporting on aspects of their lives that were often distant in time, there was potential for bias in recall and reporting. As the extent of such bias is unknown, the findings of this section must be regarded as tentative.

Age when First Gambled

Although the average age at which people reported first starting gambling was 20 years, considerable variation was evident across the gambling participation and sociodemographic groups.

As in Phase One and in Phase Two of the 1991 national survey, problem gamblers more often reported started gambling during their childhood or early teens. However, more than a third commenced gambling as adults.

There were indications that somewhat more people commenced gambling during childhood than was the case 20 or more years ago.

Compared to people with other current gambling preferences, more people who said that they currently preferred betting on horse or dog races were estimated to have started gambling before the age of 15 years. People who currently preferred other lotteries or raffles were also somewhat over-represented among those who commenced gambling before the age of 15 years. In contrast, people who preferred non-casino gaming machines more often started gambling at the age of 20 years or older.

Introduction to Gambling

People most often reported that they had first been introduced to gambling by family members, followed by friends and, much less frequently, by workmates or their spouses/partners. As with the age at which people first gambled, there were some substantial differences between gambling participation and sociodemographic groups.

Consistent with the finding of higher levels of gambling involvement in the families that problem gamblers grew up in, problem gamblers much more often said they had been introduced to gambling by their family.

Gambling Involvement and Preferences when First Started Gambling

It was estimated that a half of people took part in lotteries and raffles when they first started gambling. Nearly a third mentioned horse or dog races in this regard and a quarter Lotto. Instant Kiwi, non-casino gaming machines and card games for money were the only other gambling activities mentioned by more than five percent of people.

In contrast to non-problem gamblers, who most often reported participating in other lotteries and raffles when they first started gambling, problem gamblers most often said they bet on horse or dog races. However, they differed most from non-problem gamblers in that they reported much higher levels of involvement in playing cards and housie for money and lower levels of involvement in Lotto and Instant Kiwi. They also reported somewhat higher levels of involvement in non-casino gaming machines. With respect to preferences, playing card games for money stood out for problem gamblers. This group much less often mentioned Lotto and other lotteries and raffles as most preferred activities.

Apart from more often participating in and favouring forms of gambling that are associated with problem gambling in adults, problem gamblers' initial gambling involvement differed in other ways

from that of non-problem gamblers. These differences included more frequent participation in their favourite form, substantially higher expenditure, longer typical session lengths and usually gambling in the company of others, especially family members or workmates.

A variety of differences were found between the sociodemographic groups with respect to gambling participation and preferences. For example, at the time they started gambling, males more often participated in and preferred betting on track races and card games, whereas females mentioned non-casino gaming machines and other lotteries and raffles more often. Betting on horse or dog races was important in introducing a number of people to gambling as adults.

While people who reported that they first started gambling before the age of 15 years most often said they took part in other lotteries and raffles at that time, non-casino gaming machines and betting on horse and dog races ranked next in terms of both participation and preference. These findings were unexpected given the age restrictions on sites where these forms of gambling are located.

Changes in Gambling Preferences and Participation

In this section, changes in the forms of gambling that people said they preferred or participated in frequently are examined. Three points in time are considered: when people first started gambling, five years ago, and during the six months prior to the survey. The information used to make these comparisons is retrospective and is much less likely to be reliable than that obtained from prospective studies.

Gambling Five Years Ago in Comparison to when People Started Gambling

Relative to the time when people first reported taking part in gambling activities, substantial increases were apparent in involvement in some forms of gambling five years prior to the survey. All three gambling status groups reported large increases for Lotto and Instant Kiwi. These two activities were not available when the majority of older adults first commenced gambling. These three groups also reported reduced participation in other lotteries and raffles and playing card games for money, forms that have long been available in New Zealand.

In contrast to the forms of gambling just mentioned that increased or decreased across the problem and two non-problem groups, a different pattern was evident for betting on horse or dog races and non-casino gaming machines. Participation in both forms, but particularly non-casino gaming machines, decreased for non-problem gamblers. However, in the case of lifetime problem gamblers, reported participation increased. These findings are consistent with those of other studies that indicate a strong association with these two continuous forms of gambling and problem gambling.

Given the relatively recent introduction of non-casino gaming machines, the large reduction in participation for the non-problem gamblers and the population as a whole was unexpected and suggest that involvement in this gambling activity is transitory for many people. Betting on horse and dog races appears to have somewhat greater stability.

As mentioned, at the time they first commenced gambling, males more often bet on horse or dog races and played cards for money and females more often mentioned other lotteries and raffles and non-casino gaming machines. From the reports of gambling involvement five years ago, gender differences were no longer apparent for the two forms that were initially favoured by males. Females, however, continued to report higher levels of involvement in the forms they initially favoured. These findings are consistent with the view that there has been some convergence in the gambling participation of men and women over time, with women more resembling men.

A variety of differences were found between the gambling participation of other sociodemographic groups five years ago. In some cases they showed continuity with patterns at the time they commenced gambling and in other cases they differed.

Gambling at the Time of the Survey Compared with Five Years Ago

Current (past six months) information on gambling participation was obtained from Phase One of the 1999 NPS. Compared to five years ago, Lotto participation and betting on horse and dog races appears to be much the same, whereas other forms appear to have increased. However, these findings should be treated with caution owing to somewhat different questions being asked for the two time periods.

Early Gambling Preferences in Relation to Later Gambling Preferences

Major forms of gambling that were preferred by participants at different times were examined to assess their degree of stability. Sample size restrictions limited consideration to people with no favourite form and people who favoured Lotto, other lotteries and raffles, non-casino gaming machines, betting on horse or dog races and other gambling activities.

It was estimated that approximately two-thirds of people changed their favourite form of gambling from the time they started gambling to the present. Considerably less, approximately a third, were estimated to have changed their preference during the past five years.

Relative to other forms, Lotto preferences were highly stable across the three points of time considered. Lotto also differed from the other types of gambling examined in that substantial numbers of people who initially indicated a preference for other forms (apart from non-casino gaming machines) currently reported that Lotto was their favourite.

The majority of people with an initial preference for non-casino gaming machines subsequently developed a preference for another gambling activity, predominantly in the residual 'other' category. However, while preferences for this type of activity appear to be highly transitory over long periods of

time, this was less evident during the past five years. Most people who said that non-casino gaming machines were their favourite five years ago retained this preference.

Most people with an initial preference for betting on horse or dog races subsequently indicated that they favoured some other type of gambling (most often Lotto or 'other' activities). During the last five years, preferences for both betting on horse or dog races and 'other' gambling activities were somewhat less stable than for non-casino gaming machines. Although most people did not retain their initial preference for track betting, the large majority of people who reported that track betting was currently their favourite had not previously preferred another activity. In this latter respect it differs from the other forms considered. In the case of other forms, the majority of people had in the past preferred some other type of gambling.

People with no favourite five years ago were the least stable, with most since developing a gambling preference, predominantly Lotto or other lotteries and raffles.

With respect to preferences over time, betting on horse or dog races and non-casino gaming machines remained important for lifetime problem gamblers. However, Lotto increased in importance, albeit that problem gamblers' preference for this form remained much lower than that of non-problem gamblers. With respect to current preferences, in contrast to five years ago or when they first commenced gambling, problem gamblers much less often mentioned betting on card games and some other forms, including casino gaming machines and other casino games, were more often mentioned.

Self-assessed Changes in Gambling Participation and Reasons Given by Participants for Increased and Decreased Participation

Participants were asked how much they considered that their overall gambling participation had changed during the past five years and, for purposes of analysis, these self-ratings were classified as increased participation, no change and decreased participation. Those who reported increased or decreased participation were asked what factors they considered led to this change in involvement over time. In addition, all participants were asked if they considered that advertising, the introduction of new kinds of gambling, greater access to gambling or easier access to credit cards had ever led to an increase in their gambling.

Changes

Just over half (53%) of people considered that their overall gambling participation had not changed during the past five years. Somewhat more (28%) were of the view that it had decreased rather than increased (19%).

Considerable differences were evident across gambling participation and sociodemographic groups with respect to self-assessment of overall gambling participation changes during the past five years.

It was estimated that only about a fifth (19%) of lifetime problem gamblers considered that their level of participation had not changed during the past five years. Somewhat more (45%) reported decreases than increases (36%). Whereas just over a half of non-problem regular and infrequent gamblers reported no change, these groups differed in that slightly more regular gamblers mentioned increases than decreases whereas infrequent gamblers much more often reported decreases than increases.

Just over a half of both men and women indicated that their gambling participation had not changed. Whereas reported increases and decreases balanced for women, for men three times as many reported decreases than increases. This finding is consistent with the view that, relative to men, the gambling involvement of women has increased in recent years.

Younger adults reported much less stability than older adults and, in the case of younger adults, decreased participation out-numbered increased participation by more than two-to-one. For older adults, decreases only slightly out-numbered increases. This finding is consistent with the view that many younger people decrease their gambling involvement as they get older whereas older adults have somewhat more stable gambling involvement over time.

People who first started gambling during childhood or adolescence much more often reported decreased than increased gambling participation during the past five years. People who first started gambling as adults much more often reported increases than decreases.

Māori had the highest level of instability in that only 17 percent considered that their level of involvement had stayed the same during the past five years. In contrast, 55 percent of Europeans and 79 percent of people of other ethnicities reported no change. Whereas Europeans somewhat more often reported decreased rather than increased gambling involvement, for Māori, the situation was reversed. In the case of people of other ethnicities, the great majority of the modest number that reported changes said that their level of involvement had decreased. **Given the small sample sizes for Māori and people of other ethnicities, findings for these groups must be treated with caution.**

People who preferred betting on horse or dog races five years ago less often experienced changes in overall gambling involvement than people with other preferences and, along with those who favoured other lotteries and raffles, were the only ones to report increases more often than decreases.

People who preferred Instant Kiwi, non-casino gaming machines and 'other' (unspecified) forms of gambling five years ago were the least stable and decreases greatly outnumbered increases.

The great majority of people who reported gambling more than once a week five years ago reported changed participation and decreases greatly out-numbered increases. This finding suggests that very high frequencies of gambling participation are transitory and that, while most people reduce their involvement over time, a minority sustain or increase their involvement. In contrast, those who gambled less than once a month to once a week had much greater stability and increases and decreases were more evenly balanced. People who gambled less than once a month were also less stable and decreases out-numbered increases by approximately two-to-one. Thus, both high and low frequency gamblers were prone to change over time and the net effect for both groups was decreased involvement.

Reasons Given by Participants for Increased and Decreased Involvement

People who reported an increase in gambling participation most often said that the reason was an increase in the money that they had available or there being more gambling options.

People who reported a decrease in gambling participation gave a wider variety of reasons including less money being available, a loss of interest in gambling, not winning, other priorities in life and a change in circumstances. Similar reasons for increased and decreased participation were given in the longitudinal follow-up of 1991 Phase Two participants (Abbott, Williams & Volberg, 1999).

Just under a quarter of people indicated that they considered advertising or the introduction of new forms of gambling had led to an increase in their gambling involvement at some time. Under a fifth reported that increased ease of gambling led to increased involvement and a small minority considered that easier access to credit cards had this effect.

Problem gamblers more often indicated that these four factors had resulted in an increase in their gambling involvement than did non-problem gamblers. Whereas very few non-problem gamblers believed that easier access to credit cards had influenced their gambling involvement, 17 percent of problem gamblers did. Non-casino gaming machine participation was most often mentioned in this regard.

'Big Wins' and 'Near Misses' in Relation to Problem Gambling

A quarter of problem gamblers and ten percent of people generally were estimated to have had a 'big win', defined as a sum equivalent to a half or more of their annual income or, if a child at the time, pocket money. Over a third (35%) of problem gamblers and a sixth (17%) of people generally were estimated to have had a 'near miss', defined as having been close to winning a major prize.

These findings are consistent with the hypothesis that these experiences, which are considered to play a role in problem gambling development, are more common among problem gamblers. However, while

some people considered that these experiences affected their subsequent gambling behaviour, most did not.

'Costs' and 'Benefits' of Gambling in Major Life Spheres

The majority of people who gamble, including problem gamblers, indicated that gambling has given them pleasure and fun and that they have daydreamed about getting a big win. When gambling, over a half said they at least sometimes felt excited and just under a half said they were at least sometimes relaxed. Over a half of regular non-problem gamblers and three-quarters of problem gamblers said gambling has at least sometimes been a hobby and interest.

Relative to non-problem gamblers, lifetime problem gamblers more often indicated that they have:

- Gambled to escape from being depressed
- Felt depressed after losing heavily at gambling
- Felt guilty when finished gambling
- Felt that their gambling was a problem
- Went for help with gambling.

Although many people reported that they had talked about or taken part in gambling with family members or friends, less than ten percent said they had done so often or always during the six months prior to the survey. Relative to non-problem gamblers, problem gamblers more often mentioned this type of social involvement. However, they also much more often indicated that their gambling was sometimes more important to them than socialising with family and friends and that their gambling had led to a variety of conflicts and problems within their families and with friends. Examples include criticism of their gambling, arguments about money, problems for their families or friends and the breakup of important relationships.

Although approximately a fifth of people indicated that during the past six months gambling was widely discussed in their workplace, less than ten percent reported sometimes having gone gambling with workmates and very small numbers referred to other work-related gambling experiences or consequences. However, problem gamblers somewhat more often referred to some experiences and consequences of this type. From these findings, it appears that compared to gambling in relation to family and friends, gambling and its impacts are less important in work settings.

While most people said that they gambled to win money, nearly three-quarters of people indicated that gambling had never helped them financially and over two-thirds said they had never won more than they had lost gambling. Very few people said they often or always won or that gambling often or always helped them financially. Problem gamblers much more often reported having won NZ\$1,000 or more and that gambling at least sometimes helped them financially.

Problem gamblers much more often than non-problem gamblers indicated that:

- They spent more money than they could afford gambling
- They gambled to try to win money to pay off gambling debts
- They borrowed money to gamble or pay gambling debts
- Their friends or family had had to pay their gambling debts.

Apart from 14 percent of problem gamblers indicating that they had borrowed money for gambling and eight percent acknowledging that they had thought about doing something illegal to get money for gambling or to pay gambling debts, hardly any people referred to gambling-related criminal involvement.

Although only a small number of people considered that gambling helped them financially approximately a third indicated that, at least some time in their lives, they had often or always expected to win every time they started to gamble. Twelve percent also reported that they believed that their gambling was often or always skillful. Relative to non-problem gamblers, problem gamblers much more often indicated that they expected to win money and considered their gambling to be skillful. Problem gamblers also more often reported that:

- After losing at gambling they often or always went back another day to win back their money
- They went on gambling longer when they were losing and had urgent debts
- They gambled when they had a disappointing or frustrating day
- They felt excited while gambling
- When they lost more money than they intended they at least sometimes were more likely to go on gambling if they felt excited
- They gambled longer than they planned
- They felt they wanted to stop gambling but did not think they could
- They were more likely to gamble if they had some luck and wanted to celebrate.

As in the 1991 Phase Two study, the negative aspects and consequences of problem gambling reported by participants were substantially less than those obtained from studies of problem gamblers in treatment, prison or mutual help group settings. This was especially so with respect to financial, criminal and work-related impacts. While in part this difference is likely to be a consequence of many people identified in the present study as problem gamblers having less severe problems than those in these other settings, it is also likely that problem gamblers under-report problems of this type when interviewed in general population surveys.

Problem Gambling in Relation to Substance Use and Misuse, Health and Mental Disorder

It was estimated that 37 percent of the lifetime problem gamblers engaged in hazardous alcohol use as measured by the AUDIT, more than double the adult population estimate based on the total study sample and found in the 1996/1997 New Zealand Health Survey (Ministry of Health, 1999).

Thirty-six percent of problem gamblers were estimated to smoke tobacco once a day or more, compared to the adult population estimate of 21 percent and previous New Zealand national survey estimates that range from 23 to 25 percent (Ministry of Health, 1999).

Sixteen percent of problem gamblers acknowledged having used cannabis during the past 12 months, compared to the adult population estimate of seven percent. Twelve percent reported using other illicit drugs during this period, compared to the adult population estimate of one percent.

Fifty-seven percent of problem gamblers were estimated to have been very happy during the past six months, compared to 64 percent for infrequent gamblers and 75 percent for regular gamblers. Infrequent gamblers somewhat more often (10%) reported having been somewhat or very unhappy during this period compared to problem gamblers (5%) or regular gamblers (4%).

On the basis of their GHQ-12 scores, 19 percent of problem gamblers, 19 percent of infrequent gamblers and 16 percent of regular gamblers were identified as likely to be currently experiencing clinically significant levels of non-psychotic psychological disorder. These findings suggest that there is no difference between problem and non-problem gamblers on this measure.

More problem gamblers (89%) than infrequent (73%) or regular (78%) gamblers rated their overall health as good and problem gamblers rated their health as fair or poor less than half as often as non-problem gamblers.

Problem Gambling among People Known to Participants

Eighty-three percent of lifetime problem gamblers and 46 percent of non-problem gamblers indicated that they believed someone known to them had experienced problems with gambling. These estimates appear to be similar to those obtained in the 1991 national survey (Abbott & Volberg, 1992), although sampling and other methodological differences preclude direct comparison.

Only about a quarter (24% of problem gamblers and 28% of non-problem gamblers) considered that they knew someone with an alcohol problem. **Given the higher prevalence of alcohol than gambling problems in New Zealand, this suggests that there is greater awareness of problem gambling than alcohol problems, an unexpected finding that requires further study.**

Eleven percent of problem gamblers and two percent of non-problem gamblers reported that they considered that their father had experienced a gambling problem. Differences were less evident for mothers (5%; 3%) and brothers (both 5%) although problem gamblers also reported higher rates for sisters (3%) than non-problem gamblers did (0%). Relative to non-problem gamblers, problem gamblers also reported higher rates for spouses or partners (5%; 2%), children (2%; 0%), cousins or other relatives (19%; 11%) and friends or someone else important in their life (18%; 9%).

Contrary to expectation, given the associations between gambling and alcohol problems found in the present study and other research, problem gamblers less often (4%) than non-problem gamblers (9%) reported that one or both of their parents had experienced problems with alcohol.

Major Risk Factors for Problem Gambling

A number of factors that appear to be associated with problem gambling are examined in the present study and more formally, using a variety of statistical analyses, in the Phase One report. In the Phase One report, multivariate analyses were also conducted to control for the effects of other variables and clarify the nature and relative strength of associations between problem gambling and other variables. **In Phase Two the smaller sample size, lower response rate and various design features precluded extensive use of inferential statistics. Nevertheless, multiple logistic regression was used in an exploratory way to help identify factors that are potentially important in predicting and explaining the development of problem gambling.**

From logistic regression analyses, three sociodemographic variables were found to be the strongest predictors of lifetime problem gambling, namely male gender, being aged under 35 years and non-European ethnicity. Only the latter variable (non-European ethnicity) was also found in the Phase One study to also be strongly associated with current problem gambling, suggesting that these factors were more important in the past than in recent years.

Many of the other factors considered likely to be predictors of problem gambling are associated with sociodemographic variables that are also linked to problem gambling. To partially control for the potential confounding effects of these shared associations, the three sociodemographic variables identified as having the strongest associations with problem gambling were included as control variables in logistic regression analyses designed to detect additional major risk factors for problem gambling.

From the logistic regression analyses that incorporated the demographic control variables, people who preferred a continuous form of gambling were found to be eight times more likely to be problem gamblers than people who most preferred non-continuous forms. In the present study and previous New Zealand studies, non-casino gaming machines and betting on horse or dog races are consistently found to be important in this regard. Other variables associated with twice the likelihood of being problem gamblers when the effects of gender, age and ethnicity were taken into account were having had a 'big win' and nearly having won a major prize. While caution is required in interpreting these results, these three factors warrant further investigation to clarify the nature of their relationships with the development and maintenance of problem gambling.

Changes in Problem Gambling Status and Help-seeking

Forty-one percent of lifetime problem gamblers and 55 percent of current problem gamblers indicated that they personally considered that they had had a gambling problem at some time. This is similar to the rate of problem self-awareness found in the 1991 national survey (Abbott & Volberg, 1991; 1992; 1996).

Of the 33 people who considered that they had in the past and/or currently experienced gambling problems, 20 (61%) reported having periods of six months or more when they were free or mostly free of problems. A half said they stopped gambling at these times.

Seventeen of the 20 who reported having been free or mostly free of gambling problems for a period of six months or more said this had been accomplished by their own efforts. Specialist help was mentioned in 11 instances. Help of this kind mentioned by more than one respondent included mental health professionals, GA or GAMANON and alcohol or drug treatment centres. One respondent mentioned family and one mentioned friends.

Because respondents who had had periods when they were free or largely free of gambling problems could give more than one method by which these changes were accomplished, they were asked which was the most effective method. Of the 18 who responded to this question, 15 said their own efforts had been most effective, two mentioned an alcohol or drug treatment centre and one said none had been most effective.

In addition to asking participants about how they had overcome problems at the time they had had periods of problem remission, all people who acknowledged having had a gambling problem were asked if they had ever received help for their problem gambling. They were also asked how helpful this help had been.

Six people said they had sought help from their family and, in all cases, this was rated as having been very helpful. Four mentioned mutual support groups. One considered this to have been very helpful, and three somewhat helpful. Three said they had consulted a mental health professional and two considered this to have somewhat unhelpful and one very helpful. Two referred to alcohol or drug treatment centres and one rated this as very helpful and one as somewhat helpful. Medical doctors and the gambling helpline were the only other forms of external assistance mentioned by more than one person. Two said they had consulted a doctor. One said this had been somewhat unhelpful and one very unhelpful. A further two said they had contacted the gambling helpline and both rated this as having been very helpful.

About half of the 22 instances of external help-seeking involved contact with specialist mutual help or professional agencies. In the 1991 national survey, none of the 26 people in this category reported having sought this type of specialist assistance and only two people said they had sought help of any other kind for themselves (Abbott & Volberg, 1992). This suggests that there has been a considerable increase in help seeking on the part of people who recognise that they have problems. However, at least two-thirds of these people and, presumably most of the problem gamblers who do not recognise that they have problems, have apparently not sought this form of assistance.

Eleven people reported that they had at some time sought help for a total of 25 people that they considered to have gambling problems. Family (5 times) and friends (4 times) were mentioned most often and, with one exception, these sources were judged to be very or somewhat helpful. Mutual support groups were mentioned five times and on four of these occasions they were considered to be very or somewhat helpful and, on the remaining occasion, somewhat unhelpful. The gambling helpline was mentioned three times. Twice it was rated as very or somewhat helpful and once as somewhat unhelpful. Mental health professionals were also mentioned three times and twice this involvement was rated as somewhat helpful and once as very unhelpful. Other sources were not mentioned by more than one person.

The extent to which people sought help for other people with gambling problems appears to be similar to what it was in the 1991 national survey (Abbott & Volberg, 1992). As in that earlier study, family, friends and mutual support groups were mentioned most often. However, specialist services and practitioners were mentioned somewhat more often in the present study.