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Papers and reports on gambling from overseas researchers and organizations

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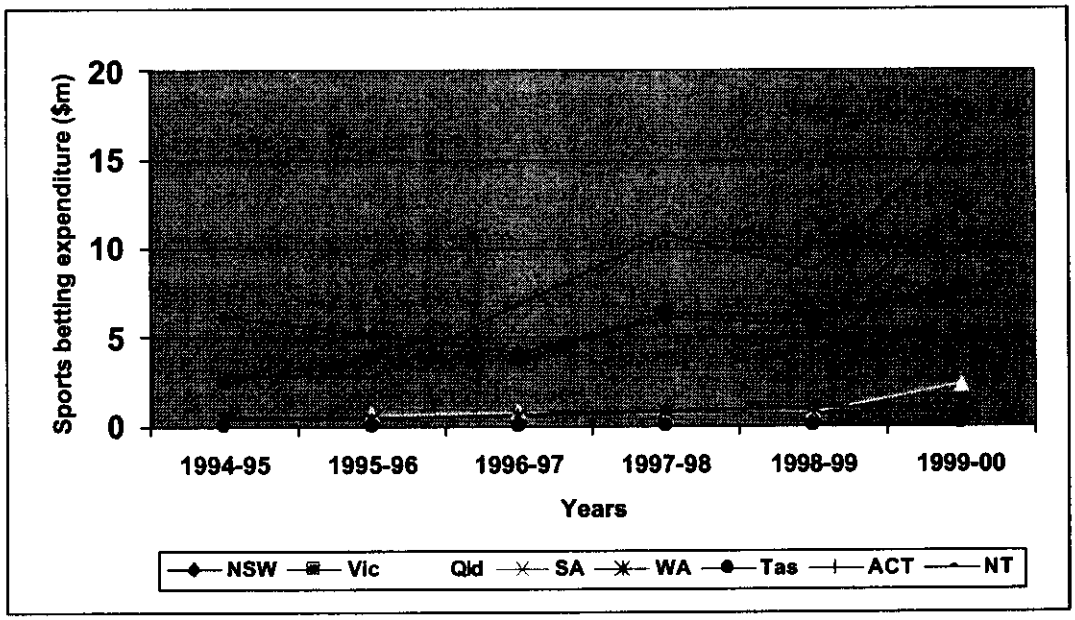
Sports betting

Sportsbetting is the wagering on all types of local, national or international sporting activities (other than established horse and greyhound racing). Sports betting can be conducted off-course, in person, by telephone or via the Internet. In 1999-2000, total sports betting expenditure within Australia was $41.453 million,[1] which compares with real sports betting expenditure of $12.574 million in 1994-95.

Figure 1 outlines the growth in sports betting among different states of Australia.

Figure 1: Real sportsbetting expenditure in Australia (1994/95 to 1999/00)



Total sports betting expenditure over the last financial year increased by 79.3%, with the highest sportsbetting expenditure occurring in Northern Territory and Victoria, with expenditure in 1999-2000 being $16.69 and $7.88 million respectively.[2] The most significant interstate differences in sports betting exists when comparing per capita expenditure between states, which is shown in Table 1 below.

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[1] The amount gambled by individual gamblers is likely to be higher because not every adult over the age of 18 gambles. For example, the Productivity Commission's 1999 national survey found that 82% of the Australian population participated in a gambling activity in 1997-98. However this bias is to some extent ameliorated by the way gambling expenditure data are collected, with no distinction made between gambling revenue accumulated from foreigners.

[2] Data was not available for ACT

Table 1 Per capita sports betting expenditure in Australia (1994/95 to 1999/00)

Year	NSW	Vic	Qld	SA	WA	Tas	ACT	NT
1994-95	1.36	0.73	-	0.50	0.35	0.08	U	24.40
1995-96	1.12	1.15	0.30	0.52	0.37	0.09	U	22.84
1996-97	0.90	1.07	0.33	0.49	0.47	0.09	U	54.21
1997-98	1.29	1.83	0.25	0.71	0.65	0.10	U	83.30
1998-99	1.19	1.71	0.32	0.64	0.77	0.11	U	66.40
1999-2000	2.56	2.19	0.88	0.67	0.88	0.54	U	124.08

U = Unavailable data

Table 1 illustrates that per capita expenditure on sports betting is many times higher than NSW and Victoria, which are the only other two states in Australian that spend more than one dollar per person per year on sports betting. A significantly contributing reason to Northern Territory's high total and per capita expenditure in comparison with other states is that Centrebet, located in Alice Springs, has become one of the largest sports betting providers in the Southern Hemisphere.

The internet introduces a medium by which to place bets on physical sporting events, such as football, cricket and tennis for example. This is known as interactive sports betting. With the advent of interactive sports betting, the increasing popularity of the internet and the expected digital convergence in the near future, interactive sports betting will continue to be a major growth area in expenditure within all states that have online gambling operators.

Sources:

- Productivity Commission (1999) *Australia's Gambling Industries*, Report No. 10, AusInfo, Canberra.
- Tasmanian Gaming Commission (2001) *Australian Gambling Statistics*, Tasmanian Gaming Commission, Hobart.

For further information contact the Australian Institute for Gambling Research, PO Box Q1287, QVB Post Office, Sydney, NSW, 1230.

GamCare's Response to the Gambling Review Report

Introduction

GamCare greatly welcomes this report and generally considers it to be balanced, pragmatic and sensible. This charity is in broad agreement with the majority of the recommendations. However, whilst we recognise the size and complexity of the task undertaken by the Review Body we note there are some inconsistencies and omissions.

The following specific comments have been grouped in accordance with the sections laid out in chapter thirty-seven of the report together with, where appropriate, reference in brackets to other sections of the Review document:

1. Overall comment

1.1 GamCare acknowledges and supports the case made in the report that adults are responsible for their own gambling decisions.

1.2 We do not believe, should the opportunities for growth covered in the report be implemented, that the need for the gambling industry to demonstrate social responsibility should in any way be compromised.

1.3 An increase in the number of problem gamblers, acknowledged in the report as a likely outcome of deregulation, is not acceptable to GamCare.

1.4 GamCare believes the principle guiding the implementation of the recommendations must be to develop the opportunity to gamble <u>without</u> increasing harm

2. Regulation Introduction (Recommendations 1-3)

2.1 GamCare strongly approves of there being a Single Regulating Authority that has sufficient powers to license, inspect and enforce.

2.2 Any authority involved with the licensing of gambling must understand the importance of, and support the need for, Operators exercising a high degree of social responsibility. GamCare considers that this is best ensured by the local licensing authority being that of the local magistrates.

3. Licensing of Individuals and Corporate Bodies (Recommendations 4-35)

3.1 The recommendations under this section appear sensible and should increase the level of probity across all gambling sectors.

3.2 GamCare very strongly approves of the recommendation that licensing procedure is to include provisions relating to socially responsible gambling. In view of the extent to which gambling is expected to increase, bringing social responsibility within the regulatory framework is absolutely essential. Quite simply, an Operator who cannot demonstrate social responsibility should not be granted a licence.

3.3 One means of ensuring that the importance of social responsibility is understood is to include this aspect of running a gambling operation in the competency interviews for senior executives and key personnel (para19.10, 19.14 and 19.16). GamCare would therefore like to see this measure introduced.

3.4 Running a Gaming Centre is on a par with running a casino or LBO and therefore personnel employed at such a centre should be subject to similar checks as staff working in a casino or off-course betting facility (para19.11).

3.5 GamCare welcomes the extension of 'fit and proper' tests and upgrading licensing requirements for betting and gaming machines. We believe, however, that machine manufacturers should also be included in this requirement (para.19.63) as a means of helping to prevent the trade in illegal machines.

4. Licensing of premises-general issues (Recommendations 36-39)

4.1 GamCare accepts the abolition of permitted areas for casinos, the demand criterion for casinos and bingo, and the demand test for betting shops provided that these deregulatory measures do not lead to a decrease in the level of social responsibility or an increase in the prevalence of problem gambling

4.2 We welcome the attempt to prevent a proliferation of small casinos by recommending a minimum size but we are uncertain as to whether this will have the desired effect. It will therefore, be important to frame legislation so that this does not occur. We note the estimation in the report that the deregulatory measures could lead

to some 450 casinos becoming operational. Such an increase in a hard gambling venue subject to reduced regulation may well lead to an increase in the prevalence of problem gambling. GamCare cannot support any measures that could lead to an increase in harm and would therefore wish to see the growth in casinos controlled and monitored. There is a need to determine whether this growth does lead to an increased prevalence of problem gambling and, if so, to take steps to address the issue.

5. Licensing of premises: role of licensing authority (Recommendations 40-47)

5.1 GamCare believes that Gambling Commission advice and guidance to licensing authorities will be an important and necessary safeguard in ensuring proper and consistent decisions.

5.2 We strongly agree that the licensing authority should ensure that gambling is the primary purpose of premises licensed for gambling.

5.3 Conversely, GamCare believes that licensing authorities will need to understand the implications in allowing 'ambient gambling' and be given national guidelines by the Gambling Commission to ensure that such gambling activities are restricted.

5.4 We believe that the implementation of a blanket ban is likely to create an illegal gambling market and, therefore, GamCare is concerned about the repercussions of this recommendation. Operators of illegal and unregulated gambling activities are unlikely to be concerned with social responsibility and would be exploitative.

6. Gambling Activities: Common Issues (Recommendations 48-57)

6.1 GamCare can accept the abolition of the 24 hour rule but we have concerns about the abolition of a statutory membership requirement. Casinos will be allowed a range of hard gambling activities and a large number of high payout slot machines. In our view 'positive identification' is an inappropriate check on customers who want to access what will become a 'hard-gambling emporium.' Membership is more likely to deter people visiting on impulse and provide enhanced profiling of customers. It is also likely to act as a deterrent to money laundering. The BCA (para. 22.2) themselves consider membership helps customers who want to self-bar and aids protection against under-age play, and GamCare supports that view.

6.2 GamCare welcomes the recommendation to limit gambling to those aged 18 or over and particularly supports the suggestion that breaching this rule would be a cause of licence revocation. Because of the vulnerability of young people and the fact that the national prevalence study determined that the age group 16-24 have the highest prevalence of problem gambling, we maintain that there should be no exceptions to this rule.

6.3 We accept that advertising of gambling products should be permitted and, in keeping with social responsibility guidelines already agreed and adopted by Gaming Centres, adverts should carry a cautionary note with regard to the risks involved.

6.4 The current problem whereby a significant number of under 16's are buying National Lottery products could be exacerbated should 16 and 17 years olds (para22.16) be able to sell lottery products. Shop assistants of this age may be subjected to pressure to sell illegally to their younger peers.

6.5 The introduction of credit cards is inevitable, but GamCare is pleased to see they are not to be used as a direct payment in a gaming machine. This change is likely to increase the risk of some gamblers overspending. GamCare argues that safeguards will need to be introduced such as customer led limits on spend.

6.6 A forced break to make use of an ATM is good in theory but GamCare believes it is essential that this creates an effective break in play. The message needs to be reinforced with responsible gambling messages on the ATM screen, on the machine casing and (as has been developed by one manufacturer of ATM's) a direct link to a gambling helpline.

6.7 The Review Report clearly documents a lack of research but sufficient evidence is available to suggest that slot machines do create difficulties for a significant number of gamblers. The cumulative effect resulting from the expansion of machines in casinos, resort casinos and LBO's is, therefore, a real concern to GamCare. In particular the impact of introducing unlimited payout machines into casinos is likely to be huge and will change the complexion of this gambling venue. Currently there is a maximum allocation for 1,200 slot machines in casinos (i.e. 10 per casino). This could increase to almost 50,000: 450 casinos x 112 machines per venue [average number of tables 14 x 8]. GamCare would argue that the potential growth in the number of these machines should be controlled so that the social impact of their introduction can be assessed. This is consistent with GamCare's response to a previous Home Office consultation document regarding the introduction of such machines when we argued that until assessed, numbers should be limited to a maximum of 20 per casino.

7. Gaming Machines (Recommendations 58-96)

7.1 We strongly welcome the restrictions on the location of gaming machines and particularly their removal from cafes, taxicab offices etc.

7.2 GamCare also welcomes research into the impact of machine playing by children but it should be carried out immediately rather than in five years time.

7.3 Limits on "coin in/coin out" machines in family entertainment centres are what GamCare recommended and are welcome.

7.4 GamCare would introduce a note of caution that whilst games such as "cranes" as they are currently constituted can fall outside category of gaming machines, as

seemingly innocuous have in the past been utilised for hard gambling, developments in their design and use should be monitored.

7.5 In the view of GamCare, recommendations with regard to payouts, multiple staking and multiple-line staking will add further to the addictive nature of this form of gambling. It therefore seems to us that the remarks in the Review about protection and limiting the location of 'jackpot' and 'all-cash' machines are inconsistent with recommendations to remove almost all casino 'gate-keeping' restrictions. Customers will be able to walk in off the street to play these machines in casinos, LBO's and pubs. This creates easy access to machines that will have a greater potential for addictive behaviour; a fact that will need to be addressed within the regulatory controls.

7.6 To counteract the potential increase in the level of harm GamCare would like to see an increase in safeguards such as all gambling venues carrying prominent messages regarding sensible play, notices indicating where a concerned gambler can seek help and a more rigorous intervention policy.

7.7 GamCare agrees with all the recommendations regarding jackpot machines. Their removal from clubs establishes a general rule, with which GamCare strongly agrees, that these machines should only be sited in *age controlled, well supervised, specific gaming venues.*

7.8 GamCare is aware that restricting the location of jackpot machines to specific gaming venues may mean that some small clubs face a real threat to their income. We hope this difficult situation can be satisfactorily resolved. Should the anomaly of allowing clubs to retain jackpot machines be accepted, however, clubs would have to be subject to the same requirements, inspections and enforcements as LBO's and Gaming Centres with regard to levels of probity and formal codes of social responsibility.

7.9 We note and accept the recommendation to allow LBOs to have jackpot machines, but if a general rule is to be established GamCare accepts that it would be consistent to also allow them to be located in Gaming Centres, especially as regulatory controls and age restrictions of these two types of venue are to be similar.

7.10 GamCare accepts that Bingo clubs should be allowed a mixture of jackpot and all-cash machines and we would make the observation that within the scope of an overall limit on the number of machines it would be consistent to allow LBO's and Gaming Centres a similar mix of machines.

7.11 The restriction on slot machines sited at travelling fairs GamCare sees as appropriate

7.12 Further to our response to a recent consultation document GamCare accepts the recommendation regarding methods of payment. However, we wish to highlight the fact that age controls will need to be strictly enforced as some debit cards, such as Solo, are available to those under eighteen. It is crucial to ensure that winnings and remaining credits can always be easily redeemed (para23.62). One universal solution

would be for credit card companies to add a digit to the card number that indicates the age of the holder.

7.13 Gambling Commission powers of machine testing are necessary and welcome.

7.14 We welcome the recommendation that maximum stakes and payouts for jackpot and all cash machines should only increase in line with inflation.

7.15 We note the recommendation that licensing authorities should set the limit on the number of machines an Amusement Arcade may have, but in order to minimise inconsistency we prefer the permissible number to be within guidelines recommended by the Gambling Commission.

8. Casinos (Recommendations 90-96)

8.1 As referred to in 6.1 above GamCare considers 'positive proof of identity' a weak form of identification and control. We believe that it would be more appropriate to require statutory membership.

8.2 We accept the permitting of live entertainment

8.3 GamCare does not accept and has serious concern over the recommendation to allow drink on the gaming floor. We would go further and strongly argue that drink should not be permitted in the area where the unlimited slot machines are sited. The mixing of alcohol and gambling increases the likelihood of irrational and/or problem gambling. In our view this recommendation is inconsistent with others that deny any direct mix of gambling and alcohol.

8.4 We consider that permitting tipping of gaming staff is a further erosion of the previous regime of strict regulation.

8.5 We are disappointed to note that there are no specific recommendations under the casino section preventing under age gambling or that harm be minimised. In view of the recommended reduction in regulatory controls for casinos GamCare assumes that this is an oversight that must be addressed.

9. Bingo (Recommendations 97-101)

9.1 We welcome the Gambling Commission's ability to intervene if "games...become harder in their operation" but note that there is no agreed definition of hard gambling. Recommendations to remove stake/prize limits, to do away with restrictions on multiple games and rollovers will change the clientele base in bingo clubs and are likely to push this gambling activity towards the harder end of the gambling continuum (e.g. enhanced interaction, increased game frequency, opportunity for loss chasing using larger stakes). GamCare considers it essential that increased safeguards are introduced in bingo clubs such as customer led spend limits, consistent and

prominent display of appropriate messages and notices, and a rigorous intervention policy.

10. Betting (Recommendations 102-109)

10.1 GamCare views the legal enforcement of gambling debts, by either party, as fair and reasonable.

11. Spread Betting (Recommendation 110)

11.1 GamCare believes that to ensure continuity of social responsibility a single regulating authority should have responsibility for all gambling. This means that spread betting should also be regulated by the Gambling Commission whether or not this activity is also regulated by the FSA. Until this happens it means that this potentially addictive form of gambling will unhelpfully remain in a separate area of its own.

11.2 We are disappointed to note that no specific reference was made to social responsibility and spread betting. This activity, which is known to be causing difficulties for some gamblers must include social responsibility within its regulatory framework in the same fashion as any other gambling activity.

12. Lotteries (Recommendations 111-132)

12.1 By and large it appears to GamCare that the proposed changes to lottery regulation will not have a socially significant impact.

12.2 GamCare considers that the minimum amount that should go to good causes should be in-line with the National Lottery at around 30% (para. 28.28).

12.3 We are of the opinion that the removal of limits on prizes, stakes and annual proceeds may create an explosive growth in society lotteries. This could become a cause for concern unless social responsibility safeguards are put in place.

12.4 From our interpretation of the report it is unclear if the recommendations imply that society lottery tickets can be bought from vending machines. In order to protect children it needs to be made clear that this will not be permitted

12.5 Capping the cost of premium-rate [lottery] competitions is welcome.

13. Pool competitions (Recommendations 133-136)

13.1 GamCare makes the observation that there appear few social impact issues in these changes except that widening the number of eligible sports events further increases the overall range of gambling opportunities.

14. On-line Gambling (Recommendations 137-151)

14.1 GamCare welcomes the recommendation to allow on-line gambling and to regulate it under British rules.

14.2 GamCare considers that overall the recommendations in this section are sensible and include reference to the social impact.

14.3 Restricting on-line companies to a British base is welcome

14.4 In addition to game rules and conditions, on-line gamblers must be made aware of the risks of gambling over the Internet or other on-line mediums

14.5 Identification needs to be tightly enforced in order both to prevent under-age play and to track player spend limits.

14.6 Only debit cards that are not allocated to children should be permissible (GamCare has discovered that cards are issued to children some as young as twelve).

14.7 Rules will need to be drawn up regarding the time it takes for winnings/unused credits to be deposited to the players account.

14.8 We strongly approve of player led limits and self ban procedures being among the necessary safeguards.

14.9 GamCare also strongly approves the need to display clocks and counting systems. More importantly, it is absolutely essential that there are breaks in play with supporting messages of suitable duration to bring a player back to a real life situation.

14.10 We do not accept the recommendation [91] that online "live gaming" should be allowed as this will take real casino gambling as well as virtual gambling directly into homes. GamCare would like to see a clear and consistent distinction between online gambling being the provider of virtual entertainment and terrestrial operations a live gambling activity.

14.11 We strongly approve of the requirement to provide information about available treatment. GamCare has already started this process with a number of on-line companies. The need to carry messages about available sources of help is one requirement listed in our 'Internet Social Responsibility Checklist.'

14.12 We note the recommendation to make it an offence falsely to declare that a site is approved by the Gambling Commission. GamCare welcomes this and would strongly argue that in similar fashion it should be an offence falsely to declare that the site is approved by GamCare or any other treatment provider

14.13 GamCare believes that the powers invested in the Gambling Commission to take action in respect of unlicensed premises should be as strong as the enforcement powers for terrestrial gambling.

14.14 We would like included in the regulations the requirement to involve GamCare or other social impact agency in setting the parameters for on-line games.

15. Clubs (Recommendation 152)

15.1 GamCare considers the inclusion of clubs within the inspection remit of the Gambling Commission as helpful.

16. Researching, Limiting & Treating Problem Gambling (Recommendations 153-159)

16.1 The Review report (para.32.2) accepts that its recommendations are "likely to lead to an increase in problem gambling". GamCare does not accept that this should be the case and advocates most strongly that the only responsible way forward is to increase opportunity without increasing harm.

16.2 We see as essential the recommendations regarding research into social gambling behaviour and problem gambling. Furthermore, GamCare expects to have a role in this research.

16.3 The stepped care approach referred to in the Report (para.32.15) originated from GamCare. We are of the opinion that the NHS has a critical role to play with regard to the identification, diagnosis and referral of problem gamblers but that the provision of treatment should be through a range of statutory and voluntary sector providers including organisations that currently provide effective help such as GamCare.

16.4 Requiring the Gambling Commission to respond to changes in patterns of problem gambling is very important as it paves the way to providing a necessary regulatory power of adjustment relative to the findings.

16.5 GamCare considers that research to evaluate which forms of treatment are effective is essential. However, this needs to be done by approved independent and skilled researchers. No research should be commissioned or undertaken by organisations that might have a vested interested in a specific outcome. We consider

that it would be useful to set up a steering committee representing a wide range of interests, in similar fashion to that involved with the national prevalence study.

16.6 With regard to research GamCare believes that the need to build on the national prevalence study is both essential and urgent in order to provide robust data that can be compared with research findings post deregulation.

16.7 Enforceable formal codes of social responsibility by Operators are at the core of the work that GamCare is undertaking with the industry. We therefore strongly approve of this recommendation and see its implementation as absolutely essential. As an expert in this field GamCare expects to play a significant role in the development and maintenance of appropriate codes.

16.8 We agree with the recommendation regarding further involvement of the NHS as it highlights the responsibility government has in providing for treatment.

16.9 As the principal specialist service provider of counselling services in the UK for those affected by a gambling dependency GamCare expects to be a major provider in the future. We consider the best way forward is to do so as the lead body either standing alone or working in conjunction with the NHS. Whatever model of treatment provision is eventually adopted GamCare considers that it can most effectively deliver its services whilst retaining its independence and charitable status.

16.10 We note the reference in the report to education (para.32.7) but are disappointed to see there is no recommendation specific to this vital aspect of promoting responsible gambling and, thereby, preventing harm. We assume that this is an omission and would strongly argue that resources must be provided to ensure there is effective and adequate statutory and voluntary sector provision for both prevention and treatment.

16.11 GamCare made the case in its submission to the Review Body for a Gambling Trust backed, should it prove inadequate, by the power to impose a statutory duty. We are therefore pleased to see this included as a recommendation. Nevertheless, we also welcome the current gambling industry initiative, as an interim measure, to address this issue through the creation of a charitable trust. However, we continue to have doubts that a voluntary scheme will adequately provide sufficient resources or that contributions will be forthcoming from all relevant sectors of the gambling industry. Therefore, as an appendix to this response we have provided an outline of possible models that we believe could provide a workable framework in the future.

16.12 In the event of a voluntary scheme proving unworkable or inadequate GamCare believes that the fairest and most effective statutory model to adopt is that prevention, treatment and research is paid for through licence fees and administered through the Gambling Commission (see appendix model one) or, alternatively based on the SFA model.

16.13 GamCare welcomes the figure of £3 million a year to be contributed by the industry for those providers of services that address the social impact of gambling. In view of the Review Report's emphasis on research and the length of time that might elapse before this target is reached GamCare considers it to be a reasonable

increase on the amount suggested at the beginning of 2001 was needed for overall service provision. GamCare contends that given the adoption of the model mentioned in the preceding paragraph the burden would be spread over a large number of organisations thereby keeping the cost to each individual company relatively low.

16.14 Notwithstanding the comments above GamCare welcomes the reference to the Gaming Trust as it establishes the principle that the gambling industry must be a major contributor towards the cost of responding to the social impact of gambling. Should this be the model that is adopted GamCare strongly urges that the composition of the Board of such a trust follows the suggestion contained in the Review Report. Furthermore, GamCare believes it essential that applications for funds are assessed by someone with a clear understanding of service provision and significant knowledge of issues relevant to prevention, treatment and research. For the Gaming Trust to be credible it is essential that it acts, and is seen to act, impartially; that a balance is maintained among its Board members; and that its decisions are based on evidence of quality service provision such as effectiveness and value for money

16.15 In the light of the recommendations regarding the deregulation of gambling activities that are known to cause problem gambling GamCare urges the serious consideration of a pro-active approach to intervention. We are aware the Review Report suggested that this is inappropriate but GamCare is now of the opinion that in specific circumstances it could prove to be beneficial

17. Powers and Functions of the Gambling Commission (Recommendations 160-174)

17.1 GamCare is supportive of all the recommendations contained in this section as they appear to strengthen the licensing, inspection and enforcement powers of the regulator.

17.2 We would expect the inclusion of social responsibility among those requirements to which sanctions could be applied following failure to comply.

18. Funding the Gambling Commission (Recommendations 175, 176)

18.1 The recommendation to fund the Gambling Commission on a net running cost basis must depend on a commitment to provide the resources necessary for the Commission to do its job properly. As the role of the regulator is crucial to the credibility and probity of gambling in the UK, GamCare would expect it to receive direct government support should the proposed means of funding prove to be insufficient.

Paul Bellringer
Director, GamCare
October 2001.

BUSINESS PROFITABILITY vs. SOCIAL PROFITABILITY: EVALUATING THE SOCIAL CONTRIBUTION OF INDUSTRIES WITH EXTERNALITIES, THE CASE OF THE CASINO INDUSTRY

By Earl L. Grinols,* David B. Mustard,**

December 2000

Abstract

Casino gambling is a social issue, because in addition to the direct benefits to those who own and use casinos, positive and negative externalities are reaped and borne by those who do not gamble. To correctly assess the total economic impact of casinos, one must distinguish between business profitability and social profitability. This paper provides the most comprehensive framework for addressing the theoretical cost-benefit issues of casinos by grounding cost-benefit analysis on household utility. It also discusses the current state of knowledge about the estimates of both the positive and negative externalities generated by casinos. Last, it corrects many prevalent errors in the debate over the economics of casino gambling.

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Business Profitability vs Social Profitability

I. Introduction

Between 1990 and 1998 commercial casino revenues increased from $8.7 billion to over $22.2 billion, or 156 percent.[1] The number of counties with casinos rose from 26 to almost 200 in the same time. Including Class III American Indian casinos,[2] casino revenues totaled $29.5 billion in 1998, representing expenditures of $153 per adult aged 20 or over.

The rapid expansion of casinos to new parts of the country generated extensive debates about the impact of casinos on a range of social, economic, and political issues.[3] These concerns were sufficiently pronounced to cause Congress to establish the National Gambling Impact Study Commission (NGISC) in 1996 to conduct an exhaustive study of the impact of casinos.[4] At the conclusion of its investigation, the commission recommended a national moratorium on the expansion of gambling and more study of gambling's effects, costs and benefits, before making further decisions about it.

The literature on the costs and benefits of casino gambling is fraught with inadequacy and confusion. Even studies that purport to evaluate the economic impact of casinos commonly exhibit a great deal of misunderstanding about what should be included among benefits and costs, and provide little or no guidance about how the costs and benefits relate to one another or should be computed. Many studies pay a great deal of attention, for example, to estimating the number of direct and indirect jobs that casinos create and to tallying the taxes casinos pay, but do not explain the social value of an additional job or calculate the lost taxes of competing non-casino businesses.[5] In general, the costs and benefits discussed are casually listed, vary by study, and are commonly presented with little or no justification of how they were selected or why other potential costs and benefits were excluded.

A recent paper, Eadington (1999), is instructive. It identified three principal benefits of casinos: 1) gain in utility (for those gambling in moderation for entertainment), 2) ancillary economic benefits such as "job creation, investment stimulation, tourism development, economic development or redevelopment, urban or waterfront revitalization, or the improvement of the

[1]Gambling revenue is the net amount of money that the gambling operator extracts from patrons. It equals the "handle" (gross amount wagered- -which may reflect the same chips being bet many times before it is ultimately retained or lost) less payouts, prizes, or winnings returned to players. For example, if players wager $1,000,000 on outcomes of a roulette wheel over the course of an evening, and $880,000 is returned to them as winnings (some roulette slots are reserved for the house), then operator revenue is $120,000.

[2]According to the Indian Gaming Regulatory Act of 1988, Class I gambling consists of "social games solely for prizes of minimal value." Included in Class I gambling are traditional Indian games identified with tribal ceremonies and celebrations. Class II gambling includes bingo and "games similar to bingo." Class III gambling includes "all forms of gaming that are not Class I gaming or Class II gaming," such as blackjack, slot machines, roulette, and other casino-style games.

[3]Kindt (1994), Grinols (1996), Henriksson (1996), and Grinols and Omorov (1996) discussed a number of these.

[4]Public Law 104-169 of the 104th Congress established the NGISC. For more information about its mission, composition and findings see http://www.ngisc.gov/.

[5]We show below that both concepts are necessary to a proper cost-benefit assessment of casinos.

economic status of deserving or underprivileged groups," and 3) additional revenues to the public sector. He lists two principal costs: 1) "moral disapproval" and 2) "fears of adverse social impacts," such as pathological gambling, crime or political corruption. The net increase in profits to business, unless this is meant to be part of ancillary economic benefits, is absent from the list of benefits.[6] Although Eadington lists gain in utility (clearly internal to the individual or household) as a benefit, he writes that "many of the costs identified are internal to the individual or the household, as opposed to external—borne by society—and are therefore difficult to place into a cost/benefit framework." This view of costs (including the references to moral disapproval and fears of consequences instead of the actual consequences) suggests that the author believes costs are more subtle and possibly less tangible than benefits. However, because the process to determine how items are included is not explained, there is little theoretical guidance about how the identified cost-benefit components relate to one another in an overall assessment of the impact of casinos or how competing costs and benefits are reconciled. We will show how cost-benefit components based on utility can be placed into the evaluation framework.

To bring uniformity and more theory to bear on the cost-benefit treatment of casinos, this paper demonstrates the construction of an exhaustive and utility-grounded framework to identify costs and benefits. It outlines an explicit taxonomy for costs and benefits based on the principle of real resource use, and reviews the available studies that contain original research estimating one or more cost-benefit components. Although the primary purpose of this paper is to rectify theoretical cost-benefit reasoning as it applies to casinos, the methodology applies more generally to the evaluation of projects in other industries. We also review existing empirical estimates of the costs and benefits of casinos arranged according to the theoretically grounded principles. Unfortunately there has been relatively little research on many of the most important social cost-benefit components, while much of research has examined less significant issues or issues that are not even part of a properly defined analysis of social costs and benefits. Some research that purports to evaluate costs or benefits actually examines local and not total social costs or benefits. Another concern is that much of the research has been conducted by organizations with a vested interest in the outcome of the research, institutes with industry ties, or state agencies. Relatively little research is in peer-reviewed journals. A review of the empirical literature that estimates correctly defined components of social costs and benefits indicates that the costs of casinos are at least 1.9 times greater than benefits.

The remainder of the paper is arranged as follows. Section II constructs a theoretical cost-benefit measure based on economic fundamentals. Sections III and IV examines the social benefits and costs of casino gambling, respectively. Section V concludes by summarizing our contributions and outlining the implications of this work for future research.

II. Theory

A. Linking Cost-Benefit to Utility

In this section we lay out the foundations of cost-benefit analysis for casino gambling. To avoid the mistakes that have plagued cost-benefit analyses, especially confusion about what can be included on each side of the cost-benefit ledger and how each item should be computed, we start

[6]We will show below that it should be present.

from the most fundamental cost-benefit concept possible—individual utility. The framework we employ can be as comprehensive and general as desired, although our objective is to provide just enough detail to include all of the major elements commonly considered relevant to the economic effects of gambling and enough explanation to indicate what would change in a more detailed application of the framework.

Our starting point is the change in the individual's utility, $u^1 - u^0$, where superscripts distinguish utility in two situations. In one, casinos are widespread geographically (alternative 1) and in the other, casinos are less widely spread (alternative 0). We assume that $u(x)$ is a continuous utility function representing locally nonsatiable preferences defined on consumption $x \epsilon R^n$. A positive element of x denotes consumption of a good or service, while a negative component stands for the provision of a good or service.[7] For example, the provision of 10 hours of labor by the individual would appear as -10 in the labor component of x. We define the expenditure function $e(d, p, u)$ as the minimum expenditure needed to achieve utility u when the consumer buys and sells at prices p, and d is the distance to the nearest casino. It is strictly monotonic in u for any choice of fixed d and p. The sign of $e(d^1, p^1, u^1) - e(d^1, p^1, u^0)$ is therefore identical to the sign of $u^1 - u^0$. In other words, for fixed distance and prices d and p, $e(d, p, u(x))$ is a utility function whose natural money metric records utility in dollars.[8]

We compare the social welfare between the two situations. We presume for simplicity that gambling is a standardized good; casinos offer gambling on essentially the same terms as casinos in other locations.[9] The primary advantage to the consumer of more casinos, therefore, is closer proximity to the nearest one. Let d_i^1 be the distance to the nearest casino for consumer i in the post casino alternative 1. Our measure of social profitability is the change in welfare for all consumers

$$\Delta W = \sum_i w_i \left[e_i(d_i^1, p_i^1, u_i^1) - e_i(d_i^1, p_i^1, u_i^0) \right] \tag{1}$$

where $\sum_i w_i = m$, and m is the number of consumer households. Equation (1) allows for different weights for dollar gains to different households, a topic to which we will return below. However, in applying (1) to produce a working measure of social profitability, we explicitly address many issues left unspoken in some studies and that are a source of confusion in others. The initial model provides the simplest framework for analyzing the impact of casinos. We list our assumptions at the outset for clarity.

- We assume that a dollar of utility to one household is equal to a dollar of utility to another.[10] With respect to equation (1) this implies that $w_i = 1$ for all households. It

[7]We follow throughout the paper standard general equilibrium accounting conventions for describing inputs and outputs in consumption and production.

[8]I.e. \$100 of utility is defined to be the utility that can be achieved by optimally spending \$100 at prices p with nearest casino d miles away.

[9]For example, the returns to playing roulette, slot machines, or a blackjack game are approximately the same regardless where offered. The framework could be modified to allow for different qualities of gambling. In this case the model would deal with multiple, imperfectly substitutable goods.

[10]The transfer of wealth in gambling is generally from relatively poor to relatively wealthy. Therefore, if a dollar generates more utility for rich than poor, our assumption understates the social benefits. If a dollar generates more utility for the poor than the rich, our assumption understates the social costs of casinos.

also means that firm profits do not need to be assigned artificial premia or discounts based on which individuals or households happen to own them.

- Firm profits are equally important to social welfare regardless of which firm generates them. For example, casino profits are valued the same as the profits of a non-casino firm.

- To allow for regional tax differences, consumers and firms may face different prices. In the limit, each firm and household could have a different, personalized set of prices. Household i faces price vector p_i, firm j faces price vector p_j, and endowments are traded at prices p_Ω.

- We allow for the possibility that consumers may be constrained in their labor supply decisions, resulting in unemployment. People have a reservation wage but cannot always find a job at that wage, and lowering their wage will not increase the chances of their getting a job.

- Firms and economy endowments are owned by households. Household i owns share θ_{ij} of firm j, $\sum_i \theta_{ij} = 1$ and endowment $\Omega_i \epsilon R^n_+$, where $\sum_i \Omega_i = \Omega$, the economy endowment vector.

- The government spends tax revenues to purchase goods and services, and private households receive utility from these expenditures. To implement this assumption, we employ the artificial device of having the government return tax dollars to households in a lump-sum fashion. Households then spend the transfers as part of their income and experience utility gains based on their purchases.

- In addition to direct benefits and costs, casinos may generate positive or negative externalities. Positive externalities add value to the economy not reaped by the agent creating them, while negative externalities remove value not paid by the causing agent, following the usual definition. For example, if a casino's presence reduces crime in an area, leading to less need for police presence, this frees real resources to the rest of the community and represents a positive externality. If the reverse is true, and the casino increases the need for police, real resources are removed from final consumption x, and this is a negative externality. Sections III and IV discuss the nature of benefits and costs in more detail. The net resources gained or lost to the system are denoted by g. If $g > 0$ negative externalities outweigh positive externalities, which decrease the resources available for consumption x, and thereby lower social welfare. Social cost accounting in real terms requires

$$x + g = y + \Omega + z$$

where $x \equiv \sum_i x_i$ is aggregate consumption, and $y \equiv \sum_j y_j$ is aggregate production. For each firm j, y_j is the associated production vector;[11] z is the economy trade vector.[12]

[11] A positive element of y_j denotes output of a good or service, and a negative component denotes the use of an input.

[12] Although it is not central to our objective in this paper, we include z to be consistent with the general framework we develop. Excluding z does not affect the central arguments of this paper. Components of z are economy excess demands for traded goods. A zero denotes a nontraded good, while a positive entry denotes imports.

The above remarks provide the simplest framework that is sufficiently inclusive to discuss an economy's social costs and benefits of gambling.

B. Application

Consider now the following carefully chosen identity, a telescoping sum where each term cancels part of the preceding term.

$$\sum_i \left[e_i(d_i^1, p_i^1, u_i^1) - e_i(d_i^1, p_i^1, u_i^0)\right] = \sum_i \left[e_i(d_i^1, p_i^1, u_i^1) - p_i^1 \cdot x_i^1\right] \quad (2.1)$$

(Consumption Constraints in Situation 1)

$$+ \sum_i \left[p_i^1 \cdot x_i^1 - p_i^0 \cdot x_i^0\right] \quad (2.2)$$

(Income Effects)

$$+ \sum_i \left[p_i^0 \cdot x_i^0 - e_i(d_i^0, p_i^0, u_i^0)\right] \quad (2.3)$$

(Consumption Constraints in Situation 0)

$$+ \sum_i \left[e_i(d_i^0, p_i^0, u_i^0) - e_i(d_i^1, p_i^0, u_i^0)\right] \quad (2.4)$$

(Distance Benefits)

$$+ \sum_i \left[e_i(d_i^1, p_i^0, u_i^0) - e_i(d_i^1, p_i^1, u_i^0)\right]. \quad (2.5)$$

(Consumer Surplus)

Expression (2.1) measures the welfare impact of constraints on the consumer's choice that prevent him from being at his optimal bundle given the prices he faces. The primary example of this kind of constraint is unemployment. $e_i(d_i^1, p_i^1, u_i^1)$ by definition is the *least* costly way of achieving the utility achieved in situation 1. Consumption bundle x_i^1 satisfies $u^1 = u(x_i^1)$ and also achieves utility u^1. Because choice of x_i^1 was constrained (in the case of unemployment, by the consumer's ability to supply labor), it will lead to a greater expenditure than $e_i(d_i^1, p_i^1, u_i^1)$. Therefore, the difference in expression (2.1) is the amount of money the individual would be willing to pay to remove the constraint. The same argument applies to expression (2.3) in situation 0.

Expression (2.4) measures the value to the consumer of having the nearest casino distance d_i^1 away compared to distance d_i^0. For example, in the initial situation the consumer needed $e_i(d_i^0, p_i^0, u_i^0)$ to reach initial utility. When the nearest casino is closer, distance $d_i^1 < d_i^0$, the income needed to maintain original utility, $e_i(d_i^1, p_i^0, u_i^0)$, is smaller (presuming the individual gambles). The difference in expression (2.4), therefore, is the amount the consumer would be willing to pay to have the nearest casino closer.

Expression (2.5) is the conventional measure of consumer surplus. The only difference between the two terms in the expression is the price vector. If prices p_i^1 are better for the household than prices p_i^0 (lower for goods purchased and/or higher for goods sold, such as labor), then expression (2.5) is positive and measures the amount of money the consumer would be willing to give up to have the better set of prices.

Now examine expression (2.2). Use the household budget identity

$$p_i \cdot x_i = \sum_j \theta_{ij}\Pi_j + p_\Omega \cdot \Omega_i + T_i - E_i \tag{3}$$

to transform the income effects in (2.2) where Π_j is the profit of firm j, $p_\Omega \cdot \Omega_i$ is earning from the household's endowment, T_i is the household's share of taxes, and E_i is the household's share of the cost of gambling-induced externality expenditures. Summing (3) over households and differencing between the initial and final situations[13] yields

$$\sum_i \left[p_i^1 \cdot x_i^1 - p_i^0 \cdot x_i^0\right] = \sum_j \Delta\Pi_j + \Delta p_\Omega \cdot \Omega + \Delta T - \Delta E. \tag{4}$$

(Δ Profits) (Endowment Capital Gains) (Δ Taxes) (Δ Externality Costs)

Substituting (4) into (2); writing the distance effects in differential form and rearranging gives the taxonomy of cost-benefit elements that we seek:

$$\begin{aligned}\sum_i \left[e_i(d_i^1, p_i^1, u_i^1) - e(d_i^1, p_i^1, u_i^0)\right] \equiv \Delta W = {} & \sum_j \Delta\Pi_j + \sum_i \int_{\mathrm{d}_i^0}^{\mathrm{d}_i^1} \frac{\partial e_i}{\partial \mathrm{d}_i} d\mathrm{d}_i + \Delta T - \Delta E \\ & + \text{Consumption Constraints} \\ & + \Delta p_\Omega \cdot \Omega \\ & + \sum_i \left[e_i(d_i^1, p_i^0, u_i^0) - e_i(d_i^1, p_i^1, u_i^0)\right]. \end{aligned} \tag{5}$$

where "Consumption Constraints" is the sum, (2.1) + (2.3).

The seven components in equation (5) are an exhaustive, exact tabulation of the cost-benefit elements for evaluating the economic effects of casinos. Moreover (5) shows precisely *how* each term should be computed theoretically. For example, the effect of casino gambling on firm profits should be summed over *all* firms, not just casinos. The increased profits of the casinos should be netted against lost profits of other firms that compete for consumer spending. Comparable statements apply to the computation of employment benefits and costs, taxes, and social costs.

There is one obvious simplification we can make to (5). Because gambling industry revenue (casinos, lotteries, racetracks and other forms of gambling) is relatively small,[14] it will have a negligible effect on creating capital gains or losses on endowments. It is unlikely that the cost of capital, for example, will differ because of the presence or absence of casinos in the economy. A similar statement applies to consumer surplus effects that depend on gambling to influence overall prices.[15] Therefore, for the remainder of the paper we assume that firm and household prices are invariant to the amount of gambling ($p_i^0 = p_i^1, p_j^0 = p_j^1, p_\Omega^0 = p_\Omega^1$), which means that the last two terms in equation (5) related to capital gains on endowments and consumer surplus gains and losses drop out.

[13] Use the fact that $\sum_i \theta_{ij} = 1$.

[14] In 1998 gambling revenues were approximately .5 percent GDP and casino revenues were approximately .25 percent.

[15] It is conceivable, of course, in certain circumstances that the introduction of casinos could change prices enough to matter to local residents. For example, if casinos increased employment and the local population, the demand for local housing would increase, thus raising housing prices and capital gains for residents. In such cases, however, the *reduction* in demand for residential property and capital *losses*

C. Conceptual Corrections

Equation (5) allows us to address some common errors and misconceptions of cost-benefit analysis applied to gambling.

The first error is the tendency to identify business profitability, $\sum_j \Pi_j$, and its improvement, $\sum_j \Delta\Pi_j$, with social profitability. The two are different. Business profitability is clearly important to social profitability and contributes to it, but the two are not synonymous. Failure to account for all of the components of social profitability is perhaps the most common mistake. Casino profits are visible and prominent. Other costs and benefits may be less so.

The second error is to evaluate the economic impact of gambling with respect to the taxes and profits of a subset of firms—typically the profits of firms in one state or region and sometimes the profits of local gambling firms only. Equation (5) sums profits over all firms, not just casinos or firms in one location. Ignoring firms that lose profits due to the expansion of gambling is equivalent to selecting weights for them in equation (1) that are zero. Because households own these other firms, this violates the assumption that households are treated equally.

The third is to consider only the taxes of a subset of households or regions. It is not uncommon, for example, for studies to focus only on costs within the state, even though casinos that border another state have ramifications for citizens of the neighboring jurisdiction. Equation (5) sums taxes over *all* households and regions.

Evaluations that consider only the costs or benefits of a subset of households or regions are inaccurate and incomplete. For example, the cost-benefit measure in (5) does not treat a job in a given location as more valued than a job in another location. Many economic impact studies perform regional net export multiplier analyses of the effects of casinos. They erroneously report the number of jobs in a given location as a benefit. According to (5) the value of employment in one location (part of the determination of firm profits) must be netted against the value of employment in another location. There is no net gain to the economy from shifting a job from one location to another unless it increases profits to the economy.[16]

The last common error is that much empirical work purports to show casinos decrease unemployment, but fails to prove what employment *would have been* in the absence of casinos. Most casinos were introduced after 1991, when the country was recovering from the recession of 1990-91. The period from 1991 to 2000 also coincided with the longest economic expansion in American history. As the country emerged from the recession, unemployment declined in areas with and without casinos. If casinos *temporarily* reduced unemployment faster than it would have fallen otherwise, this transitory effect could correctly be counted as a benefit of casinos.

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in the areas from which the new residents came would have to be taken into account. Over time, if new housing responded to the increased demand, the prices of the existing stock of housing would decrease. Because gambling doesn't *create* new people, but only moves them from one place to another, a reasonable first approximation is that the net effect of gambling on capital gains and consumer surplus considerations would be small.

[16]We presume that the jobs being compared in two locations are comparable. Blair, Schwer, and Waddoups (1998) argued that "employees in gaming industry occupations are less satisfied with their jobs than those in other industries." If jobs are *different* in two locations, then the jobs would appear in the formula as different because workers would demand compensating wage differentials, and this would affect profitability. If compensating wage differentials do not arise, but workers face nonmarket constraints that cause them to work hours that are not optimal given the wages paid, these costs would appear in the unemployment terms of equation (5).

	Casino Gambling Revenues per Adult	All Gambling Revenues per Adult	Total Revenues	All Gambling Revenues
U.S. 1998	$153	$282	$29.5 b	$54.4 b
"Saturated Market"	≈ $230	$ 359	$ 44.4 b	$ 69.3 b
Tobacco Industry			$ 39 b	

Table 1: The Casino Market

However, we know of no study that has made this case. On the contrary, the failure to account for the decline in unemployment that would have occurred anyway leads to a classic *post hoc, ergo propter hoc* fallacy of logic. For a more detailed example, see the Appendix, which discusses the Evans Group (1996). Although it argued that casinos reduced unemployment, it did not report that areas without casinos with comparable starting unemployment rates experienced comparable, and in many cases, larger reductions in the unemployment rate.

III. Bounding Benefits

This section reviews the studies that estimate the benefits from casinos based on the theoretically correct cost-benefit computation in equation (5). We discuss in order the net increase in firms' profits plus taxes paid due to the presence of casinos, the consumer distance benefits of nearer casinos, employment benefits and total benefits from the expanded gambling opportunities.

A. Profits and Taxes

This benefit is calculated by determining the casino profits and taxes minus the reduction in profits and taxes of other businesses caused by casinos. Although casino profits and taxes are highly visible, they are invalid measures of *social* benefits because they do not adjust for the entire economy for the lost profits and taxes of competing businesses. This point is not special to casinos. Any business – be it Wal-Mart or a drugstore chain, that attracts consumer sales, employs labor and other inputs, and displaces competing businesses – should be evaluated on the same basis.

Because many casinos do not have to report their profits or pay taxes (for example, casinos owned by American Indian tribes), there are no data on industry profits. However, we can estimate revenues from annually published information. We provide a brief overview of casino gambling in the US before estimating the benefits.

Table 1 reports total and per capita gambling revenue.[17] For comparison, we provide data on the tobacco industry.[18] Many studies estimate potential casino revenues using the amount

[17]For industry revenue data, see *International Gaming and Wagering Business,* August 1999, p. 24.

[18]The value of tobacco grown each year is $39 billion. *Encarta Encyclopedia,* http://encarta.msn.com/find/Concise.asp?ti=02A43000#s12.

of gambling per person in areas where casino gambling is a prominent activity. For example, the City of Chicago Gaming Commission funded a 1992 study that reported that adults within 35 miles of Atlantic City lost $198 per adult annually to casinos. Adjusted for eight years of price changes, this figure is approximately $230. In its May 1993 study, Mirage Hotel estimated that annual per capita gambling revenues for persons residing within a fifty-mile radius of its proposed Chicago suburb gambling facility would be $200.[19] In Iowa in 1995 a Christiansen & Cummings Associates study for the state Racing and Gaming Commission found that the average adult lost $172 to the casinos (this figure is lower than $230 because casinos are still not in close proximity to all parts of Iowa). These data are comparable to revenue for other areas.

In addition to averages we are interested in the concentration of gambling among users. Many studies examined gambling markets in different locations and at different times. Taken together they provide a general estimate of how frequently residents gamble. In a market with readily available gambling opportunities including casinos, approximately 30 percent of the population does not gamble, meaning that they will not have gambled in the past year.[20] Another 50-60 percent could be termed light bettors, who gamble less than once per week. This group includes those who enjoy a night out at the casino once in a while, but do not frequent casinos. About 5-15 percent could be termed heavy bettors who gamble twice per week or more. The last 2-5 percent of the population consists of problem and pathological (P&P) gamblers, who suffer from compulsive gambling disorders, which are expressed when the opportunity to gamble is present and sufficient time has elapsed for the problem to become evident. This group might be in the casino daily, for long periods of time, and at unusual hours. Two-thirds to 80 percent of gambling revenues come from the ten percent of the population that gambles most heavily.[21] Expressed in reverse, 90 percent of the population may provide as little as 20 percent of casino revenues. Consequently, the great majority of adults are indifferent, or nearly indifferent, to the

[19]The proposal was for West Dundee, Illinois. The study reported, "Both Christiansen/Cummings and Mirage Resorts estimate local gaming demand by applying gaming win per capita factors to the population residing within concentric circles of a gaming venue. The factors decline as distance increases. The $200 win per capita applicable to the 0-50 mile segment was developed jointly by representatives of Mirage Resorts and Dr. Cummings to apply to the local population in the New Orleans environs in a 1992 evaluation of the New Orleans gaming market."

[20]See, for example, GLS Research, 1993-1994 Clark County [Las Vegas, Nevada] Residents Study. Even in Las Vegas one-third of the population does not gamble.

[21]For example, a study of wagers in Minnesota (Smith and Craig (1992), Tice (1995)) found that 1 percent of gamblers accounted for 50 percent of wagers and that 10 percent accounted for 80 percent. An Illinois study (Gazel and Thompson (1996)) found that 10 percent of bettors accounted for 66 percent of wagers. Heavy gambling is not the same as problem and pathological gambling even though the revenues of P&P gamblers figure disproportionately among the revenues of the highest-gambling segment of the population. When compared to the population at large, the amount gambled by P&P gamblers implies that the share of casino revenues from problem and pathological gamblers can be as much as 1/4 to 1/2 of casino revenues (see Grinols and Omorov (1996)). Lesieur (1998b) reported that 48.7 percent of casino revenues in Nova Scotia came from problem gamblers, and that 55 percent of revenues for casino cards and dice games came from problem gamblers in Washington. In other locations he found that percentages ranged between 26.7 and 41.4 percent. In Montana 37 percent of the revenues of video gambling machines was estimated to come from problem and pathological gamblers (Polzin, et al. (1998)). Productivity Commission (1999) reported that problem gamblers account for 2.1 percent of the adult population but one-third of the revenues of all gambling revenues in Australia. Volberg, Gerstein, and Christiansen (2001) also examined the distribution of revenue from different types of gamblers.

availability of casino gambling. Although the average American adult loses approximately $153 per year and might lose closer to $230 per year were gambling more widespread, these revenues come from a few who gamble a lot, instead of many who gamble a little.

We now return to our original question—what is the social value of this amount of casino gambling? According to equation (5) we need the profits and taxes attributable to casinos, minus the reduction in profits and taxes of other business due to casinos. To these we must add the consumer distance benefits of casinos (which we address in the next section). Because profits are a function of market structure and the presence of free entry and exit, if casinos were deregulated, market contestability and free entry of casinos would drive economic profits to zero. In that event, from the perspective of profits a larger casino sector and smaller remainder of the economy would represent a net wash because economic profits in the economy would be no greater with casinos than without. The sole contribution of casinos to social welfare in that case would be the direct consumer benefits.

However, in the current legal environment, casinos in many locations are effectively regional monopolies sustained by government licensing restrictions.[22] We therefore make the following adjustment to allow for the higher monopoly profits of some casinos. In 1998, profits before taxes[23] of all nonfinancial corporate business in the United States were 13.8 percent of sales.[24] Assuming that casinos average 30 percent profit rates before taxes (more than *double* the normal business rate of profit) implies that social benefits in the form of profits and taxes from shifting $153 of revenue from other businesses to casinos is $(.30 - .138)\$153 = \$25$ rounded up to the nearest dollar. In the next section we add to this the consumer distance benefits of casinos to produce an upper bound on total casino social benefits.

B. Consumer Distance Benefits

Equation (5) also identifies $\int_{d_i^0}^{d_i^1} \frac{\partial e}{\partial d} dd_i$ as a direct social benefit of casinos, where d_i is consumer i's distance to the nearest casino. Distance benefits have been little studied, even though they constitute a primary direct benefit of casinos. To our knowledge, only Grinols (1999) estimated these benefits and compared them to the other components of (5). Assuming that utility depends on goods x, the number of casino visits V, the amount gambled (spent) per visit g, and the distance traveled to the casino, $u = u(x, V, I(g, d))$ where $I(g, d)$ is an enjoyment factor or visit "intensity" factor that rises with g and falls with d. The envelope theorem and consumer optimization conditions show that $\int_{d_i^0}^{d_i^1} \frac{\partial e}{\partial d} dd_i \leq \int_{d_i^0}^{d_i^1} V dg$. This inequality allows inferences about welfare to be made from data that relate the number of visits and amount gambled per visit to distance from the casino. Grinols (1999) estimated that the upper bound for direct consumer benefits of casinos was $50 per adult (again, rounding up to the nearest round figure to produce

[22]This description applies in Illinois and many other midwestern states. In Minnesota, for example, only American Indians operate casinos. In locations such as Atlantic City or the Gulf Coast of Mississippi, regulations allow entry to all as long as certain operating requirements are met. In these locations competitition drives economic profits to zero.

[23]Non-Indian casinos paid over $2 billion in taxes to the various states on gaming revenues in 1997. CT's two Indian casinos paid $236 million to the state that year. In comparison, states generated revenues of approximately $10 billion from net proceeds of lotteries in 1997, or $51.15 per adult.

[24]See Economic Report of the President, 1999, Table B-15, column 8.

an upper bound on casino benefits) when no allowance is made for the significant portion of revenues from problem and pathological gamblers. If the revenues of non-P&P gamblers only are used to calculate consumer distance benefits, then the benefit figure falls to under $34.[25] This number can be interpreted as the answer to the question, "How much would you be willing to pay each year to have the opportunity to gamble in a casino nearby compared to the alternative where casinos are 1,000 miles away?"

C. Employment Benefits

Although the topic of employment benefits is one of the most studied issues about casino gambling,[26] it also contains a widespread and central misunderstanding—that the benefits of new businesses are measured by the jobs they create in a given location. While it may be legitimate to ask what effect a new business will have on employment, what taxes it will pay, and from where its revenues will come, these answers do not assess the social benefits and costs of the business. Increasing jobs in one location at the expense of lost jobs in another is not a social benefit. Business profitability is not social profitability. Social cost benefit is grounded on consumer utility and results in a list of relevant factors different from tracking income and employment effects.[27]

[25]How should we treat demand derived from addiction? If addiction is not rational then its derived demand should be treated differently. We therefore report both figures above. In the lower figure, we assume that 32 percent of casino revenues are from P&P gambling.

[26]A survey of this literature and list of references can be found in Adam Rose and Associates (1998) and the National Gambling Impact Study Commission (1998), Appendix 5 on Economic Development.

[27]Leven et al. (1998) provide an example of how the focus on job creation may mislead the unwary or untrained. They wrote,

> This study seeks to take an objective look at the economic impact of the gaming industry on the Missouri economy. Where do the gaming revenues come from? How are they redistributed in the economy? By how much do state and local governments benefit? What is the net bottom-line economic impact?...[Gaming] does add spending, income, and jobs to the Missouri economy. It should be addressed in this context.

While the authors do not claim that the answers to their questions constitute a cost-benefit evaluation, their plea that gambling adds "spending, income, and jobs to the Missouri economy" and that "it should be addressed in this context" could easily be misinterpreted to mean that a calculation of income, jobs, and employment is synonymous with a cost-benefit evaluation. In their summary they wrote:

> The focus of this study has been the determination of whether net new output (and jobs and employment) have been created state-wide in Missouri as a consequence of casino gaming operations, and if so how much....The 'bottom line' is that significant additions to the Missouri economy have been achieved. As of 1997, almost 18,000 net new jobs, $500 million in added personal income, and over $750 million of added output have benefited the state's economy.[28]

Who would argue with such figures? Or be aware that regardless of their accuracy, casinos in Missouri might fail to pass a cost-benefit test and thus be harmful to state welfare?

D. Total Social Benefits

Based on the previous sections, if casinos were fully deregulated and allowed to spread freely nationwide, economic profits would be driven to zero. The net increase in profits and taxes from expanding the casino sector at the expense of the rest of the economy therefore would be zero. The consumer distance benefits of casinos would be less than $50 per adult, or if the revenues of P&P gamblers are subtracted, $34 per adult.

If casinos are regulated and granted regional monopoly status in some jurisdictions, the economic profits of casinos will remain positive, but the distance benefits will drop. Assuming average pre-tax profits equal to 30 percent of sales (more than double the rate for nonfinancial corporate business in the US) implies that the net profit and tax benefits of casinos are less than or equal to $25 per adult. However, if there is not free entry, distance benefits will average less than $50 per adult (less than $34 adjusting for P&P gamblers) because some areas will not have casinos close to consumers. We are therefore left with three upper bounds. The preferred number, $34 per adult, is the most correct upper bound because it represents the full social value of casinos under circumstances in which all of the benefits would be captured by consumers if the industry were deregulated to allow free entry. $59 combines the full estimate of consumer distance benefits adjusted for P&P gamblers with a generous profit figure. It is too high because the consumer benefit is overstated, and in addition because it fails to recognize that distance benefits would decline with regional monopolies present that do not put casinos close to all consumers. Finally, $75 per adult adds consumer benefits to profits without making any adjustments. We emphasize that these numbers are upper bounds on the estimated benefits.

IV. Counting Costs

Researchers estimate the social costs of casinos using two methods. The first is through the study of problem and pathological gamblers. The second is through statistical analyses of cost-creating activities such as crime, suicide, and bankruptcy. The former approach ties the cost activities to gamblers, but overlooks social costs that do not derive from problem and pathological gamblers. The latter approach, determining the effect of casinos on social costs such as crime by examining aggregate statistics, is direct and more inclusive because it looks at more than just the crimes committed by P&P gamblers.

The remainder of this section consists of two parts. The first derives a detailed taxonomy of cost classifications tied to the theoretical analysis in Section II. When discussing these classifications we cite cost studies of both types listed above. The second part of this section is a more detailed review of all the studies that focused specifically on problem and pathological gamblers. We calculate costs per pathological and problem gamblers, and estimate the costs for the entire nation. These sections constitute the most comprehensive compilation of the social costs of gambling available to date.

A. Cost Taxonomy

The underlying principle, based on equation (5), is that each social cost uses physical resources g in ways that do not directly enter utility or that reduce economic efficiency. We arrange social costs into nine disjoint groups and discuss each one briefly.

1. **CRIME**: Of all the social costs, the link between casinos and crime has received the most attention.[29] Crime costs are real resources used for the apprehension, adjudication, incarceration, and rehabilitation of criminals, or the police costs that result from the need for increased police presence in areas of greater gambling activity. One significant problem that has plagued the majority of the casino-crime literature is analogous to the problem present in calculating the profit and tax benefits of casinos: To estimate social costs, one should not count new crime around the casino only, but also consider whether casinos reduced crime in other locales (for example, this could happen if casinos move crime from other locations). Counting only local crime as a cost is similar to counting only local profits as a benefit.

   The most comprehensive analysis of the casino-crime link is Grinols, Mustard and Dilley (2000), which evaluated county-level data for seven offenses in every US county over 20 years, and controlled for about 50 variables. It concluded that on average, 8-10 percent of crime in casino counties in 1996 could be attributed to the presence of casino gambling in the county, resulting in costs of $63 per adult annually in these counties. Furthermore, counties that border casinos also experience increased crime rates, which suggests that casinos truly increase crime, not merely shift it from one location to another. Estimates of the cost of non-Index crimes would add to total crime costs. For example, insurance fraud is not an FBI Index I crime. Estimates of the fraud committed by gamblers is $1.3 billion per year,[30] or $6.61 per adult annually.[31]

   Studies of problem and pathological gamblers have found similar effects. Maryland Department of Health and Mental Hygiene (1990) reported that 62 percent of gamblers in treatment committed illegal acts as a result of their gambling, eighty percent committed civil offenses and 23 percent were charged with criminal offenses. Lesieur (1998b) surveyed nearly 400 members of Gamblers Anonymous, 57 percent of whom admitted stealing to finance their gambling. On average these 400 people stole $135,000, and their total theft was over $30 million. Lesieur (1992) reported on illegal activities and civil fraud engaged in by pathological gamblers to gamble or to pay gambling debts in five samples from hospital inpatients, Veterans Administration and Gamblers Anonymous groups, male prisoners, female prisoners, and a female Gamblers Anonymous sample that includes the white-collar crime and other crimes listed in item 1.[32]

2. **BUSINESS AND EMPLOYMENT COSTS**: These costs include lost productivity

[29]See Grinols, Mustard and Dilley (2000) for a complete review of this literature. Each of the following crimes has been alleged in the literature to be associated with gambling: Index I Violent Crime (Aggravated Assault, Robbery, Rape, Murder), Property Crime (Larceny, Burglary, Auto Theft), and non-Index I crime such as Embezzlement and Employee Theft, Loan Fraud, Insurance Fraud, Forgery (including check forgery), Tax Evasion, Tax Fraud, Con Games (Swindles, Hustling Cards, Dice or Other Games), Bookmaking, Working in an Illegal Game, Pimping, Prostitution, Selling Drugs, and Fencing Stolen Goods.

[30]Lesieur (1992), p. 45 and American Insurance Institute, cited in "Casinos in Florida" (1994), p. 67.

[31]National population data by age cohort are on the US Census Bureau website http://www.census.gov/population/estimates/nation/intfile2-1.txt. As of August 25, 2000 the US had a population of 275,130,000. 196,649,000 were aged 20 or older.

[32]See Table 2.

on the job, lost time and unemployment: sick days off for gambling, extended lunch hours, leaving early to gamble, and returning late after gambling. Problem and pathological gamblers often impose costs on their employers (in addition to theft or embezzlement discussed in the section on abused dollars below) in the form of an unreliable presence on the job and reduced productivity when present. Between 21 and 36 percent of problem gamblers in treatment reported losing a job because of their gambling (Lesieur (1998b)). Firing an employee imposes costs on the worker in terms of lost output during the period of unemployment and on the employer in terms of additional costs of hiring and training new employees. These costs are higher the greater the firm-specific human capital.

3. **BANKRUPTCY**: Lawsuits and legal costs, and bill collection costs, bill collector harassment are among the consequences of bankruptcy. Pathological gamblers often follow a predictable path of exhausting personal resources, selling insurance policies, selling possessions, and "borrowing" from family and friends. Their search for funds may lead them to acquire multiple credit cards that they use to the limit. Debts will be paid off, of course, when the individual wins big in his next gambling episode. Bankruptcy entails costs to creditors attempting to collect and costs to the legal system in court time and resources. SMR Research Corporation (1997, p. 118) indicated that these costs may be quite large, "We set out this year to interview many of the leading US experts on gambling, gambling addition, and the financial impacts of gambling. Their studies have suggested, fairly consistently, that more than 20 percent of compulsive gamblers has filed for bankruptcy as a result of their gambling losses."

4. **SUICIDE**: Lesieur (1992) concluded that problem and pathological gamblers have higher suicide rates than the general public.[33] Dozens of stories have been reported of gamblers killing themselves after losing at the casino, sometimes on the premises.[34] Consistent with this, Phillips, Welty and Smith (1997) found that deaths in Las Vegas were 2.5 times more likely to be a result of suicide than deaths in other comparably sized metropolitan areas. Visitors to Atlantic City and Reno were 1.75 and 1.5 times more likely to die in suicides than tourists to other non-gambling areas, and in Atlantic City the suicide rates did not become elevated until after casinos were introduced in 1978. McCleary et al. (1998), funded by the American Gaming Association, contested Phillips' findings. While we recognize the impact of casino gambling on suicide, the literature has not provided sufficiently reliable social cost estimates, and therefore we do not account for such costs in the table below.

5. **ILLNESS**: Among the forms of sickness associated with gambling or affected by it are depression, stress-related illness, chronic or severe headaches, anxiety, moodiness, irritability, intestinal disorders, asthma, cognitive distortions, and cardio-vascular disorders. Many sickness costs are borne by the gambler, but they also appear as resource costs when the gambler seeks treatment. Gambler-borne costs, even when not absorbing resources,

[33]See also Frank, Lester, and Wexler (1991).

[34]Representative of such cases is the following account, "A Florida man who lost about $50,000 while gambling here [Atlantic City] during the past two days died Tuesday after he jumped seven floors from a Trump Plaza Hotel and Casino roof onto Columbia Place, officials said." Brian Hickey, Staff Writer, 18 August 1999, South Jersey Publishing Co.

however, are tangible costs to the extent that the gambler would be willing to pay to eliminate the problem.

6. **SOCIAL SERVICE COSTS**: This category of costs includes therapy/treatment costs, unemployment and other social service costs (includes welfare and food stamps).

7. **GOVERNMENT DIRECT REGULATORY COSTS**: Social service and government direct regulatory costs are paid primarily through the government. The gambling industry has been regulated because it has historically been subject to fraud and abuse. Social service costs transfer resources from one segment of society to another, consuming resources in the process. If social costs include the financial burden placed on the nongambling society that would not be present in the absence of gambling, then these costs should be included for a complete assessment of the effects of gambling. Regulatory costs differ by state and depend on the type of casinos (i.e. riverboat, Indian reservation, etc.) and extent of the responsibilities of the regulatory agencies.

8. **FAMILY COSTS**: Families of problem and pathological gamblers bear gambling-related costs of divorce, separation, spousal abuse, and child neglect. Although these costs are nonpecuniary, they are nevertheless tangible and real. They can be quantified in terms of the amount of money an individual would be willing to pay to remove the problem. In practice, such costs are rarely measured. When social services become necessary, as when gambling leads to divorce proceedings, they represent resources lost to other uses in society and can be measured by the cost of the services provided.

9. **ABUSED DOLLARS**: The final category represents lost gambling money acquired from family, friends, or employers under false pretenses. Two examples are stealing that is never reported because the thief is a relative, and money "loaned" under duress that is never repaid. Abused dollars represent costs to the non-gambling population. To the extent that abused dollars represent purchases of gambling services that are inefficiently sub-optimal from the gambler's perspective or create market inefficiencies, a significant portion represents social costs to society as a whole even allowing for gains by the gambler or gambling sector.[35]

[35]The minimum social costs of this category are the value of the resources spent by those trying to steal and cover up their offenses and the value of the resources spent by potential victims to decrease their likelihood of being victimized. There may be another component of cost in addition, however. Social costs can be higher if the original owners of the property value it more than the offenders do. For example, if the owners valued their property at $1000 and the offenders who stole it sold it to someone who valued it at $300, there would be an additional social loss of $700. Furthermore, if the thief is a pathological gambler and spends the wrongly acquired $300 gambling, his expenditures may reflect addiction rather than rational choice. In that case there would be social cost equal to some or all of the $300 because of his sub-optimal allocation of resources to the gambling sector. Last, although there is some debate about whether to count stolen dollars as costs to all of society (which includes the thief) because "the thief gets the money," it is clear that the non-gambling portion of society will be made worse off by such actions, and losses to the rest of society are important in the policy debate because they suggest that all of the abused dollars represent social costs to the non-gambling sector.

B. Social Cost Estimates Tied Directly to P&P Gamblers

	MD	FL	WI	CT	SD	LA	US	SC	
	Politzer, Morrow, Leavey, 1981	Exec. Office of Gov, 1994	Thompson, Gazel, Rickman 1996	Thompson, Gazel, Rickman 1998	SD Leg. Research Council, 1998-99	Ryan, et al, 1999	Gerstein, et al. 1999	Thompson, Quinn, 1999	Row Averages for Studies 1994-99
CRIME									
Apprehension & Increased Police Costs			$ 44	$ 71	$ 1,000	$ 53		$ 116	$ 257
Adjudication (Criminal and Civil Justice Costs)	$ 1,788		$ 1,234	$ 994	$ 27	$ 649		$ 476	$ 676
Incarceration and Supervision Costs	$ 2,828	$ 15,221	$ 758	$ 889	$ 382	$ 690		$ 451	$ 3,065
BUSINESS AND EMPLOYMENT COSTS	$ 11,265								
Lost productivity on job								$ 1,082	$ 1,082
Lost Time & Unemployment			$ 2,717	$ 3,436		$ 5,936	$ 320	$ 2,156	$ 2,913
BANKRUPTCY			$ 515					$ 118	$ 316
SUICIDE									
ILLNESS							$ 700		$ 700
SOCIAL SERVICE COSTS									
Therapy/Treatment Costs			$ 437	$ 114	$ 75	$ 396	$ 30	$ 83	$ 189
Unemployment & Other Soc. Svc. (Incl. Welfare & Food Stamps)			$ 606	$ 971	$ 549	$ 60	$ 145	$ 318	$ 442
GOVERNMENT DIRECT REGULATORY COSTS									
FAMILY COSTS									
Divorce, Separation								$ 111	$ 111
ABUSED DOLLARS	$ 14,354		$ 3,802	$ 9,519	$ 240	$ 3,175		$ 2,436	$ 3,834
									$ 13,556

Table 2: Annual Social Costs per Pathological Gambler

Table 2 reports the results of all eight studies that contain original research that ties social costs directly to pathological gamblers.[36] The first two rows show the location studied and the author(s), respectively. The first column shows the category of costs, as outlined in the previous section. The studies are listed in order of date of publication. With the exception of the pathbreaking paper by Politzer, Morrow, and Leavey (1981), the studies were published between 1994 and 1999. The column totals range from a low of $1,195 (Gerstein et al., 1999) to a high of $30,235 (Politzer, Morrow and Leavey, 1981). Executive Office of the Governor (1994) is the highest post-1994 estimate. Because all studies omit some of the costs, these totals will understate the actual totals.

A large share of the differences in the totals is explained by differences in the number of cost components the studies estimated. Executive Office of the Governor (1994) estimated only crime costs in Florida, while Thompson and Quinn (1999) estimated ten components. The study with the lowest total cost (Gerstein, et al., 1999) estimated only four categories. No study estimated all the components.[37] By far, crime and abused dollars are the largest cost estimates. Gerstein

[36] Westphal et al. (1999) is not used in Table 2, but supplements Ryan et al. (1999). The South Dakota Research Council study was completed in 1998, but addenda were added in 1999.

[37] As an alternative way of showing that the differences in the totals are driven largely by the number of cost categories estimated, we compared the totals after "filling the gaps" in each study using the average cost for a given category from those studies that did estimate those particular costs. When doing so the variance in the totals decreased substantially. The lowest totals were for South Dakota Legislative Research Council (1998-99) and Thompson and Quinn (1999), $7396 and $8047, respectively. The largest

et al. (1999) is the only study that completely omits crime costs, and only Executive Office of the Governor (1994) and Gerstein et al. (1999) omit estimates of abused dollars. One important common characteristic of all but one of these studies is that they are not published in peer-reviewed journals. Executive Office of the Governor (1994), Ryan et al. (1999), Thompson and Quinn (1999) and South Dakota Legislative Research Council (1998-99) were either published by or prepared for state agencies. Thompson, Gazel, and Rickman (1996) was published by the Wisconsin Policy Research Institute. Politzer, Morrow and Leavey (1981) was presented at the Fifth National Conference on Gambling and Risk Taking, Gerstein et al. (1999) was presented to the National Gambling Impact Study Commission. Thompson, Gazel, and Rickman (1998) was presented at the Twelfth National Conference on Problem Gambling and later published in *Gaming Research & Review Journal.*

We used many strategies to ensure that the final estimates of costs per pathological gambler were lower bounds.[38] First, in calculating the average annual cost per pathological gambler by category (shown in the last column of Table 2 on the right) we omitted Politzer, Morrow, and Leavey (1981).[39] This study had the highest cost estimates, but was conducted at a different time and in a different gambling environment from the other studies. Second, costs for suicide and government regulation are omitted, because none of these studies estimated them. Third, we did not price adjust the estimates, but rather took the values as given by the authors. Last, many studies combined their estimates for pathological and problem gamblers. We treated the numbers as if the costs we report apply *only* to pathological gamblers. Because costs due to pathological gamblers are higher than costs due to problem gamblers, the estimates further underestimate the costs connected to pathological gamblers.

Table 2 shows that the total average social cost of eight studies is $13,586 per pathological gambler per year. If 1.5 percent of 196.65 million US adults were pathological gamblers, this would imply annual social costs of $40.1 billion or $204 per adult. If pathological gamblers are 1 percent of the population, the estimate reduces to $136 per adult.

Table 3 replicates Table 2 for problem gamblers. Only Gerstein et al. (1999) and South Dakota Legislative Research Council (1998-99) estimated any separate costs per problem gambler. These studies estimated only three of the many cost categories. The average annual cost per problem gambler by cost category is shown in the last column. For the same reasons discussed in analyzing the results for pathological gamblers, the Table 3 total cost estimate of $912 due to problem gamblers understates the actual cost.

Table 4 applies the information in Tables 2 and 3 to produce annual national social costs and social costs per adult. To test the robustness of these cost estimates, we use the 95 percent confidence bounds on the numbers of problem and pathological gamblers set by Shaffer, Hall and Vander Bilt (1997)[40] This confidence interval sets the fraction of pathological gamblers between .9 and 1.38 percent of the adult population, and the fraction of problem gamblers

were $25,742 by Executive Office of the Governor (1994) and $18,203 by Thompson, Gazel and Rickman (1998).

[38]In addition to our use of the numbers, some studies, such as Thompson, Gazel and Rickman (1998) intentionally formed their original estimates conservatively to understate costs.

[39]Including the nominal value of this study would increase the cost estimate for three of the four costs it estimates. Using the values adjusted for 19 years of price level changes would have significantly increased the estimates of all four costs.

[40]See Table 5, p. 34.

SOCIAL COSTS PER PROBLEM GAMBLER PER YEAR	US	SD	
	Gerstein, et al. 1999	S. Dakota, 1998-99	Row Averages: Studies 1994-99
CRIME			
Apprehension & Increased Police Costs			
Adjudication (Criminal and Civil Justice Costs)			
Incarceration and Supervision Costs			
BUSINESS AND EMPLOYMENT COSTS			
Lost productivity on job			
Lost Time & Unemployment	$ 200		$ 200
BANKRUPTCY			
SUICIDE			
ILLNESS			
SOCIAL SERVICE COSTS			
Therapy/Treatment Costs	$ 360		$ 360
Unemployment & Other Soc. Svc. (Incl. Welfare & Food Stamps)	$ 155	$ 549	$ 352
GOVERNMENT DIRECT REGULATORY COSTS			
FAMILY COSTS			
Divorce, Separation			
ABUSED DOLLARS			
			$ 912

Table 3: Annual Social Costs per Problem Gambler

between 1.95 and 3.65 percent of the adult population. Based on these lower and upper bounds, annual national social costs from problem and pathological gambling range from $27.5 billion to over $43 billion. On a per adult basis, the numbers range from a low of $140 to a high of $221. Because Shaffer, Hall and Vander Bilt (1997) estimated these confidence bounds based on samples of the nation before the time of publication including areas with different degrees of casino gambling they clearly understate the fractions of the entire US population that would be identified as pathological or problem gamblers if casinos were expanded fully. The costs of Table 4 therefore also understate the associated costs of full gambling expansion.

V. Implications for Future Research

This paper makes many contributions to the discussion of social costs and benefits of casino gaming, and has numerous implications for future research in this area. First, we provide the first theoretical justification of what should be included as costs and benefits. This justification is based on individual utility and distinguishes business and social profitability for industries with externalities. The lack of a clear theoretical basis has impaired the entire research agenda on this issue. Much research has examined relatively minor issues or issues that are not even part of a properly defined cost-benefit analysis. Conversely, there are relatively few estimates of some of the key components of social costs and benefits. Consequently, a well-grounded theoretical framework of costs and benefits will make future research more productive.

Second, using this theoretically grounded cost-benefit analysis we corrected several common conceptual mistakes prevalent in the casino and gambling literature. One example of a common

NATIONAL COST : BILLIONS of DOLLARS

Problem Rate	Pathological Rate: Low	Pathological Rate: High
High	$30.6	$43.4
Low	$27.5	$40.4

PER ADULT COST

Problem Rate	Pathological Rate: Low	Pathological Rate: High
High	$156	$221
Low	$140	$205

Pathological 95% Confidence Bound: LOWER	0.9000%
Pathological 95% Confidence Bound: UPPER	1.3800%
Problem 95% Confidence Bound: LOWER	1.9500%
Problem 95% Confidence Bound: UPPER	3.6500%

Table 4: National and Per Adult Social Costs

error is the focus on local rather than total social costs or benefits. On the benefits side, increases in local profits and taxes are often weighted heavily while losses in profits and taxes from geographically distant areas are weighted less or not at all. Similarly on the cost side, local crime is often weighted heavily while there is little discussion about whether crime was simply moved from other areas. Another error is the frequent use of the net export-multiplier modeling of jobs, an inappropriate method to determine social costs and benefits. Clearly identifying these errors will reduce them in future research.

Third, we used the theory to construct a clear taxonomy of benefits and costs as applied to the casino industry. To estimate these costs and benefits we reviewed the available studies that do original research on this topic. This literature shows that the extreme upper bound on annual total social benefits is $75 per adult. The lower bound for social costs, based on the estimates of costs associated with prevalence of problem and pathological gamblers, was between $140-$221 per adult. Consequently, the available research indicates that when using the highest estimates of benefits and the lowest estimates of costs, casino gambling fails a cost-benefit test by a ratio of 1.9 to one or greater.[41] Standard Pigouvian corrective theory for an industry with externalities is that it should be taxed by an amount equal to the costs that it imposes on society. Relative to the revenues for a representative casino of about $230 per adult each year from nearby residents, Pigouvian corrective taxes would represent between 61 and 96 percent of casino revenues.

Fourth, we showed that the available research indicates there is a lack of quality research on both the benefit and cost sides of the debate, and that there is an important need for better research. There is a need for more uniformity in the manner in which costs and benefits are treated. Peer-review-quality studies not funded by the casino industry or by pro- or anti-gambling groups are especially needed to refine and improve the cost-benefit numbers that are currently available. To further refine the cost-benefit analysis of casino gaming the following questions must be addressed.

1. **What is the effect of casinos on the number and gambling patterns of problem and pathological gamblers?** Because the social costs of the casino industry are generated primarily by problem and pathological gamblers, it is essential to know how

[41] Our higest estimate of benefits was $75; our lowest estimate of costs $140. Applying the per adult costs of $221 from Table 4 to the estimate of benefits adjusted for P&P gamblers of $34 implies that casino gambling fails a cost-benefit test by a ratio of 6.5 to one.

casinos affect problem and pathological gamblers. There is abundant evidence that increased gambling opportunities increase problem and pathological gambling. For example, the National Gambling Impact Study Commission reported that the presence of a casino within 50 miles roughly doubled the prevalence of problem and pathological gambling.[42] Other indicators include the tremendous increase in the numbers of gamblers seeking help when casinos enter a market, the increase in gamblers anonymous groups when gambling enters a state, and the evidence from survey data on the number of problem and pathological gamblers before and after casino expansion.

Casinos may also affect the amount of gambling habits of problem and pathological gamblers. An average adult is expected to lose two to three hundred dollars each year in casinos if they are nearby, while a typical pathological gambler often loses ten to twenty times this amount. Therefore, a small number of pathological gamblers accounts for a significant portion of casino revenues. A related issue is to determine the share of casino revenues derive from problem and pathological gamblers. Does this share differ by type of gambling? For example, lotteries receive a smaller portion of their revenues from P&P gamblers because lottery play attracts a larger portion of the population.

2. **How much does an additional active problem or an additional pathological gambler cost society?** This question is best addressed by studying problem and pathological gamblers directly. However, estimates derived from this sample may be biased because only a small fraction of P&P gamblers seek formal treatment. If those who seek help impose the greatest costs on society, our cost estimates of P&P gamblers would be overstated.

3. **What is the life cycle of a problem and pathological gambler?** For example, when casino gambling becomes available for the first time, what is the behavioral time profile for individuals who enter and leave the states of problem and pathological gambling? Do individuals begin with a period of increasing gambling dependence, move through a period of problem gambling, progress to pathological gambling, seek treatment (or withdraw unilaterally from the problem), and abstain thereafter? Or are there relapses and continued problems if treatment is not sought. This information could be used to predict how many currently active problem and pathological gamblers to expect for given population as a function of the availability of casino gambling.

4. **What effect do different types of treatment have on problem and pathological gambler?** Such information would help knowing how to efficiently allocate funding resources for treatment interventions.

5. **How can casino gambling be offered to minimize its social costs?** Quinn (2001) discusses many possible ways of offering casino gaming to reduce social costs. To evaluate the effectiveness of these interventions and their impact on casino benefits one would need to estimate the elasticity of both P&P and non- P&P gamblers to such actions.

6. **What are the net profit and tax benefits of increasing casino gambling?** Rather than estimating a true social benefit, many studies estimate only the gross increases in

[42]National Gambling Impact Study Commision (1996), p. 4-4.

profits or only weight the increased benefits to local firms while ignoring lost profits to other firms.

7. **What are the distance benefits of increasing casino gambling?** To date only one study examines this important question. Testing the robustness of this result will provide more insight into this understudied area.

Focusing future research questions and methodologies on a clearly formulated theoretical foundation will allow us to make our estimates of both the costs and benefits of casino gaming more precise.

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APPENDIX

"A Study of the Economic Impact of the Gaming Industry through 2005," by The Evans Group: A Partial Critique

International Game Technology (♠IGT), a manufacturer of computerized casino gaming products and video gaming machines, and operator of proprietary gaming systems, commissioned The Evans Group, an econometric consulting firm, to produce a study of the impact of the gambling industry in 1996. The September 9, 1996 press release for the resulting report entitled *A Study of the Economic Impact of the Gaming Industry through 2005* issued by ♠IGT reported,

> States and localities that permit casino gaming have improved their overall economic performance...The study...reports that **wherever casino gaming has been implemented, employment has risen, unemployment fallen**, and additional tax revenues have been generated. (Emphasis added.)

The Evans study describes impacts for individual states. We will briefly examine the findings related to Illinois, a state with which the authors are familiar. On page 4-3 the report states:

> Based on these data, **it would appear that the opening of a casino reduced the unemployment rate** in that county in both the year it was opened and in the following year. The average employment in these eight counties...implies a total of 37,000 extra jobs. These multiplier figures are much higher than ordinarily obtained, and employment in these counties might have risen for other reasons as well. Nonetheless, **the figures do indicate that casino gaming has been a boon to these counties**, especially those that are more rural. (Emphasis added.)

Most casinos opened after 1991. The period 1991-96 covered by the study, therefore, coincided with the nationwide economic expansion coming out of the recession of 1990-91. Employment was rising and unemployment was falling in many counties, with or without the introduction of casinos. The authors, therefore, were right to feel uneasy. Their caution that "employment in these counties might have risen for other reasons" shows they knew that simple before-and-after comparisons finding declining unemployment and increasing employment proved nothing about the effects of casinos in a country recovering from recession. Figure 1 reproduces Figure 4-1, provided in the original study. The authors explain that the observed drop in casino county unemployment rates exceeded the state average by .3 and .2 percentage points on average in the first and second year after introduction. The authors' conclusions are noted above. The rest of the story is provided below.

The study gives the impression that counties that opened casinos experienced better economic performance than those that did not. However, Illinois contains 102 counties. We can select other counties that had the same unemployment rate (within .1 percentage point) as the casino county in the inital period and compare their peformance directly. This is done in Figure 2. As shown there, the unemployment rate dropped in all counties with similar initial unemployment. Some counties did better than casino counties, some counties did worse. From left to right, bottom row to top, the casino counties are numbers 6, 1, 3, 3, 3, 7, 3. 19 counties performed better than their casino cousin, while 19 performed worse.

A statistical test confirms that the drop in unemployment of casino counties is statistically insignificantly different from the drop experienced by the comparable non-casino counties shown

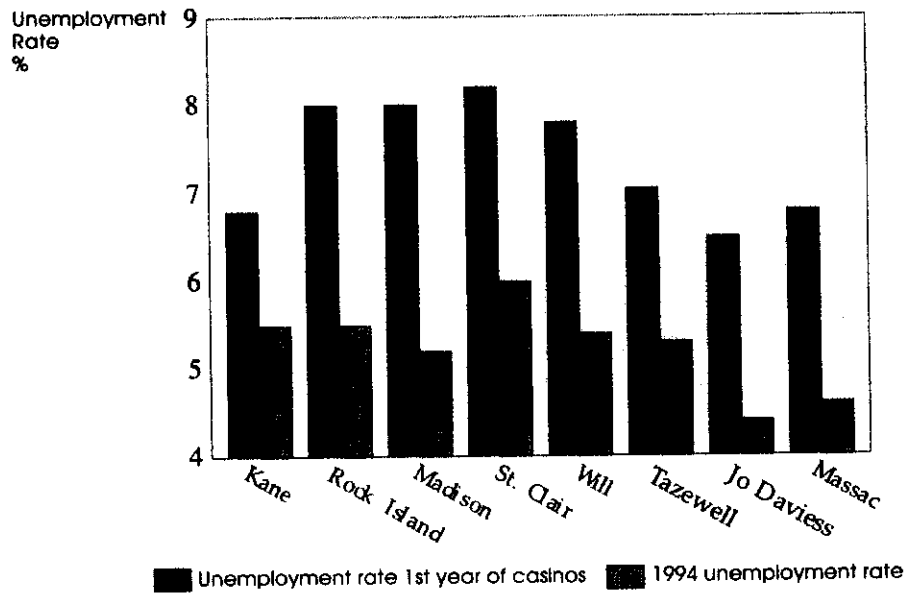


Figure 4-1. Unemployment Rate in Illinois Counties that have Casinos.

Figure 1: The Evans Group Study, Reproduced Figure 4-1.

in Figure 2. Let ΔU denote the change in county unemployment rate minus the change in state unemployment rate for the same period, and let $Casino$ identify counties that introduced casinos in the initial period ($Casino = 1$ if a county introduced a casino, 0 otherwise). Then running the following regression,

$$\Delta U = a + b\,Casino + \epsilon$$

reveals that coefficient b is 2.75 (consistent with the .2 and .3 percentage point differences reported by The Evans Group), but with a standard error of .856 implying a P-value of .4. Coefficient b is therefore statistically indistinguishable from 0 at conventional levels.

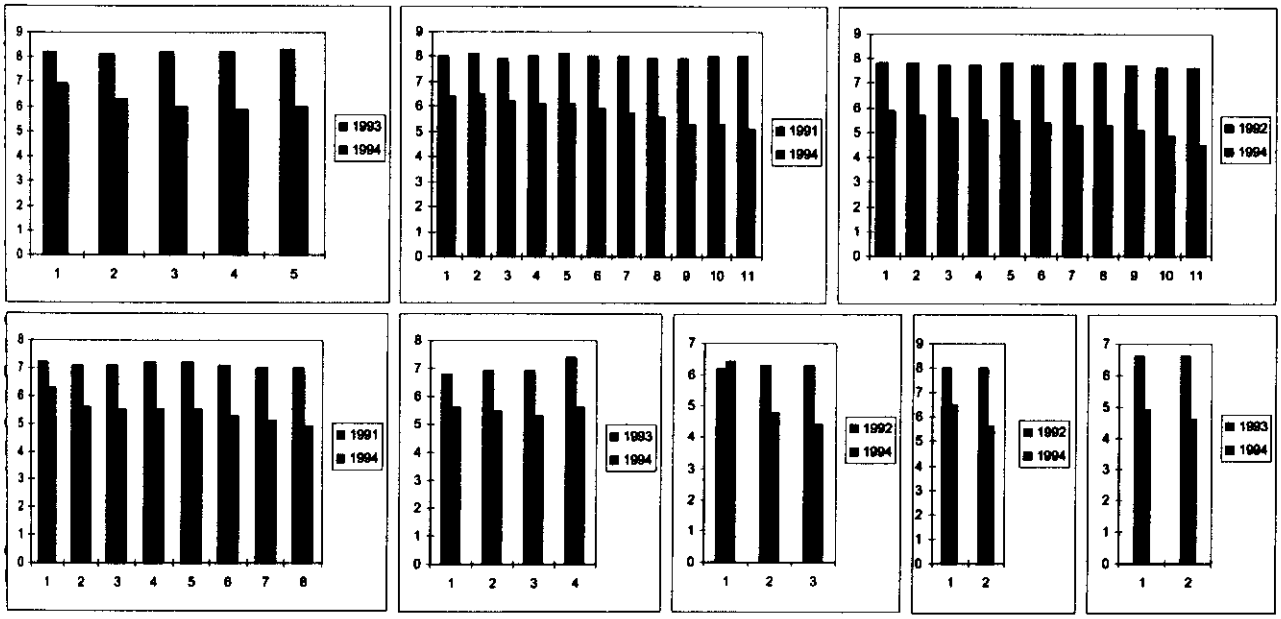


Figure 2: Casino Counties are Indistiguishable from Non-Casino Counties

CHAPTER 5

GAMBLING COSTS

INTRODUCTION

Gambling costs fall into two broad categories. The first category includes costs to the government, or governments, to regulate gambling. The second category (external costs) includes the costs to other people or entities in Louisiana – including governments, businesses, and citizens in the State – that result from the actions of gamblers, particularly problem gamblers. The first category is relatively easy to quantify and measure. The second category is much more difficult to quantify, so it will be explored more fully.

REGULATORY COSTS

This section presents the costs of regulating and policing the gambling industry. In Louisiana, gambling is regulated at the state level. There are direct costs to establish and run the Louisiana Gaming Control Board and the other agencies that regulate the industry. Additionally, the Louisiana State Police and the Louisiana Attorney General's office are involved in the regulation and policing of the gambling industry.

Table 5-1 presents the direct regulatory costs of the gambling industry in Louisiana as reported by the various agencies.

The costs of regulating, policing and, in the case of the lottery, running the game, amounted to $50.02 million in 1998. These costs must be offset against government revenue that is collected from the gambling industry.

TABLE 5-1
1998 STATE REGULATORY COSTS
(IN MILLIONS)

Agency	Costs
State Police	$19.80
Attorney General's Office	3.51
Racing Commission	5.84
Louisiana Lottery Corporation[1]	19.38
Louisiana Gaming Control Board	1.49
TOTAL	**$50.02**

Source: Various State Agencies

[1] Since the Louisiana Lottery Corporation actually runs the Louisiana Lottery, the costs include the administrative costs of running the lottery instead of regulatory costs that would be incurred if the lottery were run by a private company.

EXTERNAL COSTS

This section presents the external costs that result from gambling in the State. Those costs include the following components:

1. Increased crime and related costs such as police and other criminal justice system expenditures that are a result of gambling activity, especially problem gambling activity.

2. Increased personal and small business bankruptcies and related personal and government costs that result from gambling.

3. Increased costs to business due to employee theft, employee absenteeism and reduction in worker productivity that result from gambling.

4. Increased social costs that result from gambling. Social costs could include family problems, personal depression, and suicide.

People with gambling disorders can develop considerable gambling related debts, commit crimes to obtain money to gamble or pay gambling debts, default on debts, lose productivity at work, and develop other medical and psychological disorders secondary to the stress of their gambling-related financial problems. Although the majority of these behaviors cause suffering principally for the gambler and their immediate family, some of

these behaviors will result in financial burdens to the general public. Costs that people with gambling disorders cause others in society, who are not directly impacted by the gambler's behavior, are defined as external costs. At present, researchers can only estimate the external costs of people with gambling disorders. With the exception of some prison costs, this study will only estimate the social costs of adults aged 18 and over with gambling disorders. (An estimate for underage gambling social costs is included in Appendix E.)

Before proceeding, some important definitions are presented to facilitate the understanding of this section:

Disordered Gambling:	Gambling that results in life problems either mild or severe, both Levels 2 and 3 gambling.
Level 1 Gambling:	Social or recreational gambling without significant life problems.
Level 2 Gambling:	Gambling that results in moderate personal or social consequences.
Level 3 Gambling:	Gambling behavior that results in multiple serious life problems consistent with a DSM-IV diagnosis of pathological gambling.
Level 4 Gambling:	Gambling behavior that results in life problems serious enough to cause the person to seek assistance by professional treatment or through self- help groups such as GA (Gambler's Anonymous) or other treatment.
Prevalence:	The percentage of a population that is affected by a phenomenon at a given time.

Pathological Gambling: Pathological gambling is the most severe form of gambling disorder and was first defined in the Diagnostic and Statistical Manual, Version III by the American Psychiatric Association in 1990. An individual who fulfills 5 out of the following 10 diagnostic criteria is diagnosed as a pathological gambler: (1) preoccupation with gambling; (2) a need to increase the excitement produced by gambling; (3) restlessness or irritability when unable to gamble; (4) repeated unsuccessful efforts to control, cut back, or stop gambling; (5) gambling in an effort to get back money lost during gambling on a previous day; (6) gambling in an effort to escape a dysphoric mood; (7) lying to cover up gambling; (8) jeopardizing a significant job, relationship, or educational opportunity by gambling; (9) engaging in illegal activity to finance gambling; and (10) going to someone else to relieve a desperate financial situation produced by gambling similar to dependence on a drug or alcohol.

Problem Gambling: Problem gambling is a milder version of a gambling disorder which is not defined by the American Psychiatric Association, but could be considered to be similar to the abuse of alcohol or a drug. Problem gamblers would satisfy only two, three, or four of the 10 diagnostic criteria. Researchers are currently investigating whether there should be a cutoff point for problem gambling, as there is for pathological gambling. This article will use the term "problem gambling" to refer to the less serious condition.

GAMBLING PREVALENCE STUDY

A gambling prevalence study was conducted to determine the extent of gambling by Louisiana residents and the percentage of the population estimated to be non-problem, problem, and probable pathological (pathological) gamblers. This study contained a replication of a 1995 prevalence study conducted in Louisiana and included the South Oaks Gambling Screen (SOGS). (See Appendix D for a complete report on the 1998 prevalence analysis and a comparison to the 1995 study.) The SOGS has been used in all major gambling prevalence studies in the past 15 years. The series of questions that make up the SOGS are designed to determine the level of any gambling problem that

may exist and measure problem gambling prevalence. Prevalence rates are based on the proportion of respondents who score on increasing numbers of items that make up the lifetime and current (or past year) scale of the SOGS. In addition to the SOGS, the 1998 prevalence study uses the Fisher screen to determine problem and pathological gambling behavior according to the DSM-IV criteria. DSM-IV is the currently accepted problem gambling measure used by the American Psychiatric Association (see Appendix D for a discussion of the Fisher screen results).

Table 5-2 presents information about the proportion of respondents who score on an increasing number of items on the lifetime and current SOGS. Table 5-2 also summarizes the prevalence of lifetime and current problem and probable pathological gambling based on established criteria for discriminating between respondents without gambling-related difficulties and those with moderate to severe problems.

According to the most recent population estimates from the United States Bureau of the Census (1999), the population of Louisiana in 1997 was 4,368,967 and 72.6% of these individuals were aged 18 and over. Based on these figures, we estimate that between 79,300 (2.5%) and 130,000 (4.1%) Louisiana residents aged 18 and over can be classified as lifetime problem gamblers. In addition, we estimate that between 57,100 (1.8%) and 101,500 (3.2%) Louisiana residents aged 18 and over can be classified as lifetime probable pathological gamblers.

Based on current prevalence rates and confidence intervals as well as census information, we estimate that between 50,700 (1.6%) and 95,100 (3.0%) Louisiana residents aged 18 and over can be classified as current problem gamblers. In addition, we estimate that between 31,700 (1.0%) and 69,800 (2.2%) Louisiana residents aged 18 and over can be classified as current probable pathological gamblers.

TABLE 5-2
SCORES ON LIFETIME AND CURRENT SOGS ITEMS

Number of Items	Lifetime (N=1800)	Past Year (N=1800)
Non-Gamblers (Level 0)	**30.2%**	**38.5%**
Non-Problem Gamblers (Level 1)	**63.9%**	**57.5%**
0	46.2	46.4
1	13.1	8.3
2	4.6	2.8
Problem (Level 2)	**3.3%**	**2.3%**
3	2.2	1.7
4	1.1	0.6
Probable Pathological (Level 3)	**2.5%**	**1.6%**
5	0.7	0.6
6	0.5	0.3
7	0.2	0.1
8 or more	1.1	0.6
Combined Problem/ProbPath	**5.8%**	**3.9%**

Source: Louisiana Gambling Prevalence Study, 1998

For the purposes of estimation of external costs, point estimates are used in the analyses. The point estimates used are 5.8% (lifetime) and 3.9% (current or past year) combined problem and probable pathological gamblers in Louisiana.

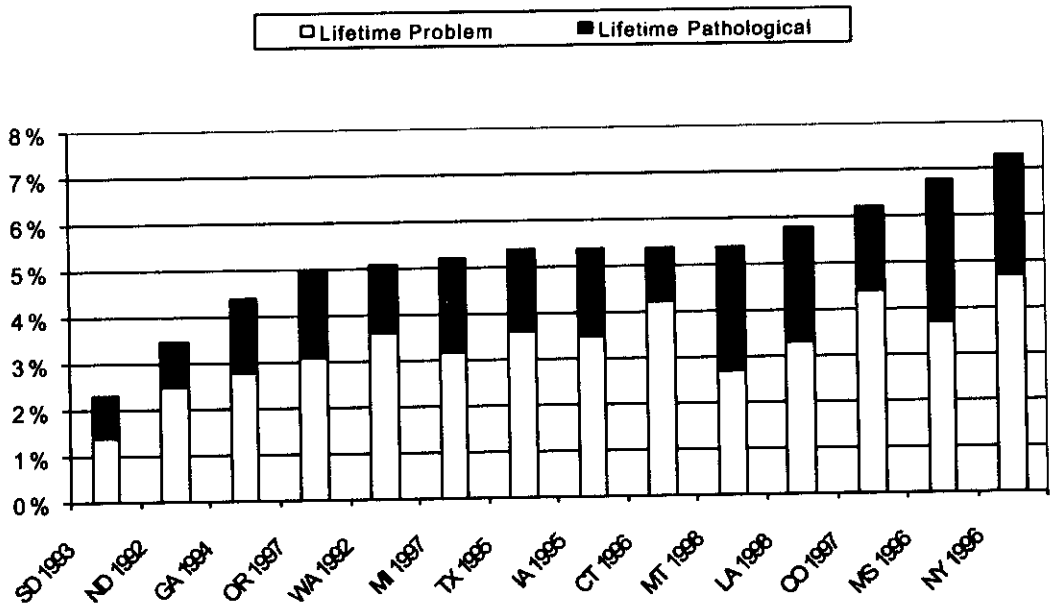
As in other jurisdictions, lifetime and current prevalence rates are significantly different among sub-groups in the population (see Appendix D). Substantial differences in lifetime and current prevalence rates by age, ethnicity, marital status, education and employment status were found.

Comparing Louisiana's prevalence figures with those of other states in the U. S. helps to put Louisiana's prevalence rates into perspective. The jurisdictions where problem gambling surveys have been done in the United States differ substantially in the types of

gambling available, in levels of gambling participation and in the demographic characteristics of the general population. Figure 5-1 shows prevalence rates of lifetime problem and probable pathological gambling in all of the United States jurisdictions where surveys based on the South Oaks Gambling Screen have been completed since 1990 and where prevalence rates have been calculated in a comparable manner. In states where replication surveys have been completed, the most recent prevalence rates are shown.

FIGURE 5-1

LIFETIME PREVALENCE RATES IN THE UNITED STATES

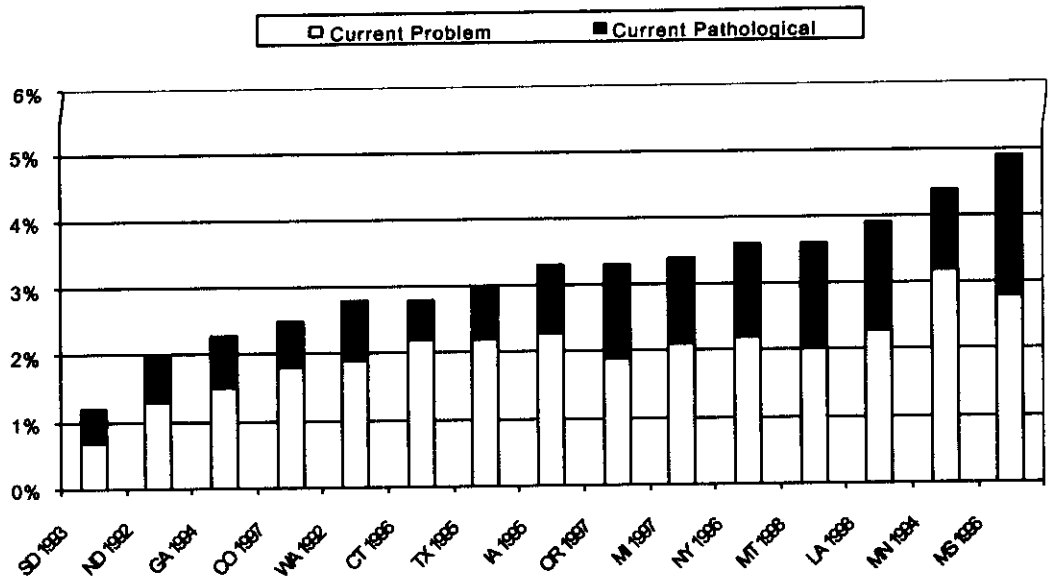


Source: Louisiana Gambling Prevalence Study, 1998

Figure 5-1 shows that the lifetime prevalence rate of problem and probable pathological gambling in Louisiana is higher than lifetime rates in other states where surveys have been carried out except New York, Mississippi and Colorado. Among Southern states, lifetime prevalence rates are higher in Mississippi and Louisiana than in Georgia and Texas.

Figure 5-2 shows prevalence rates of current problem and probable pathological gambling in all of the United States jurisdictions where surveys based on the South Oaks Gambling Screen have been completed since 1990 and where prevalence rates have been calculated in a comparable manner. Again, in states where replication surveys have been completed, the most recent prevalence rates are shown. Figure 5-2 shows that the current prevalence rates of problem and probable pathological gambling in Louisiana are higher than current prevalence rates in most other states where prevalence surveys have been conducted, with the exception of Minnesota and Mississippi.

FIGURE 5-2
CURRENT PREVALENCE RATES IN THE UNITED STATES



Source: Louisiana Gambling Prevalence Study, 1998

In considering these data, it is worth noting that the prevalence of current probable pathological gambling (the black portion of each bar) is higher in Louisiana than in Minnesota. Instead, the prevalence of current probable pathological gambling in Louisiana is equal to Montana and Oregon, where electronic gambling devices are

widespread. However, the prevalence of current probable pathological gambling in these states is higher in Mississippi than in all other states where similar surveys have been carried out.

We also compare the prevalence rates in Louisiana with national and international prevalence rates. A recent meta-analysis of studies in North America presented prevalence rates for several different population groups based on the South Oaks Gambling Screen. Table 5-3 compares prevalence rates from the Louisiana survey with the North American prevalence rates in the meta-analysis as well as with a recent national survey in Sweden (Volberg & Moore 1999).

TABLE 5-3
COMPARING PREVALENCE RATES INTERNATIONALLY

	Louisiana 1998	North America[1]	Sweden 1997
Lifetime Problem	3.3	3.4	2.7
Lifetime Probable Pathological	2.5	1.7	1.2
Current Problem	2.3	2.2	1.4
Current Probable Pathological	1.6	1.1	0.6

Source: Louisiana Gambling Prevalence Study, 1998

[1] From Shaffer, Hall & Vander Bilt (1997: 38). Includes Louisiana 1995. Lifetime and Current Problem groups are based on SOGS scores of 1 to 4 points.

Table 5-3 shows that the lifetime and current prevalence rates of **problem** gambling in Louisiana in 1998 are similar to problem gambling rates averaged over approximately 30 studies in North America between 1986 and 1996. The lifetime and current prevalence rates of **probable pathological** gambling in Louisiana in 1998 are somewhat higher than the lifetime and current prevalence rates averaged over North America. All of the prevalence rates in Louisiana in 1998 are substantially higher than

the prevalence rates identified recently in Sweden, a country where gambling participation is extremely high but where legal gambling is comprised largely of non-continuous activities, such as large jackpot lottery games and a weekly televised bingo game.

SOCIAL/EXTERNAL COST ESTIMATION

The research team used a five-step process to estimate these external costs. The first step calculated the average social costs per year of a person in treatment in Louisiana for a gambling disorder based on a survey completed by volunteers in Louisiana Gambler's Anonymous (GA) or in current treatment for gambling problems. The second step used standard and other quantitative measures of gambling behavior to estimate how closely the people with gambling problems identified in the 1998 prevalence study of the Louisiana adult population resembled the GA/Treatment sample. The third step estimated the social cost of gambling disorders for the 1998 prevalence study survey sample using a proportionate model of social costs for community samples. The fourth step extrapolated the prevalence study sample's social costs to the entire adult population of Louisiana for 1998. The fifth step used results from the 1995 and 1998 Louisiana gambling disorder prevalence surveys to estimate the proportion of revenues that each form of legalized gaming derived from people with gambling disorders.

There are two important points that must be made to fully understand the costs of gambling. First, there are many societal costs that are impossible to quantify. Unquantifiable, or unmeasurable, costs could include family problems, depression, and the like. These costs are important and should be considered in any benefit/cost analysis but they are not quantifiable and, therefore, cannot be compared directly to the dollar benefits identified in Chapter 4. Second, there is a timing problem in identifying these

costs. It may take quite a few years before some costs are transformed from costs to the individual alone to costs to society. Consider the following example – a relatively affluent individual with a substantial gambling problem is losing thousands of dollars a year gambling. Initially, the person may withdraw money from savings, borrow on credit cards or other sources, or not purchase other things. At this point, all of the costs of the person's gambling problem are internal and not considered as part of the benefit/cost analysis. Eventually, if the pattern continues, past savings will be gone, credit card debt will be at the limit, and necessary purchases will be affected. At that point, the individual may turn to other kinds of behavior to support his or her gambling losses. These behaviors may include personal bankruptcy, embezzlement, and theft. When this happens, the costs become social and should be counted in the benefit/cost analysis.

METHODOLOGY

The first step of the process of calculating the social costs of gambling used the Thompson and Gazel's gambling disorder social cost model. This method was also used in other studies of the social costs of gambling, such as those done for Wisconsin and Connecticut. The research team produced a GA/Treatment survey similar to surveys used in previous social cost studies. (See Appendix E for a copy of the GA/Treatment survey.) In January 1999, Reece Middleton, the Executive Director of the Louisiana Council on Compulsive Gambling, distributed the survey to GA meetings statewide and all sites of state-financed outpatient gambling treatment. The GA/Treatment survey included the SOGS. Also included were demographic questions similar to the telephone survey demographic questions and other social cost questions (developed by the Louisiana State University Medical Center at Shreveport, Gambling Studies Unit in a previous study of

gambling behavior in Indiana). Seventy-eight completed surveys were returned in time for the current analysis.

Social costs were calculated in nine categories: 1) work productivity losses from missed or impaired work, 2) unemployment compensation, 3) unemployment productivity losses, 4) bad debt, 5) theft, 6) civil court procedure (including bankruptcy), 7) criminal justice, 8) welfare, and 9) treatment. The specific calculations used for each category to determine the cost per year per Louisiana Level 4 gambler are described below:

Lost Productivity Costs. Only employed respondent data were used in lost productivity calculations.

Full-time workers reported the number of days missed from work per month because of their gambling. The total days missed per month was converted to hours per year and multiplied by the average United States hourly wage for 1997, determined from the Statistical Abstract of the United States 1997. This figure was divided by the number of total respondents.

Part-time workers reported the number of days missed from work per month because of their gambling. The total days missed per month was adjusted for part-time work and converted to hours per year. This figure was multiplied by the average United States hourly wage for 1997 and then divided by the number of total respondents.

Full-time workers also reported days per month of decreased productivity due to gambling. The maximum number for any one person was held at 21 days per work month since many people reported productivity losses for weekends. The number of hours per day for part-time workers were also adjusted to reflect part-time work. This number was adjusted by 50% to derive at a decreased productivity day total. This was converted to hours per year and multiplied by the average United States hourly wage for 1997. This figure was divided by the number of total respondents.

Part-time workers also reported days per month of decreased productivity due to gambling. The maximum number for any one person was held at 21 days per work month since many people reported productivity losses for weekends. The number of hours per day were also adjusted to reflect part-time work. This number was then adjusted by 50% to derive at a decreased productivity day total. This was converted to hours per year and multiplied by the average United States hourly wage for 1997. This figure was divided by the number of total respondents.

Unemployment Costs. Respondents reported the number of months of unemployment compensation received due to gambling problems over their lifetime. This was multiplied by the average Louisiana monthly unemployment compensation as determined from the U. S. Statistical Abstract. This figure was divided by the disordered gambling person years, which is the number of respondents times the median gambling career length. The median gambling career length is the number of years that people in the sample reported having gambling problems. This was calculated by subtracting the age at which the individual experienced problems as a result of gambling from the age the individual began treatment or started attending Gamblers Anonymous meetings.

Productivity Losses From Unemployment Costs. The total months of unemployment due to gambling reported by all respondents was multiplied by the average United States hourly wage. This figure was divided by the disordered gambling person years.

Bad Debts Costs. The total amount of bad debts respondents reported that they did not repay because of their gambling was divided by the disordered gambling person years.

Theft Costs. The total amount of thefts respondents reported that they did not repay because of their gambling was divided by the disordered gambling person years.

Civil Court Procedure Costs. Previous studies estimated that each court case cost society $3,750. This cost represents cost of public counsel (many gamblers will not have funds and, therefore, require public counsel), costs of judicial and other court personnel salaries, and court facilities. The total number of bankruptcy cases and other civil cases reported by respondents was multiplied by $3,750 per case and totaled. This figure was divided by the disordered gambling person years.

Criminal Justice Costs. The respondents reported gambling related criminal arrests, trials, and months of probation. Previous studies have used $500 per arrest, $3,750 per trial, and $2,800 per year of probation. The total costs in each category were calculated and divided by the disordered gambling person years. Incarceration costs were separately determined.

Welfare Costs. The respondents reported number of months of welfare resulting from their gambling problems. Previous studies used $460 per month for welfare costs. The total for the year was calculated by multiplying the total months reported times $460 per month. This figure was divided by the disordered gambling person years.

Treatment Costs. The respondents reported costs of outpatient and inpatient treatment for gambling problems. The total costs for both types of treatment were summed and divided by the disordered gambling person years.

RESULTS

The annual societal costs of one Level 4 problem gambler in Louisiana are summarized in Table 5-4.

TABLE 5-4
A SUMMARY OF THE ANNUAL SOCIETAL
COSTS OF ONE LEVEL 4 PROBLEM GAMBLER IN LOUISIANA

Category	Costs
Employment Costs	**$5,968**
a. lost work hours (employed only)	5,809
b. unemployment compensation	33
c. lost productivity/unemployment	127
Bad Debts	**1,246**
Thefts	**1,929**
Civil Court Costs	**457**
Criminal Justice Costs	**935**
a. costs of arrests	53
b. costs of trials	192
c. costs of probation	157
d. costs of incarceration	533[1]
Welfare Costs	**27**
Treatment	**396**
Total Annual Social Costs	**$10,958**

Source: Louisiana GA/Treatment Study, 1998 and Agencies (Appendix E)
[1] See Estimation of 1998 Louisiana Incarceration Costs of Gambling Disorders (page 91).

The second step involved determining the social cost of gambling disorders in the prevalence survey sample. Over 200 respondents of the original 1,800 adults called in the 1998 prevalence survey to determine the prevalence of gambling disorders in Louisiana were recalled and asked 20 additional questions on gambling-related behavior. This group is referred to as the "panel-back" survey. (See Appendix E for the panel-back survey questions.) The panel-back survey was developed to determine the degree of similarity between the Level 2 and Level 3 gamblers found in the telephone survey and the Level 4 gamblers surveyed in the GA/Treatment sample. If the two groups of

gamblers are similar in their gambling behavior, then the average social costs of the GA/Treatment sample can be extrapolated to the Level 2 and 3 gamblers found in the population of the telephone survey to determine the statewide social costs of gambling disorders.

However, if the two samples are very dissimilar, then only a proportion of the social costs found in the GA/Treatment sample can be extrapolated to the Level 2 and 3 gamblers found in the population. The two groups were compared using SOGS scores and the quantitative measures of gambling used in the panel-back survey. The panel-back questionnaire included average amounts of time and money spent gambling, average gambling debt, average number of days missed from work and average number of days of reduced productivity at work, and total number of arrests and times sued related to gambling activities.

The GA/Treatment sample and the disordered gamblers identified in the prevalence study **were not identical** in SOGS scores or other quantitative measures of gambling behavior (see Appendix E). Consistently, the Level 4 gamblers in the GA sample were more severe in SOGS scores and other measures of gambling behavior. Thus, the data do not support directly extrapolating the Level 4 gambler's social costs to the disordered gamblers identified in the telephone survey.

An alternative method would be to attribute **proportions** of the Level 4 gambler's (GA/Treatment sample gamblers) social cost to the disordered gamblers (Level 2 and 3 gamblers in the panel-back sample). The only social cost that the Level 2 gamblers in the panel-back survey acknowledged was impaired productivity. The social costs of gambling debt and more severe loss of productivity were acknowledged by the Level 3 gamblers in the panel-back sample.

Therefore, we developed a two-step model for attributing Level 4 gambling annualized social costs to the telephone prevalence survey sample using two components, lost productivity cost and other social costs. The first step is to calculate the lost productivity cost, which is the only **past year cost** measured by the GA/Treatment survey (see Table 5-5). This cost is attributed to the disordered gamblers (**current** problem and probable pathological) in the telephone prevalence survey sample by multiplying a Productivity Graduated Multiplier (the proportion of their past year SOGS score to the average SOGS score (13.8) of the GA/Treatment sample) times the average productivity cost per Level 4 gambler. The total cost per person is then extrapolated to the adult population of Louisiana of 3,171,870 (age eighteen and older) to yield a total lost productivity cost statewide for each SOGS score.

The second step is to calculate the other social costs (the **annualized lifetime costs**). These costs are attributed to the disordered gamblers (**lifetime** problem and probable pathological) in the telephone prevalence survey sample by multiplying a Graduated Multiplier times the average lifetime productivity and societal costs per Level 4 gambler (see Table 5-6). These costs were summed to produce the total cost per person for each SOGS score. The total cost per person is then extrapolated to the adult population to yield a total cost statewide.

The 1998 productivity and annualized lifetime costs were summed to provide the 1998 total statewide social cost estimate of $485.64 million – $254.60 million in annual productivity lost (see Table 5-5) and $231.04 million in annualized social costs (see Table 5-6).

TABLE 5-5

PRODUCTIVITY COSTS OF GAMBLING STATEWIDE

SOGS Score	Number of Disordered Gamblers	Productivity Graduated Multiplier	Total Costs Per Person	Costs (in millions)
3	31	22%	$1,260.02	$68.83
4	11	29%	1,680.03	32.57
5	11	36%	2,100.04	40.71
6	6	43%	2,520.05	26.64
7	2	51%	2,940.05	10.36
8	5	58%	3,360.06	29.60
9	0	65%	3,780.07	–
10	1	72%	4,200.08	7.40
11	0	80%	4,620.09	0
12	2	87%	5,040.09	17.76
13	1	94%	5,460.10	9.62
14	0	101%	5,880.11	–
15	1	108%	6,300.12	11.10
Total	**71**		**$49,140.91**	**$254.60**

Source: Louisiana Prevalence Study, 1998, GA/Treatment Study, 1998, and Table 5-4

TABLE 5-6

ANNUALIZED LIFETIME SOCIAL COSTS OF GAMBLING STATEWIDE

SOGS Score	Number of Disordered Gamblers	Graduated Multiplier	Productivity Costs Per Person	Societal Costs Per Person	Total Costs (in millions)
3	41	21.7%	$34.58	NA	$2.50
4	19	28.9%	46.11	NA	1.54
5	13	36.2%	57.63	$1,803.93	42.64
6	9	43.4%	69.16	2,164.71	35.43
7	4	50.6%	80.69	2,525.50	18.37
8	7	57.8%	92.21	2,886.29	36.74
9	3	65.1%	103.74	3,247.07	17.71
10	1	72.3%	115.27	3,607.86	6.56
11	0	79.5%	126.79	3,968.64	–
12	3	86.8%	138.32	4,329.43	23.62
13	2	94.0%	149.84	4,690.21	17.06
14	1	101.2%	161.37	5,051.00	9.19
15	2	108.5%	172.90	5,411.79	19.68
Total	**105**		**$1,348.60**	**$39,686.43**	**$231.04**

Source: Louisiana Prevalence Study, 1998, GA/Treatment Study, 1998, and Table 5-4

ESTIMATION OF 1998 LOUISIANA INCARCERATION COSTS OF GAMBLING DISORDERS

Community samples such as the one used in this study, by definition, exclude members of the population in inpatient treatment, detention, or prisons. The social costs estimate in the present study captures social cost information from those in treatment and from those in the community. Absent from that estimation was a very important constituent of social costs due to gambling – those individuals whose gambling activities have led to their arrest, court conviction, and incarceration.

Gambling disorders and crime are closely associated. Researchers surveying Gamblers Anonymous or gambling-disorder-treatment populations find a significant proportion of gamblers who acknowledge criminal activity as a means to finance their

gambling. Researchers surveying prison populations find a significant portion of prisoners report symptoms consistent with gambling disorders. The GA/Treatment sample used in this study produced a very low estimate of incarceration costs – the low costs of incarceration obtained from the social cost estimate of the GA/Treatment populations may occur because gamblers whose criminal activities have led to their arrests and court convictions are currently incarcerated and are, therefore, not a part of the sample.

Therefore, a separate analysis was developed to estimate incarceration costs of gambling disorders in Louisiana in 1998. A study was performed in an adult prison in Louisiana in 1996. Survey questions in the study asked whether the current arrest was due to a gambling-related crime. Gambling-related crime includes gambling offenses and crime to obtain money to finance gambling activity or to repay a gambling-related debt. The study's results indicated that 10% of adult non-violent crimes committed by those in prison was gambling related.

Incarceration costs were calculated using the equation shown in Table 5-7. First, the Louisiana 1998 daily cost of one adult residing in prison is multiplied by the total days spent in 1998 in Louisiana adult prisons by non-violent offenders. This number is multiplied by the percentage of adult non-violent population in prison for gambling-related crime to yield the total 1998 cost of gambling-related adult incarceration. The same formula is also used to determine the costs for the Louisiana Technical Institute, a facility for non-violent juvenile offenders. The other social costs in this study were only estimated for people 18 years old and older due to the difficulty of surveying juveniles via a telephone survey. Since the incarceration costs are available through the use of a different methodology, they were included in the analysis.

TABLE 5-7
INCARCERATION COSTS

	Cost per Day		Total person Days		Percent Gambling-Related Crime		Total Cost
Adult Prison	$35.86	X	4,954,348	X	10.00%	=	$17,766,292
LTI[1]	$71.86	X	669,752	X	11.6%	=	$5,586,000
Total						=	$23,352,292

Source: Department of Public Safety and Corrections and Authors' Calculations
[1] Louisiana Technical Institute is a program for nonviolent juvenile offenders.

This estimate is conservative, because it is restricted to average costs of incarceration only. If these people were not in prison, we would expect that a significant portion would be in full- or part-time employment. Incarceration implies an additional social cost of lost productivity. Also, the incarceration estimate does not reflect the impact of their imprisonment on their families and possible increased dependence by family members on social services.

COMPARISONS TO OTHER STATES

Previous studies have collected data almost exclusively from Caucasian males, consistent with the historical evidence that Level 3 gambling behavior is highly associated with males. This study's data are almost equally split between males and females, more consistent with contemporary nationaland Louisiana studies that find an increasing female prevalence of gambling disorders. This study's female data coupled with our findings that female gambling careers are different and their social costs are higher and different than their male counterparts makes this study unique.

However, we will discuss our findings in comparison to previous studies to provide context. Table 5-8 provides a comparison of the Louisiana GA/Treatment sample results to data available from Connecticut and Wisconsin studies on gambling debt levels and careers (see Appendix E for full references to these studies). Data from previous studies have found that female gamblers have less debt, shorter career lengths, and begin gambling at a later age than their male counterparts. These findings are consistent with the Louisiana data.

The average Louisiana Level 4 gambler, based on our sample, starts his/her gambling, participates in weekly gambling, and experiences borrowing and disordered gambling later than the Wisconsin and Connecticut samples. In addition, the Louisiana gambler has less treatment time and lower lifetime gambling debt than the other states. This is, in all probability, due to the recent addition of many forms of gambling to the Louisiana economy. The Louisiana gambler is older, has a longer length of disordered gambling, and more gambling debt the year before entering treatment than Wisconsin but is younger, has less gambling debt the year before treatment, and a shorter duration of disordered gambling than Connecticut.

TABLE 5-8

COMPARISONS FOR MEDIAN GAMBLING CAREER HALLMARKS FOR WISCONSIN, CONNECTICUT, AND LOUISIANA

Characteristic	Wisconsin (Median)	Connecticut (Median)	Louisiana (Median)
Age Gambling Began	20	16	25
Age Weekly Gambling Began	31	21	34
Age First Borrowed to Gamble	33	27	38
Age Gambling Problems Began	35.5	29	37
Length of Disordered gambling	3 years	9 years	4 years
Time in GA	1.45 years	2 years	.375 year
Age Now	43	47	44
Lifetime Gambling-Related Loss	$45,000	$82,500	$37,500
Year before GA Loss	$12,000	$20,000	$17,500

Source: Louisiana GA/Treatment Study, 1998 and Connecticut and Wisconsin Studies (see Appendix E)

A comparison of Louisiana's social cost components with Connecticut's and Wisconsin's is presented in Table 5-9. The Louisiana social costs per year are between the Wisconsin and Connecticut results. A previous study found common patterns in Wisconsin and Connecticut social costs with over four-fifths of the variation in costs represented by more theft and bad debts in Connecticut. The Connecticut study's predominantly male respondents had longer gambling careers and greater indebtedness than their male counterparts in Wisconsin, which may explain their heavier reliance on non-personal financial sources to sustain their gambling activity. Louisiana's social costs fit the Wisconsin pattern with significantly less theft and bad debt compared to the Connecticut respondents, and lower arrest, trial, and probation costs than Connecticut.

TABLE 5-9
A SUMMARY OF THE ANNUAL SOCIETAL
COSTS OF ONE LEVEL 4 PROBLEM GAMBLER

Costs	Connecticut	Wisconsin	Louisiana
Employment Costs			
a. lost work hours	$1,770	$1,329	$5,809
b. unemployment compensation	488	488	33
c. lost productivity/unemployment	1,666	1,666	127
Bad Debts	2,300	1,487	1,246
Thefts	7,219	1733	1,929
Civil Court Costs	536	535	457
Criminal Justice Costs			
a. costs of arrests	71	38	53
b. costs of trials	458	179	192
c. costs of probation	333	152	157
d. costs of incarceration	556	534	533[1]
Welfare Costs	523	347	27
Treatment Costs	114	377	396
Total Annual Social Costs Per Compulsive Gambler	$16,034	$8,635	$10,958

Source: Louisiana GA/Treatment Study, 1998 and Connecticut and Wisconsin Studies

[1] See Estimation of 1998 Louisiana Incarceration Costs of Gambling Disorders (page 91).

The **pattern** of social costs found in Louisiana are different than the Wisconsin and Connecticut patterns. The major differences are in employment costs, civil court costs, unemployment costs, and welfare costs.

The major area of variation in the Louisiana employment costs are lost work hours or productivity. Two differences account for the larger productivity costs. The first is methodological. The Louisiana study asked about impaired productivity in addition to missed days of work, which doubled the productivity costs. The second difference is Louisiana respondents reported significantly more lost days due to gambling than the respondents in the other states.

The civil court costs, unemployment costs, and welfare costs are lower in the Louisiana study because the Louisiana respondents were asked whether the negative outcome was due to gambling. The other studies did not ask this question and attributed all court costs, unemployment costs, and welfare costs to gambling. The differences in civil court costs are probably gender related. Louisiana females reported fewer divorces and debt-related civil suits than their male counterparts. Louisiana respondents reported high amounts of months on welfare and unemployment, but only attributed a small percent of their welfare and unemployment months to gambling problems, which accounts for the smaller Louisiana costs.

One interesting observation on social costs in all three states is that treatment is a small percentage of total social costs. Treatment costs are 0.7%, 4.4%, and 3.6% in Connecticut, Wisconsin, and Louisiana, respectively. Treatment comprises less than five percent of social costs in all three states.

GAMBLING REVENUE DERIVED FROM PEOPLE WITH GAMBLING DISORDERS

In the analysis of the gambling industry on the State, one important factor to consider is the proportion of total gambling spending that is derived from problem gamblers. It is clear that the gambling industry has a very large presence in the State of Louisiana. Policy makers should have information on how much of this spending comes from problem gamblers. The Louisiana prevalence study contains adequate information to make this calculation for all of the various forms of gambling.

The methodology is straightforward based on the direct results of the prevalence study. Everyone surveyed who had gambled during the past year was asked to report how much money they spent on gambling for each form of gambling within the last year. Total gambling expenditures from Louisiana residents for each form of gambling is equal

to the average amount spent in the last year on gambling by problem gamblers times the number of problem gamblers (defined by the prevalence study) plus the average amount spent in the last year on gambling by non-problem gamblers times the number of non-problem gamblers (defined by the prevalence study). The proportion of gambling spending that is derived from problem gamblers is equal to the average amount spent in the last year on gambling by problem gamblers times the number of problem gamblers (defined by the prevalence study) divided by total gambling expenditures as calculated above.

The equation below summarizes the calculation of the proportion of gambling spending by problem (disordered) gamblers:

$$P^i = \frac{(D^i \times N \times PR)}{(D^i \times N \times PR) + (S^i \times N \times (1\text{-}PR))}$$

Where:

P^i = The proportion of total spending that comes from problem gamblers for each form of gambling.

D^i = The average amount spent on each form of gambling by problem gamblers.

S^i = The average amount spent on each form of gambling by non-problem gamblers.

N = Total number of people in the sample.

PR = Prevalence rate; i.e., the proportion of the sample that are problem gamblers.

$1\text{-}PR$ = The proportion of the sample that are not problem gamblers.

$(D^i \times N \times PR)$ = Total gambling spending by problem gamblers.

$(S^i \times N \times (1\text{-}PR))$ = Total gambling spending by non-problem gamblers.

$(D^i \times N \times PR) + (S^i \times N \times (1\text{-}PR))$ = Total gambling spending.

The amount of expenditures by problem gamblers in Louisiana on each form of gambling activity for 1995 and 1998 are provided in Table 5-10. There are some important results in Table 5-10. **In 1998, according to the Louisiana Prevalence Study conducted for this study, 29.9% of all Louisiana spending on riverboat casinos comes from problem and pathological gamblers.** Assuming that the out-of-state gamblers follow the same pattern, 30% of all revenue coming into Louisiana's riverboat casinos comes from problem gamblers. **Likewise, 42.3% of all Louisiana spending on Indian reservation casinos comes from problem and pathological gamblers. For video poker, the proportion is 27.1%.** These are important facts to keep in mind in the overall evaluation of casino gambling in the State.

TABLE 5-10

PROPORTION OF TOTAL SPENDING FROM PROBLEM AND PATHOLOGICAL GAMBLERS FOR EACH GAMBLING ACTIVITY

	1995			1998		
Games	Problem	Path	Total	Problem	Path	Total
Pari-mutuel	18.2%	46.8%	65.0%	1.8%	6.3%	8.1%
Lottery	7.9	3.5	11.4	16.3	3.3	19.7
River Casino	6.9	11.1	18.0	18.3	11.6	29.9
Charity	17.6	6.3	23.9	5.3	6.4	11.7
Indian Casino	6.3	2.5	8.8	33.8	8.5	42.3
Electronic	16.7	9.9	26.6	18.4	8.7	27.1
Out of State	4.0	13.4	17.4	11.9	8.4	20.3
Private[1]	14.4	12.7	27.1	8.1	17.0	25.1
Telephone/Internet	0	0	0	0	10.5	10.5
Other	8.4	5.2	13.6	0	0	0
Total	11.2	14.1	25.3	15.5	9.6	25.1

Source: Louisiana Prevalence Study, 1998 and Louisiana GA/Treatment Study, 1998

[1] Private includes card games, games of chance, games of skill, and sports betting.

It is also possible, from the data presented in Table 5-10, to identify trends in gambling activity from 1995 to 1998. It is clear that there is a movement away from pari-mutuel gambling and charitable gambling by problem gamblers. **For these two forms of gambling, the proportion contributed by problem gamblers decreased from 65.0% to 8.1% and 23.9% to 11.7%, respectively. Those declines have been matched by increases in the proportion for riverboat and Indian casinos, from 18.0% to 29.9% and 8.8% to 42.3%, respectively.**

The total percentage spent on gambling by disordered gamblers has remained approximately the same – 25.3% compared to 25.1% even though the prevalence of disordered gamblers has decreased in 1998. **The most significant difference is the dramatic increase in the proportion of spending coming from Level 2 gamblers (from 11.2% to 15.5%) to rates that exceed the gambling proportion of Level 3 gamblers in 1998 (9.6%). The increased spending of Level 2 Louisiana gamblers in 1998 could signal an increase in the severity of disordered gambling by this group as a whole, and may argue for increased social costs for this group of gamblers. The increased spending could also chronicle the progression of an addictive disease in this group of gamblers.**

The major differences in the pattern of gambling in Louisiana between 1995 and 1998 is 1) the shift from pari-mutuel gambling by disordered gamblers to casino gambling (mostly Indian casinos), 2) the decrease in private forms of gambling in 1998 by all groups of gamblers, and (3) the increase in out-of-state gambling overall. In general, from 1995 to 1998 in Louisiana, casino gambling diverted revenues from other forms of legalized and private gambling and benefited from the expenditures of

disordered gamblers the most of any form of legalized gaming. Indian casinos seem to benefit the most from the shift in gambling patterns.

CONCLUSIONS

The social costs of Level 4 gambling disorders per person per year found in Louisiana are consistent with previous studies. The major categories of social costs found in this study are also consistent with previous studies, with productivity losses, theft, bad debt and criminal justice costs comprising the majority of social costs. The treatment cost of gambling disorders is a small part of the total social cost (less than four percent in Louisiana). **The social costs of gambling disorders in Louisiana in 1998 were substantial, approximately $485 million dollars. A large part of the casino gambling benefits were derived from expenditures by disordered gamblers in Louisiana. Two trends were identified in Louisiana gambling: 1) the increase in women with gambling problems and their higher social costs and 2) the dramatic increase in gambling expenditures of people with milder forms of gambling disorders (Level 2 gamblers). These findings indicate that social costs of gambling disorders may rise, possibly dramatically in the future.**

EXCERPTS FROM

LEGALIZED GAMBLING AS A STRATEGY FOR ECONOMIC DEVELOPMENT

ROBERT GOODMAN: DIRECTOR UNITED STATES GAMBLING STUDY

FUNDING PROVIDED BY THE ASPEN INSTITUTE AND THE FORD FOUNDATION

ECONOMICS

BUT BY DIVERTING CONSUMER DOLLARS INTO GAMBLING, IT HAS ALSO BEEN RESPONSIBLE FOR THE DECLINE OP JOBS AND REVENUES IN OTHER BUSINESSES. IN ADDITION, THE EXPANSION OF LEGALIZED GAMBLING IS INCREASING THE PUBLIC AND PRIVATE COSTS OF DEALING WITH THE SOCIAL AND ECONOMIC PROBLEMS AMONG THE RISING NUMBERS OF PEOPLE WHO GAMBLE.

WHILE LEGALIZED GAMBLING HAS PRODUCED INCREASES IN SOME FORMS OF EMPLOYMENT AND TAX REVENUES. THE SHIFTING OF LARGE AMOUNTS OF CONSUMER SPENDING TO STATE SPONSORED ALSO HAS NEGATIVE EFFECTS ON OTHER LOCAL BUSINESSES. IN ADDITION, THERE ARE OTHER EXPENDITURES, SUCH AS THOSE FOR CRIMINAL JUSTICE, REGULATION, PROBLEM GAMBLING BEHAVIOR AND PUBLIC INFRASTRUCTURE.

VERNON GEORGE, AN ECONOMIC CONSULTANT FOR THE CASINO INDUSTRY, WHO ALSO PROVIDES FEASIBILITY STUDIES FOR COMMUNITIES CONTEMPLATING RIVERBOAT GAMBLING, SAYS PRIVATE DEVELOPERS USUALLY EXAGGERATE PUBLIC BENEFITS IN ORDER TO MAKE THEIR PROPOSALS MORE ATTRACTIVE.

AS A WAY OF ENTICING PLAYERS TO STAY ON THE PREMISES, CASINO OWNERS GENERALLY INCLUDE A VARIETY OF LOW PRICED FOOD SERVICES AND RESTAURANTS WITHIN THEIR CASINO / HOTEL COMPLEXES.

CASINOS CAN USE THEIR FREE MEALS AND DRINKS TO PROMOTE GAMBLING AS WRITE-OFFS AGAINST THEIR CASINO PROFITS. BY 1991, ATLANTIC CITY CASINOS WERE DEDICATING $234 MILLION FOR PROMOTIONAL FOOD AND DRINKS.

MONEY FOR GAMBLING IS USUALLY DIVERTED FROM PEOPLES DISCRETIONARY EXPENDITURES. NOT ONLY ARE DOLLARS DIVERTED PROM OTHER PRODUCTS AND SERVICES, BUT GOVERNMENTS OFTEN ALSO LOSE SALES *TAXES* WHICH WOULD HAVE BEEN SPENT ON THOSE PRODUCTS AND SERVICES.

RICHARD BYRON, PRESIDENT OF THE FEDERAL RESERVE BANK OF BOSTON, DESCRIBES GAMBLING EXPENDITURES AS **MONEY EXTRACTED FROM OTHER CONSUMER SPENDING.** WHEN A PERSON SPENDS AN EXTRA $20 FOR KENO TICKETS, HE OR SHE MAY NOT BUY A $20 SHIRT. "YOU'RE JUST TAKING MONEY FROM ONE AREA AND PUTTING IT

SOMEWHERE ELSE.' SAYS BYRON. ·'I DON'T THINK THE REASON YOU DO THIS IS JOBS...IN THE LONG RUN, YOU'RE NOT GOING TO GET A LOT OF ADDITIONAL JOBS OUT OF IT.

A STUDY OF THE EFFECTS OF CASINOS ON REAL ESTATE VALUES IN THE ATLANTIC CITY REGION ESTIMATED THAT MANY COMMUNITIES WHICH WERE NOT POTENTIAL CASINO SITES LOST ENORMOUS SUMS OF MONEY AS REAL ESTATE VALUES DROPPED IN THE WAKE OF INCREASED CRIME LEVELS. RESEARCHERS CALCULATED THAT THE GROWTH OF CRIME IN THE **ATLANTIC CITY REGION REDUCED PROPERTY VALUES BY $24,000** FOR EACH EASILY ACCESSIBLE COMMUNITY TO ATLANTIC CITY, AND $11,000 FOR EACH COMMUNITY WHICH WAS CLOSE, BUT LESS ACCESSIBLE.

INFORMATION FROM THE GAMBLING INDUSTRY

A RECENT COLUMBIA JOURNALISM REVIEW ARTICLE NOTES THAT REPORTERS OFTEN USE INFORMATION FROM GAMBLING INDUSTRY-RELATED SOURCES WITHOUT CRITICAL ANALYSIS AND WITHOUT DESCRIBING THE INDUSTRY TIES OF THE RESEARCHERS. REPORTERS WILL OFTEN LIMIT OPPOSITION ARGUMENTS TO THOSE OF RELIGIOUS LEADERS, LEAVING THE IMPRESSION THAT THE NEGATIVE ASPECTS OF LEGALIZED GAMBLING ARE RESTRICTED TO MORAL DIFFERENCES OF OPINION OR TO ZEALOUS "DO-GOODERS.
CRIME

僜Y POSITIONING THIS PROJECT ALONGSIDE OTHER WORLD RENOWNED ATTRACTIONS. (THE ART INSTITUTE, THE LAKEFRONT, THE MUSEUM OF SCIENCE AND INDUSTRY, THE RESTAURANTS, THE MUSEUM OF MODERN ART, ETC.) WE PROVIDE SOME DISTANCE BETWEEN IT AND PEOPLE煡 EVERYDAY LIVES, THEREBY DIMINISHING THEIR CONCERNS ABOUT THE EVERYDAY PROBLEMS THAT WILL ARISE - DRUGS, PROSTITUTION, STREET CRIME, ETC.
GLICK MD HERRING, NOTES ON THE CHICAGO TOURIST AND...

A STUDY OF THE EFFECTS OF CASINOS ON REAL ESTATE VALUES IN THE ATLANTIC CITY REGION ESTIMATED THAT MANY COMMUNITIES WHICH WERE NOT POTENTIAL CASINO SITES LOST ENORMOUS SUMS OF MONEY AS REAL ESTATE VALUES DROPPED IN THE WAKE OF INCREASED CRIME LEVELS. RESEARCHERS CALCULATED THAT THE GROWTH OF CRIME IN THE ATLANTIC CITY REGION REDUCED PROPERTY VALUES BY $24,000 FOR EACH EASILY ACCESSIBLE COMMUNITY TO ATLANTIC CITY, AND $11,000 FOR EACH COMMUNITY WHICH WAS CLOSE, BUT LESS ACCESSIBLE

THE AMERICAN INSURANCE INSTITUTE ESTIMATED THAT 40 PERCENT OF ALL WHITE-COLLAR CRIME HAD ITS ROOTS IN GAMBLING.

IN JUST THREE YEARS FOLLOWING THE OPENING OF ITS FIRST CASINO, ATLANTIC CITY WENT FROM 50TH IN THE NATION IN PER CAPITA CRIME TO FIRST.

A STUDY OF THE IMPACTS OF CASINO GAMBLING ON ATLANTIC CITY AND ITS SURROUNDING AREAS FOUND THAT NOT ONLY DID CRIME SPILL OVER TO SURROUNDING AREAS WHICH WERE EASILY ACCESSIBLE FROM ATLANTIC CITY, BUT SOME OF THE AREAS HAD NO MEASURABLE ECONOMIC BENEFIT FROM CASINO DEVELOPMENT.

THEY (CASINOS) ALSO SUGGEST THAT THOSE CONNECTED WITH ORGANIZED CRIME BE PORTRAYED AS 僅USINESSMEN WHO MAY ENGAGE IN ILLEGAL ACTIVITIES LIKE SKIMMING MONEY FROM CASINO REVENUES, BUT THERE WILL STILL BE A LOT OF MONEY LEFT OVER.

THE POOR AND COMPULSIVE

STATE GAMBLING REVENUES COME DISPROPORTIONATELY FROM LOWER INCOME RESIDENTS. PROBLEM GAMBLING BEHAVIORS ARE HIGHEST AMONG THE POOR AND MINORITIES.

STUDIES INDICATE THAT POOR AND WORKING PEOPLE SPEND A DISPROPORTIONATE PART OF THEIR INCOMES ON GAMBLING. SOME RESEARCHERS HAVE CALLED **GAMBLING THE FASTEST-GROWING** TEENAGE ADDICTION, WITH THE RATE OF PATHOLOGICAL GAMBLING AMONG HIGH SCHOOL AND COLLEGE-AGE YOUTH ABOUT TWICE THAT OF ADULTS.

GOVERNMENTS AS PROMOTERS

ONCE GAMBLING VENTURES ARE LEGALIZED AND GOVERNMENTS BECOME DEPENDENT ON THEIR REVENUES, THE FUTURE FORM AND SPREAD OF GAMBLING WITHIN A STATE BECOMES EXTREMELY DIFFICULT TO CONTROL.

THE RESEARCH USED BY PUBLIC OFFICIALS TO EVALUATE PROJECTS IS OFTEN DONE BY THE GAMBLING INDUSTRY ITSELF.

IN THE PROCESS OF GAMBLING LEGALIZATION, STATES HAVE SHIFTED FROM THE ROLE OF GAMBLING REGULATOR TO THAT OF GAMBLING PROMOTER. IN DOING THIS, THEY ARE LIBERALIZING REGULATIONS DESIGNED TO PROTECT THE PUBLIC AND SPENDING MORE ON GAMBLING ADVERTISEMENTS AND PROMOTIONS.

AN EXAMINATION OF THE DIFFERENTIAL COPING STYLES OF ADOLESCENTS WITH GAMBLING PROBLEMS

Report to the Ministry of Health and Long-Term Care, Ontario

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The authors acknowledge Ontario's Ministry of Health and Long-Term Care for its funding of this project. The research findings, results, interpretation, conclusions, recommendations and views expressed in this report are those solely of the authors and are not necessarily those of the Ministry.

EXECUTIVE SUMMARY

This report presents the results of a study examining the relationship between gambling, life stress, and coping behaviors amongst adolescents. A secondary purpose of the study was to identify several risk factors that may be associated with youth gambling problems. A large sample of adolescents from Ontario, aged 11 - 20 (N = 2156), completed a questionnaire concerning their participation in gambling activities, high risk behaviours (e.g., substance and alcohol use, cigarette smoking), life stressors, coping strategies, and depressive symptomatology. The results from this study are intended to help provide valuable information that will be used to develop effective prevention programs and to inform clinical practice for adolescents with severe gambling-related problems.

Findings

- Despite the fact that most gambling is illegal for individuals under the age of 18 in the Province of Ontario, 63% of underage adolescents in grades 7 through 12 reported gambling on one or more activities in the past year. Of those adolescents reporting gambling, 23% reported gambling on a regular, weekly basis.

- Females were found to be less likely than males to gamble both on a regular and occasional basis. Within the current sample, 47% of females compared to 27% of males reported not gambling during the past year.

- The favorite gambling activities were reported to be the lottery, wagering on cards, games of skill, and sport betting. Male regular gamblers, those gambling weekly, most often bet on sporting events, cards, games of skill and the lottery, while regular female gamblers preferred playing cards and the lottery.

- Adolescents primarily reported gambling at their home (76%) or the homes of their friends (52%). Moreover, 40% of males and 19% of females reported gambling for money in school.

- Adolescent gamblers prefer to gamble with their friends (75%), siblings (47%), and parents (44%). It is interesting to note that despite the fact that juvenile gambling is illegal, many youth are participating in these activities with other family members. Developmentally, this pattern remains relatively constant, except for older males who express a stronger preference to gamble with their friends (91%) as well as report being more likely to gamble alone (22%).

- The predominant reasons cited for gambling was for enjoyment (74%), to win money (72%), and for excitement (63%). These reasons were similar for both males and females and across all the grades.

- In the current sample, 2.7% of adolescents were classified as probable pathological gamblers, 6.6% were classified as gamblers at-risk for developing severe gambling problems, 54.0% were classified as social gamblers, and 36.7% were classified as non-gamblers according to their frequency of play and the DSM-IV-MR-J criterion. Males comprised a significant proportion of both the at-risk and the probable pathological

groups in comparison to females (9% vs. 4% of at risk gamblers; 4% vs. 1.4% of probable pathological gamblers).

- The average age of onset of gambling was 11 years. Female probable pathological gamblers reported an average age of onset of 10 years while the age of onset for male probable pathological gamblers was 10.5 years. The mean age of onset of gambling was lowest amongst the probable pathological gamblers in comparison to the at-risk and social gamblers.

- Adolescent probable pathological gamblers reported more behaviour problems associated with their gambling activity than social gamblers and at-risk gamblers. They more frequently admitted gambling more than they want (65%), stealing money to support their gambling (50%), and gambling in excess (31%).

- Those adolescents with gambling problems were more likely to report experiencing feelings of dissociation. A higher percentage of both at-risk and probable pathological gamblers more often reported to go into a trance-like state, feel like a different person, experience blackouts, lose track of time, and feel as if they were 'outside themselves' when gambling. Moreover, despite an overall gender difference whereby males reported exhibiting these states significantly more often than females, those females classified as pathological gamblers reported similar patterns of dissociation as their male counterpart.

- Probable pathological gamblers (identified by the DSM-IV-MR-J) were more likely to underestimating the magnitude of their gambling difficulties.

- At least one fifth of adolescents, within each grade, reported engaging in gambling on a regular basis (i.e., at least once a week).

- Adolescent probable pathological gamblers were found to more likely use other addictive substances on a regular basis including drugs (43%), alcohol (52%), and cigarettes (36%).

- Amongst adolescent probable pathological gamblers, 16% reported having a mother with a gambling problem, 21% reported having a mother with a alcohol or drug problem, 27% reported having a father with a gambling problem, and 26% reported a father with a alcohol or drug problem. These rates were significantly higher than for all other adolescents.

- Non-gamblers scored significantly lower on a measure of arousal while at-risk and pathological gamblers had significantly elevated scores.

- Overall, females reported experiencing significantly more depressive symptomatology than males. Further, both male and female problem gamblers (i.e., the at-risk and probable pathological groups) scored significantly higher on depressive symptoms than both social and non-gamblers.

- Suicide ideation was reported more often for both the at-risk gamblers and probable pathological gamblers (26% and 28% respectively) than non-gamblers and social gamblers (14% and 16% respectively). The number of adolescents who reported actual

suicide attempts was also significantly higher for at-risk (10%) and probable pathological gamblers (14%) than non-gamblers (2%) and social gamblers (3%).

- The experience of major life events as well as minor daily hassles have been shown to contribute independently to the onset of various types of psychopathology (e.g., depression, addiction, conduct disorder). Within this study, both the at-risk and probable pathological gamblers reported a significantly higher number of major and minor life events occurring in the past year than the non-gamblers and social gamblers.

- In general, older adolescents (grades 11 & 12) reported significantly more major and minor life events occurring during the past year in comparison to younger adolescents (grades 7, 9, & 10). Younger adolescents, those in grades 7 and 8, also reported the occurrence of a significantly larger number of positive events.

- Significant differences were found between the level of gambling severity and the types of coping styles adolescents reported using. Non-gamblers and social gamblers reported using more task-oriented coping styles when confronted with adversities than either social gamblers or non-gamblers. Task-oriented coping is considered a more positive, adaptive form of coping when confronted with difficulties. Both at-risk gamblers and probable pathological gamblers employed more emotion-focused coping in comparison to social gamblers and non-gamblers.

- Adolescent gamblers in general (i.e., social gamblers, at-risk gamblers, and probable pathological gamblers) reported higher mean scores on the avoidant-oriented coping scale in comparison to non-gamblers.

- The oldest adolescents (grade 12) reported using avoidant strategies significantly more often than younger adolescents (grades 7 & 8).

- Males scored significantly higher on the emotion-oriented coping scale than females, however, no significant interactions were found between gender, grade, and level of gambling severity.

Future Directions

Adolescence has often been described as a stressful developmental period. The results of this research suggest a significantly large number of adolescents are experiencing many stressors, varying in magnitude, on a daily basis. Ineffective coping strategies, designed to reduce major and minor stressors, have been shown to negatively impact upon adolescent mental health and has been found to be related to engagement in a variety of high-risk behaviours. This finding suggests the need for development of effective mental health and risk-reduction prevention programs.

The large number of underage youth gamblers in general, and those with serious gambling problems, calls for more collaborative efforts between policy makers and law enforcement officials to enforce existing statutes prohibiting underage gambling. As well, a concerted public awareness campaign is necessary to help educate parents and school officials concerning the extent of adolescent problem gambling.

Youth gambling problems have been found not to exist in isolation. The more severe the gambling problem, the more likely youth were found to be engaged in other addictive behaviors including alcohol, drug and tobacco use. These youth remain at heightened risk for suicide ideation and suicide attempts as well as other mental health problems.

This research has empirically delineated several risk factors identified with youth gambling problems. The identification of these factors can best be realized when incorporated into the design of prevention and treatment programs. Targeting the development of effective coping strategies should be an integral protective factor buffering stress and minimizing mental health and behavioral problems.

Additional research funding aimed toward the identification of protective factors for youth gambling problems is warranted. Incorporating a risk factor model may help maximize our school-based prevention efforts and minimize youth gambling and mental health problems.

INTRODUCTION

Considerable knowledge has been gained over the past few years concerning gambling problems, yet the phenomenon of youth pathological gambling is still not clearly understood by researchers, clinicians, policy makers, educators, and parents. Gambling has been repeatedly shown to be a popular activity amongst children and adolescents, with a small but identifiable number of youth experiencing serious gambling problems. These gambling problems have been shown to result in increased delinquency, severed parental and familial relationships, poor school performance, and a number of anti-social behaviours.

While prior research has identified several predisposing variables that may place certain youth at heightened risk for the development of a serious gambling problem, our present state of knowledge is incomplete. Knowledge acquired from research efforts and clinical information obtained from youth gambling dependency treatment programs for adolescents strongly suggests that problem gamblers turn to gambling activities in an attempt to escape major life events and daily stressors (personal, social, familial, and academic).

The use of the stress-coping model for adolescent substance abuse has a long history (for reviews see Dickson, Derevensky & Gupta, in press; Wills & Filer, 1996). Adapting a stress-coping model in conjunction with Jacobs' *General Theory of Addictions* may help explain why certain youth remain vulnerable and at-risk for severe gambling problems in spite of repeated losses and concomitant personal, social and economic costs. As such, gambling may be conceptualized as a form of maladaptive coping.

This research seeks to extend our understanding of the coping strategies and adaptive behavioral styles employed by young problem gamblers. The relationship between coping styles, life stressors, depressive symptomatology, and adolescent gambling problems will be examined. The results of this research will provide valuable information for the subsequent development of effective primary, secondary and tertiary prevention programs.

RESEARCH GOALS

This research is predicated upon a transactional approach to better understand the development and maintenance of youth gambling problems. An underlying premise stems from 'diathesis-stress' models of vulnerability (Monroe & Simmons, 1991), including Jacobs' General Theory of Addictions (Jacobs, 1986). It is generally assumed that youth with significant gambling and gambling-related problems exhibit less effective coping/adaptive behaviours. A crucial component of understanding this model involves an examination of the role of life stressors (that may have etiological influences in their own right) on the onset and/or maintenance of severe gambling problems amongst adolescents. This research examines the relationship between coping styles, life stressors, depressive symptomatology, and adolescent gambling problems.

The objectives of this research include:

- To empirically identify the differential roles that general coping skills and adaptive behaviours play in the development and maintenance of a gambling addiction.

- To examine gender and developmental differences in the coping strategies used as a function of the severity of gambling problems.

- To explore the relationship between major and minor life events with respect to severity of gambling involvement.

- To extend our understanding of the relationship between depression, coping styles, and life stressors on adolescent gambling problems and other high-risk behaviours.

LITERATURE

Youth Gambling Research: The Past 20 Years

The study of youth gambling began during the 1980s. Initially looking at the prevalence of youth gambling, these prevalence studies dominated the field and were conducted across large community samples of adolescents in various countries including Canada (e.g., Ladouceur & Mireault, 1988), the United States (e.g., Arcuri, Lester, & Smith, 1985; Lesieur & Klein, 1987; Volberg, 1983), and England (e.g., Griffiths, 1989). Current findings from prevalence studies continue to demonstrate relative consistency in the rate of youth gambling in general, as well as severity of youth gambling (Derevensky & Gupta, 2000). These studies report that between 4%-8% of adolescents meet the criteria for pathological gambling (Derevensky & Gupta, 1996; Fisher, 1992; Gupta & Derevensky, 1998a; Jacobs, 2000; Shaffer & Hall, 1996, 2001; Wynn, Smith, & Jacobs, 1996), while another 10%-15% of adolescents are at-risk for the development of problematic gambling behaviours (Gupta & Derevensky, 1998a; Shaffer & Hall, 1996, 2001; Wynne et al., 1996). Moreover, between 24%-40% of all adolescents have been reported to engage in some form of gambling activity (e.g., playing cards for money, sports betting) on a weekly basis (Gupta & Derevensky, 1998a; Huxley & Carrol, 1992; Ladouceur & Mireault, 1988; Lesieur & Klein, 1987). In a comprehensive review of the current state of knowledge, the National Research Council's (1999) report for the National Gambling Impact Study Commission in the United States concluded that estimates of youth gambling range from 52%-89%, with a median estimate of 73%. Recent meta-analyses suggest estimates of pathological gambling for adolescents range between 3.38% (for lifetime, level 3 gambling behaviour) and 4.80% (for past year, level 3 gambling behaviour) (Shaffer & Hall, 2001). Given these estimates, approximately 1.1 million youth in Canada and the United States between the ages of 12 and 17 exhibit pathological gambling behaviour and another 5.5 million have serious gambling related problems (Jacobs, 2000).

Correlates of Problem Gambling

Pathological gambling amongst adolescents has been shown to be highly associated with criminal activity (e.g., stealing from family, friends, and retail outlets), lying, cheating, increased delinquency, and antisocial behaviour (Griffiths, 1990a; Gupta & Derevensky, 1998a, 2000; Ladouceur, Dubé, & Bujold, 1994; Ladouceur & Mireault, 1988; Lesieur & Klein, 1987; Wynne et al., 1996). As well, adolescents identified as pathological gamblers are more likely to engage in other risk-taking behaviours including cigarette smoking, alcohol consumption, and drug use (Derevensky & Gupta, 1996, 1999; Fisher, 1993; Gupta & Derevensky 1998a, 1998b; Kusyszyn, 1972; Lesieur & Klein, 1987; Winters & Anderson, 2000).

Research has consistently suggested that gambling is more popular amongst males than females (Derevensky, Gupta & Della-Cioppa, 1996; Fisher, 1990; Govoni, Rupcich & Frisch, 1996; Griffiths, 1989; Gupta & Derevensky, 1998a; Ladouceur, Dubé & Bujold, 1994; NORC, 1999; NRC, 1999; Stinchfield, 2000; Stinchfield, Cassuto, Winters & Latimer, 1997; Volberg, 1994, 1996, 1998; Wynne, Smith & Jacobs, 1996), and males are more likely to exhibit more severe gambling-related problems (Gupta & Derevensky, 2000; Jacobs, 2000; Lesieur & Klein, 1987; Volberg & Steadman, 1989). Youth with severe gambling problems have been shown to score

higher on risk-taking and sensation seeking measures (Arnett, 1994; Breen & Zuckerman, 1996; Knowles, 1976; Marget, Gupta, & Derevensky, 1999; Derevensky & Gupta, 1996; Powell, Hardoon, Derevensky & Gupta, 1999; Zuckerman, 1979, 1994; Zuckerman, Eysenck & Eysenck, 1978), adolescent pathological gamblers have lower self-esteem compared with other adolescents (Gupta & Derevensky, 1998b), they have higher rates of depression (Gupta & Derevensky, 1998a, 1998b; Marget, Gupta & Derevensky, 1999), are at heightened risk for suicide ideation and suicide attempts (Gupta & Derevensky, 1998a), and have different personality profiles (Gupta & Derevensky, 1997b, 1998a; in press, Ste-Marie, 2001; Vitaro, Ferland, Jacques & Ladouceur, 1998). Still further, young adults with serious gambling problems have been shown to report poor general coping skills (Nower, Gupta & Derevensky, 2000).

A Theoretical Model for Understanding Gambling Problems

Jacobs (1986), in his *General Theory of Addictions,* attempted to provide a framework for understanding the biological and psychological basis for the development and maintenance of addictions. According to his theory, an important prerequisite is that individuals with an addiction are more likely to seek escape (dissociation) arising from some negative developmental and/or social experience(s) during childhood and early adolescence. These factors may include traumatic, stressful occurrences that convey feelings of worthlessness, inferiority, and rejection. The addictive behaviour(s) allows the individual to escape painful thoughts. Accordingly, the elimination of such unpleasant experiences, albeit for a short period of time, serves to maintain the dependency. Research has shown pathological gamblers to exhibit a greater number of dissociative behaviours; they are more likely to go into a trance-like state, lose track of time, and report feeling like a different person (Gupta & Derevensky, 1996; 1998b; Jacobs, 1988; Kuley & Jacobs, 1988; Martinez-Pina et al., 1991).

A stress-diathesis or vulnerability-stress model incorporates the effects of exposure to various types of life stressors that may have a significant influence on the etiology of different types of addictive behaviours. Is there a link between level of gambling involvement amongst adolescents and the experience of acute or chronic stressors during the onset of gambling activity? Given adolescence is a developmental period that is considered o be highly stressful, do adolescents with a severe gambling problem experience more stressors, or different types of stressors in comparison to those who are not at risk for the development of a gambling problem? Establishing a link between gambling activities, coping strategies, and life stress is essential when looking for etiological explanations of psychiatric disorders and may provide additional support for a general theory of addiction.

Adolescent Life-Stress: Implications for Youth Gambling

There is general agreement among health care practitioners, mental health practitioners, teachers, and parents that adolescence represents a period of heightened vulnerability resulting from the many age-related physiological and psychological transitions that typically occur during this developmental period. While many adolescents proceed through this developmental stage relatively unscathed, it is estimated that approximately twenty-five percent of adolescents experience major difficulties involving social rejections and pressures from peers, parents, school, and community that subsequently have a major impact upon their psychological well

being. These difficulties, coupled with other vulnerability or risk factors including biological/genetic predispositions, environmental influences, and emotional stability, can place an adolescent at heightened risk for addictive behaviours, health-related difficulties and/or engagement in excessive gambling and negative gambling related behaviours.

There is general consensus among researchers examining adolescent life-stress that there exists a positive link between the onset of various psychological and physical disorders and the presence of stressful life experiences. Research conducted with adults has demonstrated that severe life stress is related to onset and maintenance of major depression (Brown & Harris, 1978; Paykel, Myers, Dienelt, Klerman, Lindenthal, & Pepper, 1969), schizophrenia (Brown & Birley, 1968), anxiety disorders (Finlay-Jones & Brown, 1981), suicide ideation and suicide attempts (Paykel, 1978; Paykel, Prusoff, & Meyers, 1975), and physical illness (Kasl, Evans, & Neiderman, 1979; Meyer & Haggerty, 1962; Murphy & Brown, 1980). While the assessment of life stressors with adolescents is more limited, a similar link has been supported with respect to mood and personality disturbances (Compas, Ey, & Grant, 1993; Compas, Howell, Phares, Williams, & Giunta, 1989; Nolen-Hoeksema, Girgus, & Seligman, 1992; Watson & Tellegen; 1985; Williamson et al., 1995a). Moreover, several studies have also established that stressful life events of both major and minor magnitude are predictive of subsequent internalizing and externalizing problems in late childhood and adolescence (Compas et al., 1989; Hammen, Burge, & Adrian, 1991; Stanger, McConaughy, & Achenbach, 1992).

In both the adult and adolescent literature, there is an ongoing debate concerning the importance of stressors upon maladjustment. Stress is not a unitary phenomenon. Reactions amongst youth reflect the heterogeneity and variability with which individuals function. What is deemed *stressful* varies between individuals and is often dependent upon a different set of circumstances reflecting a number of dimensions (e.g., the nature of the stressors [acute vs. chronic] and the magnitude/severity of the stressors [minor daily hassles vs. more severe negative events or difficulties]) (Brown & Harris, 1978, 1989; Compas, 1987, Compas et al., 1993; Kanner, Coyne, Schafer, & Lazarus, 1981).

Lazarus and his colleagues have maintained that daily hassles likely have a stronger association with adaptive outcomes because they are more *proximal* measures of stress, as opposed to major life events, which are more *distal* (Kanner et al., 1981; Rowlison & Felner, 1989). Thus, major life events, which are more distal to the person's immediate life circumstance, may exert some of their impact through the exacerbation of more proximal stressors and demands (i.e., hassles) with which the person must attempt to cope (Rowlison & Felner, 1989).

The importance of studying minor daily hassles as a part of life-stress research gains added significance when examining the occurrence of daily irritants in relation to adolescents who are, or may be, at-risk for developing a gambling problem. Adolescents who display severe negative gambling-related behaviours are also more likely to exhibit higher scores on measures of arousal including sensation seeking and risk-taking behaviour (Arnett, 1994; Gupta & Derevensky, 1998a). In line with Jacobs' (1986) General Theory of Addictions, it makes sense to assume that if a physiological vulnerability exists, different types of stressors may affect psychological functioning differently depending on the nature of the dysregulation. One hypothesis is that because such daily hassles are relatively common, one might expect frequent exposure to this

type of event to influence the unstable arousal network for those individuals who are highly vulnerable (Depue & Monroe, 1986; Jacobs, 1982; Jacobs, 2000). Given that adolescents appear to be more susceptible to continued exposure to minor daily hassles in comparison to more acute or chronic types of stressors, the occurrence of minor hassles may well figure prominently in differentiating adolescents with severe gambling problems from their peers. This is not to suggest that major life events do not significantly contribute to indices of maladjustment (e.g., depressive symptomatoloy, drug/alcohol abuse, problem gambling). The stress-buffering hypothesis assumes that the negative effects of life stress are lessened under conditions of positive social support networks, high socio-economic status, or other types of positive influences or mediators (Cohen & Wills, 1995; Monroe & Simmons, 1991).

Coping Processes as a Mediator Between Life Stress and Youth Gambling Problems

For adolescents dealing with developmental changes, effective coping is especially important and has been conceptualized as a key mediator between negative life events and psychological well-being (Herman-Stahl, Stemmler, & Petersen, 1995). Effective coping may actually help decrease the effects of stress, while ineffective coping may exacerbate the effects of stress on adjustment. Currently, the two most popular models of coping include the model based on coping styles and the model based on coping processes (cf. Aldwin, 1994). These two models represent the relative importance of dispositional versus situational contributions in the choice of coping mechanisms (McCrae, 1992).

The coping process approach (Folkman & Lazarus, 1984) assumes that coping is flexible, involves active planning, and is responsive to environmental demands and personal preferences. Thus coping should be conceptualized as a dynamic and constantly changing process of person-environmental transaction in a stressful situation. Both cognitions (e.g., the individual's appraisal of the situation) and behaviours (e.g., what a person actually does) from a situation-specific perspective are reported (Ayers, Sandler, West, & Roosa, 1996). While the coping efforts may focus on altering one's environment (i.e., problem-focused coping) or emotions (i.e., emotion-focused coping), the majority of individuals utilize both types of strategies and adapt these strategies to fit specific stressful situations and achieve successful resolutions (Aldwin & Brustrom, 1997).

Protective and Risk Factors: The Use of Effective Coping Strategies

Research examining specific variables that may serve to act as buffers, mediators, or protective factors for problem gambling is a promising line of work (Dickson, Derevensky, & Gupta, in press). These factors, when present, may serve to delay the onset of a number of psychological disorders while protective factors appear to have a high association with positive adaptive outcomes (for a comprehensive review of our current knowledge of protective factors in the field of gambling, alcohol and drug use and a model for youth gambling prevention programs see Dickson et al., in press).

Coping skills appear to be highly predictive of an individual's inability to handle stress. Sharpe and Tarrier (1993) have postulated that the difference between individuals who can control their gambling lies in the employment of different coping skills.

Positive coping processes include the utilization of multiple problem and solution-focused strategies that allow the individual to consider multiple options in dealing with difficult problems (see Gupta & Derevensky, 2000 for their clinical applications). In contrast, faulty coping processes may include the use of a high number of emotion-focused responses to stressful situations that usually involve avoidance, rumination, and negatively centered affective strategies (Lazarus & Folkman, 1984; Endler & Parker, 1990). In this sense, poor coping skills may be viewed as a predisposing factor to the acquisition of problem gambling (Sharpe & Tarrier, 1993). This vulnerability can develop from an environmental deficit, whereby an individual has failed to learn appropriate coping skills or has acquired faulty coping skills.

The systematic study of coping as a risk/protective factor has not yet occurred in the field of youth gambling and thus represents a significant goal of the present study. While there has been some preliminary research examining the interaction between coping style and level of gambling involvement (Gupta & Derevensky, 2000; Marget et al., 1999), the importance of the role of social support networks and reoccurring life stress merits further examination.

Task-Oriented, Emotion-Oriented, and Avoidance Oriented Coping

If one adopts the hypothesis that coping style can act as a buffer between the occurrence of stressful life events and adjustment, then it is plausible to assume some coping strategies are more adaptive and result in more positive outcomes than others. Two coping dimensions have been identified and continue to attract much of the research attention: *emotion-focused* coping *and problem-focused* coping. The problem-focused coping dimension utilizes strategies that attempt to solve, re-conceptualize, or minimize the effects of a stressful situation. The emotion-focused dimension, alternatively, includes strategies that involve self-preoccupation, fantasy, or other conscious activities related to affect regulation (Parker & Endler, 1996). Almost all measures of coping over the past few decades include scales that assess these two dimensions. Avoidance-oriented coping is another dimension that has received considerable interest in the research forum. This dimension has been conceptualized as involving person-oriented and/or task-oriented responses (Endler & Parker, 1992). Strategies associated with this approach include seeking out other people (social diversion) or engaging in a substitute task (distraction).

There is consistent evidence that dimensions of active coping that include problem-solving in a stressful situation is related to lower mental health and substance use problems (Sandler, Wolchik, MacKinnon, Ayers, & Roosa, 1997). For example, both cross-sectional and longitudinal studies with children, adolescents, and adults found that active problem-focused coping strategies were related to lower emotional and behavioural problems and substance use (Ayers et al., 1996; Compass, Malcarne, & Fondacaro, 1988; Ebata & Moos, 1991; Seiffge-Krenke, 1990; Wills, 1986). Moreover, engagement in problem-focused strategies has also been related to several positive developmental outcomes such as self-efficacy, positive self-esteem, and perceived competence in multiple domains (Causey & Dubow, 1992; Wills & Hirky, 1996). Thus, in essence, the employment of problem-focused coping strategies may act as a buffer or protective factor against the potential harmful effects of environmental and/or physical stress.

Alternatively, avoidance coping and emotion-focused coping strategies have been shown to be related to higher mental health problems in children and adolescents (Ayers et al., 1996;

Glyshaw, Cohen, & Towbes, 1989; Holahan & Moos, 1987; Herman-Stahl et al., 1995; Sandler, Tein, & West, 1994; Wills, 1986). Cross-sectional studies (Ayers, 1991; Wills, 1986) have demonstrated the positive correlations between different types of avoidance coping styles and substance abuse, depression, and conduct problems. This relationship has also been validated by prospective studies (Herman-Stahl et al., 1995; Sandler et al., 1994; Wills, 1986). For example, Sandler and colleagues (1994), in their prospective analysis found that anxiety predicted higher avoidance coping, while avoidance coping did not prospectively predict anxiety. Avoidance coping was shown to partially mediate the positive relationship between negative events and anxiety, depression, and conduct problems.

There exist several hypotheses why the use of avoidance coping is seen as a maladaptive response to stress. These hypotheses are best explained by looking at the research dealing with substance use and alcoholism. Moreover, the research in this area, with respect to adolescents, can be applied to the area of youth gambling problems because of the similar overlap between the populations (Dickson, Derevensky & Gupta, in press; Gupta & Derevensky, 1998a, 1998b). Several theoretical models have suggested that substances such as cigarette smoking and alcohol use may serve as affect regulation mechanisms (Wills, 1986). The period of adolescence, especially during the initial stage (12 to 16 years), is a developmental period when many health-related behaviour patterns are established (cf. Wills, 1986) and a time of heightened risk for initiation of cigarette smoking, substance use, alcoholism, and more recently, problem gambling (Gupta & Derevensky, 2000).

Addiction research has supported the notion of looking at various addictions from a multidimensional perspective, emphasizing cognitive, psychosocial, and biological factors (Leventhal & Cleary, 1980; Shaffer & Hall, 2001). Research with youth gambling has already demonstrated the contribution of these multiple factors and has shown that adolescent pathological gamblers report difficulty with negative affect, arousal, cognitive distortions, and an increased use of drugs, alcohol, and cigarette smoking (Gupta & Derevensky, 1998a). It can be argued that engagement in an addiction may operate both to reduce negative affect and to increase positive affect. Thus, from a physiological perspective, engaging in substance use or gambling activity may serve the dual purpose of regulating physiological arousal systems and lessening, or blunting emotional vulnerability. An affect regulation model with respect to coping suggests that adolescents experiencing higher levels of negative affect may be more likely to engage in excessive gambling and/or substance use and that this likelihood would increase during periods of stress (Gupta & Derevensky, 2000). A prospective study by Wills (1986) shows evidence supporting this theory. It is not surprising that individuals with substance abuse problems demonstrate an avoidance-oriented coping style that often focuses on such strategies emphasizing daydreaming, helplessness, distraction, and diversion. These 'escapism' strategies reflect a dispositional style that may be consistent with research findings related to youth gambling. Adolescents involved in problem or pathological gambling activity report high comorbidity with other substance use (e.g., alcohol, drugs, cigarettes) (Winters & Anderson, 2000) and escape (Gupta & Derevensky, 1998a, 1998b). It is often hypothesized that gambling activity per se functions as a mechanism of escape for those individuals predisposed to develop an addiction. Gamblers show similar deficits in arousal mechanisms as substance abusers (Gupta & Derevensky, 1998b), and youth gamblers often report feelings associated with dissociative states that resemble the need to escape from reality through detachment from oneself, losing

track of time, and going into a trance-like state (Gupta & Derevensky, 1998a, 2000). Thus, for those individual's whose coping style is primarily avoidance in nature, and who may be vulnerable to various physiological and/or psychological disorder, gambling can be an attractive means of escape that also serves a dual process, to regulate emotion and arousal mechanisms.

The importance of studying this relationship is vital with respect to the development of various intervention and prevention efforts that are aimed at enhancing, changing, or teaching healthy adaptive coping efforts in the treatment of adolescent psychopathology (Compas, 1998) and as a general model for the prevention and harm-reduction of multiple adolescent risky behaviours (Dickson et al., in press). Programs have been designed that include interventions to (a) enhance coping for children with divorce-related stressors (Pedro-Carroll & Cohen, 1985); (b) prevent depression in youth by facilitating effective cognitive and behavioural coping strategies to deal with stress (Jaycox, Reivich, Gillham, & Seligman, 1994); (c) treat childhood anxiety disorders (Kendell et al., 1997); and (d) help adolescents with various substance use problems (MacKinnon, Johnson, Pentz, Dwyer, Hansen, Flay, & Wang, 1991; Pentz, 1985; Sussman, Dent, Stacy, Sun, Craig, Simon, Burton, & Flay, 1993). Research related to understanding internal coping mechanisms is crucial in the development of future prevention and intervention programs and efforts aimed at harm-reduction of gambling problems (Derevensky, Gupta, Dickson, & Deguire, 2001).

METHODOLOGY

Participants

Participants included 2156 adolescents (1092 males, 1063 females) from grade 7 through grade 12 (age range 11- 20 years-old, mean age of 14.43). Approval was requested and obtained from six school boards, with 8 high schools and 21 elementary schools agreeing to participate. These school boards were selected based upon their willingness to participate and represent a variety of regions from Ontario (see Appendix A). When school board approval was granted, individual schools were approached with a detailed proposal of the study. Schools were located in both rural and urban areas, and participants came from a variety of socio-economic and cultural backgrounds. The breakdown of the sample with respect to grade and gender is provided in Table 1 .

Table 1: Sample Distribution by Gender and Grade

		N	Sample Distribution
Male		1092	50.7%
Female		1063	49.3%
Grade 7	(M age = 11.94)	412	19.1%
Grade 8	(M age = 12.99)	295	13.7%
Grade 9	(M age = 13.95)	398	18.5%
Grade 10	(M age = 14.96)	320	14.8 %
Grade 11	(M age = 15.98)	468	21.7%
Grade 12	(M age = 17.24)	263	12.2%

No student participated without parental permission. Participation was voluntary and all students were assured that they could withdraw from the study at any time. Students were given an opportunity to enter a draw for chances to win free movie or music gift certificates as an incentive to participate.

Procedure

Consent forms and a letter describing the purpose of the study were distributed to parents via the participating schools after school board approval. Informed consent was obtained from parents of all children prior to their participation in the study. Students who did not wish to participate, or whose parents did not authorize their child's participation, did not complete the questionnaires. The measures were group administered to participants in classrooms and/or school cafeteria by several, trained research assistants. Groups ranged from 10-250 students depending on where the test administration took place (e.g., a classroom vs. school cafeteria). The number of research assistants during administration varied according to the group size (ranging from 1-4). Participants completed the questionnaire individually and were instructed that gambling is defined as an activity that involves an element of risk where money could be won or lost. Students were informed that all responses are anonymous and confidential, that their participation was voluntary and they could withdraw from the study at any time. Research assistants were present at all times to answer any questions or provide additional information.

All students were given the same general instructions prior to commencing the study. A pilot study designed to refine the questionnaire, eliminate any misconceptions and to determine the amount of time necessary to complete all the instruments was completed using approximately 80 students at a local high school in Montreal, Québec. Students required approximately 30-50 minutes to complete the questionnaire.

Measures

Gambling Activities Questionnaire (GAQ) (Gupta & Derevensky, 1996). The GAQ assesses four general domains related to gambling behaviour. *Descriptive information* including prevalence, types of activities, wagers, social milieu and support; *cognitive perceptions* of the amount of skill and luck involved in various gambling and non-gambling activities; *familial gambling and substance abuse history*; and *comorbidity* with other addictive and delinquent behaviours. Questions within each section domain are discrete, analyzed individually, and no cumulative scores are calculated (see Appendix B).

DSM-IV-MR-J (Fisher, 2000). This 12-item, 9 category instrument is a screen for pathological gambling during adolescence. It was modeled after the DSM-IV (APA, 1994) criteria for diagnosis of adult pathological gambling, and an earlier version, the DSM-IV-J (Fisher, 1992) has been used by several researchers and has been found to be the most conservative adolescent measure of pathological gambling (Derevensky & Gupta, 1996, 2000; Gupta & Derevensky, 1998a, 1998b; Marget et al., 1999; Powell et al., 1999; Volberg, 1998). The revised DSM-IV-J, the DSM-IV-MR-J (MR=multiple response, J=juvenile), was developed for use with adolescents that have gambled during the past year. To compensate for the lack of opportunity for probing, most of the questions in the revised instrument have been given four response options; "never," "once or twice," "sometimes," or "often." Each item endorsed is given a score of 1, with a total score of 4/9 or greater being indicative of severe gambling problems. The DSM-MR-IV-J assesses a number of important variables related to pathological gambling; progression and preoccupation, tolerance, withdrawal and loss of control, escape, chasing, lies and deception, illegal activities and family/school disruption.

Principle factor components analyses revealed that the scale is represented primarily by one general factor accounting for 33.3% of the variance. A second principle component factor explains a further 11% of the variance. The first factor shows positive correlations with the psychological states known to be associated with problem gambling and appears to be measuring the negative psychological dimensions including preoccupation, tolerance, loss of control, escape and chasing loses. The second factor is correlated with withdrawal symptoms experienced when trying to cut down on gambling and the antisocial/illegal behaviours associated with juvenile problem gambling including telling lies about the extent of gambling involvement, committing antisocial or illegal acts because of gambling (using school dinner money and stealing), arguing with family or friends because of gambling, and truancy from school to gamble. Factor 2 draws attention to the negative social consequences of juvenile problem gambling. Internal consistency reliability for this scale is acceptable, with Cronbach's alpha being = 0.75 (although slightly lower than .78 for the original DSM-IV-J screen). The DSM-IV-J has been used by several researchers, and has been found to be the most conservative adolescent measure available of

pathological gambling (Derevensky & Gupta, 1996, 2000a; Gupta & Derevensky, 1998a, 1998b; Volberg, 1998). This screen requires approximately 5 minutes to complete.

The Arnett Inventory of Sensation Seeking – Intensity Subscale (AISS) (Arnett, 1994). The AISS is 20-item measure of sensation seeking consist of two subscales; novelty (10 items) and intensity (10 items). Studies examining the AISS in comparison to the Sensation Seeking Scale (SSS; Zuckerman et al., 1978) have shown the AISS to be more strongly related to risk behaviour than the SSS (Arnett, 1994). Moreover, the AISS does not represent a 'forced choice' format as used in the SSS but allows participants to indicate the extent to which an item describes them on a four point Likert scale ranging from 'describes me very well' to 'does not describe me at all.' The intensity subscale was used because of its high correlation with measures of arousal (Arnett, 1994; Gupta & Derevensky, 1998a; Powell et al., 1999). The internal reliability coefficient for the global scale is .70, with .64 for the intensity subscale. This subscale takes approximately 5 minutes to complete.

Adolescent Perceived Events Scale – Form B (APES) (Compass, Davis, Forsythe, & Wagner, 1987). The APES is used to assess cognitive appraisals of major and daily stressful events during adolescents. Form B is a 100-item (short form) instrument that is designed for use with young (junior high school age) to middle age adolescents (high school age). Adolescents are initially asked to indicate whether or not a specific event has occurred within the past 3months and past year. Students rate each event according to the level of stress and the impact the event has had on their life. Reliability is reported to be .76 to .89 and validity is estimated at .87 to .91. What is most appealing about the APES is that its items are based upon a variety of common life stress measures that assess different types of stressors. For example, the APES incorporates the most frequently reported major life events that appear on adolescent major life event measures (Johnson & McCutcheon, 1980; Newcomb, Huba, & Bentler, 1981; Swearington & Cohen, 1985), as well as those stressors that are classified as more typical daily hassles that have also shown significance in relation to maladjustment for this period of development (Rowlison & Felner, 1988) (see Appendix B).

Coping Inventory for Stressful Situations (CISS) (Endler & Parker, 1990). The CISS is a self-report measure assessing the coping behaviours adolescents employ in response to difficult, stressful, or upsetting situations. The CISS consists of 48 items, 16 items for each of the three scales: task-oriented, emotion-oriented, and avoidance-oriented coping. The avoidance scale has two subscales – distraction (8 items) and social diversion (5 items). The normative mean score for each of the subscales is 50 (SD = 10). The CISS has strong internal consistency (coefficient alphas for task, emotion, and avoidance subscales were reported to be .85 to .90 for males and .83 to .90 for females).

Reynolds Adolescent Depression Scale (RADS) (Reynolds, 1987). The RADS is a measure of depressive symptomatology that consists of 30 items. Items are worded in the present tense to tap into present symptom status. The RADS has high internal consistency (coefficient alphas range from .90 to .96), high test-retest reliability (.80), well-documented concurrent validity, and a clinical cutoff score of 77. This instrument is widely used amongst junior and senior high school students.

RESULTS

This section examines gambling participation for the entire community sample of adolescents. Information about eight different gambling activities was collected. It is important to note that participation in all legal forms of gambling activities is restricted for individuals under the age of 18 for lottery playing and bingo and 19 for casino playing in Ontario. The questionnaire inquired about the following gambling activities:

- Cards
- Sport wagers (including betting on sports pools and sporting events)
- Sport Lottery tickets (i.e., Pro-Line)
- Lottery Draws or Scratchcards
- Video Poker Machines/Arcade Games
- Bingo
- Slot machines
- Games of skill (e.g., pool, bowling, basketball)
- Other forms of gambling

Gambling Participation

The results indicated that a large majority of adolescents have engaged in a variety of gambling activities within the past year. The distribution of gambling involvement can be found in Table 2. Overall, 63.3% of the sample reported gambling within the past 12 months (53.5% females; 73% males), with almost a quarter of the sample engaging in such activities on a weekly basis (34.3% males, 12.2% females). It is important to note that while 36.6% of adolescents report not gambling at all, females account for a significant proportion of this group (46.5%).

Table 2: Level of Gambling Involvement

	Non Gambler[a]	Occasional Gambler[b]	Regular Gambler[c]
Male (N=1092)	27.0%	38.7%	34.3%
Female (N=1060)	46.5%	41.3%	12.2%
Total (N=2151)	36.6%	39.9%	23.4%

[a]Non-Gambler: an individual reporting 'never' to wagering on any activity in the past year.
[b]Occasional Gambler: an individual reporting having wagered less than once a week on any activity in the past year.
[c]Regular Gambler: an individual reporting having gambled once a week or more on any activity in the past year.

The distribution of gambling participation for each activity, by level of gambling frequency, is presented in Table 3. Almost half of the sample reported playing cards for money (43.3% when combining occasional and regular players) and represents a higher rate of participation than any of the other activities. This is not surprising given that cards are easily accessible and routinely

played by individuals of all ages. However, if one combines sports lottery playing and lottery tickets (draws, scratch tickets), the overall endorsement of lottery playing is 49.3%.

The most popular activities that students played on an occasional basis include cards (32.7%), lottery tickets (29.0%) (lottery draws and scratchcards), and games of skill (23.0%). It is important to note that respondents were asked to indicate all the activities they gambled on in the previous 12 months. If one adds the use of sports lottery tickets with regular lottery tickets (draws and scratch cards), 39.4% of all adolescents were found to play lottery products on an occasional basis, thus becoming the most highly endorsed activity in general for both males and females.

Looking at regular players only (once per week or more), playing cards remained the activity of choice (although boys show an equal participation rate in sports betting), followed by playing the lottery (9.9%) (combining draws, scratchcards & sports lotteries), sport wagers (9.1%), and betting on games of skill (8.5%).

Table 3: Participation in Gambling Activities for the Entire Sample

Gambling Activity	Level of Gambling Involvement					
	Gamble Occasionally[a]			Gamble Regularly[b]		
	Male	Female	Total	Male	Female	Total
Cards	40.3%	25.1%	32.7%	15.0%	6.1%	10.6%
Sport Wagers	28.9%	10.9%	20.0%	15.9%	2.1%	9.1%
Sport Lottery Tickets	15.3%	5.4%	10.4%	7.1%	0.6%	3.9%
Lottery Tickets	28.8%	29.1%	29.0%	7.9%	4.1%	6.0%
Games of Skill	20.0%	7.1%	13.6%	7.2%	1.0%	4.1%
Bingo	19.2%	19.7%	19.5%	3.4%	1.1%	2.3%
Slot Machines	8.2%	5.2%	6.7%	1.7%	0.7%	1.2%
Arcade Games	32.3%	13.5%	23.0%	14.5%	2.4%	8.5%
Other Forms of Gambling[c]	10.7%	5.7%	8.2%	3.4%	0.9%	2.2%

[a]Occasionally refers to participants who gamble on a specific activity less than once a week.
[b]Regularly refers to participants who report gambling on a specific activity once a week or more.
[c]Other forms of gambling reported include racetrack betting (10.7%), various casino type games (blackjack, roulette, craps) (10.7%), dice (throwing) (6.3%), and coin toss (5.8%).

There are distinct gender differences both within activities and between the levels of gambling involvement. Males significantly reported engaging in all gambling activities, except for occasional lottery play, more often than females. Specifically, males preferred betting on cards, $?^2(2, 2153) = 131.20$, $p < .001$, sport wagering, $?^2(2, 2155) = 277.28$, $p < .001$, purchasing sport

lottery tickets, $?^2(2, 2154) = 127.08$, $p < .001$, betting on video games, $?^2(2, 2152) = 139.06$, $p < .001$, playing slot machines, $?^2(2, 2153) = 13.67$, $p < .001$, and games of skill, $?^2(2, 2155) = 252.03$, $p < .001$. Both male and female regular gamblers reported betting on cards as their most frequently played gambling activity.

Female occasional gamblers preferred wagering on lottery activities (29.1%), followed by cards (25.1%) and bingo (19.7%). Male occasional gamblers preferred card playing more often than other activities (40.3%), followed by games of skill (32.3%), sport wagers, (28.9%) and lottery (draws & instant scratchcard tickets) (28.8%).

These findings are consistent with other research findings supporting gender differences in preferred gambling activities, with females showing a larger attraction to lottery type gambling (see Derevensky & Gupta, 2001, Ontario Ministry Report on Adolescent Lottery Playing).

Aside from gender differences, developmental changes may also account for the difference in activity preference. Younger adolescents are more likely to be gambling with cards and bingo, while a trend for older adolescents appears to be participation in sport lottery tickets, sport wagers, and slot machines. A complete distribution by gender and grade is provided in Table C1, Appendix C.

Where and With Whom Adolescents are Gambling

Retrospective studies of adult pathological gamblers suggest that onset of gambling problems begins early. Since most forms of gambling are illegal for underage youth in Ontario, it is useful to determine where and with whom these activities occur. Thus, in addition to inquiring about gambling activities, adolescents were also asked to identify the places they gambled and with whom they gambled (see Table 4).

Of interest is the finding that for the entire sample, a total of 76.0% of adolescents report gambling for money at home. Adolescents are also gambling at friends' homes (52.0%) and in school (31.1%). While the most common places of gambling are similar for males and females, a noteworthy finding is that males are significantly more likely to be gambling at the homes of their friends $?^2(1,1359) = 31.88$, $p < .001$, and are twice as likely as females to be gambling in school $?^2(1, 1359) = 67.12$, $p < .001$. Males are also significantly more likely to be gambling at arcades, $?^2 (1,1358) = 7.74$, $p < .005$.

Table 4: Locations Where Adolescents Report Gambling: Distribution by Gender and Total Sample

	Total Sample (N=1359)	Male (N=793)	Female (N=566)
[illegible]	76.0%	77.1%	74.3%
[illegible]**	52.0%	58.5%	42.9%
[illegible]**	31.1%	39.8%	18.9%
[illegible]*	12.3%	14.4%	9.4%
[illegible] Store	7.3%	7.2%	7.4%
[illegible]	5.4%	4.4%	6.7%

Note. Adolescents were permitted to check more than one response.
Chi-square analyses *p<.01; **p<.001

As can be seen in Table 4, approximately 40% of males reported gambling at school despite the fact that it is generally prohibited. The data suggests a need for greater awareness by both parents and educators.

From a developmental perspective, older adolescents are less likely to gamble at home. The percentage of youth reporting gambling at a friend's home or at school was found to increase with age. Examining gender differences from a developmental perspective reveals that males consistently gambled more often at their friend's home and at school than females. As can be seen in Table 5, this difference was apparent across all grades. Moreover, this trend intensified, as adolescents got older. In this sample, males in grade 12 were approximately 30% more likely than females to be gambling at their friends' homes and in school.

Adolescents were further asked to indicate with whom they gambled. It is important to note that adolescents were able to select more than one response. The data presented in Table 6 reveals that 74.6% of adolescents reported gambling with peers. It is also noteworthy that 47.0% of youth reported gambling with their siblings and a similar proportion, 43.7% of adolescents, reported gambling for money with their parents. Other relatives were also indicated as often as parents (42.1%).

Table 5: Locations Where Adolescents Report Gambling: Developmental and Gender Differences

Grade Level	Gambling Venues					
	Home	Friends	School	Arcades	Corner Store	Bingo Halls
Grade 7						
Male (n=140)	85.6%	44.5%	24.0%	17.1%	6.2%	6.2%
Female (n=145)	86.1%	33.9%	7.8%	8.7%	3.5%	8.7%
Total (N=285)	85.9%	40.1%	16.8%	13.4%	5.0%	7.3%
Grade 8						
Male (n=91)	82.4%	45.1%	25.3%	14.8%	7.7%	9.9%
Female (n=109)	79.8%	40.4%	21.1%	6.4%	3.7%	4.6%
Total (N=200)	81.0%	42.5%	23.0%	9.5%	5.5%	7.0%
Grade 9						
Male (n=149)	75.8%	60.4%	34.9%	12.8%	4.7%	1.3%
Female (n=120)	70.0%	47.5%	19.2%	11.7%	7.5%	5.0%
Total (N=269)	73.2%	54.6%	27.9%	12.3%	5.9%	3.0%
Grade 10						
Male (n=134)	79.1%	62.6%	41.0%	14.5%	7.0%	3.5%
Female (n=68)	75.0%	42.6%	22.1%	11.8%	10.3%	5.9%
Total (N=202)	77.6%	55.2%	33.9%	13.7%	8.2%	4.4%
Grade 11						
Male (n=93)	71.0%	63.9%	56.3%	14.2%	6.6%	2.2%
Female (n=98)	67.3%	51.0%	24.5%	7.1%	9.2%	6.1%
Total (N=191)	69.8%	59.4%	45.2%	11.7%	7.5%	3.6%
Grade 12						
Male (n=108)	71.3%	72.2%	50.9%	13.9%	13.0%	6.5%
Female (n=49)	60.7%	42.9%	23.2%	12.5%	16.1%	12.5%
Total (N=164)	67.7%	62.2%	41.5%	13.4%	14.0%	8.5%

There are notable gender differences between males and females with respect to gambling partners. Males are significantly more likely to report gambling with their friends, $?^2(1,1358) = 58.27$, $p < .001$, while females are significantly more likely to report gambling with their siblings, $?^2(1,1358) = 5.78$, $p < .05$, as well as their parents, $?^2(1, 1358) = 14.33$, $p < .001$.

Developmentally, interesting trends are noted for the adolescents with respect to with whom they gamble (see Table 7). Gambling with friends is highly endorsed across all age groups, and this trend increases with age, ranging from 58.2% for younger children (grades 7 and 8) to 86.0% (grades 11 and 12).

Table 6: With Whom Adolescents Gamble: Gender Differences

[illegible]	74.6%	82.2%	63.9%
[illegible]	47.0%	44.2%	50.8%
[illegible]	43.7%	39.4%	49.7%
[illegible]	42.1%	40.4%	44.4%
[illegible]	12.6%	13.5%	11.3%
[illegible]	6.8%	9.1%	3.7%

*p<.05; **p<.001

When examining the gambling behaviour with family members (i.e., parents, siblings, and other relatives), the reverse trend appears with the younger participants being more likely to gamble with family members (parents, siblings, relatives).

A closer examination of developmental trends by gender highlights important differences with respect to gambling with family members. There is much less developmental variability for female gambling patterns. The percent of females gambling with family members remains relatively stable, independent of grade level. In contrast, males demonstrate a consistent decrease in gambling with family members across all three categories (parents, siblings and relatives). For example, between grades 7-12, the range for males gambling with siblings goes from a high of 51.7% to a low of 37.0%; for parents, the range was from a high of 53.1% to a low of 23.1%; and for relatives, the range was from 51.7% to a low of 26.9%. These findings strengthen the fact that different gambling patterns may emerge for males and females from a relatively early age.

Another interesting finding presented in Table 7 is the fact that older males are more likely to gamble alone, and that by 18 years of age, they are gambling alone as frequently as they are gambling with their parents (22.2% and 23.1% respectively).

Table 7: With Whom Adolescents Gamble: Developmental Differences

Grade Level	With Whom Adolescents Gamble					
	Friends	Siblings	Parents	Relatives	Alone	Strangers
Grade 7						
Male (n=145)	62.1%	51.7%	53.1%	51.7%	9.7%	2.8%
Female (n=115)	53.0%	54.8%	57.4%	47.8%	8.7%	2.6%
Total (N=260)	58.2%	53.3%	55.2%	50.2%	9.2%	2.7%
Grade 8						
Male (n=91)	73.6%	48.4%	46.2%	54.9%	9.9%	4.4%
Female (n=108)	59.6%	54.1%	46.8%	48.6%	13.0%	1.8%
Total (N=200)	66.0%	51.5%	46.5%	51.5%	11.6%	3.0%
Grade 9						
Male (n=150)	84.7%	48.0%	37.3%	37.3%	10.7%	9.3%
Female (n=120)	62.5%	50.0%	50.0%	41.7%	13.3%	5.8%
Total (N=270)	74.8%	48.9%	43.0%	39.3%	11.9%	7.8%
Grade 10						
Male (n=115)	87.8%	38.3%	37.4%	30.4%	13.9%	7.8%
Female (n=67)	61.2%	52.2%	47.8%	35.8%	13.4%	6.0%
Total (N=182)	78.0%	43.4%	41.25	32.4%	13.7%	7.1%
Grade 11						
Male (n=141)	91.8%	41.0%	37.7%	41.0%	15.3%	15.3%
Female (n=98)	77.6%	48.0%	46.9%	42.7%	6.1%	2.0%
Total (N=239)	86.8%	43.4%	40.9%	45.9%	12.1%	10.7%
Grade 12						
Male (n=108)	90.7%	37.0%	23.1%	26.9%	22.2%	12.0%
Female (n=56)	76.8%	41.1%	46.4%	42.9%	16.1%	5.4%
Total (N=164)	86.0%	38.4%	31.1%	32.3%	20.1%	9.8%

Reasons for Gambling

The preferred reasons for gambling are presented in Table 8. The top three reasons cited for gambling participation are similar for both males and females. Similar to other studies on youth gambling, the predominant reasons endorsed for gambling participation are for enjoyment (73.9%), to win money (71.7%), and for excitement (63.1%). The primary reason cited for the 'other' category was boredom. Approximately 5% of the respondents who selected this category indicated that they participated in gambling activities as a way to "pass the time." It is interesting to note that 3% of the responses comprising the category 'other,' consisted of responses that gambling was a way to "spend time with family members."

Table 8: Reasons for Gambling: Distribution by Gender

Reasons for Gambling	Total Sample (N=1359)	Male (N=[illegible])	Female (N=[illegible])
Enjoyment	73.9%	74.2%	73.4%
To Win Money	71.7%	76.1%	65.6%
Excitement	63.1%	66.4%	58.5%
To Get Rid of Bad Feelings	11.6%	12.9%	9.9%
Relaxation	11.1%	14.5%	6.4%
Socialized	2.1%	2.4%	1.6%
Feel Older	4.4%	5.2%	3.2%
To Get Rid of Problems	3.6%	4.0%	3.0%
Embarrassment	3.2%	3.5%	2.7%
Other	8.9%	9.8%	7.6%

Note: Respondents were able to select multiple reasons.

Gambling Problems Amongst Youth

Recently, Fisher (2000) revised the DSM-IV-J, creating the DSM-IV-MR-J (modified, revised juvenile version) to account for qualitative differences in responding. While the items in the original version were scored in a dichotomous manner (yes or no), the new version adds a qualitative dimension (see questions 12-20 on the questionnaire, Appendix B). As such, this new version likely promotes even more stringent guidelines for classification.

Based upon the frequency of gambling and performance on the DSM-IV-MR-J, adolescents were categorized into four groups:

- *Non-Gambler* – No gambling in the past year;
- *Social Gamblers* – DSM-IV-MR-J score of 0 or 1;
- *At-Risk Gamblers* – DSM-IV-MR-J score of 2 or 3;
- *Probable Pathological Gamblers* – DSM-IV-MR-J score of 4 or greater.

Results presented in Table 9 show that 36.7% of adolescents were classified as non-gamblers, 54.0% as social gamblers, 6.6% as at-risk gamblers, and 2.7% as probable pathological gamblers. Combining the at-risk and probable pathological gamblers, 9.3% of adolescents were found to be experiencing a considerable number of gambling related problems.

Table 9: Gambling Severity by Gender

	Non Gambler	Social Gambler	At-Risk Gambler	Probable Pathological Gambler
Male (n=1084)	27.0%	59.9%	9.3%	3.8%
Female (n=1068)	46.6%	48.0%	4.0%	1.4%
Total (N=2151)	36.7%	54.0%	6.6%	2.7%

When examining the gender differences in both the at-risk and probable pathological gambler groups, the percentages of males and females falling into these categories represent the typical distribution one would expect based on other youth gambling studies (e.g., males are three times more likely than females to be classified as probable pathological gamblers).

The distribution of adolescents by gambling severity within each grade level is presented in Table 10. A relatively consistent distribution pattern was found at each grade. The oldest participants (grade 12) reported the highest number of gambling-related problems, with 9.2% being "at-risk" and 3.8% meeting the criteria for probable pathological gambling.

Table 10: Gambling Severity Classification by Grade Level

	Non Gambler	Social Gambler	At-Risk Gambler	Probable Pathological Gambler
Grade 7 (n=411)	35.8%	56.4%	5.1%	2.7%
Grade 8 (n=299)	32.2%	59.0%	7.5%	1.4%
Grade 9 (n=302)	32.2%	57.5%	8.3%	2.0%
Grade 10 (n=359)	42.2%	50.0%	5.3%	2.5%
Grade 11 (n=306)	39.9%	50.9%	5.6%	3.6%
Grade 12 (n=262)	37.4%	49.6%	9.2%	3.8%

GAMBLING SEVERITY

It is important to acknowledge that results obtained from the probable pathological group are based on a small sample size (N=58) and thus results for this group should be interpreted with caution due to the margin of error based on small cell sizes. However, meaningful conclusions can still be drawn about the prevalence and characteristics of probable pathological adolescent gamblers despite this caveat. Moreover, this group of probable pathological gamblers is a significantly larger group than has typically been found in other studies due to the large sample size. As well, the use of the DSM-IV-MR-J incorporates the most stringent criteria for classifying youth as probable pathological gamblers. Thus, it is likely that these adolescents are truly pathological gamblers.

Age of Onset of Gambling

Adolescents were asked to indicate the age at which they first began gambling. While adolescents reported starting to gamble from as early as age 2 (a rare occurrence), the mean age of onset reported by adolescents is 11.05 years old. A comparison of the age of onset of gambling by gambling severity is presented in Table 11.

Table 11: Age of Onset of Gambling by Gambling Severity and Gender

	11.13	2.51	602	11.08	2.58	454
	10.74	3.06	95	11.20	2.74	41
	10.51	3.12	39	9.93	2.97	14
	11.05	2.63	1245	11.05	2.63	1245

Results indicate that probable pathological gamblers reported beginning to gamble at an earlier age than either the at-risk gamblers or social gamblers. Moreover, both the male at-risk gamblers and probable pathological gamblers had mean ages of onset that were slightly lower than the overall sample mean. Interestingly, it is the female probable pathological gamblers that reported the lowest mean age of onset (9.93 years old), although the difference is only a half-year.

Gambling Participation

It is important to note that over 60% of the at-risk gamblers do so on a weekly basis and a large portion of them are experiencing behavioural difficulties associated with their gambling involvement. The same is true for the probable pathological gamblers, but to a larger degree. Eighty-three percent of those adolescents classified as probable pathological gamblers (n=48) report gambling on a weekly basis. Many are experiencing significant difficulty controlling their

gambling and report stealing money to finance their losses and gambling activities (see Table 12).

Table 12: Negative Behaviours Associated With Problem Gambling

	Do you gamble more than you want to?	Have you stolen money to gamble?	Do you think you gamble too much?
Social Gambler	9.8%	2.2%	2.1%
At-Risk Gambler	40.1%	13.3%	14.0%
Probable Pathological Gambler	64.9%	50.0%	31.0%

It is interesting to note that as gambling severity increases, so do adolescents' reports of gambling more than they desire, stealing money to finance their gambling, and thinking that they gamble too much. A full 50% of probable pathological gamblers report stealing money to gamble. This is a key finding that highlights the magnitude of severe gambling involvement. While a large majority of the at-risk and probable pathological gamblers admit to gambling more than they want (indicating difficulty in trying to cease or limit their gambling), only 14% of the at-risk group and 31% of the probable pathological gamblers think they gamble excessively.

Developmentally, older students were much more inclined to believe that they were gambling more than they would like (26.8% in grade 12 as compared to 11.4% in grade 7). The data presented in Table 13 suggests few developmental differences, with the exception being that students in grade 7 were least likely to steal money to support their gambling behaviour.

There were significant gender differences associated with gambling-related behavioural difficulties. Males were more likely than females to report gambling more than they like, $?^2(1, 358) = 44.30$, $p < .001$, were more inclined to steal money to gamble, $?^2(1, 1361) = 6.83$, $p < .01$, and thought they gambled too much, $?^2(1, 1360) = 5.28$, $p < .05$. This difference was consistent for all males independent of age (see Table 13).

Dissociation

Adolescents who reported having gambled in the past 12 months answered a series of questions related to dissociative behaviours when gambling. Research on gambling, with adults and youth, has consistently shown that when gambling severity increases, individuals likely detach from "the present" and experience blackouts, lose track of time, and feel as if they are 'outside' themselves. These dissociative experiences are fundamental to Jacobs' General Theory of Addictions, suggesting that gambling participation serves as an escape mechanism from stressful events with which an individual is having difficulty coping (Jacobs, 1988). Indication of experiencing dissociative states may be a good predictor of future problem gambling, and may be indicative of current difficulties with adaptive coping skills.

Table 13: Negative Behaviours Associated With Problem Gambling by Gender and Grade Level

(Grade Level)	Do you gamble more than you want to?	Have you stolen money to gamble?	Do you think you gamble too much?
Grade 7			
Male (n=147)	16.3%	2.7%	5.4%
Female (n=115)	5.2%	1.7%	0.0%
Total (n=262)	11.4%	2.3%	3.1%
Grade 8			
Male (n=91)	13.2%	9.9%	4.4%
Female (n=109)	5.5%	1.8%	3.7%
Total (N=201)	9.0%	5.5%	4.0%
Grade 9			
Male (n=149)	18.8%	7.3%	3.3%
Female (n=119)	8.4%	5.8%	5.0%
Total (n=268)	14.2%	6.7%	4.1%
Grade 10			
Male (n=116)	16.4%	6.8%	2.6%
Female (n=68)	5.9%	4.4%	2.9%
Total (n=186)	12.4%	5.9%	2.7%
Grade 11			
Male (n=182)	26.4%	7.1%	9.3%
Female (n=98)	7.1%	4.1%	2.0%
Total (n=280)	19.6%	6.0%	6.8%
Grade 12			
Male (n=108)	31.5%	8.3%	7.4%
Female (n=56)	17.9%	3.6%	5.4%
Total (n=164)	26.8%	6.7%	6.7%
Overall Gender			
Male	20.8%	6.8%	5.7%
Female	7.6%	3.5%	3.0%
Total	15.3%	5.4%	4.5%

The reported dissociation by the three groups of gamblers is presented in Table 14. It is interesting to note that social gamblers *never* or *rarely* experience a trance-like state (97.6%), feel like a different person (95.2%), experience blackouts (98.9%), lose track of time (87.1%), or feel 'outside themselves' (98.2%) while gambling. In contrast, adolescent probable pathological gamblers demonstrate the opposite effect reporting the highest ratings of dissociation, especially in terms of losing track of time and feeling like a different person. Those who report dissociating regularly when gambling primarily consist of the probable pathological gamblers, with at-risk gamblers being more likely to report "losing track of time" than any other type of dissociation.

Table 14: Frequency of Dissociation According to Gambling Severity Levels

	86.5%	11.1%	1.7%	0.6%
	55.2%	31.5%	11.2%	2.1%
	28.8%	36.8%	15.8%	17.5%
	80.8%	14.4%	4.2%	0.6%
	55.9%	29.4%	11.2%	3.5%
	33.3%	7.0%	24.6%	35.1%
	97.3%	1.6%	0.4%	0.7%
	83.9%	10.5%	2.1%	3.5%
	63.2%	5.3%	10.5%	21.1%
	60.4%	26.7%	10.7%	2.2%
	32.9%	28.0%	26.6%	12.6%
	15.5%	15.5%	31.0%	37.9%
	90.7%	7.5%	1.3%	0.5%
	68.5%	20.3%	8.4%	2.8%
	36.8%	19.3%	26.3%	17.5%

[a]Regularly is referred to as "all the time" in the questionnaire.

The distribution of reported dissociation (on an occasional and regular basis), by gender, as a function of gambling severity is presented in Table 15. The results strongly support the fact that type and frequency of dissociation is strongly linked to level of gambling severity. The results also clearly suggest that female probable pathological gamblers report experiencing dissociative states as often, and in some cases, more so than males despite the fact that females, as a whole, report these states less often than males (Jacobs, 1988).

Table 15: Dissociation When Gambling: Gender Differences

	2.8%	0.9%	5.8%	0.9%	0.5%	0.9%	12.4%	2.6%	1.8%	0.6%
	0.4%	0.2%	2.2%	0.2%	0.4%	0.4%	8.5%	1.6%	0.6%	0.4%
	13.9%	3.0%	10.9%	4.0%	2.0%	5.0%	26.7%	11.9%	8.9%	3.0%
	4.8%	0.0%	11.9%	2.4%	2.4%	0.0%	26.2%	14.3%	7.1%	2.4%
	19.0%	19.0%	21.4%	35.7%	11.9%	16.7%	28.6%	38.1%	28.6%	19.0%
	7.1%	14.3%	28.6%	35.7%	7.1%	35.7%	40.0%	33.3%	21.4%	14.3%

[b]Occ = Occassional; [c]Reg = Regular

Self-Evaluation

Students were asked to rate themselves on a 7 point Likert scale (1 = non gambler, 7 = pathological gambler) as to how they viewed themselves in relation to their gambling behaviours. These ratings are presented with respect to gender, grade, and gambling severity in Tables 16 and 17. Despite reporting increased delinquent behaviours (stealing, lying, skipping school, etc.), a large percentage of those classified as probable pathological gamblers rated themselves as having few, if any, problems associated with their gambling behaviour. As well, while adolescents admit gambling more than they want, they frequently fail to acknowledge that they gamble excessively.

Table 16: Self-Perception Ratings in Comparison to Actual Gambling Classification

Gambling Groups based upon DSM-IV-MR-J Classification	Self-Classification			
	Non Gambler[a]	Social Gambler[b]	Problem Gambler[c]	Pathological Gambler[d]
Social Gambler	20.9% (n=242)	75.7% (n=876)	3.2% (n=37)	0.3% (n=3)
Social Problem Gambler	2.8% (n=4)	71.7% (n=102)	24.5% (n=35)	1.4% (n=2)
Probable Pathological Gambler	0.0%	37.9% (n=22)	32.8% (n=19)	29.3% (n=17)

[a]Non-Gambler is equal to a rating of 1 on the scale.
[b]Social Gambler is equal to a rating of 2 or 3 on the scale.
[c]Problem Gambler is equal to a rating of 4 or 5 on the scale.
[d]Pathological Gambler is equal to a rating of 6 or 7 on the scale.

It is important to note that the classification used is strictly related to the self-rating scale (i.e., how adolescents view themselves from non gambler to pathological gambler) and is not to be confused with the classification system used to empirically group adolescents into the gambling severity groups referred to previously (i.e., social gamblers, at-risk gamblers, and probable pathological gamblers), using the DSM-IV-MR-J criteria.

While probable pathological gamblers were accurate with respect to the fact that they did not view themselves as 'non-gamblers,' they tended to underestimate their level of gambling involvement. For example, 37.9% of adolescents in the probable pathological gambler group rated themselves as social gamblers (i.e., they assigned themselves a rating of 2 or 3 on the Likert scale). A further 32.8% viewed themselves as problem gamblers. Only 29.3% of adolescents in the probable pathological gambler group correctly classified their level of gambling involvement according to the DSM-IV-MR-J. Similarly, only 24.5% of at-risk gamblers correctly classified themselves as such, while 71.7% rated themselves as social gamblers. Hence, the majority of adolescents who are at-risk for the development of severe difficulties associated with their gambling behaviour may not actually recognize the severity of their problems. This may explain why they are unlikely to present for treatment.

There are gender differences with respect to the accuracy of the self-ratings and actual distribution according to the DSM-IV-MR-J score. For example, in Table 17, for non-gamblers, females in all grades were more likely than males to rate themselves as non-gamblers. Males on

the other hand were more likely to rate themselves as social gamblers or problem gamblers. As a whole, the sample tended to underestimate the severity of gambling since only 1.6% (n=22) of the gambling sample classified themselves as pathological (this is in comparison to the 2.7% (n=58) classified by the DSM-IV-MR-J). The total sample also tended to overestimate their classification of social and non-gambler (n=1250) as opposed to the 1162 adolescents who were classified within these two categories on the DSM-IV-MR-J.

Table 17: Adolescents' Self-Perceptions of Gambling Problems by Gender and Grade Level

	Self-Classification			
Grade Level	Non Gambler[a]	Social Gambler[b]	Problem Gambler[c]	Pathological Gambler[d]
Grade 7				
Male (n=145)	15.2%	73.8%	9.7%	1.4%
Female (n=116)	20.7%	74.2%	5.1%	0.0%
Total (n=261)	17.6%	74.0%	7.6%	0.8%
Grade 8				
Male (n=91)	13.2%	78.1%	6.6%	2.2%
Female (n=109)	24.8%	74.3%	0.9%	0.0%
Total (n=201)	19.9%	75.7%	3.0%	1.5%
Grade 9				
Male (n=149)	10.1%	79.2%	9.4%	1.3%
Female (n=119)	32.8%	61.3%	4.2%	1.7%
Total (n=268)	20.1%	71.3%	7.1%	1.5%
Grade 10				
Male (n=117)	12.0%	76.9%	9.4%	1.8%
Female (n=68)	38.2%	57.3%	1.5%	2.9%
Total (n=185)	22.5%	69.0%	6.4%	2.1%
Grade 11				
Male (n=183)	6.6%	82.0%	8.2%	3.2%
Female (n=98)	26.5%	70.4%	3.0%	0.0%
Total (n=281)	13.5%	78.0%	6.4%	2.2%
Grade 12				
Male (n=147)	7.4%	77.8%	13.0%	1.8%
Female (n=115)	37.5%	57.1%	3.6%	1.8%
Total (n=262)	19.7%	70.7%	9.2%	1.8%
Total Males (n = 793)	10.5% (n = 83)	78.2% (n = 620)	9.2% (n = 73)	2.2% (n = 17)
Total Females (n = 566)	28.8% (n = 163)	67.2% (n = 380)	3.2% (n = 18)	0.9% (n = 5)
Total Sample (N = 1359)	16.1% (n = 246)	73.6% (n = 1001)	6.7% (n = 91)	1.6% (n = 22)

[a]Non-Gambler is equal to a rating of 1 on the scale.
[b]Social Gambler is equal to a rating of 2 or 3 on the scale.
[c]Problem Gambler is equal to a rating of 4 or 5 on the scale.
[d]Pathological Gambler is equal to a rating of 6 or 7 on the scale.

GAMBLING, ALCOHOL & DRUG USE

Gambling research with both adults and youth has shown that gambling behaviour is often accompanied by drug and/or alcohol use and abuse (Abbott & Volberg, 1996; Derevensky & Gupta, 1996, 1998b). Specifically, adolescent studies conducted in Quebec have shown that a larger percentage of probable pathological gamblers smoked cigarettes, consumed alcohol, and engaged in substance use on a regular basis in comparison to non gamblers and social gamblers.

This research assessed drug and alcohol use amongst adolescents and perceived drug and alcohol use of family members. A strong link has been consistently demonstrated between level of gambling involvement and having a father whom they perceive to have a serious gambling problem (Gupta & Derevensky, 1998b). It is important to note, however, that responses regarding parental gambling, drug, and alcohol problems are based upon adolescents' perceptions and may not reflect actual use or the severity of the problem since no corroborative evidence was gathered. As such, these results should be interpreted with caution.

An overview of drug, alcohol, cigarette, and gambling involvement for the entire sample can be seen in Table 18. The data suggests that children as young as grade 7 are partaking in gambling activities on an occasional basis similar to older adolescents. No significant developmental differences between the percentages of youth gambling occasionally across grade levels were found. This was in stark contrast to the increase in drug and alcohol use as well as cigarette smoking (appears to plateau at grade 9) as children got older. In contrast, gambling patterns were established early and remained relatively constant across grade levels.

With respect to regular gambling use (defined as once a week or more), 21% - 27% of the sample reported gambling on a regular basis. Again, this percentage remains relatively constant across grade levels in comparison to regular drug, alcohol, and cigarette use. Moreover, the percentage of adolescents reporting gambling is substantially higher than alcohol and drug use as well as smoking in grades 7-11. It was only when adolescents reached grade 12 (approximately 17-18 years of age) did alcohol and cigarette use surpass gambling on a regular basis.

Table 18: A Comparison of Drug, Alcohol, Cigarette, and Gambling Involvement by Grade and Frequency of Use

	Occasional Involvement[a]						Regular Involvement[b]					
	Gr. 7	Gr. 8	Gr. 9	Gr.10	Gr.11	Gr.12	Gr. 7	Gr. 8	Gr. 9	Gr.10	Gr.11	Gr.12
Cigarette	1.7%	8.8%	11.9%	12.2%	10.0%	9.2%	1.7%	2.3%	7.8%	11.9%	16.8%	34.7%
Alcohol	9.2%	25.1%	35.8%	37.9%	44.0%	46.6%	1.7%	3.1%	7.3%	11.3%	19.3%	28.6%
Drugs[c]	1.0%	4.5%	9.7%	15.9%	26.7%	33.0%	0.9%	1.4%	6.1%	16.2%	16.9%	21.7%
Gambling	63.3%	67.7%	64.8%	55.9%	58.1%	61.6%	23.1%	21.2%	22.9%	21.0%	25.3%	26.6%

[a]Occasional involvement comprises 'less than once a week.'
[b]Regular involvement comprises 'once a week or more' and 'everyday.'
[c]The drug category includes the use of any of the specific drugs mentioned in the questionnaire including uppers, downers, and hallucinogens.

To assess the relationship between level of gambling involvement and other addictive behaviours, analyses were conducted to directly compare the number of adolescents at-risk for gambling-related problems with the use of other substances. The distribution of the sample engaging in drug, alcohol, and cigarette use on an occasional or regular basis is presented in Table 19.

Table 19: Addictive-Related Behaviours by Gambling Severity

	Non Gambler (n=789)	Social Gambler (n=1161)	At-Risk Gambler (n=143)	Probable Pathological Gambler (n=56)
Drugs				
Non User	91.6%	76.7%	61.5%	37.5%
Occasional Use	4.2%	12.1%	16.8%	19.6%
Regular Use	4.2%	11.3%	21.7%	42.9%
Alcohol				
Non User	1.3%	50.1%	30.8%	23.2%
Occasional Use	23.1%	38.4%	42.0%	25.0%
Regular Use	5.6%	11.5%	27.3%	51.8%
Cigarettes				
Non User	89.1%	76.8%	58.0%	50.0%
Occasional Use	4.8%	10.3%	17.5%	12.5%
Regular Use	6.1%	12.8%	24.5%	35.5%

As illustrated in Table 19, there is a high degree of concordance between excessive gambling participation and the engagement in other potentially addictive behaviours. Those individuals who have serious gambling problems are also more likely to engage in substance use than their peers. This finding is consistent with previous research. It is interesting to note that 91.6% of the non-gamblers also refrain from the ingestion of substances.

An interesting finding related to parental drug, alcohol, and gambling problems can be observed when analyzing the distribution according to gambling group severity. Table 20 depicts the percentage of parents who are perceived as experiencing difficulties with drugs, alcohol, and gambling, by level of gambling severity.

The relationship between perceived parental substance/gambling problems and gambling problems in youth suggests that probable pathological gamblers are more likely to perceive a parent as having a gambling, alcohol or drug problem. This data is highly suggestive that one risk factor for gambling problems may be related to parental mental health (i.e., non addictive behaviours).

Table 20: Percentage of Parental Gambling, Drug, or Alcohol Problems by Gambling Severity

	Mother with gambling problem	Mother with drug/drinking problem	Father with gambling Problem	Father with drug/drinking problem
Non Gambler (n=709)	0.8%	1.1%	1.8%	2.2%
Social Gambler (n=1162)	0.8%	0.8%	2.8%	4.0%
At-Risk Gambler (n=143)	8.4%	2.1%	4.9%	5.6%
Probable Pathological Gambler (n=58)	15.5%	20.7%	20.7%	25.9%

Arousal

The Intensity subscale of the Arnett Inventory of Sensation Seeking is reported to be highly correlated with arousal mechanisms and is often found to correlate positively with levels of gambling involvement. High scores on this measure are indicative of individuals considered to be high sensation seekers and reflect the need to seek out thrill and excitement (Arnett, 1994).

Significant group differences were found with respect to gambling severity level and mean arousal scores, $F(3, 2061) = 56.83$, $p < .001$, with post hoc analyses indicating that significant differences were found for probable pathological gamblers in comparison to social and non-gamblers. Specifically, probable pathological and at-risk gamblers' mean arousal scores (29.51 and 28.31 respectively) were greater than the mean arousal scores of social gamblers (26.32) and non-gamblers (23.60). There was no significant difference between the mean score for the probable pathological gamblers and the at-risk gamblers ($p = .27$). The mean AISS scores are presented in Table 21.

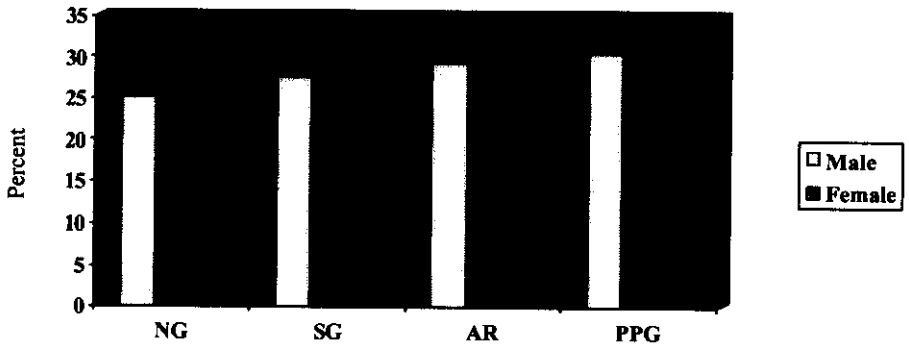
Table 21: Mean Scores on Arousal Items by Level of Gambling Severity

	Mean Score for Intensity Subscale of AISS	
	M	SD
Non Gambler	23.60	4.41
Social Gambler	26.32	4.62
At-Risk Gambler	28.31	4.34
Probable Pathological Gambler	29.51	4.98
Total Sample	25.54	4.81

Possible range of scores is 10-40

While significant gender differences were noted on this subscale whereby females obtained consistently lower scores than males within each of the three groups of gambling severity, $F(1, 2061) = 60.66$, $p < .001$, a similar trend was found for both males and females such that the higher the level of gambling involvement, the higher the mean AISS Intensity subscale score (see Figure 1 for an illustration of this trend).

Figure 1: Mean AISS Scores by Gender Across Gambling Severity Groups



NG: Non Gambler
SG: Social Gambler
AR: At-Risk Gambler
PPG: Probable Pathological Gambler

Reasons for Gambling

It is interesting to note the primary reasons given for engaging in gambling activities according to gambling severity level. Table 22 presents the distribution of responses according to the reasons why adolescents report gambling. While the top three reasons reported for the gambling severity groups remain the same as for the entire gambling sample as a whole, interesting findings appear for the probable pathological group.

In addition to reporting gambling to win money, for enjoyment, and excitement, probable pathological gamblers are also more likely to indicate that they gamble to relax (31.0%), to make or be with friends (31.0%), to feel older (31.0%), and to escape problems (29.3%). Probable pathological gamblers endorse all reasons more frequently than the other groups. Their reasons suggest difficulties with arousal, dissociation, depression, and the need to escape.

Table 22: Reasons for Gambling

	71.9%	81.1%	86.2%
	68.9%	88.1%	87.9%
	60.8%	74.1%	82.8%
	10.5%	16.8%	31.0%
	9.5%	16.1%	31.0%
	8.8%	10.6%	20.7%
	2.6%	8.4%	31.0%
	1.7%	8.4%	29.3%
	1.8%	4.9%	25.9%
	1.0%	2.8%	20.7%

GAMBLING, DEPRESSION, LIFE STRESS AND COPING AMONG ADOLESCENTS

Preliminary research (Marget, Gupta, & Derevensky, 1999) suggests that adolescents who are experiencing gambling problems utilize less effective coping strategies in stressful situations. Moreover, Marget et al. suggested that youth with serious gambling problems employ coping styles that involve a higher use of emotion-focused, distraction, and avoidance coping. This finding seems to fit well with clinicians who have suggested that gambling, for individuals with severe gambling problems in particular, serves both as a means of escape from personal stress as well as a way of maintaining an optimal level of arousal. Research evidence suggests that the way an individual deals with stressful events in his/her surroundings can help either protect or exacerbate negative influences. Hence, adaptive coping skills may act as a buffer to the development of psychopathology. In turn, maladaptive coping styles may result in increased difficulties in a multitude of personal, social and emotional areas. Despite a propensity towards a maladaptive coping style, it has been argued that the use of positive, adaptive coping strategies

can be effectively taught and used to buffer some of the negative consequences of engaging in high-risk behaviour. This section will examine the relationship between adolescent gambling severity, depression, life stress and coping mechanisms.

Depression

Scores on the Reynolds Adolescent Depression Scale (RADS) were divided into three separate categories: *Low Depressive Symptomatology* (total score 30 - 59), *Moderate Depressive Symptomatology* (total score 60 – 75; 1-1½ standard deviations above the mean), and *High Depressive Symptomatology* (total score ≥ 76; greater than 1½ standard deviation above the mean) (clinical depression) are presented in Table 23.

Table 23: Depressive Symptomatology by Grade Level and Gender

	Low Depressive Symptomatology	Moderate Depressive Symptomatology	High Depressive Symptomatology
Grade 7			
Male (n=161)	67.1%	24.2%	8.7%
Female (n=169)	65.1%	26.0%	8.9%
Total (N=331)	65.9%	25.4%	8.8%
Grade 8			
Male (n=97)	77.3%	14.4%	8.2%
Female (n=142)	59.2%	30.3%	10.6%
Total (N=239)	66.5%	23.8%	9.6%
Grade 9			
Male (n=144)	64.6%	23.6%	11.8%
Female (n=122)	46.7%	32.8%	20.5%
Total (N=266)	56.4%	27.8%	16.8%
Grade 10			
Male (n=117)	52.1%	26.5%	21.4%
Female (n=118)	51.7%	27.1%	21.2%
Total (N=235)	51.9%	26.8%	21.3%
Grade 11			
Male (n=183)	63.9%	22.4%	13.7%
Female (n=190)	42.1%	36.8%	21.1%
Total (N=373)	52.8%	29.8%	17.4%
Grade 12			
Male (n=119)	47.1%	36.1%	16.8%
Female (n=97)	41.2%	39.2%	19.6%
Total (N=216)	44.4%	37.5%	18.1%
Gender			
Male (n=821)	62.1%	24.6%	13.3%
Female (n=838)	51.6%	31.9%	16.6%
Total (N=1660)	56.7%	28.3%	14.9%

Percentages do not always add up to 100% as some participants did not classify their gender.

The distribution of Reynolds Adolescent Depression Scale scores by both age and gender are presented in Table 23. Overall, for the entire sample, the distribution of scores supports past research examining gender differences for this age population such that more females, in general, fall within the moderate depressive category $?^2$ (1, 469) = 9.01, $p < .001$ with a larger proportion

of males falling within the low depressive symptomatology category, $?^2$ (1, 942) = 6.46, $p < .05$. No significant gender differences were found between males and females within the high depressive symptomatology category.

From a developmental perspective, the percentage of youth with high depressive symptomatology scores increases from grade 7 and peaks at grade 10. Moderate depressive symptomatology scores are more variable across grade levels, but tend to increase with age.

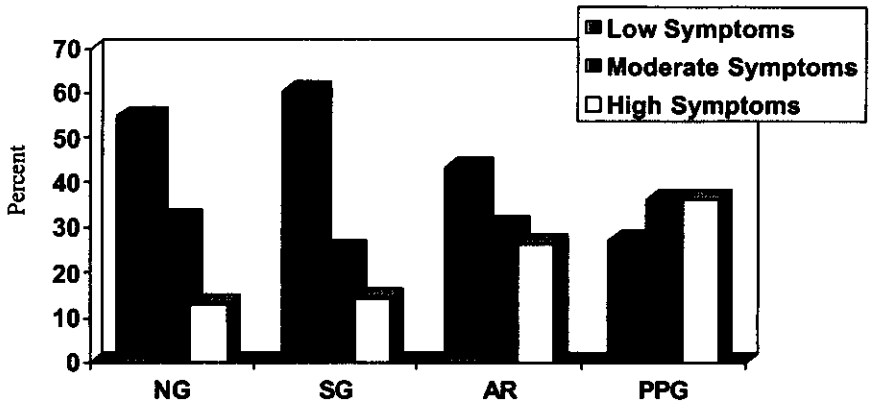
The distribution of RADS scores by gambling severity and gender is presented in Table 24. A clear positive linear trend can be seen between scores of high depressive symptomatology and level of gambling severity.

Table 24: Depressive Symptomatology According to Gambling Severity and Gender

	Low Depressive Symptomatology	Moderate Depressive Symptomatology	High Depressive Symptomatology
Non Gambler			
Male (n=230)	60.9%	27.0%	12.2%
Female (n=398)	51.5%	34.9%	13.6%
Total (n=628)	54.9%	32.0%	13.1%
Social Gambler			
Male (n=500)	66.4%	22.4%	11.2%
Female (n=396)	53.5%	28.5%	18.2%
Total (n=896)	60.6%	25.1%	14.3%
At-Risk Gambler			
Male (n=68)	45.6%	29.4%	25.0%
Female (n=31)	38.7%	32.3%	29.0%
Total (n=99)	43.4%	30.2%	26.4%
Probable Pathological Gambler			
Male (n=22)	27.3%	36.4%	36.4%
Female (n=10)	30.0%	30.0%	40.0%
Total (n=32)	27.3%	34.4%	38.3%

Figure 2 illustrates the percentage of adolescents experiencing low, moderate, and high levels of depressive symptomatology as a function of gambling severity. As can be seen, the percentage of youth reporting high depressive symptomatology increases with their level of gambling problems.

Figure 2: Low, Moderate, and High Depressive Symptomatology and Gambling Severity



NG: Non Gambler
SG: Social Gambler
AR: At-Risk Gambler
PPG: Probable Pathological Gambler

It is important to note that gender differences do not account for the high proportion of scores in depressive symptoms within the probable pathological group $F(3, 1655) = .377$, $p = .77$. A summary of the mean RADS scores according to gambling severity level and gender is presented in Table 25.

Table 25: Distribution of RADS Scores by Gambling Severity and Gender

	57.15	15.10	55.77	14.77	63.83	14.64	69.36	16.89
	59.71	14.72	59.69	16.69	66.87	16.36	68.80	18.41

Suicide Ideation and Suicide Attempts

Adolescents who experience severe gambling difficulties have been reported to have more suicidal ideation and more attempts (Derevensky & Gupta, 1999; Marget et al., 1999). Given the multitude of problems that appear to coexist for these adolescents, and given their high depression scores, this is not a surprising finding. Thinking about suicide is not uncommon for adolescents in general while actual suicide attempts are not as frequent. Suicide attempts have also been linked to maladaptive coping styles and for some adolescents suicide is perceived to be a viable way of escaping life's problems.

The distribution of adolescents who have reported thinking about suicide and those who report having made actual attempts is presented in Table 26. Overall, females report thinking about

suicide significantly more often than males, $?^2(1, 2136) = 25.08$, $p<.001$, and were more likely to report having made suicide attempts, $?^2(1, 2136) = 5.45$, $p< .02$.

Table 26: Adolescents' Reports of Suicide Ideation and Actual Attempts: Gender Differences

	[illegible]	[illegible]
[illegible]	12.5%	2.4%
[illegible]	20.4%	4.1%
[illegible]	16.4%	3.2%

Developmentally, there is an increasing linear trend noted between grade level and suicide ideation. This trend is, in general, similar for both males and females. Similarly, the older students report making more suicide attempts.

Table 27: Adolescents' Reports of Suicide Ideation and Actual Attempts: Developmental Differences

	[illegible]	[illegible]	[illegible]
[illegible]	8.4% 6.8% 7.8%	2.5% 1.5% 1.9%	0.0% 0.5% 0.2%
[illegible]	7.5% 17.3% 13.3%	0.8% 4.1% 2.7%	0.8% 0.6% 0.3%
[illegible]	9.3% 23.4% 16.1%	1.5% 3.7% 2.6%	0.5% 1.0% 0.8%
[illegible]	16.0% 19.5% 17.7%	3.0% 2.6% 2.8%	0.6% 0.6% 0.6%
[illegible]	13.7% 30.4% 21.7%	2.1% 6.7% 4.3%	2.1% 0.9% 1.5%
[illegible]	20.9% 28.4% 24.0%	4.6% 7.5% 5.8%	4.5% 1.8% 3.4%

Reports of suicide ideation and attempts by gambling severity are presented in Table 28. A clear relationship can be seen between suicide ideation, suicide attempts and the degree of gambling problems experienced. Approximately one quarter of all probable pathological gamblers (27.6%)

and at-risk gamblers (25.9%) report having thoughts of suicide, with 14.3% of probable pathological gamblers and 9.8% of at-risk gamblers reporting having made a suicide attempt.

Table 28: Suicide Ideation and Suicide Attempts by Gambling Severity

	14.1%	2.2%
	16.3%	2.7%
	25.9%	9.8%
	27.6%	14.3%

Figure 3: Suicide Ideation

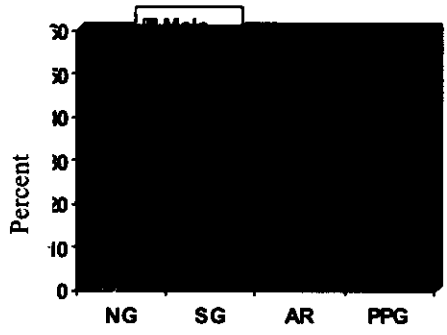
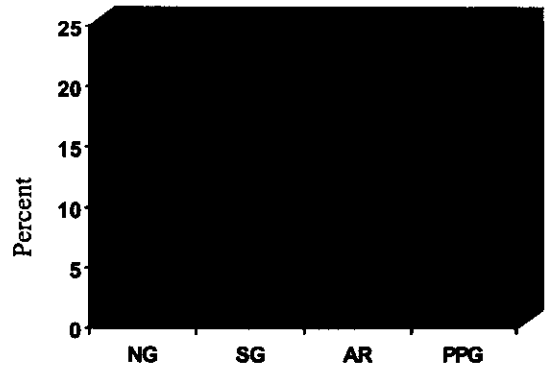


Figure 4: Suicide Attempts



NG: Non Gambler
SG: Social Gambler
AR: At-Risk Gambler
PPG: Probable Pathological Gambler

The gender differences by gambling severity are further highlighted in Figures 3 and 4. Females within the at-risk and probable pathological gambler groups were the most likely to report experiencing suicidal ideation and making suicide attempts.

Life Stress, Coping and Gambling Severity

Preliminary research has suggested a relationship between poor coping styles and problem gambling. However, little is known about the inter-relationship concerning life stressors, coping strategies and severity of gambling problems amongst adolescents. Do youth who develop gambling problems experience more major and minor stressors or do they employ less effective

coping strategies? The results previously presented suggest that youth exhibiting severe gambling problem behaviour are more likely to score higher on depression inventories, are at an increased risk for attempting suicide, and are more heavily involved in drug and alcohol consumption.

The Adolescent Perceived Event Scale – Form B (APES) (see pages 7-10 in the questionnaire, Appendix B) consists of a 100 life events. For this study, 99 events were included (several school boards requested removal of the item, *making love/sexual intercourse, losing virginity*). The 99 life events were divided into 40 major events (events that cause a severe disruption in the adolescents' lives and involve marked stress, for example, the death of a parent), 37 minor daily events (less severe stressors that are considered to be more frustrating irritants that occur frequently during one's daily routines, for example, failing a school exam or not being invited to a party), 11 neutral events (events that are neither uniquely negative or positive in nature, for example, discussions with parents, talking on the phone), and 11 positive events (events that have a clear positive benefit for the individual or a 'significant other,' such as helping someone or receiving good grades). The distribution of the events into the major, minor, and positive categories was based upon the different stress inventories that were used to develop the APES (Compas et al., 1987; Johnson & McCutcheon, 1980; Rowlison & Felner, 1988; Swearingen & Cohen, 1985).

The analyses for the coping styles (CISS) compared adolescents on three coping scales (i.e., Task-Oriented, Emotion-Oriented, and Avoidance-Oriented coping styles). It is important to note that the Avoidance scale consists of two subscales, dividing the items into those assessing a preferred way of dealing with stressful events through Distraction and those using Social Diversion as a coping strategy. Analyses are performed using both the complete Avoidance scale and the two subscales. Coping scales are scored according to T-scores ($\underline{M}$=50, SD=10), and have been covaried for gender and age (see the manual for the CISS for more details).

A 3 x 2 x 5 multivariate analysis of variance (MANOVA) was performed including Group, Gender, and Grade as fixed variables and the APES and CISS as dependent variables. Initial analyses using the four gambling severity groups did not reveal statistically significant differences between the probable pathological gamblers and the at-risk gamblers on the dependent variables. Moreover, there were no gender or grade differences between these two groups. As such, the results of the MANOVA (univariate results are reported in their respective sections) presented in Table 29 used three gambling groups, combining the at-risk gamblers with the probable pathological gamblers. SPSS MANOVA (Version 9.0) was used for the analysis with the Type III sequential adjustment for nonorthogonality.

Table 29: Multivariate Results for the APES and CISS

Effect	Value	F	df	p	Observed Power
Group Wilks' Lambda	.912	8.17	(14, 2434)	<.001	1.00
Gender Wilks' Lambda	.940	2.15	(35, 6100)	<.001	.99
Grade Wilks' Lambda	.949	9.41	(7, 1216)	<.001	1.00
Group * Grade Wilks' Lambda	.942	1.05	(70, 8554)	.37	.99
Group * Gender Wilks' Lambda	.991	.756	(14, 2434)	.72	.50
Gender * Grade Wilks' Lambda	.981	.669	(35, 6100)	.93	.63
Group * Grade * Gender Wilks' Lambda	.955	.799	(70, 8554)	.89	.93

There were no significant Group x Grade, Group x Gender, or Gender x Grade interaction effects. Moreover, the three-way interaction, Group x Grade x Gender, was also not significant, thus allowing for the comparison of the three gambling severity groups without the need to control for either gender or grade.

Group Differences on the Life Stress and Coping Measures

The means and standard deviations for the four life event categories are presented in Table 30. Univariate analyses revealed a significant difference between groups by gambling severity for both the total number of major events, $F(2, 1258) = 22.19$, $p<.001$, and minor events, $F(2, 1258) = 17.17$, $p<.001$, experienced within the past year. No significant differences were found between gambling severity groups and the number of neutral events, $F(2, 1258) = 11.22$, $p = .07$, or the number of positive events, $F(2, 1258) = 9.30$, $p = .14$, reported within the past year.

Table 30: Mean Number of Life Events by Level of Gambling Severity

Life Event Category	Non Gamblers		Social Gamblers		At-Risk Gamblers		Probable Pathological Gamblers		Combined Group *	
	M	SD	M	SD	M	SD	M	SD	M	SD
Major Events	7.46	5.32	8.98	5.88	11.91	7.33	14.27	10.34	12.71	8.31
Minor Events	11.75	6.55	12.64	6.74	16.02	7.18	15.76	8.85	15.38	7.33
Neutral Events	7.26	2.06	7.34	2.14	7.67	2.05	6.51	2.40	7.35	2.21
Positive Events	8.12	2.31	7.88	2.31	7.43	2.34	6.63	2.68	7.21	2.46

* combined at-risk and probable pathological gambling groups

A series of Tukey HSD pairwise comparisons showed that with respect to the major life event category, the combined at-risk and probable pathological gamblers yielded the highest mean scores on this category, which differed significantly from both the social gamblers ($M = 8.89$) and the non-gamblers ($M = 7.46$) ($p<.001$). For the category of minor life events, the combined

Table 31: Mean T-Scores for Coping Scales by Gambling Groups and Gender

	M	SD	N	M	SD	N	M	SD	N	M	SD	N
Task-Oriented												
Male	53.1	10.0	217	51.1	9.5	450	50.8	9.4	60	49.5	9.7	26
Female	52.8	9.6	372	50.5	9.6	394	47.5	10.4	32	56.3	5.9	10
Total	52.9	9.8	589	50.8	9.6	844	49.6	9.9	92	51.4	8.2	36
Emotion-Oriented												
Male	49.7	11.8	216	49.9	10.7	471	55.7	11.1	62	56.7	11.7	21
Female	47.8	11.0	389	47.3	10.8	403	51.9	9.4	32	56.3	12.4	8
Total	48.5	11.3	874	48.7	10.8	874	54.4	10.6	94	56.6	11.8	29
Avoidance-Oriented												
Male	50.8	10.6	224	53.6	9.7	480	56.4	9.8	62	53.5	12.0	22
Female	51.6	10.7	387	53.3	10.1	403	54.9	8.1	34	56.7	11.7	9
Total	51.3	10.7	611	53.5	9.8	883	55.9	9.2	96	54.5	11.7	31
Distraction Subscale												
Male	51.6	10.4	231	53.9	9.7	506	57.4	9.7	71	55.7	11.4	27
Female	52.8	9.7	413	54.1	8.9	434	54.9	8.4	35	56.7	9.8	12
Total	52.4	10.0	644	54.0	9.3	940	56.6	9.3	106	56.0	10.7	39
Social Diversion Subscale												
Male	49.1	9.9	249	50.9	9.1	542	53.1	8.3	27	49.7	9.1	27
Female	48.3	9.1	442	49.1	9.1	450	51.2	7.9	38	49.7	9.0	11
Total	48.6	9.4	691	50.1	9.1	992	52.4	8.1	65	49.7	8.9	38

Note. The normative mean score for each of the CISS subscales is 50, with a standard deviation of 10.

Table 32: Combined Mean T-Scores for Coping Scales

	Task-Oriented		Emotion-Oriented		Avoidance-Oriented		Distraction Subscale		Social Diversion Subscale	
	M	SD	M	SD	M	SD	M	SD	M	SD
Problem Gambling Group[a]	50.13	9.67	54.94	10.88	55.54	9.92	56.42	9.71	51.77	8.46

[a] combined at-risk and probable pathological gambling groups

Developmental Differences on the Life Stress and Coping Measures

Univariate analyses revealed a significant main effect for grade for the total number of major life events, $F(5, 1258) = 2.51$, $p<.028$; the total number of minor life events, $F(5, 1258) = 3.40$, $p< .005$; and the total number of positive life events, $F(5, 1258) = 16.60$, $p<.004$. The total number of neutral events did not yield significant developmental differences, $F(5, 1258) = 1.08$, $p = .365$. Post hoc analyses (Tukey HSD pairwise comparisons) revealed the following significant differences between grades: older adolescents (grades 11 & 12) report the occurrence of more major events occurring in the past year in comparison to adolescents in grades 7, 9, and 10 ($p <.01$) ; younger pre-adolescents (grade 7) report a significantly lower number of minor events; and older adolescents (grade 11 and 12) report a significantly higher number of minor events ($p <.001$). Regarding positive events, younger children in grades 7 and 8 report significantly more of these events in comparison to children in all the other grades (see Table 33 below for the distribution of means by grade level).

Table 33: The Distribution of Mean Scores by Grade for Life Event Categories

Grade	Major Life Events		Minor Life Events		Positive Life Events		Neutral Life Events	
	M	SD	M	SD	M	SD	M	SD
Grade 7	7.94	6.12	10.03	6.04	8.12	2.20	6.96	2.21
Grade 8	9.25	6.58	12.56	6.82	8.59	1.93	7.56	1.99
Grade 9	8.60	5.76	12.27	6.41	7.87	2.19	7.40	1.97
Grade 10	8.51	5.95	12.01	6.28	7.63	2.53	7.23	2.23
Grade 11	9.22	6.11	13.27	6.89	7.74	2.40	7.40	2.10
Grade 12	10.15	6.21	13.62	7.00	7.47	2.64	7.34	2.19

A significant developmental main effect for coping was found on the avoidance scale of the CISS, $F(5, 1258) = 2.20$, $p<.05$, with post hoc comparisons highlighting the fact that older adolescents (grade 12) use avoidant strategies significantly more often than both pre-adolescents in grade 7 and grade 8. This difference is apparent when examining the means for the distraction coping subscale (see Table 34).

Table 34: Distribution of Mean CISS Scores by Grade

	Grade 7		Grade 8		Grade 9		Grade 10		Grade 11		Grade 12	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
[illegible]	51.5	9.5	50.5	10.3	51.4	9.0	52.4	9.7	51.6	10.0	51.9	9.8
[illegible]	46.3	11.3	46.8	11.4	49.7	10.9	51.0	11.8	49.8	10.2	51.4	10.4
[illegible]	52.3	9.7	51.5	10.7	53.0	9.8	52.5	10.6	53.3	10.6	54.4	10.1
[illegible]	52.6	9.1	51.8	9.6	53.3	9.0	53.4	9.2	55.1	10.3	55.2	10.2
[illegible]	49.9	9.3	48.2	9.8	50.4	9.4	49.5	9.7	49.4	8.6	50.7	8.6

Gender Differences on Measures of Life Stress and Coping

A significant main effect for gender was found for all categories of life events. The univariate analyses, means and standard deviations for the four life event categories by gender are presented in Table 35.

Table 35: Mean Life Event Scores for Males and Females

[illegible]	Male		Female		Total		Univariate
	M	SD	M	SD	M	SD	F(1, 1258)
[illegible]	8.31	6.35	9.13	5.80	8.72	6.09	15.79*
[illegible]	11.47	6.76	13.70	6.75	12.60	6.84	31.23*
[illegible]	7.28	2.24	8.53	2.03	7.91	2.33	29.73*
[illegible]	6.82	2.26	7.78	1.85	7.31	2.12	29.41*

Note. Values enclosed in parentheses represent standard deviations.
* $p < .001$

It is interesting that females reported a significantly higher number of life events on all categories. While statistically significant, the number of events is not all that different between males and females. This gender difference does not appear to be related to gambling severity or grade level. As found in the MANOVA, there were no statistically significant interactions between any of the fixed variables affecting life event scores. Univariate analyses on the coping scales examining gender differences did not reveal any statistically significant differences for the Task-Oriented scale, $F(1, 1258) = .009$, $p = .925$ or the Avoidance-Oriented scale, $F(1, 1258) = .778$, $p = .378$. There was, however, a significant difference between males and females on the Emotion-Oriented scale, $F(1, 1258) = 6.63$, $p<.01$. Post hoc analyses demonstrated that males exhibited significantly higher mean scores on the Emotion-Oriented scales than females (50.5 vs. 47.8 respectively). Similar to the findings on the life stress measures, there were no significant interactions between gender, grade level and gambling severity.

SUMMARY AND CONCLUSIONS

The main purpose of this study was to assess the various coping styles and life stressors of adolescents who are experiencing difficulties with gambling activities. This information is necessary to guide effective clinical practice and to help determine which adolescents may be at risk for the development of severe gambling related problems. Another purpose of the study was to better understand the potential risk factors associated with gambling and their concomitant negative behaviours.

The results confirm that significant numbers of adolescents in Ontario are gambling, that these activities are generally socially acceptable and conducted in collaboration with parents, siblings, and relatives, and that a large percentage of adolescents are gambling at school, as well as at home. A small proportion of adolescents in Ontario are experiencing severe difficulties as a result of their gambling behaviour. Moreover, there is also a significant number who are beginning to show difficulties with gambling and may represent a group at-risk for developing more severe gambling problems. Adolescents, like studies examining adults, report gambling for excitement, to win money and for the enjoyment.

With the increased number of gambling venues throughout Ontario, as well as the inherent social acceptability of engaging in this activity in comparison to other unsanctioned youth activities such as drugs, alcohol, and tobacco smoking, the number of youth who are gambling is likely to increase. As a result, while a number of adolescents currently have a severe gambling problem many more are at risk and likely to develop problems. As such, increased efforts aimed at minimizing the negative impact resulting from excessive gambling are strongly recommended.

Despite the fact that gambling is illegal for people under the age of 18 in the Province of Ontario for lottery playing and bingo, and 19 for other forms of gambling including casinos, 63% of underage adolescents in grades 7 through 12 reported gambling for money within the past year. Of those, 23% reported gambling on a regular weekly basis. Males were found to gamble more often and have more gambling related problems than females. Playing cards, lottery, sports wagers and wagering on games of skill were the activities of choice for both regular and occasional gamblers.

Adolescent gamblers report gambling at home (76%) and at the homes of their peers (52%), while 40% of males reported gambling in school. The fact that many adolescents report gambling with other adults suggests that gambling is a socially acceptable form of entertainment with few negative consequences. This research, consistent with results from other studies (e.g., Gupta & Derevensky, 1997), has demonstrated that most adolescents' first exposure to gambling related activities began at home with parents, grandparents, and other relatives. These findings highlight the necessity to increase parental awareness of the inherent risks involved for youth who engage in such activities. By the time male adolescents enter grade 12, 90% report gambling more with their friends than with family members. Females, however, continue to consistently gamble with family members.

Using the DSM-IV-MR-J criteria to assess degree of gambling severity, 2.7% of the total sample was classified as probable pathological gamblers (scores of ≥ 4), with 6.6% being classified as at-risk for the development of significant gambling problems (scores of 2-3). Fifty-four percent of the sample was classified as social gamblers (score of 0-1). A series of youth gambling studies directly comparing different assessment instruments found the DSM-IV-J (Fisher, 1992), the former version of this screening instrument, to be the most conservative measure of adolescent gambling problems (Derevensky & Gupta, 2000). While the current prevalence rates in this study are lower than typically found in the literature (see Jacobs, 2000), with a recent Ontario study reporting estimated prevalence for severe youth gambling problems to be 5.8% with another 7.5% presumed to be at-risk (Adalf, & Ialomiteanu, 2000), youth problem gambling is of considerable concern, a conclusion also drawn by the National Research Council in the U.S. (1999). The newly revised version, DSM-IV-MR-J (Fisher, 2000) represents the most conservative measure to date, identifying the fewest individuals with significant gambling problems. Despite lower prevalence rates, these numbers still pose a legitimate concern.

More males were identified as having significant gambling problems (3.8% probable pathological gamblers, 9.3% at-risk gamblers) than females (1.4% probable pathological gamblers, 4.0% at-risk gamblers). The distribution of adolescents based on level of gambling involvement was found to be relatively consistent across all grade levels (7 to 12). Despite the fact that fewer females reported difficulties with gambling activities, they reported the earliest onset of gambling activity (age 10 for probable pathological gamblers) in comparison to their male counterparts (10.5 years). The average age of onset reported across for all adolescents currently gambling was age 11. This is consistent with retrospective studies of adult pathological gamblers who report onset of gambling problems to have begun at approximately 10 years of age (Custer, 1982; Dell, Ruzicka, & Palisi, 1981; Gupta & Derevensky, 1998a; Wynne et al., 1996).

Behavioural difficulties associated with problem gambling remain a serious concern. More than 60% of adolescents with severe gambling problems reported that they gambled more than they like and 50% reported stealing money to finance their losses. On a self report measure, only a third of probable pathological gamblers indicated they gambled in excess. A common finding in youth gambling research is that adolescents experiencing gambling-related difficulties do not present for treatment. There is a wide gap between the numbers of youth who are experiencing gambling difficulties versus those who actually seek help. Probable pathological gamblers were found to more likely classify themselves as social gamblers and at-risk gamblers.

Adolescents with gambling problems were found to more likely report experiencing dissociation when gambling (i.e., feeling like a different person, losing track of time, going into a trance-like state, experiencing blackouts, and feeling outside themselves). Gender differences revealed that males experienced these states in general more often than females. However, no gender differences were found for dissociative experiences among probable pathological gamblers. This is consistent with the past research that suggests many similarities between males and females with severe gambling problems.

Despite the fact that gambling can be an addictive behaviour similar to cigarette smoking, alcohol consumption, and illicit drug use, adolescents of all ages report gambling on an occasional basis significantly more often than any of the other illegal activities. At least one fifth

of adolescents within each grade are reporting regular engagement (i.e., at least once a week) in gambling activities. For younger adolescents (grades 7, 8, & 9), regular use of other risk-taking behaviours is significantly less with an average of 3.9% reporting regular cigarette use, 4.0% reporting regular alcohol use, and 2,8% reporting regular drug use.

Adolescents with severe gambling problems were also more likely to use other addictive substances on a regular basis (once a week or more), including drugs (43%), alcohol (52%), and tobacco (36%). Moreover, there was substantial overlap between their own use of these substances and their reports of parental use of substances and gambling problems. Adolescent probable pathological gamblers reported a disproportionately high number of parents having either a gambling and/or substance abuse problem [mother with a gambling problem (16%), drinking or drug problem (21%); father with a gambling problem (21%), drinking or drug problem (26%)]. These results are significantly higher than for the overall mean of the entire sample.

Youth gambling can be conceptualized as a form of risk-taking behaviour. Past research with adolescents has also shown a relationship between the severity of gambling problems, risk-taking and sensation seeking (see Gupta & Derevensky, 1998b). From a physiological perspective, several theories have emphasized that an underlying cause of an addiction is related to difficulties in regulating one's arousal system. Both at-risk gamblers and probable pathological gamblers reported higher mean scores on the Intensity subscale of the Arnett Inventory of Sensation Seeking (28.31 and 29.51 respectively) in comparison to the overall mean on this measure (25.54) with non-gamblers scoring significantly lower on this measure (23.60) in comparison to the overall mean.

Recent empirical research on youth gambling has shown that adolescents with gambling problems are more likely to report feelings of depression (Gupta & Derevensky, 1998a, 1998b, 2000). While female adolescents typically exhibit more signs of depression, both male and female probable pathological gamblers similarly exhibited elevated scores, indicative of depressive symptomatology. Still further, a greater percentage of these probable pathological gamblers reached clinical levels of depression as compared to social gamblers or non-gamblers.

Suicide ideation was reported more often for both the at-risk gamblers and probable pathological gamblers (26% and 28% respectively) than non-gamblers and social gamblers (14% and 16% respectively). Similar results were found for reported suicide attempts, with 10% of at-risk gamblers and 14% of probable pathological gamblers revealing a suicide attempt in comparison to 3% of social gamblers and 2% of non-gamblers.

Some developmental differences were found with respect to the number of major and minor life events experienced within the past year. In general, older adolescents (grades 11 and 12) reported significantly more major events in the past year than younger adolescents (grades 7, 9, and 10) and more minor life events. Children in grade 7 also reported significantly more positive events occurring in the past year. The period of middle to late adolescence appears to be a vulnerable period of development with respect to both the degree and number of stressors that these young adolescents face. The extent to which adolescents can effectively cope with their increased levels

of stress may have a significant impact on their experiences with high-risk behaviours such as gambling, substance use, and mental health problems.

Excessive gambling may in and of itself represent a maladaptive means of coping with typical daily or major life stressors. Preliminary findings by Marget, Derevensky and Gupta (2000), using a relatively small sample, have suggested that adolescent probable pathological gamblers appeared to exhibit more maladaptive coping strategies. These strategies emphasized the use of avoidance and distraction as opposed to more direct task-oriented coping. The current research confirms previous preliminary findings that adolescents with more severe problematic gambling problems reported using more maladaptive coping styles to resolve stressful situations. For example, non-gamblers and social gamblers reported using more task-oriented coping styles when confronted with adversities than either at-risk or probable pathological gamblers. Task-oriented coping is considered a more positive, adaptive form of coping when an individual is confronted with difficulties as it is action-oriented and involves direct attempts to address the stressor. Both at-risk gamblers and probable pathological gamblers were found to have employed more emotion-focused coping in comparison to social gamblers and non-gamblers. This type of coping style typically involves emotional reactions such as getting angry, frustrated, and anxious.

Adolescent gamblers (i.e., social gamblers, at-risk gamblers, and probable pathological gamblers) in general reported higher mean scores on the avoidant-oriented coping scale in comparison to non-gamblers. Similarly, they reported employing techniques of distraction when confronted with stressful situations. Both the avoidant and distraction (a subset of the avoidant scale) infers a more passive unwillingness to deal with adversity. Hence, such individuals are more likely to distract themselves with other activities (e.g., gambling, substance use) that enable them to escape from the reality of their personal and social environment.

It is important to note that the use of avoidant - or emotion-focused coping can be advantageous, under certain highly stressful situations (e.g., major life events). However, individuals with effective coping styles have learned to use adaptive behaviours, such as applying different strategies dependent upon the situational demands. Probable pathological gamblers and at-risk gamblers were found to utilize maladaptive coping strategies.

Future Directions

Adolescence has often been described as a stressful developmental period. The results of this research suggest a significantly large number of adolescents are experiencing many stressors, varying in magnitude, on a daily basis. Ineffective coping strategies, designed to reduce major and minor stressors, have been shown to negatively impact upon adolescent mental health and have been found to be related to engagement in a variety of high-risk behaviours. This finding suggests the need for the development of effective mental health and risk-reduction prevention programs.

The large number of underage youth gamblers in general, and those with serious gambling problems, calls for more collaborative efforts between policy makers and law enforcement officials to enforce existing statutes prohibiting underage gambling. As well, a concerted public

awareness campaign is necessary to help educate parents and school officials concerning the extent of adolescent problem gambling.

Youth gambling problems have been found not to exist in isolation. The more severe the gambling problem, the more likely youth were found to be engaged in other addictive behaviours including alcohol, drug and tobacco use. These youth remain at heightened risk for suicide ideation and suicide attempts as well as other mental health problems.

This research has empirically delineated several risk factors identified with youth gambling problems. The identification of these factors can best be realized when incorporated into the design of prevention and treatment programs. Targeting the development of effective coping strategies should be an integral protective factor buffering stress and minimizing mental health and behavioural problems.

Additional research funding aimed toward the identification of protective factors for youth gambling problems is warranted. Incorporating a risk factor model may help maximize our school-based prevention efforts and minimize youth gambling and mental health problems.

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APPENDIX A

Geographic Distribution

Geographic Distribution

[illegible]	N	%
[illegible]	1287	60.2%
[illegible]	303	14%
[illegible]	50	2.4%
[illegible]	26	1.2%
[illegible]	72	3.4%
[illegible]	408	18.9%
[illegible]	2156	

APPENDIX B

Questionnaire: GAQ, DSM-IV-MR-J, AISS (Intensity Subscale), APES, CISS, RADS

GAQ-OC

Grade: _____ Age:____ Sex: ____M ____F

Please note that all information is confidential.

1) Please check the following types of gambling **(for money)** you have done in the past 12 months. Please mark only one answer for each item.

	never	**less than once a week**	**once a week or more**	
a)	____	_____	_____	play cards
b)	____	_____	_____	wager on sports (i.e. sports pools) with friends
c)	____	_____	_____	purchase sports lottery tickets (pro-line)
d)	____	_____	_____	purchase lottery tickets or scratch tickets
e)	____	_____	_____	wager on video games or video poker for money
f)	____	_____	_____	play bingo
g)	____	_____	_____	play slot machines
h)	____	_____	_____	wager on sports, pool, bowling, other games of skill
i)	____	_____	_____	another form of gambling not listed above Please list_____

? **IF YOU HAVE ANSWERED "NEVER" TO ALL THE CATEGORIES IN THE ABOVE QUESTION, YOU HAVE FINISHED COMPLETING THIS SECTION OF THE QUESTIONNAIRE. PLEASE GO TO QUESTION 21. THANK YOU! IF YOU HAVE ANSWERED 'LESS THAN ONCE' FOR EVEN ONE ITEM, PLEASE CONTINUE WITH QUESTION #2.**

2) Approximately how old were you when you started to gamble for money? _____

3) When you gamble, with whom do you gamble? (You can have more than one answer)

_____ alone
_____ my friends
_____ strangers
_____ my parents
_____ my brother or sister
_____ other relatives

4) Where do you gamble? (You can have more than one answer)

_____ at home
_____ at friends
_____ bingo halls
_____ at school
_____ in arcades
_____ in depanneurs
other (please list) _____

5) Do you ever gamble more than you want to? _____ yes _____ no

6) Have you ever stolen money to gamble? _____ yes _____ no

7) Do you think you gamble too much? _____ yes _____ no

8) Why do you gamble? (you can have more than one answer)

_____ for enjoyment
_____ to relax
_____ for excitement
_____ to be with or make new friends
_____ because I'm unhappy
_____ to escape from problems of home and school
_____ because I'm lonely
_____ to feel older
_____ to win money
_____ other, please list _____

9) How would you rate yourself?

1	2	3	4	5	6	7
non gambler		social gambler		problem gambler		pathological gambler (severe problem, difficulty stopping)

10) When you gamble, how often do you go back another day to win back money you lost?

_____never
_____some of the time (less than half the times you lost)
_____most of the time (more than half the time you lost)
_____all the time

11) **When gambling:**

		never	rarely	occasionally	all the time
a.	Do you go into a trance-like state?	____	____	_____	_____
b.	Do you feel like a different person?	____	____	_____	_____
c.	Do you experience blackouts?	____	____	_____	_____

		never	**rarely**	**occasionally**	**all the time**
d.	Do you lose track of time?	____	____	_____	_____
e.	Do you feel as though you're "outside" yourself, or "watching yourself"?	____	____	_____	_____

12) In the past year how often have you found yourself thinking about gambling or planning to gamble?
Never_____Once or Twice_____ Sometimes_____ Often_____

13) During the course of the past year have you needed to gamble with more and more money to get the amount of excitement you want?
Yes_____ No_____

14) In the past year have you ever spent <u>much</u> more than you planned to on gambling?
Never_____Once or Twice_____ Sometimes_____ Often_____

15) In the past year have you felt bad or fed up when trying to cut down or stop gambling?
Never_____ Once or Twice_____ Sometimes _____ Often_____Never tried to cut down_____

16) In the past year how often have you gambled to help you escape from problems or when you are feeling bad?
Never_____ Once or Twice_____ Sometimes_____Often_____

17) In the past year, after losing money gambling, have you returned another day to try and win back money you lost?
Never_____ Less than half the time_____More than half the time____Every Time____

18) In the past year has your gambling ever lead to:
Lies to your family
Never_____ Once or Twice_____ Sometimes_____ Often_____

19) In the past year have you ever taken money from the following <u>*without permission*</u> to spend on gambling:
School dinner money or fare money?
Money from your family?
Money from outside the family?
Never_____ Once or Twice_____ Sometimes_____ Often_____

20) In the past year has your gambling ever led to:
Arguments with family/friends or others?
Missing school?
Never_____ Once or Twice_____ Sometimes_____ Often____

21) Who currently lives at home with you? (circle your answers):

mother father stepmother stepfather sister brother
stepsister stepbrother halfsister halfbrother grandparent(s)

22) To your knowledge does your mother (or stepmother) have a gambling problem? _____ yes _____ no

23) To your knowledge does your mother (or stepmother) have a drinking/drug problem? _____ yes _____ no

24) To your knowledge does your father (or stepfather) have a gambling problem? _____ yes _____ no

25) To your knowledge does your father (or stepfather) have a drinking/drug problem? _____ yes _____ no

26) Please check the following activities you have done in the **past 12 months**. Please mark only one answer for each.

	never	**less than once a week**	**once a week or more**	**every day**	
a)	_____	_____	_____	_____	consume alcohol/beer
b)	_____	_____	_____	_____	use "upper" drugs (speed, cocaine, ecstasy)
c)	_____	_____	_____	_____	use "downer" drugs (marijuana, hashish, tranquilizers)
d)	_____	_____	_____	_____	use hallucinatory drugs (acid, LSD)
e)	_____	_____	_____	_____	smoke cigarettes

27) Have you ever sought professional help for a drinking, smoking, drug, or gambling problem?

_____yes _____no

If yes, what type of problem? _____

28) Have you ever thought about attempting suicide?

_____yes _____no

29) Have you ever attempted suicide?

_____yes _____no

30) Do you have a close friend you confide in and discuss your problems with?

_____yes _____no

31) If yes, how many close friends do you have?

1 2-4 5-7 8+

32) Keeping in mind your closest friend, please rate how much you confide in this person.

1	2	3	4	5
not very often	somewhat often	most often	almost always	always

33) Do you have a close relative (parent, sibling) you confide in and discuss your problems with?

_____yes _____no

34) If yes, please rate how much you confide in this relative?

1	2	3	4	5
not very often	somewhat often	most often	almost always	always

35) Please see the chart below and fill in the corresponding number (to the best of your knowledge).

a) Father's highest level of education _____

b) Mother's highest level of education _____

Chart:

1= less than 7th grade
2= junior high (grade 7, 8, Secondary 1, 2)
3= partial high school (grade 9, 10, Secondary 3, 4)
4= high school graduate (grade 11, 12, Secondary 5)
5= partial college (i.e., minimum 1 year/finished college/specialized training)
6= standard university graduation (i.e. B.A)
7= graduate professional training (graduate degree i.e., M.A., MBA, Ph.D)

36) What is your father's occupation? _____

37) What is your mother's occupation? _____

For each item listed below, indicate which response best applies to you. A scale is given below where 1=Describes me very well and 4=Does not describe me at all.

Describes me very well	**Describes me somewhat**	**Does not describe me very well**	**Does not describe me at all**

When the water is very cold, I prefer not to swim even if it is a hot day.

When I listen to music, I like it to be loud.

I stay away from movies that are said to be frightening or highly suspenseful.

If I were to go to an amusement park, I would prefer to ride the roller coaster or other fast rides

I would never like to gamble with money, even if I could afford it.

I like a movie where there are a lot of explosions and car chases.

In general, I work better when I'm under pressure.

It would be interesting to see a car accident happen.

I like the feeling of standing next to the edge on a high place and looking down.

I like the feeling of standing next to the edge on a high place and looking down.

I can see how it must be exciting to be in a battle during a war.

EVENTS IN YOUR LIFE

On the next page is a list of things that sometimes happen to people. For each of the events that has happened in your life during the last year, put an **X** in the space next to it, under the Yes column. If that thing has not happened to you in the ***last 12 months***, leave the space next to it blank.

For each of the things you check under Yes, move to the second set of columns and check whether you see that event as a Good event or a Bad event. Finally, indicate how much you feel the event has changed or has affected your life by checking one of the spaces in the third set of columns (i.e., no effect, some effect, moderate effect, and great effect).

HERE'S AN EXAMPLE. Number 1 on the next page says 'Moving to a new home'. If this has happened to you within the last 12 months put an **X** under Yes, otherwise, leave it blank. If you did put an **X** under Yes, check whether you saw moving as a good or bad event, and finally indicate how much the effect had on your life.

	Yes	Type of event		Impact/effect of event on your life			
		Good	Bad	No effect	Some effect	Moderate effect	Great effect
1.Hobbies or activities (watching tv, reading, etc.)							
2. Doing things/spending time with family members							
3. Spending time/talking with boyfriend/girlfriend							
4. Marriage or becoming engaged							
5. Dating or doing things with people of opposite sex							
6. Feeling pressured by friends							
7. Family members, relatives, step-parents moving in or out of house							
8. Helping other people							
9. Fight with or problems with a friend							
10. Restrictions at home (having to be in at certain time, etc.)							
11. Death of a family member							
12. Family member becoming pregnant or having child							
13. Attending school							
14. Hospitalization of a family member or relative							
15. Falling in love or beginning a relationship with boy/girlfriend							
16. Poor relationship between family members and friends							
17. Doing poorly on an exam or paper							
18. Talking or sharing feelings with friends							
19. Being around people who are inconsiderate/offensive							
20. Arrest of a family member							
21. Getting in trouble or being suspended from school							
22. Hassles, arguments, or fights with other students or peers							
23. Financial troubles or money worries							
24. Getting bad grades or progress reports							
25. Having bad classes or teachers							
26. Emotional worries (feeling depressed, moody, angry, etc.)							
27. Going to church							
28. Meeting new people							

	Yes	Type of event		Impact/effect of event on your life			
		Good	Bad	No effect	Some effect	Moderate effect	Great effect
29. Parent getting married							
30. Friend getting married or engaged							
31. Friend getting separated or divorced							
32. Having few or no friends							
33. Arguments or fights between parents							
34. Getting good grades or progress reports							
35. Having good classes or teachers							
36. Drinking or drug use							
37. Understanding classes/homework							
38. Change in relationship with boy/girlfriend							
39. Change in relationship with family member(s)							
40. Change in relationship with friend(s)							
41. Pressures or expectations by parents							
42. Visiting a parent that doesn't live with you							
43. Having plans fall through (not going on a trip)							
44. Visiting with relatives							
45. Going to parties, dances, concerts							
46. Making love or sexual intercourse							
47. Friends getting drunk or drug use							
48. Not attending your high school prom							
49. Death of a relative							
50. Obligations at home							
51. Spending time alone							
52. Family member or relative having emotional problems							
53. Friend or family member recovering from illness or injury							
54. Arguments or problems with boy/girlfriend							
55. Something bad happens to a friend							
56. Change in privileges or responsibilities at home							

	Yes	Type of event		Impact/effect of event on your life			
		Good	Bad	No effect	Some effect	Moderate effect	Great effect
57. Change in health of family member or relative							
58. Change in health of a friend							
59. Change in number of friends (make new friends or lose friends)							
60. Parents discover something you didn't want them to know							
61. Becoming (or making) pregnant or having child							
62. Brother/Sister getting engaged or married							
63. Brother/Sister getting separated or divorced							
64. Not spending enough time with family members or friends							
65. School or career change of family member (drops out of school, gets job, etc.)							
66. Advancing a year in school							
67. Living with only one parent							
68. Talking on the phone							
69. Discussions with parent(s)							
70. Homework or studying							
71. Taking care of younger brother(s)/sister(s)							
72. Problems or arguments with parents, siblings, or family members							
73. Problems or arguments with teachers or principal							
74. Spending time at home							
75. Changes in alcohol or drug use							
76. Making honor roll or other school achievement							
77. Applying to/waiting to hear from colleges							
78. Negative feelings or worry about appearance							
79. Negative feelings or worry about personal health or fitness							
80. Doing household chores							
81. Something good happens to a friend							
82. Alcohol or drug use of family members/relatives							
83. Breaking up with or being rejected by boy/girlfriend							

	Yes	Type of event		Impact/effect of event on your life			
		Good	Bad	No effect	Some effect	Moderate effect	Great effect
84. Death of a friend							
85. Family move							
86. Losing virginity							
87. Parent loses job							
88. Attending your high school prom							
89. Returning to school after time off							
90. Parents getting divorced							
91. Not getting along with parents of friends							
92. Doing well on an exam or paper							
93. Spending time/relaxing/going out with friends							
94. Friend(s) move away or you move away from friends							
95. Getting punished by parents							
96. Being in love or having a relationship							
97. Not having a boyfriend or girlfriend							
98. Friend having emotional problems							
99. Friend becoming pregnant or having a child							

Instructions: The following are ways people react to various difficult, stressful, or upsetting situations. Please circle a number from 1 to 5 for each item, where 1 is not at all and 5 is very much. Indicate how much you engage in these types of activities when you encounter a difficult, stressful, or upsetting situation.

		Not at all				Very much
1.	Schedule my time better	①	②	③	④	⑤
2.	Focus on the problem and see how I can solve it	①	②	③	④	⑤
3.	Think about the good times I've had	①	②	③	④	⑤
4.	Try to be with other people	①	②	③	④	⑤
5.	Blame myself for putting things off	①	②	③	④	⑤
6.	Do what I think is best	①	②	③	④	⑤
7.	Become preoccupied with aches and pains	①	②	③	④	⑤
8.	Blame myself for having gotten into this situation	①	②	③	④	⑤
9.	Window shop	①	②	③	④	⑤
10.	Outline my priorities	①	②	③	④	⑤
11.	Try to go to sleep	①	②	③	④	⑤
12.	Treat myself to a favorite food or snack	①	②	③	④	⑤
13.	Feel anxious about not being able to cope	①	②	③	④	⑤
14.	Become very tense	①	②	③	④	⑤
15.	Think about how I have solved similar problems	①	②	③	④	⑤
16.	Tell myself that it is really not happening to me	①	②	③	④	⑤
17.	Blame myself for being too emotional about the situation	①	②	③	④	⑤
18.	Go out for a snack or meal	①	②	③	④	⑤
19.	Become very upset	①	②	③	④	⑤
20.	Buy myself something	①	②	③	④	⑤
21.	Determine a course of action and follow it	①	②	③	④	⑤
22.	Blame myself for not knowing what to do	①	②	③	④	⑤
23.	Go to a party	①	②	③	④	⑤
24.	Work to understand the situation	①	②	③	④	⑤
25.	"Freeze" and don't know what to do	①	②	③	④	⑤
26.	Take corrective action immediately	①	②	③	④	⑤
27.	Think about the event and learn from my mistakes	①	②	③	④	⑤
28.	Wish that I could change what had happened or how I felt	①	②	③	④	⑤
29.	Visit a friend	①	②	③	④	⑤
30.	Worry about what I am going to do	①	②	③	④	⑤
31.	Spend time with a special person	①	②	③	④	⑤
32.	Go for a walk	①	②	③	④	⑤
33.	Tell myself that it will never happen again	①	②	③	④	⑤
34.	Focus on my general inadequacies	①	②	③	④	⑤
35.	Talk to someone whose advice I value	①	②	③	④	⑤
36.	Analyze my problem before reacting	①	②	③	④	⑤
37.	Phone a friend	①	②	③	④	⑤
38.	Get angry	①	②	③	④	⑤
39.	Adjust my priorities	①	②	③	④	⑤
40.	See a movie	①	②	③	④	⑤
41.	Get control of the situation	①	②	③	④	⑤
42.	Make an extra effort to get things done	①	②	③	④	⑤
43.	Come up with several different solutions to the problem	①	②	③	④	⑤

		Not at all				Very much
44.	Take some time off and get away from the situation	①	②	③	④	⑤
45.	Take it out on other people	①	②	③	④	⑤
46.	Use the situation to prove that I can do it	①	②	③	④	⑤
47.	Try to be organized so I can be on top of the situation	①	②	③	④	⑤
48	Watch TV	①	②	③	④	⑤

Listed below are some sentences about how you feel. Read each sentence and decide how often you feel this way. Decide if you feel this way: almost never, hardly ever, sometimes, or most of the time. Fill in the circle under the answer that best describes how you really feel. Remember, there are no right or wrong answers. Just choose the answer that tells how you usually feel.

	Almost never	Hardly ever	Some-times	Most of the time
1. I feel happy	①	②	③	④
2. I worry about school	①	②	③	④
3. I feel lonely	①	②	③	④
4. I feel my parents don't like me	①	②	③	④
5. I feel important	①	②	③	④
6. I feel like hiding from people	①	②	③	④
7. I feel sad	①	②	③	④
8. I feel like crying	①	②	③	④
9. I feel like no one cares about me	①	②	③	④
10. I feel like having fun with other students	①	②	③	④
11. I feel sick	①	②	③	④
12. I feel loved	①	②	③	④
13. I feel like running away	①	②	③	④
14. I feel like hurting myself	①	②	③	④
15. I feel that other students don't like me	①	②	③	④
16. I feel upset	①	②	③	④
17. I feel life is unfair	①	②	③	④
18. I feel tired	①	②	③	④
19. I feel I am bad	①	②	③	④
20. I feel I am no good	①	②	③	④
21. I feel sorry for myself	①	②	③	④
22. I feel mad about myself	①	②	③	④
23. I feel like talking to other students	①	②	③	④
24. I have trouble sleeping	①	②	③	④
25. I feel like having fun	①	②	③	④
26. I feel worried	①	②	③	④
27. I get stomachaches	①	②	③	④
28. I feel bored	①	②	③	④
29. I like eating meals	①	②	③	④
30. I feel like nothing I do helps anymore	①	②	③	④

APPENDIX C

Supplemental Table

APPENDIX C1

Table C1: Participation in Gambling Activities by Grade and Gender

Grade	Cards			Sports Wagers			Scratch Lottery Tickets			Instant Lottery Tickets			Video Games/ Poker			Bingo			Slot Machines			Track/Racing/ Casino/Track		
	NP[a]	OP[b]	RP[c]	NP	OP	RP	NP	OP	RP	NP	OP	RP	NP	OP	RP	NP	OP	RP	NP	OP	RP	NP	OP	RP
7																								
Male (n=204)	45%	39%	16%	63%	24%	14%	87%	8%	5%	66%	28%	6%	71%	21%	8%	66%	28%	6%	92%	6%	3%	56%	29%	15%
Female (n=207)	67%	26%	7%	87%	11%	2%	95%	5%	0%	69%	28%	3%	89%	9%	2%	73%	26%	1%	96%	4%	0%	80%	17%	3%
Total (N=412)	55%	33%	12%	75%	17%	8%	91%	6%	2%	68%	28%	5%	80%	15%	5%	70%	27%	4%	94%	5%	1%	68%	23%	9%
8																								
Male (n=120)	43%	43%	15%	57%	28%	15%	81%	18%	2%	58%	36%	7%	74%	18%	8%	68%	27%	6%	95%	5%	0%	55%	37%	8%
Female (n=175)	59%	37%	5%	82%	16%	2%	94%	6%	1%	66%	30%	4%	90%	9%	2%	73%	26%	1%	98%	2%	.6%	82%	14%	3%
Total (N=295)	52%	39%	9%	72%	21%	8%	88%	9%	3%	63%	32%	5%	83%	13%	4%	71%	26%	3%	97%	3%	0%	71%	23%	5%
9																								
Male (n=205)	50%	40%	11%	53%	30%	17%	81%	14%	5%	67%	28%	5%	74%	20%	5%	80%	18%	2%	90%	8%	2%	49%	37%	14%
Female (n=193)	67%	26%	7%	86%	11%	3%	95%	4%	1%	62%	35%	3%	92%	7%	2%	78%	20%	2%	91%	7%	2%	86%	10%	4%
Total (N=398)	58%	33%	9%	69%	21%	10%	88%	9%	3%	64%	32%	4%	83%	13%	4%	78%	19%	2%	91%	7%	2%	67%	24%	9%
10																								
Male (n=165)	51%	40%	8%	56%	24%	21%	77%	14%	9%	72%	22%	5%	75%	19%	7%	85%	13%	2%	90%	6%	4%	57%	26%	17%
Female (n=154)	77%	20%	3%	91%	7%	3%	95%	5%	.6%	69%	27%	4%	94%	5%	.6%	85%	15%	0%	92%	8%	0%	91%	7%	2%
Total (N=319)	64%	30%	6%	73%	15%	11%	86%	9%	5%	71%	25%	5%	84%	12%	4%	85%	14%	1%	91%	7%	2%	73%	17%	10%
11																								
Male (n=243)	39%	41%	20%	51%	33%	16%	72%	18%	10%	58%	29%	12%	69%	23%	8%	81%	17%	3%	89%	10%	1%	49%	34%	17%
Female (n=228)	72%	21%	7%	88%	11%	1%	93%	7%	.4%	71%	25%	4%	94%	6%	0%	84%	15%	1%	95%	4%	.5%	87%	12%	.5%
Total (N=468)	55%	31%	13%	69%	23%	9%	82%	13%	5%	65%	28%	8%	81%	15%	4%	82%	16%	2%	92%	7%	1%	67%	24%	8%
12																								
Male (n=154)	44%	38%	18%	52%	33%	14%	67%	22%	11%	57%	32%	11%	75%	18%	7%	84%	15%	1%	85%	14%	.6%	55%	32%	13%
Female (n=109)	73%	21%	6%	89%	8%	3%	92%	6%	2%	61%	30%	9%	93%	6%	.9%	85%	14%	1%	90%	8%	1%	78%	21%	1%
Total (N=263)	56%	31%	13%	68%	23%	10%	77%	16%	7%	59%	31%	10%	83%	13%	5%	84%	14%	1%	87%	12%	1%	65%	27%	8%

Note. Percentages do not necessarily equal 100 as they were rounded to the nearest whole number.

[a]NP = Never played that particular activity.

[b]OP = Occasionally plays that activity (i.e., less than once per week).

[c]RP= Regularly plays that activity (i.e., once a week or more).

Community Impact of Increased Gambling Availibility on Adult Gamblers - A Four Year Follow-up

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PRESS RELEASE: March 4, 1999

The Problem Gambling Research Group (PGRG) of the Psychology Department at the University of Windsor surveyed 2,682 adults prior to the opening of Casino Windsor regarding their gambling activities (Phase I). One year after the casino opened, 2,581 additional adults were surveyed (Phase II). This report is on the Phase III survey, done four years after the opening of Casino Windsor. Phase III surveyed 2,714 adults in the Windsor community. The community response rate of 73% for Phase III is considered excellent for this type of study.

The members of the PGRG are Dr. Ron Frisch, Director, Richard Govoni, MA, Associate Director, and Nicholas Rupcich, Assistant Director. Phases II and III were funded by the Ontario Ministry of Health - Substance Abuse Bureau. Data was collected using the South Oaks Gambling Screen, an internationally recognized research instrument.

There are two categories of gambling disorders. 'Pathological gambling' is defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM IV) as a persistent behaviour in which a person's gambling activities significantly disrupt his or her social, financial, vocation or family life. 'Problem gambling' is when one fails to meet the diagnostic criteria of Pathological gambling but has several significant problems associated with his or her gambling activities.

Windsor became a natural laboratory with the announcement in 1993 of the opening of Casino Windsor the following year. It became the first large scale 'before and after' study of the introduction of a major gambling venue into a community. These studies monitored and documented the change in the pattern of adult gambling in this community," says Psychology Professor Dr. Frisch, the project director. We believe this is information the community would want to know.

General Conclusions:

Over the period of this long term study there has been a growing availability and acceptance of gambling activities in the Windsor area: a commercial casino (Casino Windsor), simulcast track wagering, off-track horse betting, extended hours of bingo operation, nevada tickets in non-licensed establishments, new lottery products.

The first finding from the analysis of the Phase III data is that there has been a large increase in the percentage of people in the Windsor community who gamble. The second finding is that there has not been a statistically significant increase in the level of Problem and Pathological gambling among those who gamble.

Although the risk of developing a gambling related problem has not changed significantly, the total number of gambling related problems in the community have changed due to the larger number of people gambling. Gambling related problems in the community as a whole have increased with the increase in gamblers.

The following is a summary of the findings:

> Survey responses before the casino opened indicated that 66% of the adult population had gambled at some point in their lives. Four years after the opening of the casino, 82% of the adult population reported that they had gambled.
>
> Although there has been no statistically significant change in the percentage of Problem or Pathological gambling among adult gamblers, the absolute number of such gamblers has increased in Essex County. A conservative estimate indicates an increase in gambling disorders from 4,600 to 6,000 between Phase I and III of the study.
>
> In comparing survey responses of gamblers before and one year after the casino opened, no statistically significant differences in either Problem or Pathological gambling levels were found. Four years later, there is still no statistically significant difference in the combined numbers of Problem and Pathological gamblers (from 3.6 percent to 3.7 percent).
>
> Females in the Phase I sample showed a level of Problem gambling 50% that of males. Four years later, the gap has closed to the point where males and females do not differ significantly from one another. This reflects reported trends in other research showing increasing levels of gambling participation and gambling problems among women.
>
> Participants in the study were asked their opinion regarding the opening of the casino in Windsor. The results indicated that the approval level grew from 54% before the casino opened to 66% a year after the opening. Four years after the casino opened, 63% continue to approve of the casino. Disapproval of the casino went from 30% to

19% after the first year and the disapproval rate was 24% after four years.

Dr. Frisch says "With the growing availability of gambling venues in Windsor, the gambling participation rate has increased to a level comparable to other provinces and states. The number of Windsor residents that gamble has markedly increased in the past few years. The increase in the total number of Problem or Pathological gamblers has changed proportionately as well. Our previous research has shown that people with gambling problems also have significantly higher rates of alcohol and drug abuse. As well research shows that they have higher rates of depression, suicide, and other emotional problems."

PROBLEM GAMBLING (Gamblers Only)				
Phase	% Non-Problem Gamblers	% Problem Gamblers	% Pathological Gamblers	% Total Problems
Phase I	96.4%	2.3%	1.3%	3.6%
Phase II	96.6%	1.8%	1.6%	3.4%
Phase III	96.3%	2.0%	1.7%	3.7%

PROBLEM GAMBLING (Female Gamblers Only)				
Phase	% Non-Problem Gamblers	% Problem Gamblers	% Pathological Gamblers	% Total Problems
Phase I	96.9%	1.9%	1.2%	3.1%
Phase II	96.4%	1.7	1.9%	3.6%
Phase III	96.6%	2.0%	1.3%	3.3%

PROBLEM GAMBLING (Male Gamblers Only)				
Phase	% Non-Problem Gamblers	% Problem Gamblers	% Pathological Gamblers	% Total Problems
Phase I	95.7%	3.0%	1.3%	4.3%
Phase II	96.8%	1.9%	1.3%	3.2%
Phase III	95.9%	1.9%	2.1%	4.0%

COMUNITY IMPACT (Total Sample)

Phase	% Non-Gamblers	% Non-Problem Gamblers	% Problem Gamblers	% Pathological Gamblers	% Total Problems
Phase I	34.4%	63.2%	1.5%	0.8%	2.3%
Phase II	38.4%	59.5%	1.1%	1.0%	2.1%
Phase III	18.3%	78.7%	1.6%	1.4%	3.0%

COMMUNITY IMPACT

The above rates suggest that in the Greater Windsor area there were approximately 4,600 adults with gambling problems in 1994, and that, at present, there are approximately 6,000 adults with gambling problems.

Please address any comments or questions to
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Significant Events in the Field of Pathological Gambling

1949 1949 Gamblers Anonymous group started on West Coast.

1957 1957 Jim W. and Sam J. found modern Gamblers Anonymous on Friday the 13th.

1960 Gam-Anon founded.

1972 1972 National Council on Problem Gambling (NCPG) founded. Started in New York by Msgr. Joseph Dunne, Irving Sacher and Robert Custer, M.D. Originally known as Council on Compulsive Gambling (72-76), then National Council on Compulsive Gambling (76-89).

First treatment program for pathological gambling established at Brecksville Veterans Administration by Robert Custer, M.D.

1974 1974 Commission on the Review of the National Policy Towards Gambling authorized by Congress.

First International Conference on Gambling and Risk Taking organized by Bill Eadington, Ph.D., University of Nevada-Reno.

1975 1975 First nationwide prevalence study conducted. Oversample of Nevada residents required to assess possible impacts of expanded legal gambling.

1979 First state-funded treatment program established in Maryland.

1980 1980 DSM III criteria for pathological gambling published and adopted by American Psychiatric Association (APA). Robert Custer, M.D. is primary author.

1984 Paper proposing National Certified Gambling Counselor (NCGC) program presented at 5th International Conference on Gambling & Risk Taking.

1985 *Journal of Gambling Behavior*, now known as the *Journal of Gambling Studies*, first published. Edited by Henry Lesieur, Ph.D.

First certification board for gambling counselors established in New Jersey.

First state funded outpatient treatment program established with $75,000 at JFK Hospital in Edison, NJ.

First National Conference on Problem Gambling held in New York by NCPG.

1987 DSM III-R criteria for pathological gambling developed and published by APA. Robert Custer, M.D. and Henry Lesieur, Ph.D. are primary authors.

1988 1988 First National Institute of Mental Health (NIMH) grant to study problem gambling in the community. Dr. Rachel Volberg is principal investigator of project that includes five prevalence studies and comparison of characteristics of problem gamblers in the community with those in treatment.

1989 Institute for the Study of Gambling and Commercial Gaming established at University of Nevada-Reno.

1990 Americans with Disabilities Act (ADA) specifically excludes pathological gambling as a disability under the ADA.

1993 UNLV International Gaming Institute founded.

1994 1994 DSM IV criteria for pathological gambling published by APA. Henry Lesieur, Ph.D. and Richard Rosenthal, M.D. are primary authors.

1994 American Medical Association (AMA) adopts resolution on problem gambling encouraging physicians to advise their patients of the addictive potential of gambling, encourages states to contribute a percentage of gaming revenues for education, prevention and treatment of pathological gambling and seeks warning labels on lottery tickets and warning signs at lottery outlets.

1996 1996 National Gambling Impact Study Commission (NGISC) formed by Congress to conduct a "comprehensive legal and factual study of the social and economic implications of gambling in the United States."

Publication of Responsible Gaming Resource Guide edited by Marvin Steinberg, Ph.D. and Carl Braunlich, D.B.A.

1998 National Institute of Mental Health (NIMH), National Institute of Alcohol Abuse and Alcoholism (NIAAA) and National Institute of Drug Abuse (NIDA) issue program announcement PA-98-106, "Pathological Gambling: Basic, Clinical and Services Research" to encourage researchers to develop grant proposals to examine pathological gambling.

1999 1999 NGISC Final Report contains 76 recommendations-36 of which directly address problem and pathological gambling.

National Research Council of the National Academy of Sciences compiles *Pathological Gambling*: A Critical Review on behalf of the NGISC.

NCPG National Survey of Problem Gambling Programs finds approximately $20 million was spent in 1998 by public and private sources on problem gambling programs, including prevention, employee training & education, research and treatment.

First state-funded residential treatment center opened in Louisiana.

2000 2000 NCPG receives first Federal contract from Center for Mental Health Services (CMHS), a component of U.S. Substance Abuse and Mental Health Services Administration (SAMHSA). CMHS and NCPG hold groundbreaking "Symposium on Problem and Pathological Gambling: A Look at the Issues of Mental Health".

Association of State Problem Gambling Services Administrators (APGSA) formed. Originally known as International Association of Gambling Treatment Administrators (IAGTA).

National Problem Gambling Helpline (800.522.4700) operated by NCPG receives 115,699 calls this year.

2001 15th National Conference on Problem Gambling draws 425 attendees from 10 countries to Seattle, WA.

Adolescent Gambling and Problem Gambling Fact Sheet

The U.S. National Gambling Impact Study Commission recently concluded: "One of the most troubling aspects of problem and pathological gambling is its prevalence among youth and adolescents."

In the US and throughout the world, many people begin gambling as children. For example:

- In a study of British adolescents ages 13 and 14, the mean age of initiation into gambling for social recreation or entertainment was found to be 8.3 years for boys and 8.9 years for girls (Ide-Smith and Lea, 1988).
- Wynne (1996) found that 48% of juvenile problem gamblers had an age of onset before 10 years of age.
- In a study of Minnesota youth, 60% of high school students who are problem gamblers had gambled in the 6th grade or before. There were no problem gamblers among those who first gambled in the 12th grade (Winters, 1990).
- Jacobs (2000) reports that juvenile involvement in gambling in the U.S. now exceeds the expected onset for their use of cigarettes, hard liquor and marijuana.

"Preliminary evidence suggests that the earlier people begin gambling, the more likely they are to experience problems from gambling."-U.S. National Research Council, p. 140

Gambling Participation Among Youth

Children routinely gamble. Although the private card games and wagering on games of skill are the most popular forms of gambling for youth, gambling on sporting events and the lottery are also very popular.

- Approximately 80% of youth age 12 to 17 have gambled in the last 12 months (Gupta, 2000).
- In his meta-analysis, Shaffer (1998) determined the top four average adolescent gambling prevalence rates for the last 12 months: Non-Casino Card Games: 40%, Games of Skill: 32%, Sports Gambling: 31%, Lottery: 30%.

"If my life was a tree, one branch would be that I'm a thief, another branch is that I'm a liar, another being that I'm no longer in school, and another being that I no longer have my parents trust and respect, and I'm not permitted to live in their home. But if you cut off each of the branches you still haven't gotten to the root of the problem which is my gambling."-Anonymous adolescent

Prevelance of Problems

Youth consistently show elevated rates of problem and pathological gambling compared to adults in the general population. Studies demonstrate that youth with gambling problems have family, academic, peer and legal problems.

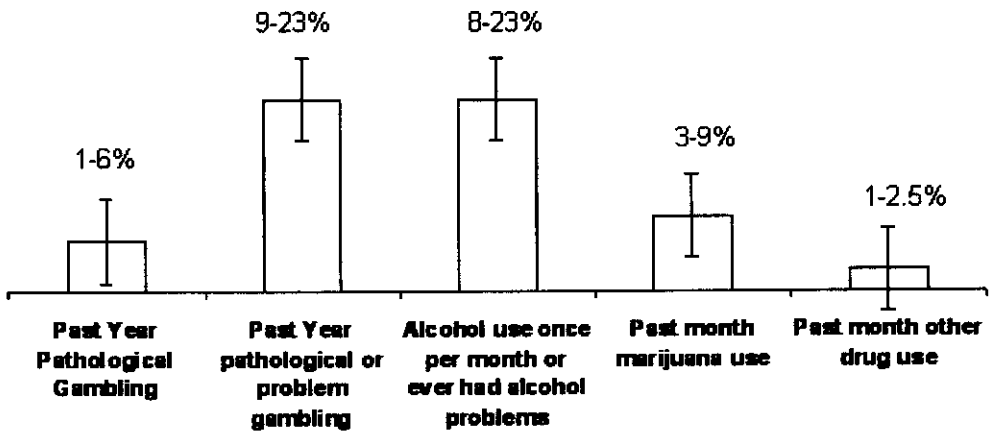
- A review of recent studies suggests between 9-14% of youth are classified as "at-risk" for a gambling problem, and 4-7% exhibit criteria of pathological gambling (Derevensky, 2000).
- Several studies have shown adolescent pathological gambling is associated with alcohol and drug use, truancy, low grades, problematic gambling in parents, and illegal activities to finance gambling (NGISC, 1999).
- Youth whose parents gambled excessively had twice the number of problems with the law and twice the attempted suicide rate than their classmates (Jacobs, 1989).
- Louisiana adolescents in juvenile detention are roughly 4 times as likely to have a serious gambling problem as their peers (Westphal, 1998).

Fact: In a recent review of 14 U.S. and 6 Canadian adolescent gambling studies, Jacobs found that in the past 10 years the number of teenagers ages 12 to 17 reporting serious gambling problems has increased by 50%, from 10 to 15 percent. The age of onset for gambling has dropped so that now, throughout America, the majority of 12-year-olds have already gambled (Jacobs, 2000).

Problem Gambling is a Serious Problem Similar to Substance Abuse

The data also clearly show that problem gambling is a serious issue, on par with or exceeding other well-recognized public health threats such as alcohol, marijuana and other drug use.

Gambling, Alcohol Use, and Drug Use Among Adolescents



Source: NRC, p. 94

Towards a Responsible Gambling Strategy

Collective Statement from the Workshop 21 & 22 March 2001

The following documents set out a collective statement prepared by participants at the workshop hosted by the Problem Gambling Foundation of New Zealand and the Centre for Gambling Studies, University of Auckland, and which was sponsored by the Problem Gambling Committee. The workshop was attended by politicians, Government officials from a wide range of central Government Ministries/Departments, local Government officials, academics, health professionals and community representatives.

This is a public document that was prepared for wide distribution to:

1. Inform the Ministry of Health in developing a Public Health Strategy on Responsible Gambling

2. Inform the funding decisions of the Problem Gambling Committee for 2002

3. Inform individuals to assist them develop submissions on the Responsible Gambling Bill

4. Inform individuals with special interest in this issue

5. Inform community debate and discussion

Public Health Frameworks

The following frameworks were used in developing this document:

1. Ottawa Charter - health promotion and protection
   "Health promotion is the process of enabling people to increase control over, and to improve, their health"

2. Treaty of Waitangi
   "Partnership, protection and participation"

3. Population specific approache
   Local Communities, Youth, Maori, multiple Pacific Groups, and multiple Asian groups

4. Public health integrated services
   at the national, regional and local level

Overarching issues

- This forum should be repeated on a regular basis as a means of monitoring progress against a set of measurable outcome targets, enabling this group to take on a "watch-dog" function

- Future forums should include representation and "voice" for recovering problem gamblers

- There is real concern about the threat to a community based model of responsible gambling unless significant changes to the current Bill occur

- The potential for gambling to compromise democratic structures is significant and of real concern

- Institutional consistency should be protected during this period of transition to preserve the knowledge and gains made to date
- We should celebrate our achievements
- Maori, Pacific peoples and Asian groups must not be considered as a single group to avoid inadequate responses to the diverse problems they face and tensions developing over inadequate funding
- A separate indigenous peoples framework must be used
- Intellectual property issues relating to specific population groups with regard to policy development and research must be adequately recognised and addressed

Regulatory/Industry

- Responsible gambling practices which promote the social and economic well being of people and communities.

Secondary goals:

- To establish effective and up-to-date harm minimisation measures (which include addressing lost opportunities)
- To promote community input into the shape of local gambling.
  Establish an independent statutory body to provide policy advice, monitoring and review to Government

Community Development

- Empowered, resilient and informed communities able to establish their own norms and to effectively manage all gambling issues

Treatment Services

- Healthy families...for practitioners to facilitate a more healthy quality of life for family/whanau.
- Fully informed practitioners, who conduct evidence-based, transparent practise
- Integrated, versatile service (multidisciplinary treatment providers)
- World leading practices, that allow for healthy gambling in a fully informed society
- Effective, early, ongoing interventions that are segment specific (e.g., specialised / matched treatments according to clients' needs and cultures)
- Respect for abstinence of gambling as a valid option
- Clear procedures and outcomes available to guide treatment services

Youth

- Harm minimisation

- Enjoyment without excess
- Informed choice
- Social/critical thinking
- Strong resilient young people

Asian

- Asian representation at advisory and policy making levels and in decision making processes
- Ring-fenced funding to deal with Asian problem gambling
- Help-seeking behaviour is normalised alongside gambling

Pacific

- "Empowering our Pacific people to take control of our life issues"
- Representation at advisory and policy making levels and decision making processes
- Equitable funding and resource allocation

-

1 INDUSTRY AND LEGISLATION

Goal

- Achieve gambling practices that promote the social and economic well being of people and communities.

Secondary goals:

- To establish effective and up-to-date harm minimisation measures (which include addressing lost opportunities)
- To promote community input into the shape of local gambling
- Establish an independent statutory body to provide policy advice, monitoring and review to Government

Key Issues
Current legislation:

- Need for consumer information about the nature of the gambling product
- Communities want a say in decision making
- Non casino gaming machines:
- Licensing is permissive and cannot withstand strong commercial pressures to sidestep its intent eg, kickbacks.

- No statutory age limit on venues. De facto arrangement using liquor licensing age limits has tied non-casino gaming machines venues to alcohol venues.
- Need for monitoring revenue generation
- Need for fair distribution system for community grants, and for monitoring of this.

Responsible Gambling Bill:

- Lack of public health focus
- Technological developments may make Responsible Gambling Act out of date
- Lack of national codes and controls on venues
- Lack of research on effectiveness of gambling environment harm minimisation measures and consumer information
- How to define 'harm' and 'problem gambling', and implement measures to address them, monitor effectiveness, and enforce sanctions (Note: not many penalties in the Bill)

Principles

- Use of evidence where it exists for policy development; otherwise take a precautionary approach to managing gambling.
- Secure societal and local input and industry participation and buy-in
- Secure input from special interest groups in the community with particular reference to tangata whenua
- Establish consumer protection standards for gambling behaviour, product, and environment
- Implement up-to-date surveillance on help seeking behaviour and product development

Objectives

- All 5 aims of Ottawa Charter – making health choices easy, encouraging social, cultural and economic environments for community development and community action and say in level of participation in gambling
- Empower and resource communities to make own decisions on gambling
- Restrict availability of opportunities including internet gambling – don't treat it as impossible to control, make available more attractive alternative activities and reduce uncontrolled of gambling and proliferation of access
- Reduce promotion of gambling ie restrict advertising
- Enable informed choice
- Reduce proportion of NZ population who are pathological or problem gamblers
- Maximize the proportion of NZs who report gambling as a positive

experience

- Gambling enhances, not damages NZs economic base
- Establish future proof statutory requirements and controls on technological developments

Strategies

National

- Reduce point of sale access (lotto ticket sales at supermarket checkouts) and access at public concourses eg airports and family "places" eg family restaurants
- Research into effectiveness of harm minimisation interventions for gambling products and gambling environments
- Impact assessment and research on new products and trials or pilots before consents given, and implement controls as part of the consent
- Reduce the ability of gambling products & environments to condition people to be deluded about the chance of odds: skill ratio.
- Require future products for current and future gambling environments to display odds and record of play, losses and winnings
- Provide public information (including information for youth) on odds
- Institute industry wide codes:
    - Tighter controls on stakes
    - Advertising controls
    - Intervention to counter the current social and cultural environments that build on the links between gambling and video games and Lotteries Commission advertising
- Investigate & apply consumer law protections regarding door-to-door sales which allow purchasers a number of days to repudiate their purchases
- Responsible Gambling Bill must:
    - build in provisions requiring Territorial Authorities to have robust public consultation processes for policy formulation and approvals for specific applications regarding licensing conditions
    - build in a review process
    - establish an independent statutory body to provide policy advice, monitoring and review to Government
    - establish independent local bodies to distribute community purpose funding from casino gaming machines

2 COMMUNITY DEVELOPMENT

Goal

- Empowered, resilient and informed communities able to establish their own norms and to effectively manage all gambling issues

Key issues

- Establishing impact of gambling on different communities
- Communities need to be more empowered involving all members
- Unethical distribution of community funds – not truly in dependent eg linked to alcohol advertising
- Insufficient role and research given to community in public policy
- Community needs definition
- Tendency to work with specific problems and risk groups
- Top down rather than bottom up
- Emphasis on those with problems and pathology rather than community (non-holistic approach)
- Lack of organisational framework in terms of community development
- Communities not well educated about gambling
- Inadequate mechanism for Maori community empowerment
- Inadequate mechanisms for ethnic minority community empowerment

Gaps in our knowledge

- Knowledge of relationship between DIA and MOH with respect to gambling and role of community
- Community not comprehensively covered in the legislation
- True commitment to community
- Lack of research into community

Principles

- Community not pathology
- Holistic perspective
- Bottom up
- Empowering approach
- Treaty of Waitangi
- Cultural diversity
- Evaluative and evidence based

Objectives

- To influence public health elements within the Responsible Gambling Bill

- To ensure there is a MOH, DIA and other acknowledgement of the above
- To have communities owning the public health approach within the community
- To set up an independent community body to oversee all relevant activities including research
- To base all action on assessed articulated needs and wishes of the community

Strategies

National

- Establish a national clearing house to support the above
- Set up a national cap on gaming machines and advertising
- Ensure focus on gambling as a whole rather than as a pathology
- Redefine the issue as a public health problem
- Develop a workforce strategy for gambling issues

3 YOUTH STREAM

Goal

- Harm minimisation
- Enjoyment without excess
- Informed choice
- Social/critical thinking
- Strong resilient young people

Key Issues

- Susceptibility
- Normalisation (growing up with society normalisation gambling)
- Lots of exposure
- Technology
- Direct marketing
- Attractiveness
- Invincibility
- Lack of awareness
- Reinforcement schedules
- Highly influenced by peers

- Family influence
- Mental health/stresses

Identify key gaps

- Insufficient research
- Broader research for us
- Employ effective treatment and prevention programmes
- Protective paradigms
- Cultural and ethnic minorities

Principles

- Youth development principles
- Guided by research
- Youth development guided by the "big picture" (social, economic, cultural, political, values, belief systems)
- Connectedness
- Consistent strengths based approach
- Quality relationships
- Full participation (trust)
- Good information (knowledge and research)

Objectives

- Funding for Research
    - Alternative paradigms
    - Different populations (ethnicity etc)
    - Developmental differences (0-18, 18-25)
    - Longitudinal studies
    - Attitudinal studies
- Comprehensive Framework Including:
    - Legislation
    - Early education
    - Support services
    - Community involvement
    - Youth involvement/participation
    - Health promotion action

- Reduced severity/problematic gambling
- Changes in attitudes
- Increased knowledge
- Changes in erroneous cognitions
- Measures:
- Interim summative and formative evaluations
- External peer reviewed interim evaluations

Strategies

National

- Community education/information
    - Community
    - Family
    - School environment
    - Peer support
- Available services
    - Medical/educational/mental health
- Coordination of:
    - research
    - policy
    - legislation
    - governmental bodies
    - treatment agencies, etc.

Effectiveness measure

- Gambling Problem Helpline – utilisation of youth gambling line

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4 TREATMENT SERVICES

Goal

- Healthy gambling, that is world leading, and occurs in an informed society
- Respect for abstinence of gambling
- Effective, early, ongoing interventions based around segment management
- Based on clear outcomes and processes
- Integrated, versatile service (multidisciplinary treatment providers)

- **Fully informed practitioners - evidence based or transparent practice**
- **Healthy families - facilitate a more healthy quality of life**

Key Issues

Public perception:

Lack of public awareness of the problem and the services that exist
Pent up demand - publicity spikes demand (which is not always able to be met due to resource issues)

Services:

Services currently provided on piecemeal non-integrated basis
Services are not customised on specific population
Lack of full funding

Research:

Treatment literature not readily accessible / digestible – especially for Practitioners in rural / provincial New Zealand
Lack of outcome research, evaluation and quality control
General lack of research on gambling,
Difficult to respond because treatment providers do not always know what is happening.

Context:

Gambling now is an international issue
Gambling occurs in a social context – treating only the individual is no longer justifiable...perhaps requires a bio-psychosocial, rather than addiction approach
Growth in technologies and opportunities for gambling.
Need for an international response.

Multiplicity:

Gambling is a multifaceted problem – therefore we need multifaceted approaches to treatment
However, many current therapies are uni-dimensional

Approach:

Unresolved conflict between super-specialised approach and generic approach ... tension between 'super-specialisation' (e.g., only CBT) versus providing an integrated interdisciplinary service (issues around cost, efficacy, etc)
Partnership - collaborative approach to delivering service ..perhaps more 'talk than do' at present

Gaps

- **Lack of uniform understanding of phenomena of gambling**
- **Need a model of 'best practise' that is interactive with the local community**
- **Information sharing between (provincial/city) treatment providers**
- **Uncertainty about the relationship to other problem behaviours**

- Don't know how flexible we need to be across models / clinical training / skills
- Risk of fragmentation between treatment and public health response

Principles

- Partnership for Maori to achieve tino rangitiratanga for clients
- Tino rangitiratanga for communities in designing therapies
- Consumer participation
- Feedback loop with gambling / research with clients
- Gambling can be healthy
- Evidence based practice, or at least, auditable/transparent practice
- Holistic, individual seen in context of environment...systemic view
- Recognise the community the person lives in - interconnectedness

Objectives

- To create a stable workforce
- To create a curriculum for development
- To create a career structure
- To respond to diverse client needs

Strategies

- To increase clinical and research quality of workforce
- Pilots
- Local, national, international cooperation
- Greater communication between the workforce
- Separate gambling from mental health

National

- Professional literature - want accessible and digestible dissemination of literature for clinicians

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5 ASIAN

Goal

- Asian representation at advisory and policy making levels and in decision making processes
- Ring-fenced funding to deal with Asian problem gambling
- Help-seeking behaviour is normalised alongside gambling

Key Issues

- Over-representation of Asian with gambling problems
- Lack of understanding of Asian gambling behaviour eg prevalence, who is at high risk and why, what therapy is most effective, health and social impacts of gambling on the Asian community
- Asians are not included in Government policies
- Lack of representation and advocacy at senior advisory and policy levels
- Limited capacity for intervention and research
- Asian migrants are often unfamiliar with the legalised gambling environment and the associated risks
- Concern about the accessibility of internet for Asian students and youth in general and the implications for internet gambling
- Gambling problems are compounded by migration adjustment issues eg employment
- Language is a big issue particularly in the provision of services

Gaps

- Funding
- Lack of understanding of Asian gambling behaviour eg prevalence, who is at high risk and why, what therapy is most effective, health and social impacts of gambling on the Asian community
- Most effective approach to engage individuals, families and communities
- Impact of gambling on spouses, children, and extended family members in NZ and overseas – exacerbated by less support for immigrant families
- No information on the prevalence of problem gambling and the impact of that on Asian communities other than Chinese and Korean

Principles

- Equity of funding
- Evidence driven action
- High quality intervention and research activities
- Holistic approach
- Healthy lifestyle and well-being
- Professionalism – workers efforts recognised and paid for

Objectives

- Asian representation in advisory and policy level and in decision making process
- Ring-fenced funding to deal with Asian gambling problems

(intervention/research)

- Provide a "national" service for Asian problem gambling
- An Asian representative on PGC.
- Representation and/or reference group within the Ministry of Health (formalised appointment)
- Fund allocated for and accessible to the Asian practitioners researchers
- Better representation from other parts of the country/ and setting up services in other areas

Strategies

National

- Nominations from individuals with an interest and knowledge in gambling issues
- Have a seed fund to scope and prepare a business case for funding level
- Identify geographical areas requiring service and the high risk groups in the respective location

Measures

- Individuals nominated and appointed by PGC and MOH
- Allocation of seed funding
- A team established to undertake the task

Regional

- Promote the issues at a regional level

Measures

- Promotion carried out and regional representatives identified at regional level

Local

- Presentations to community groups eg schools and churches (presentation to be done with other social and cultural issues)

Measures

- Presentations carried out.

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6 PACIFIC

Goal

- "Empowering our Pacific people to take control of our life issues"
  Key Issues
- Acuity of Problems: Increased expenditure on gambling for Pacific people, more so than Maori ($744.00/annum), although low median incomes

reported.

- Resistance / Barriers to readiness: Lack of awareness amongst Pacific people. Priority areas required.
- Important to understand homogeneity effects: Diversity issues between Pacific groups / within Pacific groups (acculturation issues)
- Direction and hence control: Requirement strategic framework document for Pacific people.
- What extent do Pacific people have a say in allocation of funding?

Gaps

- Do we have an understanding of the problem? Why so hooked into gambling? What is the constitution of problem gambling/pathological gambling amongst Pacific people?
- What is harmful and what is safe gambling for Pacific people?
- What are the implications of understanding Pacific youth issues?
- Funders and purchasers do not know what they are doing to understand the nature of Pacific issues. Lack of understanding of culture.

Principles

- **Pacific Island for Pacific Island** (not as achievable as yet due to lack of capacity; therefore may need to develop for now within mainstream) Our power base is really within our ethnic groups. Our challenge is to capture diversity within ethnic specific groups.
- **Equity**
- Justice / Participation...Leadership (very few Pacific people in capacity building positions) How do we build and deliver?
- Cultural propriety (integrity) / Knowledge = (em)power
- Capacity building
- Accountability
- Effectiveness and efficiency

Objectives

- To access resources NOW to implement our plan:
    - vs needs
    - vs gaps
    - vs priorities
- Organisation amongst our own people NOW. Collect our communities together: (1) Get organised – Networking; - Structures
- Building Capacity NOW; Pacific manager required; Community development
- Give essential information to our communities

- Design, plan and implement ethnic-specific research to understand why.
- Develop in consultation with our people a framework and plan of action to address our needs and priorities in problem gambling.
- Develop a workforce plan that identifies skill, training, and development needs.
- Influencing decisions
- To take leadership and ownership etc
- Target population groups, youth
- Before transition of gambling to MoH, we want funded pacific positions

Strategies

National

- Develop a National Pacific body to provide strong and pro-active leadership, direction and co-ordination of our Pacific issues.
- To raise awareness and promote harm minimisation in problem gambling.
- To fund relevant Pacific research at all levels
- To identify work force needs and fund key positions (Director of Pacific research at the Centre for Gambling Studies) NOW

Measures of effectiveness

- Controls and accountability
- Develop policy procedures and control