GAMBLING PREVALENCE AND SEVERITY AMONG RURAL AND PERI-URBAN POOR SOUTH AFRICANS IN KWA-ZULU NATAL

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Please note:

This is an interim report. Commissioners may wish to focus on the questions and answers contained at the end. A full and final report on this material will be sent to Commissioners at the end of April. This will include a review of the relevant literature. Peter Collins.

BACKGROUND

Most South Africans are poor. Officially 23.6% of the working age population is unemployed, and over half live below the poverty line. Changes in regulation since the advent of democracy in 1994 have increased the availability of legal gambling activities, including new casinos in or near major cities. Until now there has been little systematic study of gambling prevalence, including the prevalence of disordered gambling, among poor South Africans, and no work on the effect of convenient casino gambling. To begin to address this shortfall, we ran a study among poor peri-urban and rural communities in the KwaZulu-Natal region of South Africa. The communities were at varying distances from two major and relatively new casino complexes.

AIMS

- To determine the type, frequency and location of formal and informal gambling activities among poor South Africans from peri-urban and rural communities.
- To investigate in these populations, variables known to be associated with disordered gambling, including (a) impulsivity (b) alcohol and drug abuse (c) depression (d) anxiety.

METHODS

Participants

301 adult subjects (>18 years, Male, 54%). Subjects were Black African and predominately Zulu speaking (97%). Average education and income were low (Education, *M* = Grade 9; Personal income, *Mdn* = R520, *SD* = R1436; Household income, *Mdn* = R2070, *SD* = R2816), and significantly lower in rural than peri-urban areas (see Table 1). Neither age nor sex was proportionally different between rural and peri-urban areas. Dwelling type in rural areas was mostly traditional huts (97.9%). In peri-urban areas respondents lived mostly in informal shacks (32.7%) or low cost housing (41.2%) (see Figure 1).

Table 1

Rural and Peri-urban Demographic Comparison

	Rural			Peri-Urban			
Variable	**n**	**M**	**SD**	**n**	**M**	**SD**	**t test**
Education (Highest grade)	144	Grade 8	4.04	155	Grade 10	4.04	$t(297) = -5.04^{**}$
Personal income (Rands per mth.)	144	555.42	879.59	155	1268.74	1739.29	$t(297) = -4.42^{**}$
Household income (Rands per mth.)	141	2241.99	1499.56	147	3409.39	3591.89	$t(286) = -3.59^{**}$
Personal borrowing (Rands per mth.)	145	24.14	174.61	156	183.56	762.13	$t(299) = -2.54^{*}$
Household size	145	5.04	2.29	156	4.25	2.58	$t(299) = 2.81^{*}$

Note. 1US dollar = R7.35

$^{*}p < .05$. $^{**}p < .00$ (two tailed).

Figure 1. Left – 'Matchbox' peri-urban housing (from motheogroup.co.za),
Right – informal rural shack settlement (from www.dwaf.gov.za).

Measures

The survey extracted demographic information, and data about frequency, location and types of gambling activities. All subjects also completed the following screens;

- *Problem Gambling Severity Index (PGSI),* the scored module of the Canadian problem gambling Index (Ferris & Wynne, 2001), consists of nine items scored on a four-point scale (0 = Never, 1 = Sometimes, 2 = Most of the time, 3 = Almost always) and framed over the past 12 months.
- *The Beck Anxiety Inventory (BAI)* is a 21 question self-report instrument focused on the severity of symptoms of anxiety, rated on a 4 point scale (Not at all, Mildly, Moderately and Severely).
- *The Beck Depression Inventory (BDI-II)* is a 21 question self-report instrument, based on DSM symptoms of depression, scored on a scale between 0 and 3 and framed over a time scale of 2 weeks.
- *WHO Alcohol and Drug Abuse screen (WHO-ASSIST)* is a self-report instrument about lifetime consumption of various substances, frequency of consumption over 3 months, and questions about any negative (social, financial, health, legal) consequences.
- *Barrett Impulsivity Scale (BIS-II)* (Patton, Stanford & Barratt, 1995) is a 30 item, 4 point Likert scale questionnaire (Rarely/never, Occasionally, Often, Almost always). Items are not framed within any specific time period. It provides a total score (30–120) indexing impulsiveness, as well as scores for 3 second order subscales and 6 first order subscales.

Procedures

We used probability sampling (50% gender split) to select subjects. Enumeration areas (EAs) within the province were selected based on a poverty profile drawn from census data, and grouped by proximity to casinos. A random starting point in each EA was selected and interviewers then approached bounded properties, and selected dwellings and potential respondents, based on random procedures. We conducted focus groups with a convenience sample of community members and with gamblers at an informal gambling establishment.

Data analytic approach

Gambling severity was examined by summed PGSI score and cut-offs used to group individuals into 1 of 4 risk categories (0 = No risk gambling, 1–2 = Low risk gambling, 3–7 = Moderate risk gambling, 8–27 = Problem gambling). Rural and peri-urban group comparisons by gambling prevalence and severity were conducted through chi-square analysis and Spearman's Rho. Investigation of comorbidity used a combination of chi-square, Spearman's Rho and ANOVA.

RESULTS

Prevalence and severity: The peri-urban poor gamble more frequently and are at higher risk for disordered gambling than the rural poor

The majority of respondents (68%, *n* = 205) had gambled at some time in their lives, however only 20% (*n* = 60) had ever visited a casino (Lifetime visits among casino goers, *Mode* = 1, *Mdn* = 3, *SD* = 19.61) and only 2% (*n* = 6) in the previous month. Despite this, regular gambling (daily, weekly or monthly) on at least 1 activity was common (41%, *n* = 124), though excluding those who gambled regularly on lottery only, this figure reduced to 21% (*n* = 62). By gambling type, regular lottery (33.2%, *n* = 100), cards (12%, *n* = 36), scratch cards (10.6%, *n* = 32) and local games such as coin spinning and caps (4.7%, *n* = 14) had the highest prevalence. Gambling by area was significantly different on all indictors, with higher prevalence in the peri-urban group (see Table 2).

Table 2

Rural and Peri-urban Lifetime and Current Gambling Prevalence

	Rural		Peri-Urban		
Variable	**n**	**%**	**n**	**%**	**Chi-square**
Ever gambled	75	51.7%	130	83.3%	$^2(1, N = 301) = 34.57$**
Ever visited a casino	8	5.5%	52	33.5%	$^2(1, N = 300) = 36.79$**
Regular gambler[a]	32	22.1%	92	59.0%	$^2(1, N = 301) = 42.25$**
Regular gambler (Ex. Lot.)[b]	9	6.2%	53	34.0%	$^2(1, N = 301) = 35.53$**
Regular Lottery	27	18.6%	73	46.8%	$^2(1, N = 301) = 26.89$**
Regular Cards	6	4.1%	30	19.4%	$^2(1, N = 301) = 16.43$**
Regular Scratch cards	3	2.1%	29	18.6%	$^2(1, N = 301) = 21.59$**
Spinning and Caps	1	0.7%	13	8.3%	$^2(1, N = 301) = 9.90$*

Note. [a]Daily, weekly, monthly combined. [b]Excluding regular lottery only players.
*$p < .05$. **$p < .00$.

Observed disordered gambling among poor South Africans is comparable to other national and international prevalence studies (2%, n = 6). However, peri-urban and rural groups were significantly different, with proportionally more peri-urban respondents represented in higher risk categories, $\chi^2(3, N = 301) = 37.68$, $p < .00$ (See Table 3). When moderate risk and problem gambling categories are combined, 12% (*n* = 36) of the sample, 21.2% (*n* = 33) of the peri-urban group, and 2.1% (*n* = 3) of the rural group, could be considered at relevant public health risk.

Table 3

Gambling Severity among Poor Rural and Peri-urban South Africans

PGSI group				
Measure and variable	**No risk**	**Low risk**	**Moderate risk**	**Problem gambling**
Rural[a]				
Count	130	12	3	0
Within Area Group %	89.7%	8.3%	2.1%	.0%
Within PGSI Group %	58.0%	29.3%	10.0%	.0%
Total %	43.2%	4.0%	1.0%	.0%
Peri-urban[b]				
Count	94	29	27	6
Within Area Group %	60.3%	18.6%	17.3%	3.8%
Within PGSI Group %	42.0%	70.7%	90.0%	100.0%
Total %	31.2%	9.6%	9.0%	2.0%
Sample[c]				
Count	224	41	30	6
Within Area Group %	74.4%	13.6%	10.0%	2.0%
Total %	74.4%	13.6%	10.0%	2.0%

Note. [a]*n = 145.* [b]*n = 156.* [c]*N = 301*

Comorbidity: Gambling severity is related to substance abuse and depression

By WHO-ASSIST categories, 1.7% (n = 5) of respondents met criteria for 'intensive intervention' on at least one substance (excluding tobacco), while 28.4% (n = 85) met criteria for a 'brief intervention'. Substance abuse was significantly more frequent in peri-urban than rural areas, with 37.7% (n = 58) of peri-urban and 22.1% (n = 32) of rural respondents meeting criteria for some form of intervention $\chi^2(2, N = 299) = 9.14, p > .005$. A greater proportion of peri-urban respondents were in higher risk categories for alcohol $\chi^2(2, N = 299) = 13.87, p < .05$, and MDMA $\chi^2(1, N = 299) = 8.07, p < .05$.

PGSI scores correlated significantly with higher WHO-ASSIST scores for alcohol (.308, $p < .00$) and some other drugs (tobacco, .322, $p < .00$; cannabis, .259, $p < .00$; MDMA, .279, $p < .00$; inhalants, .140, $p < .05$). Proportionally more respondents in higher risk categories were represented in higher WHO-ASSIST risk categories, $\chi^2(6, N = 299) = 32.10, p < .00, T = .249, p < .00$. Mean WHO-ASSIST scores for specific substances were also significantly different between PGSI groups (see Figure 2).

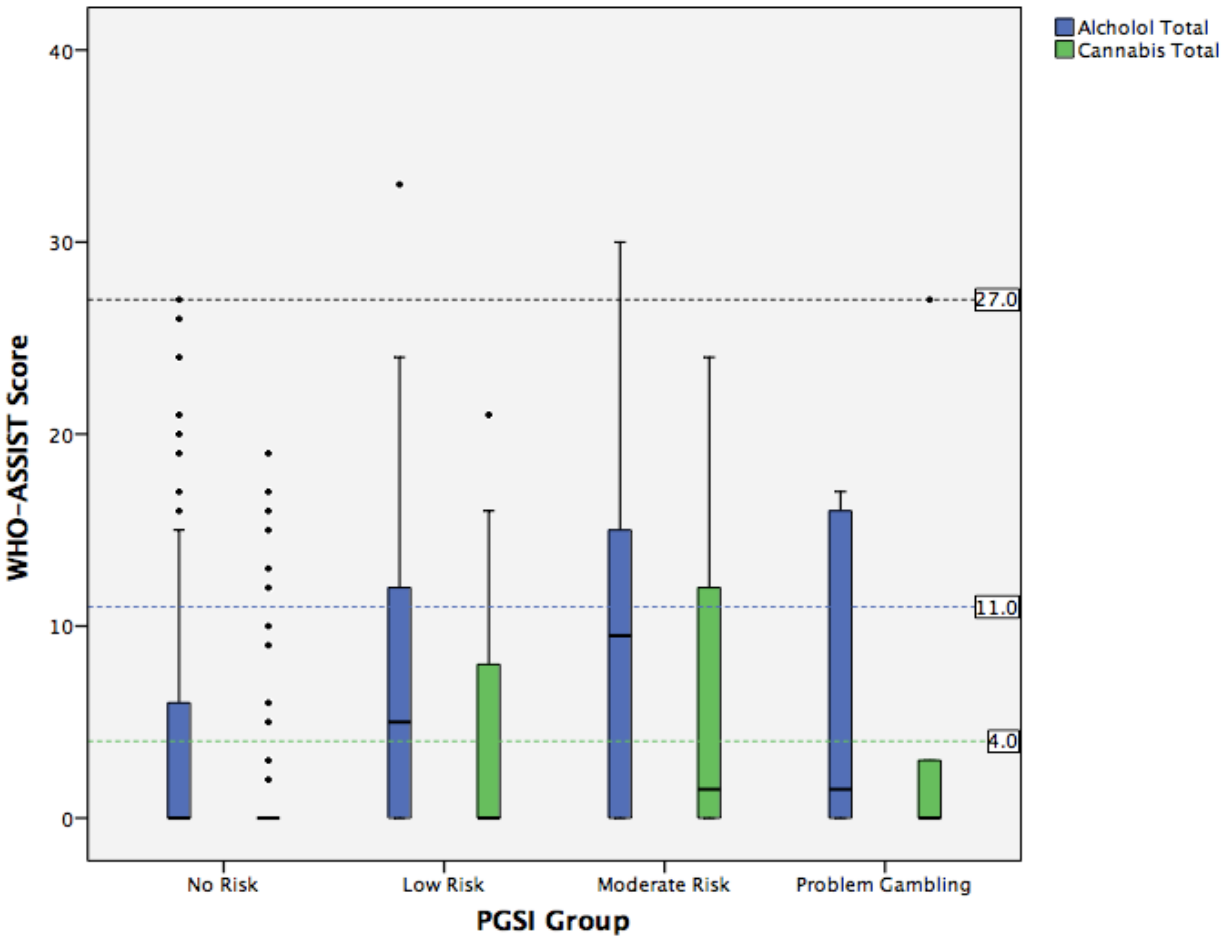

Figure 2. WHO-ASSIST score by PGSI risk group. Dashed lines indicate cut-offs for 'brief intervention' (green = cannabis cut-off, blue = alcohol cutoff) and sustained intervention (black) for the WHO-ASSIST.

By area respondents did not differ in presentation of symptoms for either depression (BDI-II) or anxiety (BAI). Prevalence of mild, moderate and severe depression was 15.2% (n = 44), 7.6% (n = 22), and 3.1% (n = 9) respectively. Moderate and high anxiety was at 4.3% (n = 13), and 1.0% (n = 3). Anxiety severity was not correlated with PGSI scores, but group comparisons revealed proportionally more respondents from moderate and high anxiety categories in higher PGSI risk groups, $\chi^2(6, N = 299) = 19.73, p < .05$. Unexpectedly, severity of depression was significantly negatively correlated with gambling severity (-.134, $p < .05$), nor was impulsivity score correlated with gambling severity, nor were means different by PGSI group.

DISCUSSION

Casino proximity in this sample of poor South Africans is unrelated to gambling prevalence or problem gambling severity. Historical and cultural barriers to access appear to cut across both rural and peri-urban poor groups. Despite this, gambling is significantly more prevalent and severe among peri-urban groups, as is alcohol abuse. Excluding lottery and scratch cards, informal gambling, especially on cards and local games, accounts for the majority of gambling among the poor. That gambling severity is highly correlated with alcohol and drug abuse as well as with anxiety is in line with national and international findings. However, the relationship of gambling severity to depression is complicated in this population, as is the relation to impulsivity. Qualitative analysis suggests that different norms in rural and peri-urban areas relevant to social exclusion may partially account for this complexity.

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QUESTIONS & ANSWERS

Background

1) What did we already know about poverty and gambling?

- A convincing number of international studies show that lower socioeconomic status is associated with increased rates of disordered gambling (Petry, 2005). That is, as with public health problems like alcohol and drug abuse, addictive gambling is overrepresented among the poor. However, the nature and rationale behind this association is not well understood.
- Until now there has been little systematic study of the prevalence of disordered gambling among poor South Africans, and no work on the effect of convenient casino gambling following changes in regulation since 1994.

2) What research did the NRGP commission on gambling and poverty?

- NRGP commissioned a prevalence study among poor peri-urban and rural communities in the KwaZulu-Natal region of South Africa.
- We aimed to determine the type, frequency and location of formal and informal gambling activities among poor South Africans from peri-urban and rural communities.
- We also investigated variables known to be associated with disordered gambling, including (a) impulsivity (b) alcohol and drug abuse (c) depression (d) anxiety.

3) Who was in the sample?

- Predominately Zulu speaking black African adults (N = 301) from rural and peri-urban areas of KwaZulu-Natal.
- Average education and income were low (Education, *M* = Grade 9; Personal income, *Mdn* = R520, *SD* = R1436; Household income, *Mdn* = R2070, *SD* = R2816) and significantly lower in rural than peri-urban areas (see Table 1)

The research findings

4) How much and what kind of gambling is going on?

- The majority of respondents (68%, *n* = 205) had gambled at some time in their lives, however only 20% (*n* = 60) had ever visited a casino (Lifetime visits among casino goers, *Mode* = 1, *Mdn* = 3, *SD* = 19.61) and only 2% (*n* = 6) in the previous month.
- Regular gambling (daily, weekly or monthly) on at least 1 activity is common (41%, *n* = 124), though excluding those who gamble regularly on lottery only, this figure reduces to 21% (*n* = 62).
- By gambling type, regular lottery (33.2%, *n* = 100), card (12%, *n* = 36), scratch cards (10.6%, *n* = 32) and local games such as coin spinning and caps (4.7%, *n* = 14) have the highest prevalence.
- All card gambling reported is informal (i.e., not in casinos or legal gambling venues), with most (36.6%, n = 34) taking place on the street or at household venues (34.4%, n = 32).
- Gambling by area is significantly different on all indictors, with higher prevalence in the peri-urban group (see Table 2).
- Among the peri-urban group, regular lottery (46.8%, *n* = 73) followed by card (19.4%, *n* = 30) gambling are the most common activities.
- Among the rural group, regular lottery (18.6%, *n* = 27) followed by card (4.1%, n = 6) gambling are the most common activities.

5) Is gambling a problem among the rural and peri-urban poor?

- Observed disordered gambling among poor South Africans is slightly lower (though comparable) to overall rates in national and international prevalence studies (2%, *n* = 6).
- Peri-urban and rural groups are significantly different, with proportionally more peri-urban respondents represented in higher risk categories (See Table 3).
- There are no addicted gamblers in the rural group, while 3.8% (*n* = 6) of the peri-urban group meet criteria for disordered gambling.
- When moderate risk and problem gambling categories are combined, 12% (*n* = 36) of the sample, 21.2% (*n* = 33) of the peri-urban group, and 2.1% (*n* = 3) of the rural group, may be considered at relevant public health risk.

6) What gambling activities are common among moderate risk and problem gamblers?

- Among *problem gamblers*, 83.3% (*n* = 5) gamble regularly on lottery and 66.7% (*n* = 4) gamble regularly on cards.
- Among *moderate risk gamblers*, 72% (*n* = 18) gamble regularly on cards and 68% (*n* = 17) gamble regularly on lottery.
- Among *moderate risk* and *problem gamblers*, 71% (*n* = 22) gamble regularly on cards and 71% (*n* = 22) gamble regularly on lottery.
- Slots is the least common activity among moderate and problem gamblers, accounting for only 16.1% (n = 5) of respondents in this combined group.

7) What about problems with alcohol, drugs, anxiety and depression?

- By WHO-ASSIST categories, 1.7% (*n* = 5) of respondents meet criteria for 'intensive intervention' on at least one substance (excluding tobacco), while 28.4% (*n* = 85) meet criteria for a 'brief intervention'.
- Substance abuse (including alcohol) is significantly more frequent in peri-urban than rural areas, with 37.7% (*n* = 58) of peri-urban and 22.1% (n = 32) of rural respondents meeting criteria for some form of intervention.
- Rates of 'intensive intervention' for alcohol abuse are less than half those recorded in the national prevalence study at 1.3% (*n* = 4), though rates in the peri-urban group (1.9%, n = 3) were closer to the national rates. By including the need for 'brief interventions' rates are considerably higher at 18.9% (*n* = 57), with rates in the peri-urban group being especially high (26.9%, *n* = 42).
- By area respondents did not differ in presentation of symptoms for either depression or anxiety.
- Prevalence of mild, moderate and severe depression is 15.2% (*n* = 44), 7.6% (*n* = 22) and 3.1% (*n* = 9) respectively. Rates of severe depression are therefore slightly less (though comparable) to the national rates observed in the prevalence study.
- Moderate and high anxiety rates are 4.3% (*n* = 13) and 1.0% (*n* = 3) respectively. Rates of high anxiety are therefore lower than national rates observed in the prevalence study.

8) Are poor people who have problems with gambling more at risk for other problems (i.e., abusing alcohol and drugs, anxiety, depression)?

- PGSI scores correlate significantly with higher WHO-ASSIST scores for alcohol (.308, $p < .00$) and some other drugs (tobacco, .322, $p < .00$; cannabis, .259, $p < .00$; MDMA, .279, $p < .00$; inhalants, .140, $p < .05$).
- 33% (*n* = 2) of *problem gamblers* meet criteria for a 'brief intervention' for alcohol abuse.
- 43% (*n* = 13) of *moderate risk gamblers* meet criteria for a 'brief intervention' for alcohol abuse, and the same percentage do so for cannabis abuse.
- 16.7% (*n* = 1) of *problem gamblers* meet criteria for severe depression, and the same percentage do so for high anxiety.
- 3.3% (*n* = 1) of *moderate risk gamblers* meet criteria for severe depression, and none do so for high anxiety.

9) What is the role of casino playing in problem gambling among the poor?

- There is no evidence that casino gambling is especially problematic for this population. Although some problem gamblers regularly played slots (and hence frequented casinos), the majority of PGs in this group gambled on cards and the lottery. Indeed only 66.7% (*n* = 4) of PGs in this population have ever visited a casino, and only 16.7% (n = 1) had visited a casino in the past month.

10) What is the role of lottery and card gambling in problem gambling among the poor?

- Among regular gamblers, lottery playing did not differ significantly between gambling severity groups. There was however a difference between groups for card gambling, with a significantly greater proportion of regular gamblers from moderate and higher risk groups playing cards than regular gamblers from no and low risk groups.

Conclusion

- Poor South Africans in KZN are not disproportionately affected by gambling addiction. The rural poor are not affected at all, while the peri-urban poor show slightly higher prevalence rates than have been recorded nationally.
- Aside from lottery gambling, informal card gambling on the street is the most common activity, and among regular gamblers is more common among high-risk groups.
- Interestingly, rates for depression and anxiety are slightly lower than recorded nationally, though among addicted gamblers rates of depression are similar.
- Rates for alcohol abuse are lower than those recorded nationally, however, as in the national study, alcohol abuse was significantly related to the severity of gambling problems.