

# Gambling Prevalence and Severity among Rural and Peri-Urban Poor South Africans in Kwa-Zulu Natal

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## 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,  $M = \text{Grade } 9$ ; Personal income,  $Mdn = \text{R}520$ ,  $SD = \text{R}1436$ ; Household income,  $Mdn = \text{R}2070$ ,  $SD = \text{R}2816$ ), 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

Variable	Rural			Peri-Urban			t test
	n	M	SD	n	M	SD	
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. 1 US dollar = R7.35

\* $p < .05$ . \*\* $p < .00$  (two tailed).

## Methods



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), and framed over the past month.
- 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 indicators, with higher prevalence in the peri-urban group (see Table 2).

## Results

Table 2. Rural and Peri-urban Lifetime and Current Gambling Prevalence

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

Note. <sup>a</sup>Daily, weekly, monthly combined. <sup>b</sup>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

Measure and variable	PGSI group				
	No risk	Low risk	Moderate risk	Problem gambling	
Rural <sup>a</sup>	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 <sup>b</sup>	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 <sup>c</sup>	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. <sup>a</sup> $n = 145$ . <sup>b</sup> $n = 156$ . <sup>c</sup> $N = 301$

### 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).

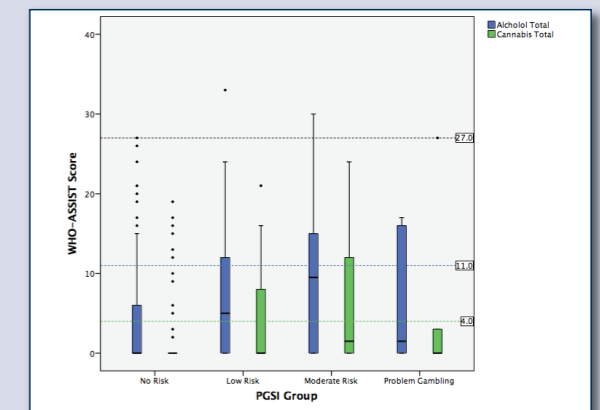


Figure 2. WHO-ASSIST score by PGSI risk group. Dashed lines indicate cut-offs for 'brief intervention' (green = cannabis cut-off, blue = alcohol cutoff) and sustained intervention (black) for the WHO-ASSIST.

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 ( $-0.134$ ,  $p < .05$ ), 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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