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The relationship between symptoms of common mental disorders and drug and alcohol misuse among persons seeking an HIV test

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Abstract

We studied 500 South Africans who sought an HIV test in a community outreach setting. On average, both men and women in the sample indicated hazardous and harmful alcohol use, as well as possible alcohol dependence. Men but not women among the sample experienced drug-related problems. Men were 1.64 times more likely than females to report problematic alcohol use and 4.88 times more likely than females to report drug use. Symptoms of posttraumatic stress, anxiety, and depression significantly explained 16.5% of the variance in alcohol misuse. Symptoms of posttraumatic stress significantly explained 23.5% of the variance in drug use. Implications are explored in the context of HIV testing.

Keywords

HIV testing; mental health; alcohol use; substance use

Disorders such as major depression, generalised anxiety, posttraumatic stress, and drug and alcohol use appear to be common among persons living with HIV (e.g. Slot, Sodemann, Gabel, Holmskov, Laursen, & Rodkjaer 2015; Myer, Smit, Roux, Parker, Stein, Seedat, 2008). Even though HIV testing is widely available in many parts of South Africa, minimal research has been conducted into the mental health and substance use patterns of persons seeking an HIV test.

We have shown previously that the prevalence of common mental disorders (CMD's) among individuals receiving an HIV test is substantial (Kagee, Saal, De Villiers, Sefatsa, Bantjes, 2017). In this paper we report on the relationship between depression, anxiety, post-traumatic stress symptoms and alcohol and drug abuse among the same, but extended, sample of participants seeking an HIV test (Kagee, et al 2017). These data have important implications as the co-morbidity of CMD's and drug and alcohol abuse places persons who test HIV negative at elevated risk of infection. Also, those who test HIV positive, who are then referred for antiretroviral therapy (ART), are at risk of defaulting on treatment.

METHOD

Participants:

We recruited a convenience sample of 500 individuals seeking an HIV test at five HIV testing sites in South Africa. Testing site personnel set up temporary centres in public areas

such as shopping centre parking lots and public transport centres and invited community members to receive a free HIV test. Those who accepted were invited to participate in the study.

Procedures:

The data were collected prior to participants undergoing HIV testing. Once individuals registered at the reception desk of the testing site, they were handed a flyer informing them of the study and inviting them to meet with a researcher in a private space. Those who agreed were informed about the study, invited to participate, and asked to complete an informed consent form. We administered the assessment instruments using a Lenovo tablet, which took between 45 and 60 minutes to complete. The data were then transferred to a web-based platform, automatically entered into an Excel spreadsheet, and analysed in SPSS.

Ethical considerations:

The study was approved by the XXXX Health Ethics Committee and the Western Cape Department of Health. All participants signed an informed consent form. Those found to have clinically significant distress or a mental disorder were referred to a local mental health centre.

Measures:

Demographic information: A demographic questionnaire was used to elicit information on gender, race, marital status, educational level and employment status among participants.

Symptoms of depression:

The Beck Depression Inventory (BDI; Beck, Guth, Steer, Ball, 1997), a 21-item self-report measure, was used to measure symptoms of depression during the week prior to study participation. The scale has demonstrated excellent reliability and validity in a variety of studies worldwide.

Symptoms of anxiety:

The Beck Anxiety Inventory (BAI), a 21 item self-report scale, was used to measure severity of symptoms of anxiety among the sample during the week prior to the study. The scale was validated among various samples and showed high internal consistency, with alpha coefficients ranging from .92 to .94 (Beck, Epstein, Brown, Steer, 1988).

Symptoms of posttraumatic stress:

Posttraumatic stress symptoms were assessed using the Posttraumatic Symptom Scale, Self-report version (PSS-SR), a 17-item self-report scale that assesses the presence and severity of PTSD symptoms (Foa, Riggs, Dancu, Rothbaum, 1993) as delineated by the DSM-IV-TR. The scale has good internal consistency (Cronbach's $\alpha = 0.97$) and high test-retest reliability coefficient of 0.95 in various populations (Stieglitz, Frommberger, Foa, Berger, 2001).

Alcohol use:

The Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, De la Fuente, & Grant, 1993) is a 10-item well-validated and reliable measure that assesses physiological and psychological dependence on alcohol, as well negative consequences from drinking.

Drug use:

The Drug Use Disorders Identification Test (DUDIT; Berman, Bergman, Palmstierna, Schlyter, 2005) is an 11-item self-report instrument that was developed as an analogous instrument to the AUDIT. It has excellent internal consistency.

Data Analysis:

The data were entered into SPSS version 22 and checked for missing and out of range values. We used descriptive statistics, odds ratios, and linear regression analysis to analyse the data.

Results

Table I presents a description of the participants. As can be seen, the participants were largely low income and had attended or graduated from high school. Just under half were unemployed and most spoke Afrikaans as a first language. However, as an inclusion criterion, all participants were able to speak and understand English.

Table II presents the mean scores on the AUDIT and DUDIT for males and females, along with comparisons with the recommended cut-scores on these measures indicating alcohol or drug-related problems in the general population. These cut scores were 8 and 6 on the AUDIT, and 6 and 2 on the DUDIT for males and females, respectively. There were non-significant differences between the mean scores for both men and women with the cut-score on the AUDIT and a non-significant difference for men only on the DUDIT.

Table III presents the percentages of men and women who scored above and below the cut points on the AUDIT and DUDIT, respectively. On the AUDIT, 43.8% of men and 32.2% of women scored in the elevated range, indicating hazardous and harmful alcohol use. The associated odds ratio indicates that males were 1.64 times more likely than females to report problematic alcohol use. On the DUDIT, 76.9% of men and 23.1% of women scored in the elevated range indicating drug-related problems. The associated odds ratio indicates that males were 4.88 times more likely than females to report drug use.

As can be seen in Table IV, there were strong positive correlations between scores on the HSCL, BDI, PSS, and the AUDIT and DUDIT. Tables IV and V present the regression analyses with the above variables as predictors and AUDIT and DUDIT scores as the criterion variables. The demographic variables, symptoms of posttraumatic stress, anxiety, and depression were all significant predictors and explained 16.5% of the variance in problematic alcohol use. The demographic variables and symptoms of posttraumatic stress were significant predictors and explained 23.5% of the variance of scores on the DUDIT.

Discussion

The present study is the first to examine the relationship of symptoms of mental disorders with alcohol abuse and substance use in this population. Excessive alcohol use occurred among both men and women among our sample, while drug use was a feature only of males. We also found significant differences between men and women with both excessive alcohol use and drug use.

Similar to other studies (e.g. Magidson et al 2016; Niemi-Pynttari, et al 2013), the linear combination of symptoms of depression, anxiety, and posttraumatic stress significantly explained 16.5% of the variance in alcohol use, while posttraumatic stress alone significantly explained 23.7% of the variance in substance use. It is likely that untreated symptoms of common mental disorders increase vulnerability to drug and alcohol misuse. Conversely, untreated substance use may precipitate the onset of a mental disorder.

Our findings have significant implications for persons seeking HIV testing. Alcohol and substance misuse impair decision-making and are associated with sexual disinhibition (Scott-Sheldon, Carey, Cunningham, et al 2016), placing HIV negative individuals at elevated risk of contracting HIV in the future. Those already living with HIV may infect others (Chaney, Vail-Smith, Martin, Cremeens-Matthews, 2016) and ART users are also more likely to default on their medication (Magidson, Saal, Nel, Remmert, Kagee, 2016), leading to an increased viral load and more rapid disease progression (Low, Gavrilidis, Larke, Marie-Renee, Drouin, Stover, et al 2016), frequent hospitalisation, slower recovery time, and death.

Chronic alcohol use has adverse health consequences, including psychiatric conditions, neurologic impairment, and cardiovascular and liver disease (Cargiulo, 2007). Drug use may also precipitate psychotic illnesses (Niemi-Pynttari, Sund, Putkonen, Vormaa, Wahlbeck, Pirkola, 2013) and cannabis use may suppress the immune system (Gordon, Conley, Gordon, 2013). Methamphetamines have also been shown to accelerate retroviral replication thus reducing the effectiveness of ART (Ellis, Childers, Cherner, Lazzaretto, Letendre, 2003).

In many countries substance use and mental illness services are often provided separately by departments of social services and health, respectively. Our data indicate that it would be appropriate for substance use services to be integrated into medical settings, including HIV testing sites.

The widespread availability of HIV testing is highly commendable and is in keeping with the goal of the United Nations Agency for International Development that by 2020, 90% of people living with HIV will know their HIV status, 90% of those diagnosed with HIV will be on ART, and 90% of those on ART achieve viral suppression (Joint United Nations Programme on HIV/Aids, 2014). Thus, screening for drug and alcohol misuse as well as disorders such as depression may need to be considered with a view to referring at-risk individuals for treatment.

Venues for referral require appropriate funding, which may not be immediately available and in the context of competing public health needs may be difficult. Nonetheless, our findings

serve to document the psychosocial needs of persons seeking an HIV test that require the attention of health policy makers.

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Table I:

Demographic characteristics of the sample

Gender	Males	242	48.4
	Females	258	51.6
Race	African	131	26.2
	Coloured	363	72.6
	White	4	0.8
	Other	2	0.4
Marital status	Single	265	53.0
	Widowed	13	2.6
	Separated	28	5.6
	Divorced	35	7.0
	Married/living together	159	31.8
Education	No formal education	23	4.6
	Completed primary school	24	4.8
	Attended high school but did not complete matric	289	57.8
	Complete matric	125	25.0
	Attended university or college but did not graduate	22	4.4
	Graduated from university, college or technikon	17	3.4
Employment status	Employed full time	97	19.4
	Student	29	5.8
	Unemployed due to disability	7	1.4
	Retired	17	3.4
	Employed part-time	106	21.2
	Unemployed	233	46.6
	Homemaker	11	2.2
Annual Income	Less than R10 000	203	40.6
	R10000 to R40000	205	41.0
	R40000 to R80000	57	11.4
	R80000 to R1 100000	20	4.0

	R110000 to R170000	8	1.6
	R170000 to R240000	4	0.8
	R240000 and above	3	0.6
First Language	Afrikaans	345	69.0
	English	30	6.0
	Xhosa	98	19.6
	Other	27	5.4

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Table II:

Mean scores on the AUDIT and DUDIT for males and females

	N	Mean	SD	T	Df	p
AUDIT (males)	242	7.89	8.38	0.20	237	0.84
AUDIT (females)	258	5.41	7.75	1.57	246	0.11
DUDIT (males)	242	4.86	9.56	1.81	237	0.07
DUDIT (females)	258	0.85	4.42	4.21	246	0.0001

Table III:

Percentages of men and women who scored above and below the cut-points on the AUDIT.

AUDIT	Males (cut score=8)	Females (cut score=6)	OR	CI	P
Below cut score	136 (56.2%)	175 (67.8%)			
Above cut score	106 (43.8%)	83 (32.2%)	1.64	1.14–2.37	0.008
DUDIT	Males (cut score = 6)	Females (cut score = 2)			
Below cut score	186 (76.9%)	243 (94.2%)			
Above cut score	56 (23.1%)	15 (5.8%)	4.88	2.67–8.90	0.0001

Table IV:

Correlation matrix of predictors of alcohol use and drug use

	BDI TOTAL	BAI TOTAL	PTSS TOTAL	AUDIT TOTAL	DUDIT TOTAL
BDI TOTAL	1.00				
BAI TOTAL	0.68**	1.00			
PTSS TOTAL	0.67**	0.80**	1.00		
AUDIT	0.34**	0.33**	0.33**	1.00	
DUDIT	0.19**	0.19**	0.24**	0.16**	1.00

** p < 0.01.

Table V:

Regression model: Psychosocial predictors of alcohol use

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change
1	.222 ^a	.049	.032	8.10600	.049	2.887	8	444	.004
2	.394 ^b	.155	.138	7.65168	.105	55.290	1	443	.000
3	.407 ^c	.166	.147	7.61044	.011	5.814	1	442	.016
4	.430 ^d	.185	.165	7.53014	.019	10.477	1	441	.001

¹ Predictors: (Constant), Income, Age, Living situation, Employment status, Gender, Education level, Race, Marital status

² Predictors: (Constant), Income, Age, Living situation, Employment status, Gender, Education level, Race, Marital status PSS Total

³ Predictors: (Constant), Income, Age, Living situation, Employment status, Gender, Education level, Race, Marital status PSS Total

⁴ BAS Total.

⁵ Predictors: (Constant), Income, Age, Living situation, Employment status, Gender, Education level, Race, Marital status PSS Total

⁶ BAS Total, BDI Total Dependent Variable: Total score of the Alcohol Use Disorder Identification Scale

^a p < 0.05.

^b p < 0.05.

^c p < 0.05.

^d p < 0.05.

Regression model: Psychosocial predictors of drug use

¹ Predictors: (Constant), Income, Age, Living situation, Employment status, Gender, Education level, Race, Marital status

² Predictors: (Constant), Income, Age, Living situation, Employment status, Gender, Education level, Race, Marital status, PSS Total

³ Predictors: (Constant), Income, Age, Living situation, Employment status, Gender, Education level, Race, Marital status, PSS Total, BAS Total.

Predictors: (Constant), Income, Age, Living situation, Employment status, Gender, Education level, Race, Marital status, PSS Total, BAS Total, BDI Total, Dependent Variable: DUDIT Total Score

$$d_{p < 0.05}$$