

Research Article

People Who use Nyaope Contribute to Depression Symptoms in their Communities

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Abstract

Nyaope is a “novel psychoactive” substance commonly used in many communities in South Africa. This drug is extremely addictive with severe withdrawal symptoms. The study aimed at screening for depression symptoms among communities within which people who use nyaope reside in six townships within Tshwane City. A quantitative, cross-sectional research design was adopted, and the Patient Health Questionnaire (PHQ) was used to screen for depression symptoms. A quantitative questionnaire was also used to collect socio-demographic data from 422 respondents. STATA version 14 was used to analyse data from 204 males and 217 females aged between 18 and 45, with a mean of 34.14. The majority (58.77%, n=248) tested positive for depression symptoms. Chi-square and logistic regression analysis results revealed that respondents living where there is a high number of nyaope users are experiencing severe depression symptoms. The study concluded that the depression symptoms in the communities living within the vicinity of nyaope users are experiencing mild, moderate and severe depression symptoms.

Keywords: Drug addiction; Depression symptoms; Nyaope; Psychoactive substance

Introduction

In South Africa, drug abuse, including nyaope, is increasing [1]. This drug is described as a designer, cocktail, or novel psychoactive substance containing heroin, cannabis, antiretroviral drugs, and other components such as rat poison and even cleaning detergents [2]. Other samples of nyaope were found to contain a variety of components, including “caffeine, opiates, codeine, morphine, methyl-deoxy amphetamine, antibiotics (citroflex), Central Nervous System (CNS) depressants such as phenobarbitone and benzodiazepines, benzitramide, moramide intermediates,

and thiofentanyl, and stimulants such as pipradol and fenethylamine” [1]. The consequences of using nyaope include lethargy, hallucinations and delusions, which affect the physical, mental and social health of the users [3].

Research has shown that different components of nyaope make it highly addictive when smoked or injected, and it has severe withdrawal symptoms [4]. This increases users’ intake rate [5], a very costly outcome [6]. Users who do not have funds to access this drug commit crimes such as theft of valuable assets from their families and communities [7]. It is for this reason that communities living near nyaope users suffer from high crime rates [6], and this leads to a large number of offender detentions in overcrowded South African prisons, as the majority of users are often arrested after committing crimes to feed their habits.

Nyaope also results in the poor health of its users, with female users often turning to prostitution to maintain their addiction [7]. In so doing, users compromise their health by engaging in unprotected sex to buy nyaope with the money made from prostitution [7]. The consequences of this are the spread of “Sexually Transmitted Diseases (STDs) such as Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS), which upsurges the number of people contaminated with HIV

and AIDS in South Africa” [8]. Furthermore, rehabilitation services for nyaope users in the public sector are limited, while expensive in private institutions [9]. Underprivileged families with limited financial resources cannot access private rehabilitation services, and the efforts of these families to help users who are addicted to nyaope remain unsuccessful.

It has been reported that families of nyaope users indicated mild and severe depression symptoms when they were screened [10,11], and this negatively affects their feelings, thoughts, actions, and perceptions of the world. Even though there is scientific evidence that nyaope users’ families confirmed depression symptoms, the mental health status of the communities living within the vicinity of nyaope users is not known. Hence, this study aimed at screening for depression symptoms among members of communities within which people who use nyaope reside.

Depression is a global mental and public health challenge [12], and it is estimated that 280 million people, which is 3.8% of the global population, suffer from it [13]. It is, therefore, essential to screen for the presence and severity of depression symptoms to identify mental health disorders that individuals may be going through early [13]. This allows individuals to address mental health issues to improve their mental well-being [14]. Thus, screening for depression among members of communities within which people who use nyaope reside was vital as it enabled us to determine the presence and severity of depression symptoms these communities are experiencing. In so doing, we were able to illustrate the key factors that may contribute to mental health issues. This information was then used to develop health promotion programmes to meet the needs identified by community members living within the vicinity of nyaope users.

Materials and Methods

A quantitative cross-sectional design was employed, and data was generated 422 respondents aged 18 and older who live in the vicinity of nyaope users in Tshwane townships, South Africa.

Study population

The study included community members aged 18 years or older who were willing to provide informed consent

to participate. Community members who had a nyaope user(s) in their families were excluded from participation. Guided by the “Raosoft Sample size Calculator (RSC)” for an unidentified population, an eight-comma two per cent error of margin, ninety per cent confidence range, and a smallest sample size of two hundred was calculated with a five per cent margin of error and a ninety-five per cent confidence range, a sample of four hundred and twenty-two respondents was obtained.

Recruitment

Recruitment was done from schools, religious organisations and shopping complexes. Recruited respondents were asked to indicate whether they lived in the vicinity of nyaope users. Other respondents were recruited using the snowball technique. The purpose of the research and objectives were explained to the respondents, and they provided consent. The respondents who were excluded from the study were those living with nyaope users and those under 18 years of age.

Sample size

Using “RSC” for an unidentified resident size, a ninety-five per cent confidence range, a five per cent margin of error, and a fifty per cent response distribution, a minimum sample size of three hundred and seventy-seven was obtained. The study managed to recruit four hundred and twenty-two respondents.

Data collection

Data was generated using the “Patient Health Questionnaire (PHQ-9)” to screen for severity of symptoms of depression. Demographic data of the respondents were obtained through the use of a quantitative questionnaire. The data was collected by the Principal Investigator and research assistants, either at the home of the respondents or at the community structure from where they were recruited. The languages used were English, IsiZulu and Setswana, in accordance with the participants’ preferences. The purpose and details of the study were explained to participants, and they were allowed to ask questions or seek clarifications regarding the study. The respondents were then asked to provide signed informed consent. The socio-demographic data were collected first and presented in Table 1 below. The respondents were then screened for depression.

Table 1: Socio-demographic variables of participants.

Factor	Frequency	Percentage
Township (n=422)	Township (n=422)	Township (n=422)
Atteridgeville	50	11.85
Ga-rankuwa	49	11.61
Hamanskraal	64	15.17
Mabopane	54	12.8
Mamelodi	108	25.59
Soshanguve	97	22.99
Age (Mean 34.14; SD 13.54; Min 18; Max 88) (n=405)	Age (Mean 34.14; SD 13.54; Min 18; Max 88) (n=405)	Age (Mean 34.14; SD 13.54; Min 18; Max 88) (n=405)
18-25 years	135	31.99
26-45 years	195	46.21
>45 years	92	21.8
Sexual orientation (n=421)	Sexual orientation (n=421)	Sexual orientation (n=421)
Female	217	51.54
Male	204	48.46
Race (n=420)	Race (n=420)	Race (n=420)
Black	414	98.57
Coloured	5	1.19
White	1	0.24
Marital status (n=420)	Marital status (n=420)	Marital status (n=420)
Divorced	6	1.43
Married	67	15.95
Single	336	80
Widow	6	1.43
Religion (n=412)	Religion (n=412)	Religion (n=412)
African Traditional	44	10.68
Christian	326	79.13
Islam/Muslim	9	2.18
None	29	7.04
Other	4	0.97
Living arrangements (n=418)	Living arrangements (n=418)	Living arrangements (n=418)
Alone	39	9.33
Family	379	90.67
Home language (n=416)		
IsiNdebele	22	5.29
IsiSwati	9	2.16
IsiZulu	40	9.62
Sepedi	111	26.68
Sesotho	41	9.86
Setswana	111	26.68
Tshivenda	12	2.86
Xhosa	6	1.44
Xitsonga	43	10.34
Other	2	0.48
Highest level of education (n=412)	Highest level of education (n=412)	Highest level of education (n=412)
No formal education	77	18.69
Matric	228	55.34
Degree/Diploma	93	22.57

Honours	7	1.7
Masters	7	1.7
Living arrangements (n=418)	Living arrangements (n=418)	Living arrangements (n=418)
Alone	39	9.33
People living with relatives (n=422)	People living with relatives (n=422)	People living with relatives (n=422)
Partner	48	8.1
Wife/Husband	55	9.29
Step/Biological children	117	19.76
Mother	154	26.01
Siblings	99	16.72
Aunt/Uncle	28	4.72
Other	91	15.35
Employment status (n=420)	Employment status (n=420)	Employment status (n=420)
Employed	108	25.71
Self-employed	88	20.95
Unemployed	224	53.33
Use of substances (n=415)		
No	231	55.66
Yes	184	44.34
Type of substances (n=213)		
Alcohol	132	61.97
Tobacco/Cigarette	57	26.76
Snuff	4	1.88
Cannabis	18	8.45
Other	2	0.94

Data analysis

The raw data from 422 respondents were entered into Microsoft Excel, cleaned, and coded. This data was imported to Stata version 14 (StataCorp., College Station, TX, USA). The socio-demographic data was descriptively analysed and displayed as means, proportions, and percentages. The scores of the 9-item version of the PHQ-9 range from 0 to 27, since each of the 9 items can be scored from 0 (not at all) to 3 (nearly every day).

Respondents with scores between 0 and 4 were regarded as scoring negative for depression. Respondents who scored between 5 and 9, 10 and 14, and 15 and 27 tested positive

for mild, moderate, and severe depression symptoms, respectively. The recommended cut-off for the PHQ-9 severity index is a score of 9, and it was concluded that respondents who scored 10 and above were suffering from clinically significant symptoms of depression. A p-value of 0.05 was used to determine the association between demographic variables and PHQ-9 scores.

Results

Commonness of depression

The majority 58.77%, n=248) of the respondents tested positive for depression symptoms (Figure 1).

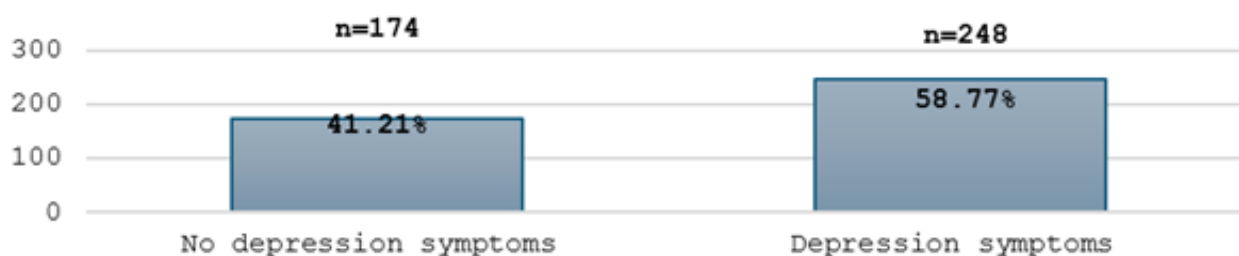


Figure 1: Prevalence of depression symptoms.

Categories of depression symptoms

As illustrated in Figure 2 below, 29% (n=123) of respondents were classified in the mild category, 18.72%

(n=79) in the moderate category, and 8.29% (n=35) in the moderately severe category, respectively. Only 2.61 % (n=11) exhibited severe symptoms.

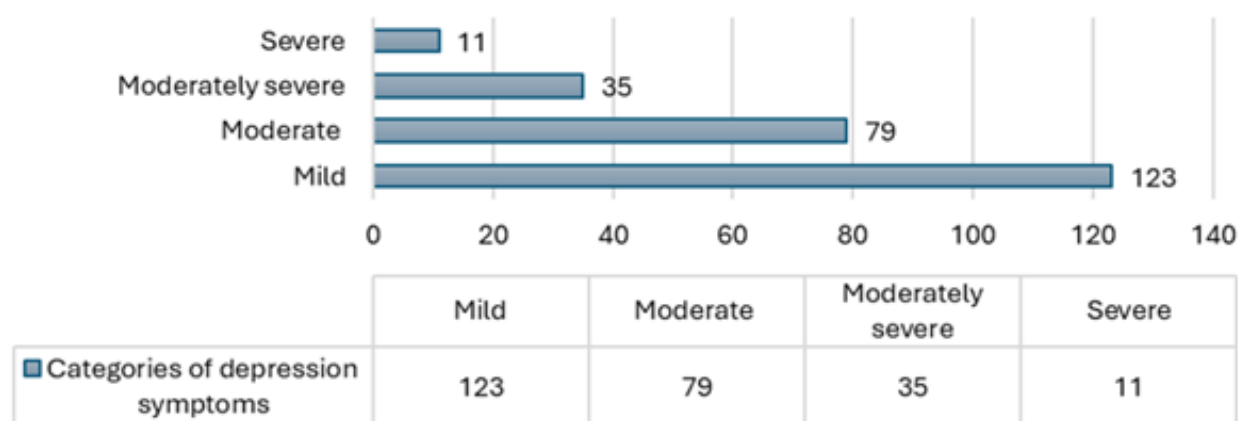


Figure 2: Categories of depression symptoms.

Factors associated with depression

Five factors were significantly associated with depression symptoms during bivariate analysis, namely, the area of residence, age, sexual orientation, living with relatives, and

type of children they were living with (step or biological children). Respondents who were living with their partners were less likely to exhibit symptoms of depression (Table 2).

Table 2: Factors associated with depression.

Factor	Factor		Frequency (%)	Depression symptoms (yes)	No	Chi2	P-value
	Township	Township	Township	Township	Township	20.6647	0.001
First Tshwane township	First Tshwane township		50 (11.85)	29 (11.69)	21 (12.07)		
Second Tshwane township	Second Tshwane township		49 (11.61)	15 (6.05)	34 (19.54)		
Third Tshwane township	Third Tshwane township		64 (15.17)	45 (18.15)	19 (10.92)		
Fourth Tshwane township	Fourth Tshwane township		54 (12.80)	35 (14.11)	19 (10.92)		
Fifth Tshwane township	Fifth Tshwane township		108 (25.59)	66 (26.61)	42 (24.14)		
Sitxt Tshwane township	Sitxt Tshwane township		97 (22.99)	58 (23.39)	39 (22.41)		
	Age	Age	Age	Age	Age	10.4949	0.005
18-25 years	18-25 years		135 (31.99)	81 (32.66)	54 (31.03)		
26-45 years	26-45 years		195 (46.21)	126 (50.81)	69 (39.66)		
>45 years	>45 years		92 (21.80)	41 (16.53)	51 (29.31)		
Sexual orientation	Sexual orientation					12.9723	0
Female	Female		217 (51.54)	146 (58.87)	71 (41.04)		
Male	Male		204 (48.46)	102 (41.13)	102 (58.96)		
	Living arrangements (n=418)	Living arrangements (n=418)	Living arrangements (n=418)	Living arrangements (n=418)	Living arrangements (n=418)	4.2755	0.039
Alone	Alone		39 (9.33)	17 (6.88)	22 (12.87)		

Family	Family		379 (90.67)	230 (93.12)	149 (87.13)		
	People living with	People living with	People living with	People living with	People living with	4.3932	0.036
Partners	Partners						
Yes	Yes		29 (7.44)	12 (5.15)	221 (94.85)		
No	No		361 (92.56)	17 (10.83)	1. 9.17)		

Logistic regression model

Only two factors remained substantial during multivariate analysis, i.e. age and sexual orientation. Female respondents

were 1.7 times more likely to display depression symptoms. Additionally, those between the ages of 26 and 45 had 1.3 greater odds of depression symptoms (Table3).

Table 3: Logistic regression model.

Factor	Factor	Odds ratio	Odds ratio	Standard error	Standard error	P-value	Confidence interval	Confidence interval
Township	Township	1.072437	1.072437	0.0699287	0.0699287	0.283	.94377551.218638	.94377551.218638
Age	Age	1.35199	1.35199	0.1747814	0.1747814	0.020*	1.0493791.741864	1.0493791.741864
Sexual orientation	Sexual orientation	1.760994	1.760994	0.3940771	0.3940771	0.011*	1.135732.73049	1.135732.73049
Living arrangements	Living arrangements	1.68214	1.68214	0.972902	0.972902	0.369	.54144165.226042	.54144165.226042
People living with: Partners	1.371279	1.371279	0.5816003	0.5816003	0.457	0.457	0.457	.59718093.148805

Discussion

The results of this study indicate that the communities from which data were collected shared the common challenge of living alongside people who use nyaope. As with previous studies, the characteristics of nyaope use affect not only the user but also other people who share their space, which include their families and, in this study, their neighbours [10]. The higher proportion of females who participated was similar to findings from Novak, et al. [15], which confirmed that females are more interested in completing surveys than males. The study found a high prevalence of depression symptoms among the sample, which was higher than the 49% reported among family members [16]. This discrepancy is yet to be explored.

In this study, depression symptoms were associated with the area of residence, which may be explained by the social culture of the different townships. Another study confirmed that criminal activities that are associated with drug users are a major risk factor for depression [17]. After all, drug abuse often results in crimes such as theft, common assault, and sexual assault, which contribute to mental distress among affected residents.

The results of this study also indicated that depression symptoms are associated with sexual orientation. A similar

finding was previously reported by Wu, et al. [14]. However, this finding was contradicted by Mogensen, et al. [18], who concluded that there is no substantial variance that associates depression symptoms with sexual orientation. The variances may be explained by the fact that Elser, et al. [19] sampled adolescents, whereas this study sampled adults aged 18 to 45. The findings of this study continued to associated depression symptoms with age, which was previously reported by Browne, et al [17]. The finding is supported by Yusuf, et al. [20], who added that depression symptoms often appear from the age of 17.

The study found that living with relatives is associated with depression. Another study recommended that family members should participate in family activities to reduce the prevalence of depression symptoms and to improve the family's mental health [21]. The study also found that living with biological or stepchildren is associated with depression symptoms due to emotional neglect [21]. On the contrary, parents who display warmth and monitor their children irrespective of age have lower chances of testing positive for depression symptoms and were linked with significantly lower initial presence of depressive symptoms [22]. The unpleasant behaviours of the users result in communities who reside within the vicinity of the users developing mental health challenges [23-27].

Conclusion

Nyaope, which is widely used in South African black townships, is a highly addictive novel psychoactive drug. It has been reported that nyaope users' unpleasant behaviour affects the mental health of their families negatively. This study is the first to compute the depressive symptoms among communities who reside within the vicinity of nyaope users, and these community members tested positive for mild, moderate and severe depression symptoms. With nyaope being so widely used in certain communities, members of those communities need interventions. In this regard, the study concluded that the commonness of depression symptoms is linked with communal and demographic considerations such as settlement, age, sexual orientation, and living with relatives. This indicates that the use of nyaope contributes to the commonness of depression symptoms among the community members who reside in the vicinity of the users. However, it must be noted that the PHQ-9 used to screen for depression symptoms does not establish a clinical diagnosis of depression, but it allows the discovery of high-risk participants. A rigorous diagnosis is needed to verify these findings and commence clinical interventions. The issues associated with the use of nyaope in South Africa are not limited to the users and their families but also extend to the communities. The consequences of nyaope can no longer be disregarded, hence the results of this study make it possible to further understand the influence of socio-demographic factors on mental health. Also, to better understand the nature of these communities' problems caused by nyaope users and to develop and implement mental health support intervention programmes.

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Author Contributions Statement

Conflict of Interest Statement

The authors declare no competing financial interests or personal relationships known to influence the work reported in this paper.

Ethical Approval

The authors obtained ethical clearance from the Sefako Makgatho Health Sciences University Research Ethics Committee, reference number SMUREC/H/174/2023: IR. All respondents provided written informed consent to participate in the study, and they were assured that their identity would be protected by using pseudonyms rather than their real names

Data Availability

The data supporting this article's findings and conclusion will be made available by the authors on request.

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