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Study of Suicidal Ideation and Attempt among HIV patients in Omdurman National Voluntary Counseling and Testing Centre Khartoum state - Sudan (2021-2022)

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Abstract: Background: Suicidal ideation and attempt are more frequent in HIV patients than general population

Objective: The aim of this study was to assess the suicidal ideation and attempt among HIV patients in Omdurman National Voluntary Counseling and Testing Center, Khartoum state, Sudan.

Methods: Descriptive cross-sectional institutional based study was conducted among HIV patients attending Omdurman national voluntary counseling and testing Center. Systematic random sampling technique was used to select 235 participants from March to May 2021, data was collected by using a questionnaire consisted of sociodemographic and clinical characteristics and validated tool (Mini international neuropsychiatric interview for suicidality- the Arabic version), data was analyzed using SPSS 26 edition and Chi squire test, the t test and Multivariate test were used for the associations between variables

Results: Suicidal ideation in the last month was (14.5%), suicidal attempt in the last month was (0.4%) and lifetime suicidal attempt was (4.3%). Suicide risk were high in (2.5%), moderate in (10.6%) and low in (12.7%). Marital status, occupation, duration of diagnosis, WHO stages and opportunistic infections were significantly associated with suicidal ideation, whereas opportunistic infections and marital status were significantly associated with suicidal attempt.

Conclusion: The suicidal ideation and attempt in the HIV patients in the last month were 14.5% and 0.4% respectively, and the lifetime suicidal attempt was 4.3%. There is significant association between suicidal ideation and attempt and some sociodemographic and clinical characteristics of the patients.

Keywords: Suicidal ideation, Suicidal attempt, HIV, Khartoum state, Sudan

دراسة حول الافكار الانتحارية ومحاولة الانتحار بين مرضى فيروس نقص المناعة البشرية في مركز امدرمان القومي للارشاد النفسي والفحص التطوعي ولاية الخرطوم - السودان (2022-2021)

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المستخلص: التفكير الانتحاري ومحاولة الانتحار أكثر شيوعًا عند مرضى فيروس نقص المناعة البشرية مقارنة بعامة الناس.

الهدف من الدراسة: الهدف من هذه الدراسة هو تقييم التفكير الانتحاري ومحاولة الانتحار بين مرضى الإيدز في مركز أم درمان الوطني للإرشاد النفسي والفحص الطوعي بولاية الخرطوم-السودان.

طرق وادوات البحث: أجريت دراسة وصفية مقطعية مؤسسية بين مرضى فيروس نقص المناعة البشرية الذين يحضرون إلى مركز أم درمان للإرشاد النفسي والفحص الطوعي. تم استخدام تقنية أخذ العينات العشوائية المنهجية لاختيار 235 مشاركًا في الفترة من مارس إلى مايو 2021، وتم جمع البيانات باستخدام استبيان يتكون من الخصائص الاجتماعية والديموغرافية والسريرية، اضافة الى استخدام المقياس العالمي المصغر للفحص النفسي العصبي (MINI)، وتم تحليل البيانات باستخدام برنامج (SPSS_26) واستخدم اختبار Chi Squire واختبار t واختبار ANOVA للارتباطات بين المتغيرات.

النتائج: كانت نسبة الافكار الانتحارية في الشهر الماضي (14.5٪) من المشاركين، ومحاولة الانتحار في الشهر الماضي (0.4٪) ومحاولة الانتحار مدى الحياة (4.3٪). كانت مخاطر الانتحار عالية في (2.5٪) من المشاركين ومتوسطة في (10.6٪) ومنخفضة في (12.7٪). ارتبطت الحالة الاجتماعية والمهنة ومدة التشخيص والمرحلة السريرية لفيروس نقص المناعة البشري (الثالثة والرابعة) والعدوى الانتهازية بشكل كبير مع التفكير في الانتحار، في حين ارتبطت العدوى الانتهازية والحالة الاجتماعية بشكل كبير بمحاولة الانتحار.

الخلاصة: خلصت هذه الدراسة الى وجود نسبة معتبرة من الافكار والمحاولات الانتحارية عند مرضى فيروس نقص المناعة البشري، كما ان هناك ارتباط بين الافكار والمحاولات الانتحارية وبعض الخصائص الاجتماعية والديموغرافية والسريرية للمرضى.

الكلمات المفتاحية: افكار انتحارية، محاولات انتحارية، الايدز، ولاية الخرطوم، السودان.

Introduction:

Suicidal ideation is the thought about killing oneself, and suicidal attempt is an intentional but unsuccessful act of killing oneself, various terms used to describe suicidal behaviors like suicidality which is a continuum that ranges from suicidal ideation, suicide plans and suicidal attempts to complete suicide. [1]

Worldwide every year more than 800 000 people die by suicide one person every 40 seconds. It is a public health issue that affects communities, provinces and entire countries.[2]

Suicide rates are high among patients infected with Human Immunodeficiency Virus (HIV), with a prevalence 26% of patients reporting a history of lifetime suicidal ideation and 13% of suicidal attempt. [3]

HIV is an infection that attacks the body's immune system, specifically the white blood cells called CD4 cells, HIV destroys these CD4 cells and weakening a person's immunity against infections, When CD4 count below 200 is described as having acquired immunodeficiency syndrome (AIDS).[4]

World health organization (WHO) classify HIV into four stages:

Stage I: HIV disease is a symptomatic and not categorized as AIDS.

Stage II: include recurrent upper respiratory tract infections and minor mucocutaneous manifestations.

Stage III: includes chronic unexplained diarrhea for more than a month, pulmonary tuberculosis and severe bacterial infections.

Stage IV: includes toxoplasmosis of the brain, candidiasis of the esophagus, trachea or lungs and Kaposi's sarcoma; these diseases are used as indicators of AIDS. [5,6]

Treatment of HIV include the Antiretroviral therapy (ART) like Nucleoside reverse transcriptase inhibitors, Protease inhibiters, Integrase strand transfer inhibitors and Non-nucleoside reverse transcriptase inhibitors.[7]

HIV patients given Co-trimoxazole (Septrin) for primary prophylaxis from the Pneumocystis Jiroveci Pneumonia. [8]

According to United Nations Program on HIV and AIDS (UNAIDS 2020), Sudan had an HIV prevalence rate of 0.2% among persons aged 15 to 46 years. [9]

Sudan is a country located in north of Africa and its capital city is Khartoum, Total population 41.2 Million, Adults people living with HIV in Sudan are about 42000 in the last year. [10, 11]

In Sudan there are about 48 Voluntary Counseling and Testing (VCT) Centers in Khartoum and 20 in other states and all these Centers under the Sudan National AIDS Program. Omdurman national VCT Center One of the main centers in the country. [12, 13]

The aim of the study is to explore the suicidal ideation and attempt in HIV patients in Omdurman national VCT Center and data from the study can help for appropriate interventions for suicide prevention. [14, 15]

Material and methods

Study design: Descriptive cross sectional Institutional based study

Study duration: From March to May 2021

Study area: Omdurman National Voluntary Counseling and Testing (VCT) Centre, In Omdurman, Khartoum state_ Sudan.

The center is considered as one of the best region's international centers according to the WHO (2005). It received about 6000 patients per year come from different states of Sudan, the center started in May 2004 as VCT center and in 2005 it received the antiretroviral therapy (ART). It was first opened in Omdurman Teaching Hospital as Omdurman Management and Counseling Center Unit (OMACU) and was transferred to separate building near Tropical Disease Hospital in 2018. In addition to (ART), the center provides Counselling and psychological support for the HIV patients. [12, 13]

Study population:

Sudanese adult HIV positive patients attending the (VCT) center

Including criteria: Eighteen years and above aged HIV-positive patients registered in the center during the study period.

Excluding criteria: Severely ill patients , Patients with cognitive impairment and

Patients known with mental illness prior to diagnosis with HIV

Sampling:

The sample size was calculated using the formula

$$N= z^*(1-p)/d^2$$

Where N is minimum sample size and Z from Z table for two-tailed study is 1.96

P is Average estimated prevalence of suicidality among HIV-positive patients from previous studies was 18.8%. [41, 42] d is 0.05 that is degree of accuracy desired). Using the above formula, the minimum sample size is: 235

By using Systematic random techniques, the systematic interval will be.

Study Variables:

Dependent variables: The domain of suicidal ideation and attempt

Independent variables: Sociodemographic variables including (age, sex, marital status, religion, residence, occupation and education level).

Clinical variables (duration of the illness, WHO clinical staging of HIV, uses of antiretroviral and Septrin drugs and history of opportunistic infections).

Data collection methods and tools:

Methods: Data were collected by interview with the patients in a private room and under protective measure from COVID 19 (wearing mask, social distance and using hand sanitizer).

Tools:

1. **Questionaires:**

Sociodemographic variables.

Clinical variables including duration of the diagnosis, using of antiretroviral therapy and Septrin treatment, the opportunistic infections and the WHO clinical stages.

2. **The Arabic version of MINI (Minin International Neuropsychiatric Interview for suicidality)** was used. It was developed as a brief structured interview for the major axis 1 psychiatric disorders in DSM-IV and the International Classification of Diseases, 10th edition. This instrument is valid and reliable [43,44] There are six scored items on the MINI scale for Suicidality.

Data analysis: The Statistical Package for Social Science (SPSS), 26th edition was used for analysis. Descriptive statistics were used to show socio-demographic and clinical characteristics of the participants.

Chi squire test, the t test and Multivariate test were used for the associations between variables and P-value < 0.05 was considered as statistically significant.

Ethical Consideration:

The study conducted after the approval from the ethical committee in the research unit of the educational developmental center (EDC) in Sudan Medical specialization board (SMSB).

Literature review:

HIV is common health problem globally it affects 37 million about two third of them live in African countries. [9]

Mental illness is most encountered in HIV patients, the possible causes is the associated stigma, the difficult course of illness, the direct effect of HIV on brain which can lead to neurocognitive disturbance, systemic opportunistic infections with their neuropsychiatric manifestations, Intravenous (IV) abusers linked to HIV patients as a comorbidity and the side effects of the (ART). [19, 20]

Mental health problems that associated with HIV include depression, mood disorders and suicidal ideation and attempt. [21]

Suicidal ideation is any active thoughts about killing oneself or passive thought about wanting to be dead while suicidal attempt is an intentional act with the non-fatal outcome that is deliberately initiated and performed by the individual. [22, 23]

HIV continues to be Un recognized risk for the suicidal ideation and attempt and they were considered as one of the major health problems worldwide. [24, 25]

After the introduction of Antiretroviral therapy the prevalence of suicidal ideation and attempt in HIV patients decreased but still higher than general populations and populations with other chronic medical illnesses. [26, 27]

Previous studies:

In Ethiopia (2020) Mogesie Necho et al. conducted a systemic review and meta-analysis in the prevalence of suicidal ideation and attempt in HIV patients in Africa, they reported that the prevalence of suicidal ideation in Ethiopia, Nigeria and Uganda was 22.7%, 25.3%, 9.8% respectively, whereas the prevalence of suicidal attempt in Ethiopia, Nigeria and Uganda was 16.9%, 16.2% and 3.5% respectively. The pooled prevalence of suicidal ideation was larger (27.7%) in studies that used Composite International Diagnostic Interview (CIDI) than (16.9%) in studies that used Mini-international Neuropsychiatric Interview (MINI) and the pooled prevalence of suicidal attempt was 3.75%, and 16.97% in studies that used (MINI) and (CIDI) respectively. They found significant association of the suicidal ideation and attempt with advanced WHO clinical stages of HIV, comorbid depression, poor social support and perceived stigma. [28]

Bitew et al. found in their cross-sectional study in Ethiopia (2016) that suicidal ideation and attempt among people living with HIV/AIDS was 33.6% and 20.1% respectively, suicidal ideation and attempt were significantly associated with being female, single, having CD4 level less than 500, perceived stigma, depression and poor social support.[29]

Hailu Gebremariam et al. carried out their study in HIV positive patients attending to HIV care in Zewditu Memorial Hospital in Ethiopia (2017), the Composite International Diagnostic Interview (CIDI) was used to collect data, Suicidal ideation and attempt was 22.5% and 13.9% respectively, the researchers found that being female, perceived stigma and depression were associated with suicidal ideation and attempt.[30]

Kefyalew Gizachew et al. conducted a cross-sectional study in suicidal ideation and attempt in 326 of HIV patients in four public hospitals in North Shewa in Ethiopia (2017), they also used (CIDI) for suicidal behavior assessment, they reported suicidal ideation (16%) and suicidal attempt (7.1%), they found significant association with low monthly income, living alone and family history of suicide.[31]

In Nigeria Bolakale carried out a cross sectional study about Suicidality among HIV patients in treatment center in Kaduna Metropolis (2016), He used the suicidality module of the MINI International Neuropsychiatric Interview, the prevalence of suicidality among patients was 16%. Low risk of suicidality was found among 26 (65%) of the forty patients who had suicidality. Moderate risk was found in 5 (12.5%) while 9 (22.5%) patients had high risk of suicidality, thirty-five (14%) had suicidal ideation, 3 (1.2%) had suicide plans while 12 (4.8%) had attempted suicide during their illness. [32]

Catherine et al. investigated 1187 participants in three HIV centers in Nigeria (2017), they used (CIDI) in their study, their results was differed from Bolakale they found suicidal ideation (2.9%) and suicidal attempts (2.3%). [33]

Bibilola et al. carried out a study about suicidal behavior and association in 828 HIV patients in Nigeria (2017) they used (CIDI) tool, the prevalence of suicidal ideation and attempt were 15.1% and

3.9% respectively and they found significant association with lower quality of life and presence of mental disorders. [34]

Rukundo et al. carried out a study in suicidal ideation and attempt in HIV-positive patients attending two HIV specialized clinics in Mbarara In Uganda (2016) they found that suicidal ideation and attempt was 8.8% and 3.1% respectively, they found significant association with depression (P Value 0.001) and anxiety (P Value 0.001) and stigma (P Value 0.027).[35]

Mwenya et al. found that prevalence of suicidal ideation in HIV patients in the ART Clinic Centre in Zambia (2018) was 31%, they used suicidal risk screening scale (SRSS) for data collection. [36]

Schlebusch et al. carried out a study in 190 adult patients in VCT Centre in South Africa (2018), in the 83.1% of the patients who tested HIV-positive the risk of suicidal ideation was 20.5% at 72 hours, while 6 weeks thereafter the risk had increased to 28.8%. They found significant association between suicidal ideation and seropositive HIV status (p Value = 0.013). They reported that majority of patients with suicidal ideation were males in the younger age group < 30 years. [37]

Nooski Zari and Hassan Joulei conducted a cross-sectional study among 351 HIV patients in (VCT) center in Southwest Iran (2015), they reported that suicidal ideation was found in (15.4%) of the participants, they advocate Schlebusch et al. study when they found significant association with male gender (P Value 0.007) and they found also Significant association with single Marital status (P Value 0.005).[38]

Youdiil Ophinni et al. examined the suicidal ideation, psychopathology and associated factors among HIV-infected adults in Indonesia (2017), they reported suicidal ideation in (23.3%) of HIV patients, Suicidal ideation was significantly associated with depressive symptoms (P Value 0.000), anxiety symptoms (P Value 0.001), Efavirenz (ART) used (P Value 0.031), CD4 count <500 cells/μl (0.031), and single marital status (0.009). [39]

Mandell et al. investigated adult patients that re-engaging in HIV care in Argentine (2019) they found that 21% of participants had suicidal ideation in the past week, their study revealed that young age, depression and drug abused were associated factors for suicidal ideation. [40]

Results

Sociodemographic characteristics: A total of 235 participants were involved in the study, (35.3%) of the participants in the age group from 29_39 years and (28.1%) of them in the age group from 40_50 years. The majority of participants (62.1%) were males. Regarding marital status (53.6%) of the participants were married. The vast majority of participants (92.8%) were Muslims. Regarding educational level (45.1%) of the participants were studied University and post university education. More than half of the participants (51.5%) work in free jobs. The majority of Participants (78.7%) describe their income as insufficient. Most of the participants (75.7%) live in Khartoum state.

Clinical characteristics:

The majority of participants (68.5%) their duration diagnosis is more than One year. Regarding the WHO clinical stages of HIV (39.1%) of the participants in the stage 3. The vast majority of patients (97.4%) started using ART and (94.9%) started using Septrin.

Regarding Opportunistic infections (24.3%) of the participants had a Fungal infection, (14.5%) of them had a TB, (13.2%) had a Respiratory infection and (10.2%) had a Herpes Zoster infection.

Suicidal Ideations and attempts:

The frequency of suicidal ideations in the last month were (14.5%) of the participants. The frequency of Suicidal attempts in the last month were (0.4%).

The frequency of lifetime suicidal attempts were (4.3%) of the participants.

Regarding Suicidal risk of the participants (2.5%) had a sever suicidal risk, (10.6%) had a moderate risk and (12.7%) had a low suicidal risk (Table 1).

The associations of Suicidal Ideations:

There was significant association between marital status and suicidal ideations (P value 0.00) (Table 2), and The Divorced patients had the highest Percent in association (52.9%) then widowed (14.3%).

Also, there was significant associations between suicidal ideations and Occupation (P value 0.003) and the un employed patients had the highest percent in the association (29.3%) (Table 2). There was significant association between suicidal ideation and the duration of the diagnosis (P value 0.029) (Figure 4) and most duration associated with suicidal ideation was from 1_5 months of duration (27.3%) then from 6 months to 1 year (23.8%).

There was also significant association between suicidal ideation and WHO clinical stage (P value 0.000) and most stage that associated with suicidal ideation was stage 4 (45.5%) then stage 3 (21.7%) (Figure 5). There was significant association between suicidal ideation and opportunistic infections TB, Fungal infection and Herpes zoster the P value was 0.007, 0.000 and 0.000 respectively, suicidal ideations associated with (54.2%) of herpes zoster infections, (38.6%) of Fungal infections and (29.4%) of those developed TB.

The associations of suicidal attempts:

There was no significant association between suicidal attempts in the last month and the sociodemographic variables (Table 3), but there was significant association between suicidal attempts in the last month and opportunistic infections TB and respiratory infections and the P value was 0.015 and 0.010 respectively. Suicidal attempts were associated with 3.2% of respiratory infections and with 2.9% of TB.

There was significant association between lifetime suicidal attempts and marital status (P value 0.010), lifetime suicidal attempts were associated with (28.6%) 0f Widowed, (5.9%) of Divorced, (4.7%) of single and (2.4%) of married (Table 4).

Table 1: The Distribution of HIV patients according to their suicidal risk (N 235)

		Frequency	Percent %
	Severe risk	6	2.5
	Moderate risk	25	10.6
low risk		30	12.7
Normal		174	74.2
Total		235	100

Table 2: The frequency of suicidal ideations in the last month among different sociodemographic variables (N235)

Variables	Category	Frequency	Suicidal ideation		P value	
			Yes n (%)	No n (%)		
Age groups	18_28 years	59	13 (22.1%)	46 (77.9%)	0.240	
	29_39 years	83	11 (13.3%)	72 (86.7%)		
	40_50 years	66	8 (12.2%)	58 (87.8)		
	>51 years	27	2 (7.5%)	25 (92.5%)		
	Total	235	34	201		
Gender	Male	146	18 (12.4%)	128 (87.6%)	0.232	
	Female	89	16 (17.9%)	73 (82.1%)		
	Total	235	34	201		
Marital status	Single	85	11 (12.9%)	74 (87.1%)	0.000	Significant
	Married	126	13 (10.4%)	113 (89.6%)		
	Divorced	17	9 (52.9%)	8 (47.1%)		
	Widowed	7	1 (14.3%)	6 (85.7%)		
	Total	235	34	201		
Religion	Muslim	218	31 (14.3%)	187 (85.7%)	0.699	
	Christian	17	3 (17.6%)	14 (82.4%)		
	Total	235	34	201		
Educational level	University and post university	106	21 (19.8%)	85 (80.2%)	0.184	
	Secondary	71	9 (12.6%)	62 (87.4%)		
	Primary	37	3 (8.2%)	34 (91.8%)		
	Traditional (Khalwa)	7	1 (14.2%)	6 (85.7%)		
	un-educated	14	0 (0.0%)	14 (100%)		
	Total	235	34	210		
Residence	Khartoum state	178	27	151		
	Outside Khartoum	57	7 (12.3%)	50 (87.7%)		

Variables	Category	Frequency	Suicidal ideation		P value	
			Yes n (%)	No n (%)		
	state					
	Total	235	34	201		
Occupation	Employed	35	3 (8.5%)	32 (91.6%)	0.003	Significant
	Freelancer	121	13 (10.7%)	108 (89.3%)		
	Student	21	1 (4.7%)	20 (95.3%)		
	Un employed	58	17 (29.4%)	41 (70.6%)		
	Total	235	34	201		
Income sufficiency	Sufficient	50	6 (12%)	44 (88%)	0.576	
	In sufficient	185	28 (15.2%)	157 (84.8%)		
	Total	235	34	201		

Table 3: The frequency of suicidal attempts in the last month among different sociodemographic variables (N235)

Variables	Category	Frequency	Suicidal ideation		P value	
			Yes n (%)	No n (%)		
Age groups	18_28 years	59	1 (1.6%)	58 (98.4%)	0.392	
	29_39 years	83	0	83		
	40_50 years	66	0	66		
	>51 years	27	0	27		
	Total	235	1	234		
Gender	Male	146	0	146	0.199	
	Female	89	1 (1.2%)	88 (98.8%)		
	Total	235	1	234		
Marital status	Single	85	0	85	0.833	
	Married	126	1 (0.8%)	125 (99.2%)		
	Divorced	17	0	17		
	Widowed	7	0	7		
	Total	235	1	234		
Religion	Muslim	218	1 (0.5%)	217 (95.5%)	0.788	
	Christian	17	0	16		
	Total	235	1	234		
Educational level	University and post university	106	0	106	0.251	
	Secondary	71	0	71		
	Primary	37	1 (2.7%)	36 (97.3%)		
	Traditional (Khalwa)	7	0	7		
	un-educated	14	0	14		

Variables	Category	Frequency	Suicidal ideation		P value	
			Yes n (%)	No n (%)		
	Total	235	1	234		
Residence	Khartoum state	178	1 (0.6%)	177 (99.4%)	0.571	
	Outside Khartoum state	57	0	57		
	Total	235	1	234		
Occupation	Employed	35	0	35	0.814	
	Freelancer	121	1	120		
	Student	21	0	21		
	Un employed	58	0	58		
	Total	235	1	234		
Income sufficiency	Sufficient	50	0	50	0.602	
	In sufficient	185	1	184		
	Total	235	1	234		

Table 4: The frequency of lifetime suicidal attempts among different sociodemographic variables (N235)

Variables	Category	Frequency	Suicidal ideation		P value	
			Yes n (%)	No n (%)		
Age groups	18_28 years	59	1 (1.6%)	58 (98.4%)	0.265	
	29_39 years	83	6 (7.3%)	77 (92.7%)		
	40_50 years	66	3 (4.5%)	63 (95.5%)		
	>51 years	27	0 (0.0%)	27 (100%)		
	Total	235	10	225		
Gender	Male	146	6 (4.2%)	140 (95.8%)	0.020	Significant
	Female	89	4 (4.5%)	85 (95.5%)		
	Total	235	10	225		
Marital status	Single	85	4 (4.7%)	81 (95.3%)	0.010	Significant
	Married	126	3 (18.7%)	123 (97.6%)		
	Divorced	17	1 (5.8%)	16 (94.2%)		
	Widowed	7	2 (28.5%)	5 (71.5%)		
	Total	235	10	225		
Religion	Muslim	218	9 (4.2%)	209 (95.8%)	0.730	
	Christian	17	1 (5.8%)	16 (94.2%)		
	Total	235	10	225		
Educational level	University and post university	106	6 (5.6%)	100 (94.4%)	0.797	
	Secondary	71	3 (4.3%)	68 (95.7%)		
	Primary	37	1 (2.7%)	36 (97.3%)		

Variables	Category	Frequency	Suicidal ideation		P value	
			Yes n (%)	No n (%)		
	Traditional (Khalwa)	7	0 (0.0%)	7 (100%)		
	un-educated	14	0 (0.0%)	14 (100%)		
	Total	235	10	225		
Residence	Khartoum state	178	9 (5.1%)	169 (94.9%)		
	Outside Khartoum state	57	1 (1.7%)	56 (98.2%)	0.282	
	Total	235	10	225		
Occupation	Employed	35	0 (0.0%)	35 (100%)		
	Freelancer	121	4 (3.4%)	117 (96.6%)		
	Student	21	1 (4.7%)	20 (95.3%)	0.208	
	Un employed	58	5 (8.6%)	53 (91.4%)		
	Total	235	10	225		
Income sufficiency	Sufficient	50	3 (6%)	47 (94%)		
	In sufficient	185	7 (3.7%)	178 (96.2%)	0.576	
	Total	235	10	225		

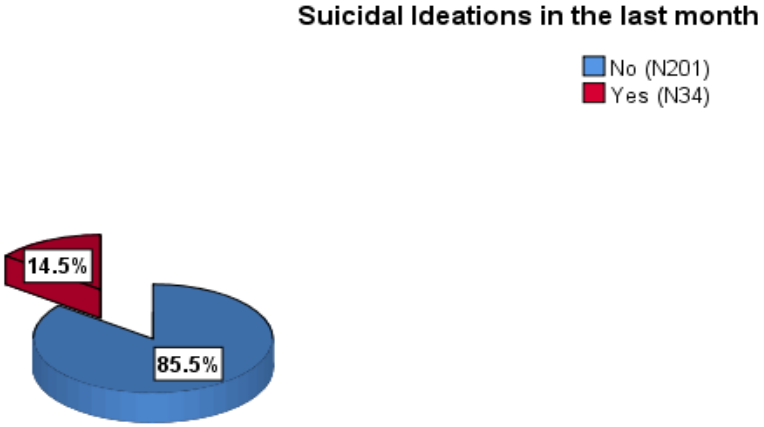

Figure 1: The frequency of Suicidal ideations in HIV patients in the last month (N235)

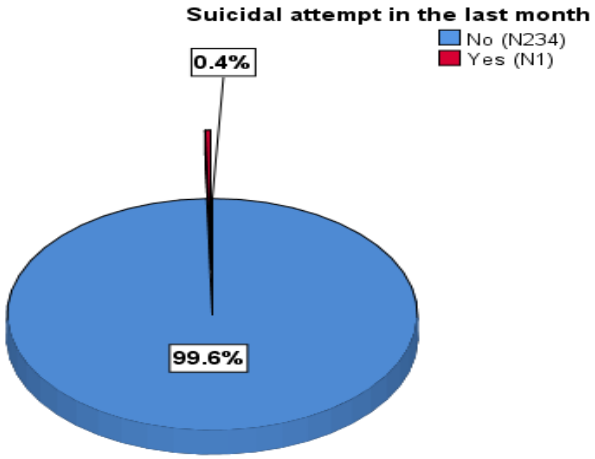

Figure 2: The frequency of Suicidal attempts in HIV patients in the last month (N 235)

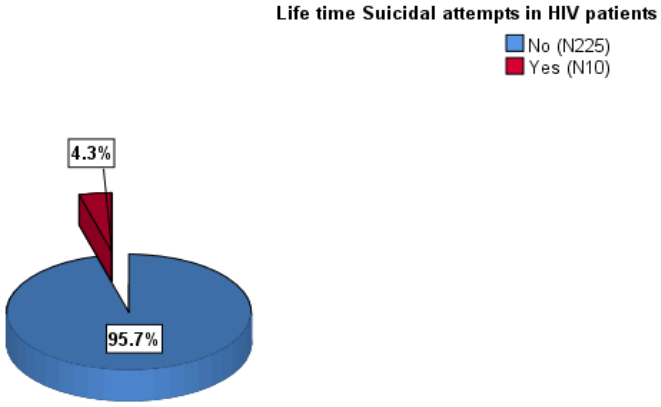

Figure 3: The frequency of lifetime Suicidal attempts in HIV patients in the last month (N235)

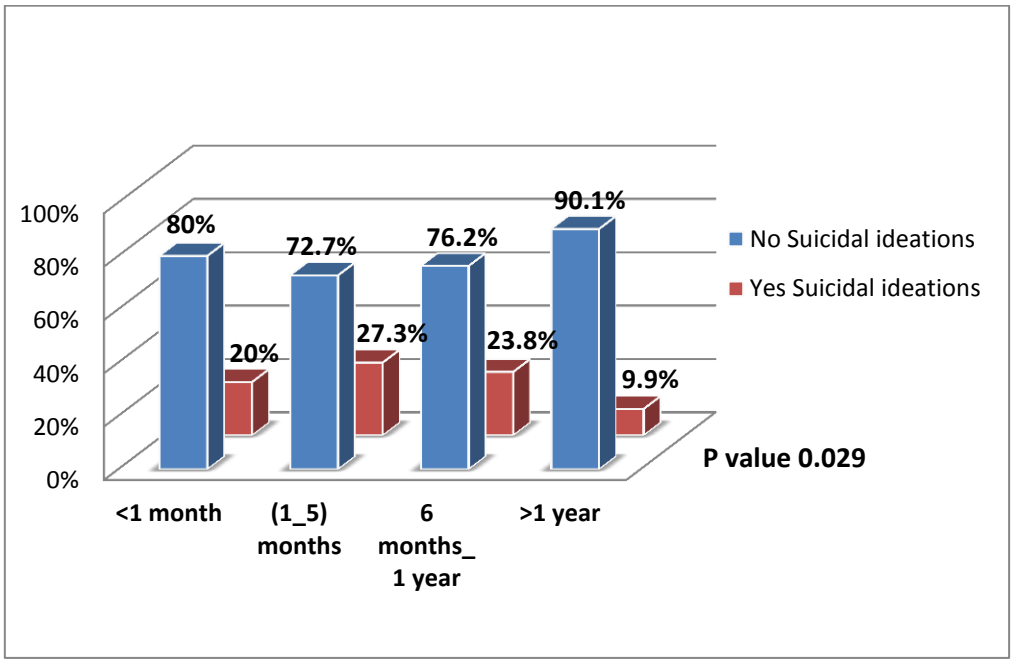

Figure 4: The association between the suicidal ideations in the last month and the duration of the diagnosis of the HIV patients (N235)

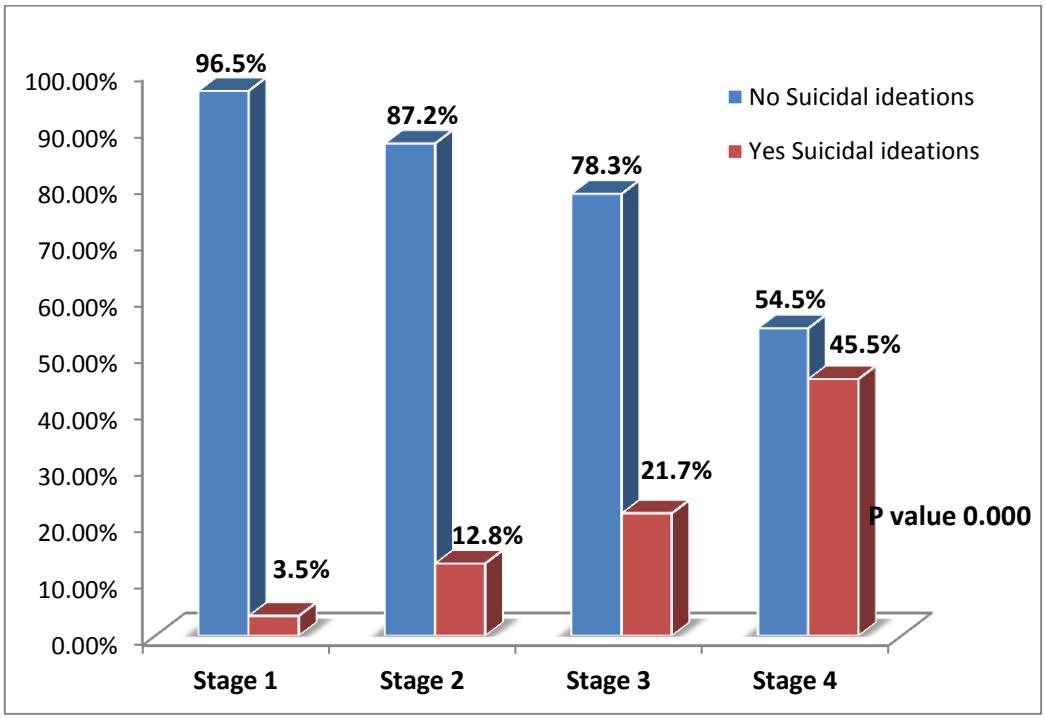

Figure 5: The association between suicidal ideation in the last month and WHO clinical stages of HIV patients (N235)

Discussion:

This study is considered to be the first study conducted in Sudanese HIV/ AIDS patients to determine the frequency of suicidal ideation and attempts among HIV patients at Omdurman National (VCT) center, it also explored the associations between sociodemographic and clinical variables and the severity of suicidal risk.

The frequency of suicidal ideation among Sudanese HIV/AIDS patients was found to be 14.5%, this replicates a similar frequency of suicide reported by Bibilola Oladeji et al, in Nigeria, they found it 15.1% [34], also Kefyalew Gizachew found 16% of Ethiopian HIV/ AIDS patients to have suicidal ideation [31].

However, this rate of frequency in Sudanes patients is lower than the 33% found in a Zambian study by Monica M. Mwenya; the differences can be be attributed to the difference in use of instruments and the cultural difference in expressing suicidal thoughts being such a stigmatized area of an already stigmatized group of patients in the Sudanese community. [45]

This study highlighted a significant association between the duration of diagnosis and suicidal ideation (P value 0.029). Newly diagnosed Sudanese patients with HIV/AIDS had higher scores in their five months of diagnosis. This is similar to Mohammad Wani's results in India (2017) he reporting high association with the duration of the diagnosis lesser than one year [49]. Likewise, Godfrey Rukundo found that newly diagnosed HIV patients having higher association with suicidality than those who had lived longer time with the infection[35]. Schlebusch et al. in his study which was done immediately after diagnosis of HIV counselling and testing in South Africa (VCT) Centre found high prevalence of suicidal ideation (83.3%)[37], that results also supported by Mohammad Wani's findings in India (2017), he found that suicidal ideation is highly associated with duration of diagnosis less than one year[49].

This may be due to patients' increased stress and stigma following HIV diagnosis, Amiya et al. study in Nepal reported association between the suicidal ideation and the stress in the early duration of the diagnosis of HIV patients because of inadaptation and the low effect of coping mechanism which then improved overtime [55]

On the other hand, Youdiil Ophinni et al. study in Indonesia (2020) found no correlation between suicidal ideation and illness duration; these variations may be attributed to the small sample size (86 participants) in their study and the majority of patients in his sample were diagnosed by HIV for more than two years. [39]

According to a study conducted in Ethiopia by Bitew et al. suicide attempts in the previous month were 0.4%, and lifetime attempts were 4.3%. They found that 1.8% of people had attempted suicide in the previous month, while 18.8% had attempted suicide in their entire lives. These results are higher than the current study in Sudanese HIV/AIDS patients, these differences may be due to the use of a different tool and a different sample size.[29]

With regards to the severeity of suicide risk among Sudanese HIV/AIDs participants, 2.5% showed a severe risk compared to 10.6 as moderate, Aremu et al reported a higher risk among Nigerian patients with HIV/AIDS; 12.5% and 22.5% rating as severe and moderate in succession. Again, this might be interpreted in view of cultural differences as well as the difference in sample size.

Marriage was identified as a protective factor against suicidal ideation [37]. Being divorced or widowed was associated with suicidal ideation among Sudanes patients suffering from HIV/AIDS. This is supported by a Bitew et al [29] and also by Nooshin Zarei study in Iran [38]

No significant association between gender and suicidal ideation were found among participants. In contrast, Bibilola Oladeji et al and Wonde M. at al reported women to be more likely to have suicidal thoughts, wheras Nooshin Zarie found men to have more suicide ideation [38]. These discrepancies could be related to cultural differences and social expoectations and perception of gender differences among different communities.

Unemployment among HIV/AIDS patients in Sudan was significantly associated with suicide (P value 0.003), this was supported by Mohamed Wani's study in India (2017) [49] and Supa Pengpid in South African patients with HIV [48], the reasons for this may be due to financial and social difficulties that releated to unemployment.

However, Catherine O Egbe et al reported no significant association between employment and suicide in Nigerian patints with HIV/AIDS [33]

In relevance to the WHO staging of HIV/AIDS, there was significant association between suicidal ideation among different staging of the illness (P value 0.000); higher rate of suicidality was reported among 45.5% of patients at stage 4 compared to 21.7% of stage 3 patients. This increase of suicidal thoughts could be interpreted by the physical complications of latest stages of the illness e.g. brain infection and Kaposi's sarcoma in stage 4 and chronic diarrhoea and pulmonary tuberculosis in stage 3.

Etsay Gebremariam reported a similar result of association between suicidal ideation and WHO clinical stage 4 (P value 0,001) [50]. Likewise, Koku Tamirat in his study of Ethiopian patients, replicated the same findings of higher association between suicidal ideation and stage 3 and 4 [51].

This could be explained by how opportunistic infections affect HIV patients' quality of life. Palwe et al In his review in India (2018), he found a strong connection between opportunistic infections and the physical domain of quality of life. [52]

No significant associations between suicidal attempt in the last month and the different sociodemographic variables among Sudanese HIV patients. This result replicated the results from Ahmad Anari study in Iran (2015) [53]. On the other hand, many studies showed significant association between suicidal attempts and gender, Gebremariam et al. and Mohammad Wani reported significant association between gender and suicidal attempts [49,50], the cause of these differences. May be due to the small numbers of women in our study (37.9%).

Kefyalew Gizachew in Ethiopia explored significant association between suicidal attempts and low income, the differences may be due to they used different instruments (CIDI). [31]

Regarding clinical variables our study showed significant association between suicidal attempt in the last month and opportunistic infections (P Value 0.001) it is associated with 14.3% of patients with TB

and respiratory infections, this result supported by Bitew et al.[29] and Wonde M. et al in Ethiopia[47], This could be due to the physical and mental burden of opportunistic infections on HIV patients.

Opportunistic infections and lifetime suicide attempts were found to be significantly linked in this study. (P Value 0.034). It was reported in (50%) of patients with TB and Herpes zoster, (18.2%) of patients with fungal and herpes zoster, (14.2%) of TB and respiratory and (11.1%) of patients with Herpes zoster alone. Bitew et al. replicated these results, and this could be explained by the disbilty caused by the opportunistic infectionsin HIV patients.[29]

This study showed significant association between lifetime suicidal attempt and marital status (P value 0.010) high incidences in widowed (28.5%), similar results were reported by Nooshi Zari [38], this may be due to lack of social support and stressful life in being alone.

Conclusion:

The finding of this result demonstrated that about (14.5%) of HIV patients had suicidal ideation in the last month, (0.4%) had a suicidal attempt in the last month and (4.3%) had a suicidal attempt in their lifetime.

The study reported that (2.5%) of HIV patients had a sever suicidal risk, (10.6%) had moderate risk and (12.7%) had a low suicidal risk.

Suicidal ideation and attempt were significantly associated with un married status, un employment, WHO stage 3 and stage 4, early duration of diagnosis and opportunistic infections.

Recommendations:

Mental health services need to be elaborated in the VCT centers by involving Psychiatrists to the centers and increasing the Number of the Psychologists and training them for early detection and management of suicidal risk and any related psychiatric disorders.

The counseling sessions must be concentrated specially in the first months of the diagnosis and the advanced stages of HIV.

Early diagnosis and treatment of the opportunistic infections need to be considered by the VCT center physicians.

Social, financial support and employment for HIV patients is important to reduced suicidal behavior.

Adequate training about suicidal risk assessment and interventions need to be conducted to the health care professionals in the HIV centers.

Increasing the awareness of the VCT centers Staff (specially the nurses and Psychologists) and the patients about the Suicidal risk in HIV patients and the importance of early detecting and starting management.

Further studies need to be conducted regarding the suicidal ideation and attempt in HIV patients to focus on comorbid mental illness and the associated psychosocial factors.

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