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Psychological distress, health and treatment-related factors among individuals initiating ART in Oromia, Ethiopia

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Abstract

HIV diagnosis may be a source of psychological distress. Late initiation of antiretroviral therapy (ART) and treatment-related beliefs may intensify psychological distress among those recently diagnosed. This analysis describes the prevalence of psychological distress among people living with HIV (PLWH) and examines the association of recent HIV diagnosis, late ART initiation and treatment-related beliefs with psychological distress. The sample includes 1175 PLWH aged 18 or older initiating ART at six HIV clinics in Ethiopia. Psychological distress was assessed with Kessler Psychological Distress Scale. Scores ≥ 9 were categorized as severe psychological distress. Individuals who received their first HIV diagnosis in the past 90 days were categorized as recently diagnosed. Multivariable logistic regression modeled the association of recent diagnosis, late ART initiation and treatment-related beliefs on severe psychological distress, controlling for age, sex, education, area of residence, relationship status, and health facility. Among respondents, 29.5% reported severe psychological distress, 46.6% were recently diagnosed and 31.0% initiated ART late. In multivariable models, relative to those who did not initiate ART late and had longer time since diagnosis, odds of severe psychological distress was significantly greater among those with recent diagnosis and late ART initiation (adjusted OR [aOR]: 1.9 [95% CI 1.4, 2.8]). Treatment-related beliefs were not associated with severe psychological distress in multivariable models. Severe psychological distress was highly prevalent, particularly among those who were recently diagnosed and initiated ART late. Greater understanding of the relationship between psychological distress, recent diagnosis, and late ART initiation can inform interventions to reduce

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psychological distress among this population. Mental health screening and interventions should be incorporated into routine HIV clinical care from diagnosis through treatment.

Keywords

HIV; ART; mental health; Ethiopia; diagnosis; treatment

Introduction

Mental illness is highly prevalent among people living with HIV (PLWH) and associated with worse adherence to antiretroviral therapy (ART) and lack of viral suppression (Bing et al., 2001; Blazer, Kessler, McGonagle, & Swartz, 1994; Kessler et al., 2003; Nanni, Caruso, Mitchell, Meggiolaro, & Grassi, 2015). The association between health – and treatment-related factors and psychological distress among PLWH remains poorly understood. Recent HIV diagnosis may act as a significant life stressor and increase risk of psychological distress as stressful life events have been associated with poor mental health (Freeman, Nkomo, Kafaar, & Kelly, 2007; Kaharuza et al., 2006; Tesfaye & Bune, 2014). Findings regarding time since HIV diagnosis and mental health are equivocal and warrant further investigation (Booyesen, Van Rensburg, Bachmann, Louwagie, & Fairall, 2006; Myer et al., 2008). For example, a study of PLWH in South Africa found time since HIV diagnosis significantly associated with depression, but not post-traumatic stress disorder or alcohol abuse (Myer et al., 2008). Late ART initiation may also be a source of psychological distress (Adewuya et al., 2007; Kaharuza et al., 2006; Tesfaye et al., 2016; Tesfaye & Bune, 2014). Psychological distress may also be influenced by one's beliefs about ART (Brennan, Welles, Miner, Ross, & Rosser, 2010). Belief in ART effectiveness may reduce psychological distress at ART initiation. The relationship between HIV treatment beliefs and psychological distress remains poorly understood.

Ethiopia has an estimated adult HIV prevalence of 1.5% (UNAIDS, 2014). HIV prevalence in Ethiopia varies by age, sex, and geographic location, with higher prevalence among women, individuals 30–39 years old, and in urban areas (UNAIDS, 2014). The Oromia region has among the largest population of PLWH in Ethiopia (UNAIDS, 2014). Despite estimates of high prevalence of mental health problems among PLWH in Ethiopia, mental health screening and treatment has largely not been integrated into HIV care throughout Ethiopia.

Greater understanding of the relationship between psychological distress and health – and treatment-related factors among PLWH can contribute to more efficient resource allocation, improved screening and treatment, and may foster improved mental health and HIV outcomes. This analysis examines the association between severe psychological distress and: (1) recent HIV diagnosis, (2) late ART initiation, and (3) HIV treatment beliefs among PLWH initiating ART in Ethiopia.

Methods

The analysis is based on the Multilevel Determinants of Starting ART Late (LSTART) study, a prospective cohort of patients initiating ART at HIV clinics in the Oromia region of Ethiopia (Nash et al., 2016). Participants were recruited from six public-sector HIV clinics. Individuals were eligible for enrollment if they were: at least 18 years of age, initiated ART between June 2012 and April 2013, and spoke Amharic or Oromiffa.

Data collection

Interviews were conducted with 1180 study participants at recruitment clinics within two weeks of ART initiation. Information from electronic medical records was merged with interview data. The study was approved by the Institutional Review Boards of the Oromia Regional Health Bureau, Columbia University, and the City University of New York.

Measures

Outcome—Psychological distress was assessed with Kessler Psychological Distress Scale (K10) (Kessler et al., 2002). Scores between 10 and 16 were coded as no/low psychological distress, scores between 17 and 29 as mild/moderate distress, and scores between 30 and 50 as severe distress (Tefaye, Hanlon, Wondimagegn, & Alem, 2010).

Covariates

Recent HIV diagnosis and late ART initiation: Individuals were asked when they first received their HIV diagnosis. First diagnosis within the past 90 days was categorized as recently diagnosed. Late ART initiation was defined as CD4 count <150 cells/ μ L or World Health Organization (WHO) stage IV at ART initiation and included measurements three months before or one month after ART initiation. If CD4 count or WHO stage were missing in that window, the highest stage preceding ART initiation and any prior CD4 count <150 cells/ μ L were used. A four-level variable combining recent HIV diagnosis and late ART initiation was constructed: (1) not recently diagnosed, no late ART initiation, (2) recently diagnosed, no late ART initiation, (3) not recently diagnosed, late ART initiation, and (4) recently diagnosed, late ART initiation.

HIV treatment beliefs: Fifteen questions assessed three aspects of HIV treatment beliefs: benefits of ART and HIV care (ten items, $\alpha = 0.74$, e.g., “ART is not effective”), ART and sexual transmission (two items, $\alpha = 0.72$, e.g., “Persons who take ART medicines are less likely to transmit HIV”), and the curative potential of holy water for HIV (three items, $\alpha = 0.82$, e.g., “Holy water is not as good as ART”). Construction of HIV treatment belief variables has been previously described (Tymeczyk et al., 2016).

Sociodemographic characteristics: Sociodemographic variables included age, sex, education, religion, relationship status, living environment, and employment.

Analysis

Univariate analyses were conducted to assess prevalence of psychological distress. Analyses between key characteristics and psychological distress were conducted using Pearson chi-

squared tests. Logistic regression was used to model the association of recent diagnosis, late ART initiation, and treatment beliefs with severe psychological distress. Late ART and recent diagnosis were modeled as independent variables and as a composite variable. Analyses accounted for clustering by health facility using the surveylogistic procedure in SAS. Adjusted analyses controlled a priori for age, sex, education, living environment, and relationship status.

Results

Of the 1236 eligible patients referred to the study, 1180 participated. Reasons for refusal included: lack of time (70%), lack of interest (20%), or another reason (11%). Of the 1180 participants, five were excluded due to missing psychological distress data. Ninety-four percent ($n = 1101$) had a date of first positive HIV test.

Psychological distress

Psychological distress was highly prevalent. Among respondents, 37.6% were experiencing mild/moderate psychological distress, and 29.5% were experiencing severe psychological distress.

Recent diagnosis and late ART initiation

Almost half of participants (46.6%) were recently diagnosed, and 31.0% initiated ART late. Being male was significantly associated with late ART initiation (Nash et al., 2016). As seen in Table 1, those recently diagnosed had significantly higher prevalence of psychological distress compared to those not recently diagnosed. Those who initiated ART late also had significantly higher prevalence of psychological distress compared to those who did not initiate ART late (Table 1).

Hiv treatment beliefs

Sixty-six participants were excluded from analyses of sexual transmission and ART beliefs and 46 from holy water beliefs analyses due to missing data. Treatment-related beliefs were significantly associated with sex, religion, education, and living environment (Tymeczyk et al., 2016). Individuals who endorsed accurate beliefs about ART benefits reported lower prevalence of psychological distress than those who endorsed inaccurate beliefs for this domain. In contrast, individuals with accurate beliefs about the lack of curative power of holy water for HIV reported significantly higher prevalence of psychological distress compared to those with inaccurate beliefs for this domain.

Multivariable analyses

As seen in Table 2, in unadjusted analyses, when late ART and recent diagnosis were modeled separately, late ART was associated with significantly greater odds of severe psychological distress (OR: 1.6 [95% CI 1.0, 2.5]). This relationship approached significance in adjusted analyses (aOR: 1.6 [95% CI 1.0, 2.5], $p = 0.05$). As seen in Table 3, when late ART and recent diagnosis were modeled as a composite variable, relative to those who did not initiate ART late and had longer time since diagnosis, odds of severe psychological distress were significantly greater among those who initiated ART late and

were recently diagnosed (aOR: 1.9 [95% CI 1.4, 2.8]). Sensitivity analyses were conducted for those with missing date of first HIV diagnosis by setting missing values to recently diagnosed and then to not recently diagnosed. Multivariable findings did not meaningfully change when individuals with missing date of diagnosis were included in the analysis.

Discussion

Psychological distress was highly prevalent. High prevalence of severe psychological distress may indicate that ART initiation is particularly stressful. Longitudinal studies are needed to better understand whether high prevalence of psychological distress at ART initiation persists throughout treatment.

Those recently diagnosed and those with advanced HIV had significantly higher prevalence of psychological stress. However, in adjusted analyses, only individuals who were both recently diagnosed and had advanced HIV had significantly greater odds of severe psychological distress. Given the high prevalence of psychological distress, mental health screening and interventions should be incorporated into HIV care from diagnosis through treatment, with a particular emphasis on those recently diagnosed and with advanced HIV. Early identification of psychological distress may increase linkage to mental health care and improve mental health and HIV treatment outcomes. Research is needed to identify sustainable intervention strategies to reduce psychological distress among PLWH in low-resource settings.

This study has several limitations. This study is crosssectional and directionality of the relationship between psychological distress and late ART initiation cannot be established. This study assessed a convenience sample of individuals initiating ART at six clinics in Ethiopia. Results may not be generalizable to individuals initiating ART at participating clinics, throughout Ethiopia, or in other settings.

Poor mental health is a significant public health problem among PLWH in sub-Saharan Africa. Greater integration of screening and treatment of mental illness in HIV care settings in sub-Saharan Africa is crucial to achieving optimal HIV care outcomes.

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Table 1

Sociodemographic characteristics, HIV treatment, and psychological distress.

	Total sample (<i>n</i> = 1175) <i>n</i> (%)	Low (<i>n</i> = 386) <i>n</i> (%)	Psychological distress		chi-sq (DF)
			Moderate (<i>n</i> = 442) <i>n</i> (%)	Severe (<i>n</i> = 347) <i>n</i> (%)	
Sociodemographic characteristics					
Age					4.92 (4)
18–29	374 (31.8)	131 (35.0)	146 (39.0)	97 (25.9)	
30–39	479 (40.8)	148 (30.9)	174 (36.3)	157 (32.8)	
40+	322 (27.4)	107 (33.3)	122 (37.9)	93 (28.9)	
Sex					2.83 (2)
Male	457 (38.9)	137 (30.0)	178 (39.0)	142 (31.1)	
Female	718 (61.1)	249 (34.7)	264 (36.8)	205 (28.6)	
Ever attended school ^a					0.84 (2)
Yes	804 (68.5)	268 (33.3)	305 (37.9)	231 (28.7)	
No	370 (31.5)	118 (31.9)	136 (36.8)	116 (31.4)	
Religion ^a					11.69 (6)
Ethiopian Orthodox	821 (69.9)	274 (33.4)	327 (39.8)	220 (26.8)	
Protestant	238 (20.3)	79 (33.2)	76 (31.9)	83 (34.9)	
Muslim	107 (9.1)	30 (28.0)	36 (33.6)	41 (38.3)	
None/Other	8 (0.7)	3 (37.5)	3 (37.5)	2 (25.0)	
Relationship Status					9.51 (2) *
In a relationship	671 (57.1)	245 (36.5)	238 (35.5)	188 (28.0)	
Not in a relationship	504 (43.9)	141 (28.0)	204 (40.5)	159 (31.6)	
Type of living environment ^a					0.43 (2)
Rural	257 (21.9)	81 (31.5)	101 (39.3)	75 (29.2)	
Urban	917 (78.1)	305 (33.3)	341 (37.2)	271 (29.6)	
Employment status ^a					0.93 (2)
Working for cash or in-kind	899 (76.6)	299 (33.3)	332 (36.9)	268 (29.8)	
Not working for cash or in-kind	274 (23.4)	86 (31.4)	110 (40.2)	78 (28.5)	
Health facility					194.06 (10) *

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	Total sample (<i>n</i> = 1175) <i>n</i> (%)	Psychological distress			chi-sq (DF)
		Low (<i>n</i> = 386) <i>n</i> (%)	Moderate (<i>n</i> = 442) <i>n</i> (%)	Severe (<i>n</i> = 347) <i>n</i> (%)	
Ambo	238 (20.3)	126 (52.9)	90 (37.8)	22 (9.2)	
Bishoftu	307 (26.1)	68 (22.2)	131 (42.7)	108 (35.2)	
Fiche	166 (14.1)	75 (45.2)	62 (37.4)	29 (17.5)	
Goba	129 (11.0)	46 (35.7)	56 (43.4)	27 (20.9)	
Nekemte	194 (16.5)	43 (22.2)	36 (18.6)	115 (59.3)	
Shashmene	141 (12.0)	28 (19.9)	67 (47.5)	46 (32.6)	
HIV treatment beliefs					
Accurate beliefs about ART					
Yes	1058 (90.0)	363 (34.3)	391 (37.0)	304 (28.7)	10.41 (2) *
No	117 (10.0)	23 (19.7)	51 (43.6)	43 (36.8)	
Accurate beliefs about ART and sexual transmission ^a					
Yes	150 (13.5)	50 (33.3)	56 (37.3)	44 (29.3)	0.03 (2)
No	959 (86.5)	314 (32.7)	358 (37.3)	287 (29.9)	
Accurate beliefs about holy water ^a					
Yes	754 (66.8)	250 (33.2)	256 (34.0)	248 (32.9)	13.51 (2) *
No	375 (33.2)	122 (32.5)	164 (43.7)	89 (23.7)	
HIV treatment					
Late ART initiation ^a					
Yes	364 (31.0)	81 (22.3)	148 (40.7)	135 (37.1)	29.77 (2) *
No	810 (69.0)	305 (37.7)	294 (36.3)	211 (26.1)	
Time since first HIV+ diagnosis ^a					
0–90 days	513 (46.6)	132 (25.7)	206 (40.2)	175 (34.1)	19.71 (2) *
91+ days	588 (53.5)	223 (37.9)	211 (35.9)	154 (26.2)	
Disclosed HIV status to anyone					
Yes	1010 (86.0)	338 (33.5)	369 (36.5)	303 (30.0)	3.60 (2)
No	165 (14.0)	48 (29.1)	73 (44.2)	44 (26.7)	

^aMissing data by variable: Ever attended school *n* = 1; Religion *n* = 1; Type of living environment *n* = 1; Employment status *n* = 2; In relationship at time of interview *n* = 1; Accurate beliefs about ART and sexual transmission *n* = 66; Accurate beliefs about holy water *n* = 46; Time since first HIV+ diagnosis *n* = 74;

* *p* < 0.05.

Table 2

Multivariable associations between recent diagnosis, late ART initiation, HIV treatment beliefs, and severe psychological distress at ART initiation modeling late ART and recent diagnosis separately.

	Severe psychological distress ^a	
	OR (95% CI) <i>n</i> = 1018	aOR (95% CI) <i>n</i> = 1018
<i>Late ART initiation</i>		
No	1.00	
Yes	1.60 (1.03, 2.48)	1.57 (0.99, 2.49)
<i>Recent diagnosis</i>		
No	1.00	
Yes	1.20 (0.92, 1.55)	1.22 (0.97, 1.53)
Accurate beliefs about ART	0.70 (0.39, 1.25)	0.70 (0.36, 1.36)
Accurate beliefs about ART and sexual transmission	0.90 (0.49, 1.65)	0.90 (0.50, 1.62)
Accurate beliefs about holy water	1.56 (0.68, 3.57)	1.57 (0.71, 3.50)
<i>Age in years</i>		
18–29		1.00
30–39		1.53 (1.02, 2.28)
40–49		1.31 (0.89, 1.93)
50+		1.21 (0.63, 2.34)
<i>Sex</i>		
Male		1.00
Female		1.01 (0.77, 1.31)
<i>Ever attended school</i>		
Yes		1.00
No		1.18 (0.83, 1.66)
<i>Living environment</i>		
Rural		1.00
Urban		1.19 (0.65, 2.12)
<i>In a relationship</i>		
Yes		1.00
No		1.11 (0.87, 1.41)

^aSevere psychological distress is modeled with low/none or mild/moderate psychological distress as referent.

Table 3

Multivariable associations between recent diagnosis, late ART initiation, HIV treatment beliefs, and severe psychological distress at ART initiation with late ART and recent diagnosis modeled using 4-level composite variable.

	Severe psychological distress ^a	
	OR (95% CI) <i>n</i> = 1018	aOR (95% CI) <i>n</i> = 1018
Not recently diagnosed, no late ART initiation	1.00	1.00
Recently diagnosed, no late ART initiation	1.13 (0.84, 1.53)	1.16 (0.89, 1.50)
Not recently diagnosed, late ART initiation	1.46 (0.97, 2.18)	1.44 (0.90, 2.28)
Recently diagnosed, late ART initiation	1.94 (1.42, 2.65)	1.93 (1.36, 2.75)
Accurate beliefs about ART	0.70 (0.39, 1.25)	0.69 (0.36, 1.36)
Accurate beliefs about ART and sexual transmission	0.90 (0.49, 1.66)	0.90 (0.50, 1.63)
Accurate beliefs about holy water	1.55 (0.68, 3.55)	1.57 (0.71, 3.48)
<i>Age in years</i>		
18–29		1.00
30–39		1.53 (1.02, 2.28)
40–49		1.30 (0.88, 1.93)
50+		1.21 (0.62, 2.34)
<i>Sex</i>		
Male		1.00
Female		1.01 (0.77, 1.31)
<i>Ever attended school</i>		
Yes		1.00
No		1.18 (0.84, 1.66)
<i>Living environment</i>		
Rural		1.00
Urban		1.19 (0.64, 2.20)
<i>In a relationship</i>		
Yes		1.00
No		1.11 (0.88, 1.40)

^a Severe psychological distress is modeled with low/none or mild/moderate psychological distress as referent.