

Demographic Factors, Stigma and Psychological Dysfunctions among People Living with HIV/AIDS: A Path Analysis

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ABSTRACT This study investigated the association between age and duration of diagnosis with psychological dysfunctions, and HIV/AIDS stigma among PLWHA in Limpopo Province of South Africa. Cross-sectional design with purposive sampling method was used to select study participants (n = 300, mean age = 31, standard deviation = 8.2, female = 57.1%). HIV/AIDS stigma scale was used to determine stigma while GHQ-28 was used to determine psychological dysfunctions. Structural Equation Modelling (SEM) and the Pearson Moment Correlation Coefficient were used to analyse data. Results indicated that age has a negative but significant predictive effect on enacted HIV/AIDS stigma ($\beta = -126, p < .05$). Enacted HIV/AIDS stigma had a significant predictive effect on psychological dysfunctions ($\beta = .198, p < .01$). Study findings demonstrate that enacted HIV/AIDS stigma decreases with increased age, psychological dysfunctions increased with increase in age.

INTRODUCTION

When HIV and AIDS first emerged it was prevalent among younger age groups (Sheikh et al. 2017; Shisana et al. 2014; Williams et al. 2017). Due to changing patterns of HIV and AIDS progression, cases of older people living with HIV/AIDS (PLWHA) are now prominent as a result of improved availability of antiretroviral therapy (ART) which prolong survival and aging of long term survivors (Coté et al. 2015; Sagarduy et al. 2017).

South Africa is currently in the third decade of the HIV and AIDS epidemic, with the epidemiology of the disease in the country having also evolved over time. A shift has been noted in prevalence peak age groups. The highest age in HIV prevalence has progressed from the 25-29 years age group to the 30-34 years age group for females, and from the 30-34 years age group to 35-39 years for males (Arrey et al. 2017; Shisana et al. 2014). According to the UNAIDS, the proportion of older PLWHA has increased in all parts of the world since 2007 (UNAIDS 2013). Research reveals that higher rates of HIV and AIDS stigma predispose older PLWHA to increased risk of poor psychological functioning (DeGrazia and Scrandis 2015).

The availability of the highly active antiretroviral treatment (HAART) has resulted in increasingly longer life expectancy among PLWHA, thus bringing about people with a longer duration of HIV and AIDS diagnosis (Brandt et al. 2017). PLWHA are reported to be vulnerable to stigma-induced psychological dysfunctions regardless of the duration of their illness (Coté et al. 2015). A great variation of experience between PLWHA who were recently diagnosed and those diagnosed early in the epidemic with regard to stigma experiences has been posited (Cahill and Valadéz 2013; Relf and Rollins 2015). HIV and AIDS stigma has been reported to intersect with a longer duration of HIV-positive diagnosis, and psychological dysfunctions among PLWHA (Coté et al. 2015).

This pattern of intersection, therefore, warrants empirical investigation in order to deal with stigma and psychological dysfunctions effectively. Regardless of the demographic changes (Durvasula and Miller 2014), not much is known about the relationship between these demographic factors (age and duration of diagnosis), HIV and AIDS stigma, and psychological dysfunctions in South Africa. Understanding the relationship between these variables is therefore important in order to better inform the development of appropriate HIV and AIDS stigma,

and psychological dysfunction reduction intervention programmes. Studies have rarely included duration of diagnosis as a variable when exploring dynamics around HIV and AIDS stigma and psychological dysfunctions, resulting in the dearth of literature on the phenomenon.

Study Objective

The objective of the study was to investigate the predictive association among age, duration of diagnosis, HIV/AIDS stigma, and psychological dysfunctions among people living with HIV/AIDS.

METHODOLOGY

Research Design

The study employed the quantitative approach utilising the cross-sectional design.

Study Participants

The study consisted of 300 PLWHA. Purposive sampling method was employed due to the nature of the study participants. The study was carried out in the Capricorn District of Limpopo Province which is situated in the northern part of South Africa. Capricorn district was chosen for the study because it constitutes a wide variety of racial groups as well as diverse socio-economic levels (Statistics South Africa 2013). This is subsequent to the economic migration to the district. Participants were recruited from the HIV and AIDS outpatient clinic at Polokwane/Mankweng Hospital complex (the largest hospital in the province), Rethabile Health Centre, and Takalani Nana HIV Centre in Polokwane. The demographic characteristics of participants are presented in Table 1.

Procedure and Ethical Considerations

The study was conducted out after approval and permission was granted by the North-West University, and the North West Provincial Department of Health Ethics committees. The provincial approval letter was secured to gain access to the institutions where data was collected. Eligibility criteria of the study were: being diagnosed with HIV (on self-report), and be at least 18 years of age or older to be able to give

Table 1: Demographic characteristics of participants

Variable	(N=300)
Age Range	20-54 years
Mean Age	31 (SD 8.2)
Gender	
Male	128 (42.9%)
Female	172 (57.1%)
Marital Status	
Married	107 (35.9%)
Never married	169 (56.1%)
Divorced	6 (2.0%)
Widowed	18 (6.0%)
Educational Level	
Less than grade 12	35 (11.6%)
Grade 12	101 (33.7%)
Tertiary education	164 (54.7%)
Duration of Diagnosis (DD)	
Less than 1 year	143 (47.5)
2-4 years	139 (46.5)
More than 5 years	18 (6.0)

or considered competent to give informed consent. Those who were deemed too ill, the mentally unstable or mentally disabled, and or had any other condition that would impair their ability to consent, were excluded. For this study, no exclusion was made based on participants' socio-economic status, gender or ethnicity. Participation in the study was voluntary. The right not to participate, as well as to withdraw from the study at any point was outlined. Formal informed consent was sought from the participants who volunteered to partake in the study. Confidentiality was assured and adhered to at all times.

Research Instruments

HIV and AIDS Stigma Scale

The HIV and AIDS Stigma Scale developed by Westbrook and Bauman (1996) was used to measure HIV and AIDS stigma. The scale comprised 20 items that assessed internalised stigma, 20 items that assessed perceived stigma and 9 items that assessed enacted stigma. The participants had to respond on a four point Likert scale, with 1 indicating "strongly agree", and 4 "strongly disagree". With regard to enacted stigma, the participants had to respond on a 3 point Likert scale with 1 indicating "no experience" and 3 indicating "a lot of experience". Some items were reversed scored. For internalised stigma the following items were reversed: Items 10, 12, 17, 18, 19, 25, 26. For perceived stigma the reversed items were: Items 30, 32, 37, 38, 39, 45. For

enacted stigma items no reverse scoring was required. High scores were indicative of high stigma experience. The scale has been adapted and previously applied to the South African population (Idemudia and Matamela 2012), and was found to be reliable with a Cronbach's $\alpha = 0.88$. For the current study, the scale was found reliable (Cronbach's $\alpha = .76$).

General Health Questionnaire-28 (GHQ-28)

The GHQ-28 developed by Goldberg (1972) was adapted and used (Cronbach's $\alpha = 0.92$) to assess the participants' psychological functioning. The scale was used to establish psychological symptoms experienced by an individual in the past few weeks. The participants had to respond on a four point Likert scale with 1= better than usual, 2 = same as usual, 3=worse than usual, 4= much worse than usual. The use of scoring method '0-0-1-1' was suggested by Goldberg to assist reduce biases resulting from participants who tend to choose responses 0 and 3 or 1 and 2. The higher the score, the poorer the psychological functioning of the participant. It consists of 28 items that, through factor analysis, have been divided into four sub-scales, which are as follows: A - Somatic symptoms (items 1-7), B - Anxiety/insomnia (items 8-14), C - Social dysfunction (items 15-21), and D - Severe depression (items 22-28). The scale has been adapted and used among the South African population (Idemudia and Matamela 2011) in their study among HIV/AIDS and cancer patients, and was found to be reliable (0.90). Reliability for the current study was sufficiently high (Cronbach's $\alpha=.95$).

Data Analysis

In order to establish the relationship between variables under investigation, Pearson's Moment correlation coefficient was employed. The Pearson's correlation coefficients were computed to inform the SEM on which variables to include in the model. Only variables that were found to significantly correlate were included in the SEM model. The variables that were not significantly correlated were, as a result, not included in the model analysis, hence internalised and perceived HIV and AIDS stigma were excluded in the model. The hypothesised paths that were tested were: HIV and AIDS stigma (enacted) has

a direct positive relationship with psychological dysfunctions (that is, GHQ and its entire four dimensions that is, somatic complaints, anxiety, social functioning and severe depression); age has a direct positive relationship with psychological dysfunctions, duration of diagnosis has a direct positive relationship with psychological dysfunctions.

RESULTS

The Pearson's correlation coefficients revealed a significant positive correlation between enacted stigma and overall GHQ ($r = .22, p < 0.001$), and all its dimensions (somatic complaints ($r = .23, p < 0.001$), anxiety ($r = .16, p < 0.001$), social functioning ($r = .14, p < 0.05$), and severe depression ($r = .22, p < 0.001$) and other variables under investigation. Enacted stigma was found to be negatively correlated to age significantly ($r = -.13, p < 0.001$) as well as duration of diagnosis ($r = -.05, p < 0.001$). Significant positive correlation was found between age and perceived stigma ($r = .08, p < 0.001$) as well as duration of diagnosis ($r = .18, p < 0.001$). Duration of diagnosis was found to have a significant positive correlation with internalised stigma ($r = .24, p < 0.001$).

In terms of interrelations between the stigma dimensions, there was a significant positive correlation found between enacted and perceived stigma ($r = .05, p < 0.001$). Internalised stigma was negatively correlated with enacted stigma significantly ($r = -.07, p < 0.001$). With regards to psychological dysfunction in relation to age, a significant negative correlation was found between overall GHQ and age ($r = -.23, p < 0.001$), and all its dimensions, anxiety ($r = -.21, p < 0.001$), social functioning ($r = -.19, p < 0.001$), and severe depression ($r = -.29, p < 0.001$) except for somatic complaints (see Table 2).

To assess model fit, a number of indices were calculated; however, only the most regularly reported fit indices as recommended by McDonald and Ho (2002) were outlined. These include degree of freedom (*df*), Chi square (χ^2), relative/normed Chi-Square (χ^2/df), Root Mean Square Error of Approximation (RMSEA), Goodness-Fit Index (GFI), Adjusted Goodness-of-Fit (AGFI), Normed-Fit Index (NFI) (see Table 3). The Chi-Square assesses the overall model fit and establishes the magnitude of discrepancy between the sample and the fitted covariance matrices (Hu and Bentler 1999). For a good fit model, the

Table 2: Correlation coefficients of association between psychological dysfunction, HIV stigma and psychosocial factors among PLWHA

Variables	1	2	3	4	5	6	7	8	9	10
1. PD	1									
2. SC	.79*	1								
3. ANX	.87*	.61**	1							
4. SF	.85**	.55**	.69**	1						
5. SD	.84**	.53**	.64**	.64**	1					
6. INS	-.08	-.05	-.06	-.16**	-.07	1				
7. PS	-.03	-.02	-.03	-.02	-.06	.69	1			
8. ES	.22**	.23**	.16**	.14*	.22**	-.07**	.05**	1		
9. Age	-.23**	-.10	-.21**	-.19**	-.29**	.13	.08**	-.13**	1	
10. DD	-.19**	-.14*	-.18**	-.17**	-.21**	.24*	.18**	-.05**	.52*	1
Mean	67.24	16.45	17.55	16.88	16.50	44.53	43.29	11.28	31.02	1.52
SD	11.34	3.35	3.45	3.39	3.30	8.82	6.82	3.35	8.19	.50
Skewness	.27	.59	.04	.59	.55	.62	.28	2.28	.06	-.10
Kurtosis	-.57	.51	-1.03	-.62	-.22	1.28	-.08	5.37	1.23	-2.00

PD = Psychological dysfunctions, SC = Somatic complaints, ANX = Anxiety, SF= Social functioning, SD= Severe depression, INS = Internalised stigma, PS = Perceived stigma, ES = Enacted stigma, DD = Duration of diagnosis.

Note: Correlation is significant at the 0.01 level (2 tailed); *P < .05, **P < .001

Chi-Square result should be non-significant at 0.05 (Barrett 2007). For the current study a non-significant Chi-Square value was found, $\chi^2 = 22.69$, $df = 28$, $p = .749$, demonstrating good model fit.

The fit indices from Table 3 showed that the model has a good fit indicating that the hypothe-

sed model of the study generally fits the data for the sample, as a result, the path model was generated (see Fig.1 for the path analysis). Path analysis revealed the following directional relations between the variables under investigation (see Table 4).

Table 3: Summary of fit indices of the model for the full structural equation

Model	df	χ^2	χ^2/df	RMSEA	GFI	AGFI	NFI
1.	28	22.69	.810	.000	.980	.974	.000

Table 4: Standardized regression coefficients of the variables

Variables	Direct effects	Estimate	S.E	C.R	P
PD<-ES	.198	.665	.200	3.328	***
SC<-ES	.223	.223	.056	3.945	***
ANX<-ES	.142	.145	.058	2.506	**
SF<-ES	.117	.118	.057	2.061	*
SD<-ES	.180	.176	.058	3.055	**
ES <-Age	-.126	-.308	.140	-2.194	*
ES <-DD	-.054	-.008	.009	-.936	Ns
PD<-Age	-.140	-.192	.093	-2.071	*
SC <-Age	-.077	-.031	.023	-1.359	Ns
ANX <-Age	-.145	-.061	.028	-2.197	*
SF <-Age	-.123	-.051	.027	-1.853	*
SD <-Age	-.209	-.083	.027	-3.115	**
PD <-DD	-.116	-2.610	1.519	-1.718	Ns
ANX <-DD	-.101	-.690	.449	-1.537	Ns
SF<-DD	-.099	-.664	.444	-1.495	Ns
SD<-DD	-.096	-.623	.438	-1.424	Ns

DD = Duration of diagnosis, PD = Psychological functioning, SC = Somatic complaints, ANX = Anxiety, SF = Social functioning, SD = Severe depression, ES = Enacted stigma

Note: *P < .05, **P < .001, ***P < .01

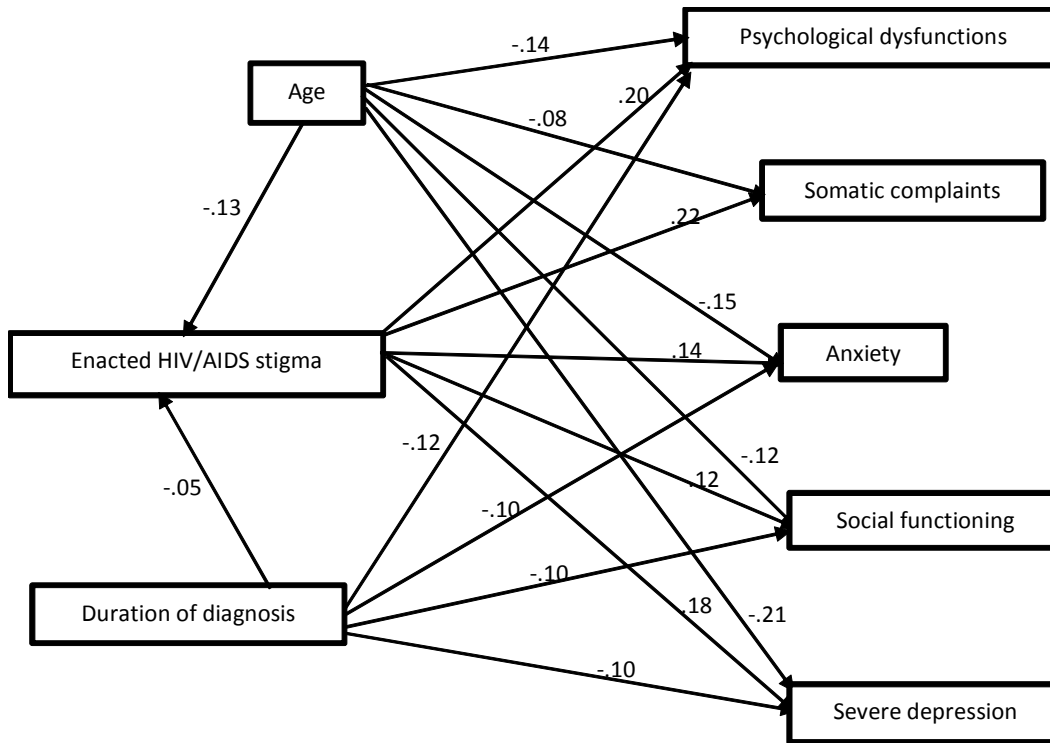


Fig. 1. Path diagram of age, duration of diagnosis, enacted HIV stigma and psychological dysfunction

Enacted HIV/AIDS stigma was found to have a significant predictive effect on psychological functioning ($\beta = .198, p < .01$) and all its dimensions, somatic complaints ($\beta = .223, p < .01$), anxiety ($\beta = .142, p < .001$), social functioning ($\beta = .117, p < .05$), severe depression ($\beta = .180, p < .001$). Findings further showed that age has a significant but negative predictive effect on enacted HIV/AIDS stigma. Age was found to have a negative but significant predictive effect on psychological functioning ($\beta = -.140, p < .05$) and all its dimensions, anxiety ($\beta = -.145, p < .05$), social functioning ($\beta = -.123, p < .05$) and severe depression ($\beta = -.209, p < .001$), except for somatic complaints ($\beta = -.077, p = ns$). Duration of diagnosis was found to have a non-significant predictive effect on enacted stigma, psychological functioning and all its dimensions.

DISCUSSION

The present study established a significant but negative predictive effect of age on enacted

HIV and AIDS stigma. That is, enacted HIV and AIDS stigma decreased with increased age. The study established that the older the participants were, the less the stigmatising experiences. This can perhaps be attributed to the fact that older people in this population could have not been subjected to internal controllability casual attributions by those stigmatising them. That is, they could have been considered innocent victims of HIV and AIDS and not regarded as blameworthy for their HIV infection. As research indicates, PLHWA whose infection is perceived not to emanate from perceived immoral related activities are less likely to receive more hostile reactions (Herek et al. 2013; Pfeiffer and Maithya 2018). The HIV infection of older participants in this study could have not been attributed to acts of immorality relative to their younger counterparts, but rather from a victim point of view such as caring for sick family members and significant others. This view is supported by the findings of South African studies (Ogunmefun et al. 2011; Schatz and Ogunmefun 2007), where

it was found that older South Africans, predominantly women, were found to be mostly care providers for the HIV and AIDS ill, both adults and children. Another South African study by Kuo et al. (2014) further attested to this premise. Their findings highlighted even further that these adult caregivers mostly present with poor psychological functioning following caring for others with HIV and AIDS. Thus, the HIV-positive status of such individuals may, therefore, elicit feelings of sympathy more than hostility and discriminatory behaviours.

On the other hand, the increased stigma experiences of the younger participants could be due to personal controllability causal attributions, where they are perceived as blameworthy for their infection. The innocent/guilty notion is ascertained by Wagner et al. (2010) who postulate that another manner of classifying PLWHA experiences in relation to HIV and AIDS stigma is that of innocent versus guilty. The route of transmission may determine if an individual is perceived as guilty (for example, acquired the virus through, for example, unprotected sex, drug use, prostitution, etc.) or innocent (for example, blood transfusions, mother-to-child-transmission, or caring for a sick person), as a result influence how people react to that individual.

Research findings on the relationship between age and HIV and AIDS are somewhat inconsistent. In partial agreement with current study, such inverse relationship was found by Emlet et al. (2015). That is, decreased level of stigma with increased age was noted. However, unlike in the present study, their participants experienced less internalised over enacted HIV and AIDS stigma with increased age. They argued the pattern of their finding from a premise that, although encounters with prejudice and discrimination (enacted) might not lessen with age, it is possible that the overall internalisation of those enacted stigma experiences may do. Contrary to present study findings, a positive relationship between age and HIV and AIDS stigma is commonly found. Older PLWHA were found to experience more HIV and AIDS stigma than their younger counterparts, due to layering phenomenon or ageism stigma, where individuals are stigmatised based on their age too (Cahill and Valadéz 2013; Grodensky et al. 2015; Kinyanda et al. 2011; Logie and Gadalla 2009; Storholm et al. 2013; Visser et al. 2009). Exploring further in terms of the stigma dimensions,

Grodensky et al. (2015) found a positive relationship between age and perceived stigma in their study. It was found that the older the participants were, the more they anticipated stigmatising attitudes. In contradiction to both the present study as well as other findings stipulated by other researchers, Wagner et al. (2010) and Wolitski et al. (2009) found no relationship between age and HIV and AIDS stigma, while Emlet et al. (2015) describe the association between age and HIV/AIDS as one that is complex which could depend on many other related factors.

With regards to duration of diagnosis, the present study found non-significant predictive effect of duration of diagnosis on HIV and AIDS stigma. However, duration of diagnosis was found to have a somewhat weak but negative effect on enacted stigma, suggesting that the longer the participants have been living with HIV and AIDS diagnosis, the less likely are experiences of enacted stigma. This could be attributed to the benefits of ARV treatment where PLWHA's deviancy in terms of Goffman's body abominations diminishes (Goffman 1963). In contradiction, a positive effect of duration of diagnosis on HIV and AIDS stigma was found by Coté et al. (2015), where a longer duration of diagnosis leads to increased stigma enactments. With regards to psychological dysfunction, non-significant predictive effect of duration of diagnosis was found. Similarly, in the study by Obadeji et al. (2014) conducted in Nigeria where they determined the prevalence and predictors of depression among PLWHA, the results revealed no association between duration of diagnosis and depression. In contrast to the present results with regard to psychological dysfunctions, a positive relationship between longer duration of diagnosis and increased psychological dysfunction was noted in other studies; for example, studies conducted by Igumbor et al. (2012) and Coté et al. (2015). PLWHA were found to experience increased symptoms of depression and anxiety with longer duration of diagnosis.

CONCLUSION

Enacted HIV and AIDS stigma have a significant predictive effect on psychological dysfunctions and all its dimensions (somatic complaints, anxiety, social functioning, and severe depression). Age has a negative but significant

predictive effect on enacted HIV and AIDS stigma but the predictive effect of duration of diagnosis on enacted stigma was not significant. Age was found to have significant and negative predictive effect on psychological dysfunctions. Duration of diagnosis had no significant predictive effect on enacted stigma and psychological dysfunctions (including its dimensions).

LIMITATIONS

Conclusions from this study should be interpreted taking cognisance of the limitation of the representativeness of the study population. Generalisation to all South African populations cannot be asserted, as the study was conducted only in the Limpopo Province, and the sampling was not representative enough of all regions of South Africa. The determination of psychological dysfunction using GHQ should also be interpreted with caution as the GHQ is not a diagnostic instrument, and can only be used to deduce symptoms of emotional distress not diagnose precise psychological disorders. The significant negative effect of age on enacted HIV and AIDS stigma in the current study is inconsistent with most other research findings; it would be worthwhile to empirically establish factors behind the pattern of this influence.

RECOMMENDATIONS

The outcome of this study underscores the importance of collaborative efforts by relevant HIV/AIDS stakeholders and policy makers that are aimed at managing stigma among PLWHA. This will lessen the burden of associated psychological dysfunctions that may ensue as a result of stigmatization on the PLWHA. The need for continuous awareness programme on the nature, mode of transmission and management of HIV/AIDS among the general population (those not infected with HIV/AIDS) are also essential.

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