ROLES OF EMPLOYMENT STATUS AND EMOTION REGULATION IN DEATH ANXIETY AMONG PEOPLE LIVING WITH HIV/AIDS

JohnBosco Chika CHUKWUORJI[1,2*], Comfort Victoria CHUKWU[1], Charity Ngozi UZUEGBU[3], & Chuka Mike IFEAGWAZI[1]

*[*1,2]Department of Psychology, University of Nigeria, Nsukka, 41000, Enugu state, Nigeria, & & Department of Psychology, College of Sciences and the Health Professions, Cleveland State University, Cleveland, 44115, Ohio, USA. E-mail: j.chukwuorji@csuohio.edu. Tel.: +1-216-482-6082; +2348039655344.*

[1]Department of Psychology, University of Nigeria, Nsukka, 41000, Enugu state, Nigeria. Email: comfort.chukwu.186777@unn.edu.ng
[3]Department of Social Work, University of Nigeria, Nsukka, 41000, Enugu state, Nigeria. Email: charity.uzuegbu@unn.edu.ng
[1]Department of Psychology, University of Nigeria, Nsukka, 41000, Enugu state, Nigeria. Email: chuka.ifeagwazi@unn.edu.ng

[*]Corresponding author

ABSTRACT

Death anxiety is one of the most commonly observed mental health sequelae of HIV/AIDS. However, there is limited research on contributions of employment status and emotion regulation strategies in death anxiety. This study examined the role of employment status and contributions of emotion regulation strategies (cognitive reappraisal and expressive suppression) in multidimensional death anxiety among people living with HIV (PLWHA). The dimensions of death anxiety consisted of four facets, namely, death acceptance, externally generated death anxiety, death finality, and thoughts about death. Participants were 186 PLWHA (M_{age} = 34.16 years, 56.5% women) from the HIV/AIDS care unit of a tertiary healthcare institution in south-eastern Nigeria. Data was collected using self-report measures of the variables, namely, Emotion Regulation Questionnaire and Death Anxiety Inventory - Revised (DAI-R). Participants also provided some demographic information including their employment status. We found that employed persons reported lower death anxiety. Cognitive reappraisal did not significantly predict any of the dimensions of death anxiety. Expressive suppression predicted reduced anxiety about death in the dimensions of death acceptance and death finality. The emotion regulation strategies failed to moderate the association between employment status and death anxiety, such that the impact of employment status on death anxiety did not vary as a function of deployment of specific emotion regulation strategies. Findings underscore the benefits of formal employment, and how interventions can help to improve the employment situation of PLWHA.

***Keywords**: Death anxiety, emotion regulation, employment status, psychopathology, quality of life.*

INTRODUCTION

Although survival rates for persons living with HIV/AIDS (PLWHA) are improving globally as a result of prioritized global HIV Continuum of Care (Pinto, Witte, Filippone, Choi, & Wall, 2018) and advances in prevention, care and medical treatment (Holden et al., 2019; Jemmott et al., 2014; Olley & Olaseni, 2017; Winskell et al., 2019), a diagnosis of HIV/AIDS still constitutes a threat to life. Hence, death anxiety is one of the most commonly observed psychological sequelae of HIV/AIDS, and it underlies the development and maintenance of several mental health problems (Ifeagwazi, Chukwuorji, & Onu, 2018; Iverach, Menzies, & Menzies, 2014; Maxfield, John, & Pyszczynski, 2014; Miller, Lee, & Henderson, 2012). Death anxiety refers to fear of one's own mortal decline or ultimate mortality (Miller et al., 2012). Further, traumatic experiences may overwhelm and disrupt the sociocultural anxiety-buffer systems which protect people against death anxiety (Vail, Courtney, Goncy, Cornelius, & Edmondson, 2019). In a developing country where most PLWHA face stigma and social discrimination, HIV diagnosis can be traumatising, thereby eroding one's anxiety protective systems. The concerns about death may potentiate negative affect, distort perceptions about recovery, and like other mental health problems, it can distance PLWHA from their care providers (Sherman, Norman, & McSherry, 2010; Joska, Obayemi, Cararra, & Sorsdahl, 2014; Mao et al., 2019, Springer,

Dushaj, & Azar, 2012; Mao et al., 2019), thereby negatively impacting on quality of life which have been recognised as a vital aspect of care in PLWHA (Brandt et al., 2016; Onu, Ifeagwazi, & Orjiakor, 2017; Onu, Nwufo, & Obot, 2019; Onu, Ugwu, & Orjiakor, 2019; Soleimani et al., 2016). Therefore, alleviating existential concerns in PLWHA may ensure better coping with the mental health distress associated with HIV and its challenging treatments.

Current conceptualisation and operationalisation of death anxiety uphold that it is multidimensional consisting of four facets, namely, death acceptance, externally generated death anxiety, death finality, and thoughts about death (seee Tomás-Sábado, Gómez-Benito, & Limonero, 2005). Death acceptance refers to an individual's personal understanding of death and the position adopted in facing it, which derived from the intrinsic and individualised meaning attached to death. Externally generated death anxiety includes fear of situations, objects or elements that provide an external reference to death in most cultural settings such as death bodies, coffins, cemeteries and funeral homes. Death thoughts is the cognitive and emotional component which refers to the awareness of one's mortality and the processes that may lead to death. Death finality is the realisation that death is inevitable, and nothing can be changed about it. The multidimensional view is a relatively recent development in the 21st century which have not been widely applied in the literature. However, it has started to attract some interest in the field of death studies. What may be most informative would be to incorporate some variables which have received substantial attention in existing literature to see how the variables are related to the dimensions of death anxiety. In a systematic review of the empirical literature and meta-analysis on correlates of death anxiety among people living with HIV (PLWHA) (see Miller et al., 2012), neither employment status nor emotion regulation were included in the reviewed studies. The present study seeks to examine the role of employment status and contributions of emotion regulation strategies in death anxiety among PLWHA.

Employment is fundamental in quality of life, the primary source of income for most people, a critical factor in one's social network, and a defining feature of social status (Hiswals et al., 2017; Okereke, 2014). When people are employed, they are able to learn new skills to increase job productivity and competence, establish routines that can prevent lethargy and boredom and may regulate sleep and healthy behaviors, and access purposeful and meaningful activity that may improve mental health (See Vance, Cody, Yoo-Jeong, Jones, & Nicholson, 2015). Meta-analyses of longitudinal studies and natural experiments indicated that unemployment is not only correlated to distress but also causes it (See Paul & Moser, 2009). Among working age members of the general population, those who were not employed had higher risk of anxiety (Hiswals et al., 2017; Honkonen et al., 2007). According to Jahoda's (1981, 1982) latent deprivation model, employment provides five latent functions (time structure, social contact, collective purpose, status, and activity), which correspond to important psychological needs, while unemployment leads to a state of deprivation, resulting in distress (Paul & Moser, 2009).

Among PLWHA, unemployment was associated with general anxiety (Omiya et al., 2014) and reduced mental health quality of life (Rueda et al., 2011). In fact, (re)entry into the workforce among unemployed PLWHA has been recommended (Dray-Spira, Marimoutou, Bouhnik, & Obadia, 2010) underscoring the enormous benefits of work. Considerations of employment among PLWHA becomes more pertinent because they face various work-related problems, such as stigma and physical difficulties (Wagener, Miedema, Kleijn, van Gorp, & Roelofs, 2015). However, in most studies, the categorisation of employment was based on employed vs unemployed. Some lines of thought have considered employment as either formal employment or self-employment, and significant differences exists between the employee and the self-employed status (Arnold & University of Montana Rural Institute, 2014; Burke, 2015; Doyle, 2016; Department of Business, Innovation & Skills, 2016). For instance, someone who is self-

employed generally works for himself/herself as a business owner, freelancer, or as an independent contractor for another company/organisation. Earnings are usually directly from the person's business or freelancing, instead of salary or commission-based reimbursement (Doyle, 2016). Recognition of varied influence of unemployment, self-employed and employee status on death anxiety can provide a more nuanced understanding of employment as it affects death anxiety – not obscured by a homogenous view of employment but recognising that one can also be an employer of himself or herself. This is the direction adopted in the current investigation.

Emotion regulation, the second variable to be considered in relation to death anxiety, has been described as "a more recent concept in the analysis of stress and coping" (Monteiro, Balogun, & Oratile, 2014, p. 157). It encompasses the extrinsic and intrinsic processes for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, in order to achieve goals (Thompson, 1994; Wei, Li, Tu, Zhao, & Zhao, 2016). Several theoretical perspectives of emotion regulation exist, but the process model of emotion regulation (Gross, 1998a) unifies the common features in many different approaches to emotion (Barrett, Ochsner, & Gross, 2007; Eftekhari, Zoellner, & Vigil, 2009; Ifeagwazi, Nwokpoku, Chukwuorji, Eze, & Abiama, 2019; Sheppes, Suri, & Gross, 2015), and it has been applied to several psychological disorders (see Gross & Jazaieri, 2014; Sheppes et al., 2015). Empirically, the model addresses two major emotion regulation strategies, which are cognitive reappraisal and expressive suppression. Cognitive reappraisal involves changing the way one thinks about potentially emotion-eliciting events. Expressive suppression is a form of response modulation that involves inhibiting ongoing emotion-expressive behaviour (Gross, 1998b).

In addition, the dual process model of the Terror Management Theory's (TMT) (Greenberg, Pyszczynski, & Solomon, 1986) has been proposed whereby proximal and distal defences are used to prevent death-related thoughts from becoming death fears (Pyszczynski Greenberg, & Solomon, 1999). The proximal (conscious, threat-focused) defences include death-thought suppression and denial of vulnerability to mortality, which is akin to expressive suppression in Gross's (1998) process model of emotion regulation. The distal defences typically include strategies to protect the symbolic self and to reduce the accessibility of death-related thoughts, such as upholding cultural worldviews that enhance self-worth, promote personal significance, and increase self-assurance that one will be remembered after death (Pyszczynski et al., 1999). This second aspect of the dual process model is related to cognitive reappraisal in the process model of emotion regulation.

Evidences indicating that measures of emotion regulation explain incremental variance in measures of anxiety disorder symptoms were substantial, but majority of existing research have focused on Generalised Anxiety Disorder (see Cisler & Olatunji, 2012), panic social anxiety (e.g., O'Toole, Zachariae, & Mennin, 2017), performance anxiety (e.g., Gong, Li, Zhang, & Rost, 2016), test anxiety (e.g., Nwufo, Onyishi, Ubom, Akinola, & Chukwuorji, 2017**),** and posttraumatic stress disorder severity (e.g., Chukwuorji, Ifeagwazi, & Eze, 2017). Only a few researches have examined emotion regulation and death anxiety, and these few studies were among nurses (Ehinoza & Sanhueza, 2012; Issazadegan, Ashrafzadeh, & Sheikhi, 2014) and pregnant women (Nasiri, Askarizadeh, & Fazilatpoor, 2017). Extensive investigations of this promising line of inquiry among PLWHA is worthwhile.

In summary, enormous literature exists on the relationship between unemployment and mental health, but there is a lack of studies from non-Western countries, which points to the need for such investigations. In addition, an overarching meta-review on work and mental health which was conducted by Harvey et al. (2012) reported that there is limited research on contributions of employment status to the development of anxiety. Essentially, research aimed at examining the relationship between employment status and death anxiety as well as potential moderator variables is limited. Moderators can "help to identify the most distressed groups of unemployed persons who need special help. Such tests also help to identify groups of persons who do not suffer when unemployed or suffer less than others do" (Paul & Moser, 2009, p. 266), and

literature in this regard indicates that emotion regulation strategies are moderators between life stressors and health indicators (Mohiyeddini, Opacka-Juffry, & Gross, 2014). Given the gap in the literature on death anxiety, this study investigates the direct impacts of employment status and contributions of emotion regulation in death anxiety, and also explores whether the emotion regulation strategies moderate the impact of employment status on death anxiety.

Generally, studies on death anxiety among PLWHA have mostly assessed the construct using unidimensional measures (see Miller et al., 2012, for a review). Multidimensional measures which tap into several dimensions of death anxiety "hold promise for future research evaluating the complex dimensions of death anxiety" (Iverach et al., 2014, p.584). Therefore, the operationalisation of death anxiety as a multi-dimensional construct in this study aims to advance the scientific understanding of death concerns among PLWHA. We hypothesised that unemployed PLWHA will report higher scores in death anxiety compared to the self-employed. Based on the dual process model of TMT, we expect higher cognitive reappraisal and expressive suppression of emotions will be associated with lower death anxiety. Due to lack of supportive literature, we made an exploratory hypothesis that employment status contributes more strongly to death anxiety among those with low expressive suppression and cognitive reappraisal than those with high expressive suppression and cognitive reappraisal.

METHOD

Participants and Procedure

A purposive sample of 186 PLWHA from the HIV/AIDS care unit of a tertiary healthcare institution in south-eastern Nigeria, participated in this study. The study's protocols were certified and approved by the institutional review committee of the hospital. The approval was communicated to the second author (CVC) in a letter dated 30th June, 2017 with reference number FETHA/REC/VOL1/2017/550, and signed by the Chairman of the Research Ethics Committee of the Hospital within the period. The Research Ethics Committee protocol number is 07/05/2017 – 07/06/2017 and the Research Ethics Committee Approval Number is 07/06/2017 – 30/06/2017. All procedures performed in this study were in accordance with the ethical standards of the approving research committee, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Eligibility criteria for participation in this study included being an adult (18 years and above) HIV positive person, ability to read and understand English, not taking antipsychotic medications currently, and absence of visual/auditory impairment. Participants were approached in the wards by the second author and 2 trained research assistants. The purpose of the study was explained to them, and those who gave informed consent to take part in the study were given the questionnaire for completion. Completed forms were returned to the research assistants who encouraged the participants to provide any missing information in cases where such were observed. Participants' mean age was 34.16 years (*SD* = 11.16). They comprised 81 men (43.5%) and 105 women (56.5%). By marital status, there were single (*n* = 96, 51.6%), married (76, 40.9%), and widowed (*n* = 14, 7.5%) persons. Majority (*n* = 108, 58.1%) attended higher institutions. An overwhelming majority of them were Christians (*n* = 170, 91.4%). Employment status were as follows: Unemployed (*n* = 58, 31.2%), self-employed (*n* = 59, 31.7%) and currently employed (*n* = 69, 37.1%).

Measures

The 17-item Death Anxiety Inventory - Revised (DAI-R) (Tomás-Sábado, Gómez-Benito, & Limonero, 2005) was used to measure death anxiety. DAI-R has four dimensions which were labelled Death Acceptance (6 items), Externally Generated Death Anxiety (4 items), Death Finality (4 items), and Thoughts About Death (3 items). Items are rated on a six-point Likert scale from 0 (totally disagree) to 5 (totally agree), such that the higher the score the greater the level of death anxiety. For death acceptance, the high scores reflect greater rejection of the reality of death. DAI-R had Cronbach coefficient alphas (α) of .89 (Tomás-Sábado et al., 2005). In a previous study in Nigeria, Ifeagwazi et al. (2018) obtained a reliability coefficient of .92. Results of our Principal Axis Factor analysis in the present study supported the four-factor structure of DAI-R in the present study. The Cronbach's alpha (α) for the four subscales in the current study were .87 (Death Acceptance), .82 (Externally Generated Death Anxiety), .85 (Death Finality), and .74 (Thoughts About Death).

The 10-item Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003) was used to measure the use of 2 emotion regulation strategies: cognitive reappraisal (6 items) and expressive suppression (4 items). Each subscale's scoring is kept separate. Items were scored on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). The two subscales have shown very good reliability and validity with exceptional model fit in several studies (e.g., Spaapen, Waters, Brummer, Stopa, & Bucks, 2014), and these factors of the ERQ have been extracted in a previous study in Nigeria with α of .73 (cognitive reappraisal) and .75 (expressive suppression) (Chukwuorji, Ifeagwazi, & Eze, 2017). For the present study, α coefficients in this sample were .77 (cognitive reappraisal) and .81 (expressive suppression). Scores on cognitive reappraisal subscale range from 5 to 30, while scores on expressive suppression range from 4 to 20, with higher scores indicating higher use of the specific strategy.

Employment status was included as part of the demographic section of the questionnaire with other variables such as gender, age, marital status and educational status. Specifically, we asked the participants to choose their current work status from three options: Currently employed, unemployed, or self-employed.

Statistical analysis

A one-way analysis of variance (ANOVA) was run to test for employment status differences in scores of participants across the dimensions of death anxiety while a multiple regression analysis was used to examine the contributions of emotion regulation strategies in each death anxiety subscale. Preliminary analysis was run using Pearson's correlation in order to know if demographic variables such as age and gender were significantly associated with the study variables. The lack of association of the potential covariates with emotion regulation and death anxiety informed their non-inclusion as control variables in subsequent analyses. Using the Hayes PROCESS model (Hayes, 2013, 2014), we further tested whether emotion regulation would be a moderator between employment status and death anxiety. The macro is currently found very useful by researchers in tests of moderation hypotheses (e.g. Amazue et al., 2019). All analyses were conducted using SPSS$^{(R)}$ version 21.

RESULTS

Table 1: Differences in death anxiety scores on account of employment status

Variables		Mean	SD	SE	95% CI		F	*p*-value
					Lower	Upper		
Death Acceptance	Employed	12..60	4.32	.52	11.54	13.63	12.49	.000
	Unemployed	16.43	4.85	.64	15.16	17.71		
	Self-employed	15.56	4.65	.61	14.34	16.77		
	Total	14.73	4.87	.36	14.02	15.43		
Externally Generated Death Anxiety	Employed	8.54	3.20	.38	7.77	9.30	5.73	.004
	Unemployed	10.47	3.38	.44	9.58	11.36		
	Self-employed	9.98	3.55	.46	9.06	10.91		
	Total	9.60	3.46	.25	9.10	10.10		
Death Finality	Employed	8.19	3.75	.45	7.29	9.10	13.52	.000
	Unemployed	11.60	3.66	.48	10.64	12.57		
	Self-employed	10.10	3.72	.48	9.13	11.07		
	Total	9.86	3.96	.29	9.29	10.43		
Death Thoughts	Employed	5.88	2. 80	.34	5.21	6.56	7.29	.001
	Unemployed	7.53	2.95	.39	6.76	8.31		
	Self-employed	7.60	2.98	.39	6.82	8.39		
	Total	6.94	3.00	.22	6.50	7.38		

Results in Table 1 showed that employment status had a significant impact on death acceptance, $F(2, 283) = 12.49$, $p<.001$. Bonferroni corrected post-hoc tests indicated that employed persons were more accepting of death than unemployed (Mean Difference, $MD = -3.85$, $p<.001$) and self-employed persons ($MD = -2.98$, $p<.01$). Self-employed persons did not significantly differ from unemployed persons in death acceptance ($MD = -.88$). Employed persons reported lower externally generated death anxiety compared to unemployed ($MD = -1.93$, $p<.01$) and self-employed ($MD = -1.45$, $p<.05$) persons. Self-employed persons did not significantly differ from unemployed persons in externally generated death anxiety ($MD = -.48$). Employed persons reported lower beliefs in death finality compared to unemployed ($MD = -3.42$, $p<.01$) and self-employed ($MD = -1.91$, $p<.05$) persons. Self-employed persons did not significantly differ from unemployed persons in beliefs about death finality ($MD = -1.50$). Employed persons reported lower thoughts about death compared to unemployed ($MD = -1.65$, $p<.01$) and self-employed ($MD = -1.72$, $p<.01$) persons. Self-employed persons did not significantly differ from unemployed persons in thoughts about death ($MD = .07$).

Table 2: Correlations of demographic variables, emotion regulation strategies (cognitive reappraisal and expressive suppression), and death anxiety dimensions

Variable		1	2	3	4	5	6	7	8	9
1	Age	-								
2	Gender	-.09	-							
3	Education	-.03	-.01	-						
4	Employment	.05	-.04	-.05	-					
5	Cognitive Reappraisal	-.08	-.02	-.07	-.01	-				
6	ES	.10	-.12	.05	.06	.61***	-			
7	Death Acceptance	-.02	.00	.03	-.34***	-.17*	-.27***	-		
8	Ext Generated DA	.09	.03	.02	-.24**	-.059	-.11	.59**	-	
9	Death Finality	-.14	.03	.01	-.33***	-.07	-.17*	.69***	.57***	-
10	Death Thoughts	.00	.03	.12	-.27***	-.10	-.19**	.54***	.55***	.61***

Note. Ext = Externally, DA = Death anxiety; *** p<.001; ** p<.01; * p<.05; Employment (coded 0 = others; 1 = employed).

Table 2 showed the correlations of the demographic factors, emotion regulation strategies and the dimensions of death anxiety. In the dummy coding of employment status for inclusion in the correlation analysis, employed was coded as 1, while other groups were coded as 1 following expert recommendations (e.g., Field, 2009). It should be noted that the t-test result yielded similar results showing that there no significant difference in death anxiety scores of the self-employed and unemployed persons. This coding was also applied in the regression analysis. None of the socio-demographic factors correlated significantly with emotion regulation strategies and the death anxiety dimensions. Employed persons reported lower death anxiety across all facets of death anxiety. Cognitive reappraisal was positively correlated with expressive suppression.

Table 3: Hayes process macro results for predicting death anxiety dimensions by employment status and emotion regulation strategies (cognitive reappraisal and expressive suppression)

Predictors	Death Acceptance		Ext Generated DA		Death finality		Death thoughts	
	B	*t*	*B*	*t*	*B*	*t*	*B*	*t*
Employment	-3.30	-4.48***	-1.65	-3.20***	-2.59	-4.56***	-1.64	-3.74***
Cognitive Reappraisal, CR	-.01	-.01	.02	.19	.05	.53	.03	.71
Employment X CR	-.10	-.49	-.05	-.35	-.05	-.31	-.07	.61
Expressive suppression, ES	-.46	-2.52*	-.14	-.99	-.33	-2.14*	-.28	-2.35
Employment X ES	.21	.71	.06	.28	.23	.93	.23	1.20
R^2	.18		.07		.13		.11	
F	7.86 (5, 181) ***		2.55(5, 180) *		5.57 (5, 180) ***		4.55 (5, 180) **	

Table 3 showed that cognitive reappraisal did not significantly predict any of the dimensions of death anxiety. The interaction effects of cognitive reappraisal and employment status were not significant for any of the dimensions of death anxiety, indicating that cognitive reappraisal did not moderate the relationship between employment status and death anxiety. Expressive suppression predicted lower death acceptance, indicating that greater deployment of expressive suppression was associated with reduced anxiety in acceptance of death. Similarly, expressive suppression predicted reduced death finality, indicating that greater deployment of expressive

suppression was associated with decrease in anxiety about the finality of death. The interaction effects of expressive suppression and employment status were not significant for any of the dimensions of death anxiety, indicating that expressive suppression did not moderate the relationship between employment status and death anxiety. The *F* statistics for the models were generally significant. The predictor variables accounted for the highest variance in death acceptance (R^2 = .18).

DISCUSSION

The objective of this study was to examine whether employment status will have impact on multidimensional death anxiety among PLWHA. We also investigated the contributions of emotion regulation strategies (cognitive reappraisal and expressive suppression) in multidimensional death anxiety, including the moderating role of emotion regulation strategies in impact of employment status on multidimensional death anxiety.

Those who were employed had the lowest scores across all dimensions of death anxiety (death acceptance, externally generated death anxiety, death finality and thoughts about death). The difference between the self-employed and the unemployed in death anxiety was not significant. Consistent with previous studies on employment status and death anxiety (e.g., Omiya et al., 2014), being an employee is beneficial in reducing death anxiety. Unlike previous research where there has been no distinction between employees and self-employed persons, we found that the self-employment is unhelpful in death anxiety. An employee is more likely to be embedded in a stronger social network in the workplace which may provide some shared experiences that enhance mental health. It is also possible that those who are employed enjoy better health and so think less of death.

Expressive suppression was found to be helpful in improving death acceptance and reducing anxiety concerning the finality of death. The finding is consistent with the postulations of the dual process model of existential terror management (Pyszczynski, Greenberg, & Solomon, 1999), upholding that suppression of death–related thoughts may make one more accepting of death. Thus, expressive suppression should not be neglected when psychological interventions are implemented in order to help PLWHA. Our finding is consistent with recent research indicating that the effectiveness of specific emotion regulation strategies depends on the combination situational features and dispositional factors within the individual (Kobylinska & Kusev, 2019). Furthermore, it is lack of flexibility in use of ER strategies, threat sensitivity, and impaired cognitive control (Coifman & Summers, 2019) that may make a strategy of emotion regulation counterproductive. Expressive suppression can be highly detrimental to mental health only if overly relied upon (see Dryman & Heimberg, 2018, for review), and so it is important to caution PLWHA against employing expressive suppression as the exclusive strategy of emotion regulation. We did not find support for the moderating role of emotion regulation strategies in the relationship between employment status and death anxiety. This finding is inconsistent with some literature on emotion regulation as a moderator variable in HIV-related outcomes (see Heggeness et al., 2016). It is possible that in the context of HIV/AIDS there may other salient moderating factors in the relationship of psychosocial situations and mental health outcomes.

Our study has some limitations. First, the research is cross-sectional and based on self-report data, which demands some caution in its interpretation. Second, the sample was composed of mostly Christians, and Christians have beliefs that support thoughts of life rather than death. Hence, a cautious generalisation to people of other religions is needed. Third, we did not have information on how long the participants have been diagnosed with HIV/AIDS, participants' viral load/CD4 T-cell count, and stage of disease progression (Asymptomatic Acute HIV condition, Clinically Symptomatic Condition and AIDS Indicator Condition) which made us unable to determine whether the association of the variables and death anxiety varied across disease progression. We recommend that future researchers need to include a more heterogeneous

sample of PLWHA and ensure that they obtain relevant information such as duration since HIV/AIDS diagnosis, participants' viral load/CD4 T-cell count, and stage of disease progression. Future research should also check if there could be a follow-up assessment to see if employment status predicted longitudinal outcomes and may also include a control sample for comparison. In conclusion, which would be very informative in understanding the findings. This study contributes to enhance the existing knowledge base on factors associated with death anxiety among PLWHA. Our finding underscores the mental hygiene function of being gainfully employed at work in enhancing the mental health status of PLWHA. It also further supports the relevance of considering emotion regulation deficits in death anxiety assessment and interventions among PLWHA. The knowledge gained can help in the design of effective interventions to reduce death anxiety and improve their quality of life.

REFERENCES

Amazue, L. O., Ozor, O. T., Chukwuorji, J. C.**,** Ifeagwazi, C. M., Onu, D. U., & Obi, N. G. **(**2019). Mental pain and suicide ideation in nursing students: The moderating role of emotion regulation. *Cognition, Brain, Behavior. An Interdisciplinary Journal, XXIII*(3), 171-191. doi: 10.24193/cbb.2019.23.10

Arnold, N., & University of Montana Rural Institute (2014). *Rapid literature review of self- employment research.* Retrieved from http://scholarworks.umt.edu/ruralinst_employment/33

Barrett, L. F., Ochsner, K. N., & Gross, J. J. (2007). On the automaticity of emotion. In J. Bargh (Ed.), *Social psychology and the unconscious: The automaticity of higher mental processes* (pp. 173–217). New York, NY: Psychology Press.

Burke, A. E. (Ed.) (2015). *The handbook of research on freelancing and self-employment*. London: Centre for Research on Self-Employment.

Brandt, C. P., Jardin, C., Sharp, C., Lemaire, C., & Zvolensky, M. J. (2016). Main and interactive effects of emotion dysregulation and HIV symptom severity on quality of life among persons living with HIV/AIDS. *AIDS Care, 29*(4), 498-506. doi.: 10.1080/09540121.2016.1220484

Chukwuorji, J. C., Ifeagwazi, C. M., & Eze J. E. (2017). Role of event centrality and emotion regulation in posttraumatic stress disorder symptoms among internally displaced persons. *Anxiety, Stress, & Coping, 30*(6), 702-715*.* doi: 10.1080/10615806.2017.1361936

Coifman, K. G., & Summers, C. B. (2019). Understanding emotion inflexibility in risk for affective disease: Integrating current research and finding a path forward. *Frontiers in Psychology, 10,* 392-403. doi: 10.3389/fpsyg.2019.00392

Cisler, J. M., & Olatunji, B. O. (2012). Emotion regulation and anxiety disorders. *Current Psychiatry Reports, 14*(3), 182–187. doi:10.1007/s11920-012-0262-2.

Department of Business, Innovation & Skills (2016). *Understanding self- employment.* BIS Enterprise Analysis research report. London: Author.

Doyle, A. (2016). *Differences between employed vs. self-employed*. Retrieved from https://www.thebalance.com/differences-between-employed-vs-self-employed-2062139

Dray-Spira, R., Lert, F., Marimoutou, C., Bouhnik, A.-D., & Obadia, Y. (2010). Socio-economic conditions, health status and employment among persons living with HIV/AIDS in France in 2001. *AIDS Care, 15*(6), 739-748 doi.: 10.1080/09540120310001618595

Dryman, M. T., & Heimberg, R. G. (2018). Emotion regulation in social anxiety and depression: a systematic review of expressive suppression and cognitive reappraisal. *Clinical Psychology Review, 65,* 17-42. doi: 10.1016/j.cpr.2018.07.004.

Eftekhari, A., Zoellner, L. A., & Vigil, S. A. (2009). Patterns of emotion regulation and psychopathology. *Anxiety, Stress & Coping, 22*(5), 571-586. doi.: 10.1080/10615800802179860

Field, A. (2009). *Discovering statistics* (3rd edition). London: Sage

Gong, L., Li, W., Zhang, D., & Rost, D. H. (2016). Effects of emotion regulation strategies on anxiety during job interviews in Chinese college students. *Anxiety, Stress & Coping, 29*(3), 305-317. doi.: 10.1080/10615806.2015.1042462

Greenberg, J., Pyszczynski, T., & Solomon, S. (1986). The causes and consequences of a need for self-esteem: A terror management theory. In R. F. Baumeister (Ed.), *Public self and private self* (pp. 189–212). New York:

Springer.

Gross, J. J. (1998a). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, *2*(3), 271-299.

Gross, J. J. (1998b). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*, 224-237

Gross, J. J., & Jazaieri, H. (2014). Emotion, emotion regulation, and psychopathology: An affective science perspective. *Clinical Psychological Science*, *2*, 387–401.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85,* 348–362.

Harvey, S. B., Joyce, S., Modini, M., Christensen, H., Bryant, R., Mykletun, A., & Mitchell, P. B. (2012). *Work and depression/anxiety disorders – A systematic review of reviews*. Retrieved from https://www.beyondblue.org.au/docs/default-source/research-project-files/bw0204.pdf?sfvrsn=4

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* New York, NY: Guilford Press.

Hayes, A. F. (2014). *Comparing conditional effects in moderated multiple regression: Implementation using PROCESS for SPSS and SAS.* Retrieved from http://www. afhayes.com/public/comparingslopes.pdf

Hiswals, A-S., Walander, A., Soares, J., & Macassa, G. (2017). Employment status, anxiety and depression in a municipal context. *Research in Health Science, 2*(1), 12-23. doi: 10.22158/rhs.v2n1p12

Holden, S., Gordon-Dseagu, V. L. Z., Gordon,G., Chiziza, N., Kiwia, P., Magesa, D., Manyama, M., & Welbourn, A. (2019). Building resilience to adverse childhood experiences: An assessment of the effects of the *Stepping Stones* with Children training programme on Tanzanian children affected by HIV and their caregivers. *Health Education Journal*, 78(2), 124-137. doi.: 10.1177/0017896918787217

Honkonen, T., Virtanen, M., Ahola, K., Kivimäki, M., Pirkola, S., Isometsä, E., …, & Lönnqvist, J. (2007). Employment status, mental disorders and service use in the working age population. *Scandinavian Journal of Work, Environment & Health*, *33*(1), 29-36. doi.: 10.5271/sjweh.1061

Ifeagwazi, C. M., Chukwuorji, J. C., & Onu, D. U. (2018). Death anxiety as a factor in health-related quality of life among people living with HIV/AIDS. *Nigerian Journal of Psychological Research, 14,* 34-38.

Ifeagwazi, C. M., Nwokpoku, E. E., Chukwuorji, J. C., Eze, J. E., & Abiama, E. E. (2019). Somatic symptoms among prison inmates: Contributions of emotion regulation, dispositional mindfulness, and duration of stay in prison. *International Journal of Prisoner Health.* Online first ahead of print. doi.: 10.1108/IJPH-02-2019-0009

Iverach, L., Menzies, R. G., & Menzies, R. E. (2014). Death anxiety and its role in psychopathology: Reviewing the status of a transdiagnostic construct. *Clinical Psychology Review, 34,* 580-593.

Jahoda, M. (1981). Work, employment, and unemployment: Values, theories, and approaches in social research. *American Psychologist, 36,* 184–191.

Jahoda, M. (1982). *Employment and unemployment*. Cambridge, England: University Press.

Jemmott, L. S., Jemmott, I. J., Ngwane, Z., Icard, L., O'Leary, A., Gueits, L., & Brawner, B. (2014). 'Let Us Protect Our Future' a culturally congruent evidenced- based HIV/STD risk-reduction intervention for young South African adolescents. *Health Education Research, 29*, 166–181.

Joska, J. A., Obayemi A Jr., Cararra, H., & Sorsdahl, K. (2014). Severe mental illness and retention in anti-retroviral care: A retrospective study. *AIDS and Behaviour, 18,* 1492–1500. doi: 10.1007/s10461-014-0709-z

Kobylinska, D., & Kusev, P. (2019). Flexible emotion regulation: How situational demands and individual differences influence the effectiveness of regulatory strategies. *Frontiers in Psychology, 10*, 72-81. doi: 10.3389/fpsyg.2019.00072

Mao, Y., Qiao, S., Li, X., Zhao, Q., Zhou, Y., & Shen, Z. (2019). Depression, social support, and adherence to antiretroviral therapy among people living with HIV in Guangxi, China: A longitudinal study. *AIDS Education and Prevention, 31*(1), 38-50. doi.: 10.1521/aeap.2019.31.1.38

Maxfield, M., John, S., & Pyszczynski, T. (2014). A terror management perspective on the role of death-related anxiety in psychological dysfunction. *The Humanistic Psychologist, 42*(1), 35-53. doi: 10.1080/08873267.2012.732155

Miller, A. K., Lee, B. L., & Henderson, C. E. (2012). Death anxiety in persons with HIV/AIDS: A systematic review and meta-analysis. *Death Studies,* 36(7), 640-663.

Mohiyeddini, C., Opacka-Juffry, J., & Gross, J. J. (2014). Emotional suppression explains the link between early life stress and plasma oxytocin. *Anxiety, Stress, & Coping, 27*(4), 466-475.

Monteiro, N. M., Balogun, S. K., & Oratile, K. (2014). Managing stress: The influence of gender, age and emotion regulation on coping among university students in Botswana. *International Journal of Adolescence and Youth, 19*(2), 153-173. doi: 10.1080/02673843.2014.908784

Nwufo, J. I., Onyishi, O. G., Ubom, S. A., Akinola, J., & Chukwuorji, J. C. (2017). Roles of parenting styles and emotion regulation in test anxiety among secondary school students. *Practicum Psychologia, 7*(2), 33-51.

Okereke, C. I. (2014). Women employment, nursemaid and the pill: A study on fertility of female employees in a federal university in Nigeria. *African Journal for the Psychological Study of Social Issues, 17(2)*, 129-139.

Olley, B. O., & Olaseni, A. O. (2017). Development of a screening instrument for HIV/AIDS Self Disclosure Intention (HIV-SDI-Index). *African Journal for the Psychological Study of Social Issues, 19*(3), 1-15.

Omiya, T., Yamazaki, Y., Shimada, M., Ikeda, K., Ishiuchi-Ishitani, S., Tsuno, Y. S., & Ohira, K. (2014). Mental health of patients with human immunodeficiency virus in Japan: A comparative analysis of employed and unemployed patients. *AIDS Care,* 26(11), 1370-1378. doi.: 10.1080/09540121.2014.913765

Onu, D. O., Ifeagwazi, C. M., & Orjiakor, T. C. (2017). Intensified thinking: Implications for heath related quality of life among people living with HIV/AIDS. *Nigerian Journal of Psychological Research, 13*, 1-6.

Onu, D. U., Nwufo, J. I., & Obot, P. O. (2019). Treatment adherence predicts health-related quality of life among people living with HIV/AIDS. *Nigerian Journal of Psychological Research, 15,* 29-32.

Onu, D. U., Ugwu, D., & Orjiakor, T. C. (2019). Events centrality moderates the relationship between posttraumatic growth and health-related quality of life among people living with HIV. *Journal of the Association of Nurses in AIDS Care*. Online first. doi: 10.1097/JNC.0000000000000094

O'Toole, M. S., Zachariae, R., & Mennin, D. S. (2017). Social anxiety and emotion regulation flexibility: considering emotion intensity and type as contextual factors. *Anxiety, Stress, & Coping, 30*(6), 716-724.

Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: Meta-analyses. *Journal of Vocational Behavior, 74*, 264–282. doi: 10.1016/j.jvb.2009.01.001.

Pinto, R. M., Witte, S. S., Filippone, P., Choi, C. J., & Wall, M. (2018). Interprofessional collaboration and on-the-job training improve access to HIV testing, HIV primary care, and Pre-Exposure Prophylaxis (PrEP). *AIDS Education and Prevention, 30*(6), 474-489. doi.10.1521/aeap.2018.30.6.474

Plusnin, N., & Pepping, C. A. (2015). Regulation of the terror of death: Emotion regulation strategies and social consequences. In by Madeline L. Bryant (Ed.), *Handbook of emotion regulation: Processes, Cognitive effects and social consequences* (pp. 217-230). NY: Nova Science Publishers.

Pyszczynski, T., Greenberg, J., & Solomon, S. (1999). A dual-process model of defense against conscious and Unconscious death-related thoughts: An extension of terror management theory. *Psychological Review, 106*, 835–845.

Rueda, S., Raboud, J., Mustard, C., Bayoumi, A., Lavis, J. N., & Rourke, S. B. (2011). Employment status is associated with both physical and mental health quality of life in people living with HIV. *AIDS Care, 23*(4), 435-

443. doi.: 10.1080/09540121.2010.507952

Sherman, D. W., Norman, R., & McSherry, C. B. (2010). A comparison of death anxiety and quality of life of patients with advanced cancer or AIDS and their family caregivers. *Journal of Association of Nurses in AIDS Care, 21,* 99-112.

Sheppes, G., Suri, G., & Gross, J. J. (2015). Emotion regulation and psychopathology. *Annual Review of Clinical Psychology, 11,* 379-405. doi: 10.1146/annurev-clinpsy-032814-112739

Soleimani, M. A., Lehto, R. H., Negarandeh, R., Bahrami, N., & Nia, H. S. (2016). Relationships between death anxiety and quality of life in Iranian patients with Cancer. *Asian Pacific Journal of Oncology Nursing, 3*, 183-191. doi: 10.4103/2347-5625.182935

Spaapen, D. L., Waters, F., Brummer, L., Stopa, L., & Bucks, R. S. (2014). The Emotion Regulation Questionnaire: Validation of the ERQ-9 in two community samples. *Psychological Assessment, 26*(1), 46-54. doi: 10.1037/a0034474

Springer, S. A., Dushaj A, & Azar, M. M. (2012). The impact of DSM-IV mental disorders on adherence to combination antiretroviral therapy among adult persons living with HIV/AIDS: A system review. *AIDS and Behaviour, 16*, 2119–2143. doi: 10.1007/s10461-012-0212-3

Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development, 59*, 25–52.

Tomás-Sábado, J., Gómez-Benito, J., & Limonero, J. T. (2005). The Death Anxiety Inventory: A revision. *Psychological Reports, 97*(3), 793-796. doi: 10.2466/pr0.97.3.793-796

Vance, D. E., Cody, S. L., Yoo-Jeong, M., Jones, G. L. D., & Nicholson, W. C., (2015). The role of employment on neurocognitive reserve in adults with HIV: A review of the literature. *Journal of the Association of Nurses in AIDS Care, 26*(4), 316–329. doi: 10.1016/j.jana.2015.04.003

Vail, K. E., III, Courtney, E. P., Goncy, E. A., Cornelius, T., & Edmondson, D. (2019). Anxiety buffer disruption: relationship threat, death anxiety, and coping appraisals among low and high posttraumatic stress symptom samples. *Journal of Social and Clinical Psychology, 38*(6), 501-521. doi.: 10.1521/jscp.2019.38.6.501

Wagener, M. N., Miedema, H. S., Kleijn, L. M., van Gorp, E., & Roelofs, P. (2015). Vocational counseling of HIV-infected people: A role for nurses in HIV care. *Journal of the Association of Nurses in AIDS Care:, 26*(4), 330–339. doi: 10.1016/j.jana.2015.03.001

Wei, W., Li, X., Tu, X., Zhao, J., & Zhao, G. (2016). Perceived social support, hopefulness, and emotional regulations as mediators of the relationship between enacted stigma and post-traumatic growth among children affected by parental HIV/AIDS in rural China. *AIDS Care*, 28(1), 99-105. doi: 10.1080/09540121.2016.1146217

Winskell, K., Sabben, G., Ondeng'e, K., Odero, I., Akelo, V., & Mudhune, V. (2019). A smartphone game to prevent HIV among young Kenyans: Household dynamics of gameplay in a feasibility study. *Health Education Journal*, Online First. doi: 10.1177/0017896919832344

Yi, S., Chhoun, P., Suong, S., Thin, K., Brody, C., & Tuot, S. (2015). AIDS-related stigma and mental disorders among people living with HIV: A cross-sectional study in Cambodia. *PLoS One, 10*(3), e0121461. doi: 10.1371/journal.pone.0121461

Authors's notes

Funding: There was no financial support received for this study
Disclosure of interest: The authors report no conflict of interest.

Acknowledgements

This research was a poster session accepted for presentation at the 2018 conference of the International AIDS Society, RAI Amsterdam, the Netherlands.