Depression: Determinants That Influence the Mental Health of Older People (60 Years +) in Botswana

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Abstract

Correlates of depression in older people were explored in this study. The prevalence of depression was also calculated. Data were collected using a cross-sectional study stratified by district in urban and rural Botswana using the Patient Health Questionnaire. A snowballing technique was utilized to recruit older participants (N = 378; age = 71.8; SD = 9.1) with low to high incomes. Univariate and multivariate analyses were used to investigate the associations among demographics, individual, social, and environmental factors, and depression. The prevalence of depression and social impairment in older people was 7.8% and 20.6%. The correlates significantly associated with depression in Model 2 were education, income earned, resilience, and self-esteem ($F_{(6, 358)}$ = 19.5, p < .001; R^2 = 23%) after adjusting for all influencing factors. Self-perceived health was associated with depression in Model 3 [$F_{(11,340)}$ = 12.5, p < .001; R^2 = 28%]. In the final model, resilience, quality of life (QOL), and leisure were significantly associated with depression (p < .001), followed by anxiety, somatic symptoms, and social impairment (p < .05) [$F_{(20,214)}$ = 9.2, p < .001; R^2 = 46%]. Findings provide preliminary information on the determinants of depression for further review by the research community. Stakeholders should also take cognizance of these correlates during their practice to curb depression in older people.

Keywords

aging, anxiety, demography, depression, quality of life, resilience

Introduction

Universally, there are more than 264 million people of all ages suffering from depression (GBD 2017 Disease and Injury Incidence and Prevalence Collaborators, 2018). The collaborators revealed that depression contributes significantly to the overall global burden of disease and/or is also a primary source of disability globally. Depression was highly correlated to social impairment (Mhaka-Mutepfa et al., 2020); thus, the affected individual may suffer immensely by becoming dysfunctional at all levels (e.g., at work, at school, and in the family), particularly in old age. The impact may be higher in older people because they will be grappling with aging issues, for instance, dementias. Depression can also culminate in suicide at its worst.

Although there are known, effective treatments for mental disorders, 76–85% of people in low- and middle-income countries (LMICs) are reported to receive no treatment for mental disorders despite the availability of recognized, effective treatments (Mhaka-Mutepfa et al., 2020; Wang et al., 2007). Obstacles to effective care include erroneous assessment, insufficient resources (including trained healthcare providers), and social stigma associated with mental disorders (GBD 2017 Disease and Injury Incidence and Prevalence Collaborators, 2018; Wang et al., 2007). The foregoing impediments can only be resolved if the incidence of depression and factors that influence depression are known to effect appropriate intervention. Although research in South

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Africa, a neighbor to Botswana, comprises studies on depression, research on mental health on the geriatric population is lacking in Botswana.

Previous Research on Depression in South Africa and Elsewhere

A meta-analysis of research of older people aged 75 years and above in South Africa revealed the prevalence of depression was 40% (Padayachey et al., 2016). The authors also found that females, being single, and poor self-perceived health were meaningfully associated with higher levels of depression. Another South African study revealed that depression rates were 25.2% in urban areas and 27% in rural areas (Bunce et al., 2012). The foregoing authors also posited that due to the adverse effects resulting from a decline in functioning (social impairment), awareness of decreased health, and frequent use of medical facilities, depression was recognized as a problem in the older population. Additionally, Nyirenda et al. (2013) found the prevalence of depression among 50 + year olds to be 42.5% in South Africa. Being female, receiving a government grant, residing in an urban area, and care-giving were meaningfully associated with any depressive incidence. Respondents with a depressive incident were 2–3 times more likely to report poor health perceptions.

In another South African study (Welthagen & Els, 2012), 18.3% of the population were receiving treatment for depression, 16.7% were doubtful they had depression and 65% did not suffer from depression. In the same study, depression was associated with work engagement, burnout, and stress-related well-being. Tomlinson et al. (2009) found a lifetime prevalence of depression of 9.7% and a prevalence of 4.9%, 12 months before the interview in a study in South Africa. The prevalence was higher among females and those with lower levels of education. The authors reported that more than 90% of the participants with depression had overall role impairment, suggesting an association between depression and social impairment. In another study in the Netherlands (Saris et al., 2017), patients with comorbid anxiety and depressive disorders showed the most severe social impairments, followed by depressed and anxious patients ($p < .001$).

Further, a study conducted in Iran among older adults living in rural areas (Zare et al., 2015) revealed a prevalence rate of depression of 52.3% and 7.7% for social impairment. In another study conducted in Iran by Seyede et al. (2011), 37.8% of the older sample reported social impairment and 45% had depression. The foregoing authors also found that gender, education level, and marital status were associated with poor mental health. With regard to social determinants, research done in Thailand revealed that age, physical health status, presence of chronic disease, family relationships, and membership or active participation in a civic or social group were associated with the mental health of older people (Suwanmanee et al., 2012). In another study in Nepal

(Simkhada et al., 2018), lack of education, poor physical health, lack of social engagements and support, and well-being were significantly associated with depression in older adults. In the aforementioned sample, 27.7% had mild depression.

Goals of the Study

The current study explored the prevalence of depression in older people in Botswana (60 years and above). Key determinants such as socio-demographics, individual factors (e.g., self-efficacy), health-related factors (e.g., chronic ailments), social assets (e.g., social engagements), and environmental assets (e.g., leisure) that influence depression were also investigated. The questions of interest were as follows:

- What is the prevalence of depression and social impairment among older people in Botswana?
- What socio-demographic, health-related factors, clinical variables, individual, social, and environmental assets are associated with depression?

Methods

Research Design and Participants

The method section was described in detail in a previous paper (Mhaka-Mutepfa et al., 2020). A cross-sectional design that used district stratification was adopted to collect data among older people aged 60+ years ($N = 378$; age: M = 71.8, $SD = 9.1$). Data were collected from four districts after seeking permission from the district council offices. A snowballing technique was used to recruit older participants from low, medium, and high-income areas-rural and urban. The participants were notified that participation was voluntary, confidential, and anonymous. Permission to undertake the study was given by the Office of Research Development at the University of Botswana (No: UBR/RES/IRB/BIO/079) and the Ministry of Health and Wellness. The informed consent form was discussed and signed by all participants. A few older people declined to participate citing different reasons, and the response rate was 98%.

Measures

An interviewer-administered questionnaire was used to collect data for the study. The questionnaire included socio-demographics, health-related factors, individual, social, and environmental asset questions, and the Patient Health Questionnaire-9 (PHQ-9) (clinical variables questionnaire). Socio-demographic variables included whether the older people were fostering orphans or non-orphans, the number of people in the household, and others. Health-related factors included the presence of ailments/chronic conditions, health insurance status, self-perceived health, use of healthcare

Table 1. Socio-Demographic Factors and Clinical Variables Frequencies (Adapted from Mhaka-Mutepfa et al, 2020).

Variable	Frequency	Percent/Prevalence per 100
Age		
60–70	191	50.8
71+	185	49.2
Gender		
Female	272	72.1
Male	105	27.9
Marital status		
Married	120	31.8
Widowed	134	35.5
Divorced	18	4.8
Separated	4	1.1
Never married	101	26.8
Place of residence		
Rural	189	50.1
Urban low	110	29.2
Urban middle	31	8.2
Urban high	47	12.5
Educational level		
Low	303	80.8
High	72	19.2
Income		
Low	309	83.1
High	63	16.9
Spirituality		
Not spiritual	74	19.6
Spiritual	304	80.4
Depression		
Symptoms	28	7.4
No symptoms	348	92.5
Social impairment		
symptoms	78	20.6
No symptoms	298	79.4
Anxiety		
Symptoms	70	18.6
No symptoms	306	81.4
Somatic symptoms		
Symptoms	95	25.3
No symptoms	281	74.7

services (past 12 months), health service utilized, and others. Individual assets included self-esteem, and mastery, and social networks inclusive of support and social engagements.

The PHQ-9 is a self-report measure that was developed by (Kroenke & Spitzer, 2002). The scale assesses depression severity and is also a diagnostic tool. The PHQ-9 has nine items, for example, feeling down, depressed, or hopeless, little interest or pleasure in doing things, poor appetite or overeating, which were indicated on a scale of: not at all (scored 0), several days (scored 1), more than half the days (scored 2), or nearly every day (scored 3). Total scores range from 0 to 27 and 1–4 indicating minimal depression, 5–9 indicating mild depression, 10–14 indicating moderate depression, 15–19 indicating moderately severe depression, and 20–27 indicating severe depression. The scale has an additional item that taps into social functioning based on the participants responses to any of the nine items. Thus, the prevalence of social impairment was also calculated from this measure.

The GAD-7 (Spitzer, Kroenke, Williams, & Lowe, 2006) assessed anxiety severity. The measure has seven items and contains statements such as "Feeling nervous, anxious, or on edge" "Trouble relaxing" with answers ranging from 1 (Not at all sure) to 4 (Nearly every day). The total scores on the GAD-7 range from 0 to 21, with scores of 10 or higher representing a need for more screening, since they signify unacceptable levels of anxiety. The GAD-7 also has an additional item that taps on social impairment based on the participant's response to any of the seven items. The remainder of the scales were described in detail in a previous paper on anxiety and somatization [e.g., WHOQOL-BREF, resilience scale, and others (see Mhaka-Mutepfa et al., 2020)].

Data Analysis

Descriptive statistics analyzed frequency distributions, means, and standard deviations. Hierarchical regression analysis determined the amount of variance contributed toward depression above and beyond previous predictor variables. Using hierarchical regression is advantageous in that the predictive power (R^2 change) that each set of variables (e.g., individual factors) adds to the model is calculated and the analysis allows adjustment for other control variables. Hierarchical regression was also used because the assumptions of normality and homoscedasticity were met after log transformation. Six models were run and the significance level applied was $p \leq .05$ (*) and $p \leq .001$ (**). Data were analyzed using the Statistical Package for Social Sciences (SPSS) software (version 25.0).

Results

Descriptive Statistics

Table 1 presents the personal background of the participants (adapted from Mhaka-Mutepfa et al., 2020). The total sample was 378, of which 72.1% were females while 27.9% were males. Eighty-one percent of the participants had a low educational level. Regarding depression, 7.4% of the participants reported depression. Almost 21% were socially impaired. For the rest of the demographic and clinical variables, see Table 1.

Table 2. β Coefficients of Socio-Demographics, Individual and Health-Related Factors, Clinical Variables, and Social-Economic Environmental Factors Associated with Depression.

N = 378

Predictive Factors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	ΔR^2	R^2
Socio-demographics								.05
Age	.02	.02	.03	−.07	−.1	−.05		
Education	−.1	−.1*	−.8	−.06	−.7	−.1		
Income earned	−.2*	−.2*	−.05	−.05	.3*	−.01		
Individual factors							.178	.23
Resilience		−.2**	−.2**	−.2**	−.7*	−.18**		
Self-esteem		−.2**	−.2**	−.08	−.1	.07		
Mastery		.1	−.1	−.02	.4	.03		
Health-related factors							.055	.28
Self-perceived health			.2**	.1	.1	.04		
On medication			0.8	−.04	.03	.01		
Satisfaction with health services			.01	.02	0.4	.01		
Use of health services			.08	.005	.07	.05		
Measured clinical variables							.137	.42
Anxiety				.02**	.02*	.14*		
Somatic symptoms				.17*	.16*	.15*		
Social impairment				.16*	.18*	.17*		
Social assets							.02	.44
Social engagements					.03	.03		
Support					−.04	−.26		
Quality of life (QOL)					−.17*	−.1**		
Environmental factors							.02	.46
Leisure						.17**		
Secure environment						−.1		
Healthy environment						.05		

p < .05*; *p* < .001** Note: Depression standardized β are presented in Table 2.
Model 1: F(3,363) = 8.6, *p* < .001; Model 2: F(6, 358) = 19.5, *p* < .001; Model 3: F(11,340) = 12.5, *p* < .001; Model 4: F(14,337) = 18.9, *p* < .001; Model 5: F(17, 217) = 9.9; Model 6: F(20,214) = 9.2, *p* < .001.
Note. Most of the predictor variables that were non-significant were left in the table although they were included in the analysis.

Predicting Depression from Demographic Factors and Individual Factors

In Model 1, only income earned predicted depression by explaining 5% of the overall variance in depression [F (3,363) = 8.6; *p* < .001] (see Table 2). In Model 2, education, income earned, resilience, and self-esteem were significantly associated with depression. Resilience and self-esteem had the most predictive power. Age, gender, marital status, and mastery had no significant association with depression. The second model accounted for a significant amount of variance above and beyond the variance accounted for by Model 1 (demographics), ΔR2 = 17.8%; *p* < .001.

Predicting Depression from Health-Related Factors

In Model 3, resilience, self-esteem, and self-perceived health were all associated with depression [F (11,340) =12.5; *p* < .001]. Mastery, being on medication, satisfaction with health services, and use of health services did not yield a significant

association with depression. The addition of health-related factors accounted for a significant amount of additional variance above and beyond that accounted for by individual characteristics (ΔR2 = 5.5%; *p* < .001).

Predicting Depression from the Clinical Variables and Social Assets

In Model 4, resilience, anxiety, somatic symptoms, and social impairment were significantly associated with Depression. Anxiety had the most predictive power, followed by the other two clinical variables [F (19, 338) = 14.6; *p* < .001]. The model contributed an additional 13.7% significant variance above and beyond health-related factors. In Model 5, only QOL was significantly associated with depression among the social assets [F (17,217) = 9.9; *p* < .001. The model accounted for an additional 2% of variance above and beyond the clinical variables.

In the final model (Model 6), resilience, QOL, and leisure were significantly associated with depression (*p* < .001),

followed by anxiety, somatic symptoms, and social impairment ($p < .05$). Individual factors had the most predicting power, with a variance of 17.8% in overall depression. The final model accounted for 46% of the variability in depression [$F_{(20,214)} = 9.2$, $p < .001$]. Gender, marital status, type of health services, health insurance status, and spirituality were not significantly associated with depression in the univariate analysis and hierarchical regression analysis and were left out in the table. The section below discusses the findings.

Discussion

The prevalence of depression of the sampled population of the older people was reported as 7.4% and that of social impairment as 20.6%. Additionally, the final model (Model 6) showed that resilience, QOL, and leisure were significantly associated with depression ($p < .001$), followed by anxiety, somatic symptoms, and social impairment ($p < .05$).

A prevalence rate for depression of 7.4% is lower than the global median prevalence rate of 10.3% (Barua et al., 2011). However, it is still significant as it falls between the Interquartile range of between 4.7% and 16.0% (Barua et al., 2011). The prevalence rate for depression in the current study was also lower than those found in other studies conducted in South Africa (51.9%, 40%, and 42.5%) and Iran (52.3% and 45%). These rates are comparatively high as compared to the results of the current study. This difference could be due to such factors as the environment and the research design (Kessler & Bromet, 2013). For example, a meta-analysis found a severe depression prevalence rate of 8.2%, which declined when investigating the effects of increasing sample size and years of study (Salari et al., 2020). Additionally, the differences in the prevalence could also be accounted for by the high scores for resilience and high QOL scores (Mhaka-Mutepfa et al., 2021). People with the foregoing attributes were said to suffer less from depression compared to their counterparts.

However, although the prevalence appears lower than the average of 10%, it is quite significant and can be reduced. The current rate prompts the development of preventative and treatment measures to curb new cases, especially during the COVID-19 era. Anxiety and depression scores have been found to have increased from post COVID-19 to during the pandemic (Mhaka-Mutepfa et al., 2021). Thus, if the prevalence were calculated now (2021), the score is likely to be much higher.

Predicting Depression from Socio-Demographic and Individual Factors

Socio-demographic factors were not significant predictors of depression in the final model. These results are inconsistent with results found in previous studies, which showed an association between depression and socio-demographic factors such as education, income, type of residence, and suffering from chronic health challenges (Akhtar-Danesh & Landeen, 2007; Akhtar et al., 2013; Cao et al., 2016; Mojtabai & Olfson, 2004; Wang et al., 2019). However, according to Sangma et al. (2018), the association between factors such as age, educational level, employment status, marital status, family type, financial dependency, health condition and limitation of daily activities, and depression was not significant in other studies. Commenting on the result inconsistencies, Kohn et al. (as cited in Akhtar-Danesh & Landeen, 2007) stated that association patterns are not always constant; therefore, more studies to establish the existence or non-existence of associations between depression and socio-demographic variables should follow.

Concerning individual factors, consistent with other studies (Gooding et al., 2011; Hardy et al., 2004; Lau et al., 2018; Morete et al., 2018), resilience had a strong significant negative association with depression in the final model. These results were substantiated by findings from a meta-analysis of seven studies from the USA, China, and Belgium that found a moderate and inverse association between resilience and depression (Wermelinger Ávila et al., 2017), suggesting the importance of building resiliency in older people. Since resiliency can be viewed as recovery and sustainability (Zautra, 2009), individuals who go through stressful experiences can recover from such experiences without leading to depressive symptoms and can also withstand and persevere amid challenges without experiencing depressive symptoms. This recovery can be attributed to positive emotions, a characteristic of resilience, that encourages flourishing (Fredrickson et al., 2003).

Although self-esteem had a strong association with depression in the second and third models, there was no significant influence in the final model. The finding is inconsistent with other studies that found significance (Halit, 2014). The difference may be because the other previous studies might not have controlled for all influencing factors. The scar model supports an association as it also proposes that self-esteem is affected by experiences of depressive symptoms even when the symptoms are not present (Mu et al., 2019).

Predicting Depression from Clinical Variables and Socio-Environmental Assets

Similar to previous findings (Bekhuis et al., 2015; Drayer et al., 2005; Forlani et al., 2014; Jeong et al., 2014; Richardson et al., 2011; Simon & VonKorff, 1991; Zheng et al., 2019; Chiao et al., 2011; Chu et al., 2019; Haug et al., 2004; Menec et al., 2020; Santini et al., 2020; Scarella et al., 2016), the present study found a significant association between clinical variables (anxiety, somatic symptoms, and social impairment) and depression. These significant associations are not a surprise as these variables have similar symptoms and a noted co-occurrence in different studies. Experiencing anxiety can lead to depressive symptoms such

as sad emotions, hopelessness, and helplessness due to recognizing the constant effort needed to cope with the anxiousness.

Furthermore, the misinterpretation of bodily sensations of serious diseases (somatic symptoms) can lead to the burgeoning of depressive symptoms, especially if one is not getting sufficient assistance. Concerning social impairment, research has documented that individuals who experience impairment in functioning have limited communication (AIPC, 2013; Tough et al., 2017). Since continued favorable 'exchange with a person's proximate social environment (e.g., family, friends, and work-life) exerts a beneficial effect on health and well-being' (Tough et al., 2017, p. 1), the inability to engage in the social world might lead to depression.

Socio-Environmental Assets

In the final model, QOL had a strong association with depression. This result was consistent with studies by Cao et al., (2016) and Akyol et al. (2010) that found a significant association between depression and QOL. QOL has been defined as "people's perception of their position in life in the context of the culture and value systems in which they live-concerning their goals, expectations, standards and concerns" (Power et al., 1998), thus a negative perception of QOL could lead one to develop depressive symptoms.

Additionally, the only environmental asset that had a strong significant association with depression was leisure. This finding was consistent with results from other previous studies (Poelke et al., 2016; Sala et al., 2019; Sieverdes et al., 2012). The results may be explained by that engaging in leisure activities provides a buffer for stressful experiences. According to Coleman and Iso-Ahola (1993), leisure plays a vital role in coping (1) awareness of social support and a sense of fellowship in shared activities and (2) portrayal of willpower such as perceived locus of control. The foregoing suggests that an individual who engages in leisure activities can engage in behavioral activation (Coleman & Iso-Ahola, 1993), which may improve depressive symptoms. Currently, because of movement restrictions and control measures due to COVID-19, people are experiencing high anxiety levels (Boateng et al., 2021) which is exacerbated by failure to participate in leisure activities and isolation, thereby impacting psychological well-being. High anxiety levels may lead to depression (Rossi et al., 2020).

Implications for Research, Practice, and Policy

There is a shortage of research on the mental health of older people in Botswana. Therefore, these findings provide preliminary information on the determinants of depression among older people for further review by the research community. Findings may help stakeholders attempt to reduce further marginalization of the general health care of older people. The results may also shed light to mental health practitioners to take cognizance of determinants of depression such as resilience, QOL, somatic complaints, anxiety, and social impairments during their practice. They could also include the foregoing determinants when developing interventions for older people. Besides, the current findings may prompt a consideration of the development of programs that may improve the QOL of older people.

Further, stakeholders should build resilience in older people to curb the development of depressive symptoms. Stakeholders can also provide good opportunities for leisure activities (e.g., recreational activities and hobbies). Lastly, the government should formulate a mental health policy for older people, emanating from the findings. The limitations of the study are as follows.

Limitations

- The study utilized the snowballing technique to find older people to decrease participant identification turnover time and the burden of knocking in every yard in the selected districts. However, the results from a non-probability sampling technique like convenience sampling cannot be generalized or extrapolated to a larger population.
- The population was selected from the East and Southern Districts of the country, making it difficult to generalize the findings since some of the people who live in the North (e.g., the Bushman) have different lifestyles from the rest of the target population.
- The sample size ($N = 378$) fell marginally below the calculated sample size ($N = 384$) and may have posed a variability limitation in this study. For example, self-perceived health was associated with depression in Model 3 but was insignificant in subsequent models. Thus, constant significances might have resulted in a larger sample size (e.g., self-esteem).

In conclusion, stakeholders, particularly mental health practitioners should take cognizance of determinants of depression such as QOL, resilience, leisure, somatic complaints, anxiety, and social impairments during their practice to curtail severity of depression in older people. Prevention of mental disorders, for instance, depression goes a long way in reducing medical costs and also improves people's well-being, especially older people.

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