



Factors Associated with the Prevalence of Depression among People with Oculocutaneous Albinism in Jinja, Uganda-A Cross Sectional Study

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ABSTRACT

Background: Depression is among the common psychiatric disorders with high prevalence in the general population. This prevalence is higher in vulnerable populations including people living with albinism. Despite the fact that several aspects linked with it have been found among people with Oculocutaneous Albinism (OCA) in the Busoga region, limited information is available regarding prevalence of depression and its associated factors in the study area. The main objective of the present study was to determine the factors associated with the prevalence of depression among people with Oculocutaneous Albinism (OCA) in Jinja.

Methods: A cross-sectional design was used to capture data from a study sample size of 384 adults living with Oculocutaneous Albinism (OCA) who were involved in completion of the screening tests for depression Hopkins Symptom Checklist-25(HSCL-25). The summation of scores for depression were averaged and the probable depression determined for each participant using a cut-off of 1.75. Logistic regression analyses were used to examine associations between depression outcomes, socio-demographic and psychomedical factors.

Results: The analyses revealed that the prevalence of depression among people with Oculocutaneous Albinism (OCA) in Jinja city stands at 65.4%. Depression was significantly associated with age Adjusted Odds Ratio (AOR) (AOR=1.059, 95% CI=1.020-1.100, p=0.003), lack of family support (AOR=0.505, 95% CI=0.286-0.892, p=0.019), history of diabetes mellitus (AOR=12.030, 95% CI=1.117-12.961, p=0.040), marital status by being married (AOR=0.505, 95% CI=0.286-0.892, p=0.019) and taking chronically medication (AOR=6.583, 95% CI=1.618-26.782, p=0.008).

Conclusion: These findings show that the estimated prevalence of depression among people with Oculocutaneous Albinism (OCA) in the study area is high and worrying. Age, marital status, lack of family support, history of diabetes mellitus, and taking chronically medication are important risk factors associated with the prevalence of depressive disorders. Strategies targeting early interventions are needed in order to reduce risk factors of the disease and improve the quality of life of people with Oculocutaneous Albinism (OCA) in Jinja.

Keywords: Adjusted Odds Ratio (AOR); Oculocutaneous Albinism (OCA); Depression

INTRODUCTION

Albinism is among the earliest recognized genetic diseases

(Jambrun,1991). People with Oculocutaneous Albinism (OCA)/ (PWA) faced physical and psychological challenges mainly as a result of myths from different cultures and beliefs [1]. In Africa

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PWA have been victims of all the evils of the world, including killing, physical pain, mutilation, psychological distress, and social exclusion, just because of having albinism [2,3]. Among the mental illnesses that people with chronic dermatological disorders including PWA encounter, depression has been the most prevalent in studies carried out in African and Asian countries [4-6]. Depression is expected to be the major contributor to the disease burden and the second leading cause of world disability in both developed and developing countries by 2030 [7]. In almost all communities in the world, there are common factors that are associated with depression, although with nuances for certain factors and certain regions [8]. Considering the discrimination due to misconceptions about albinism as well as the vulnerability to dermatological diseases, makes it important to study the prevalence of depression among PWA [9,10].

Socio-demographics are group-related characteristics defined by sociological and demographic characteristics [11]. Depression was strongly associated with being younger and experiencing severe pain in both sexes in a cross-sectional study conducted in France [12]. The prevalence of major depression in women with albinism is twice that of men [13]. This is independent of the tool used to assess depression, the methodology, and the site area of research [14]. In relation to this, women have been reported to be at an increased risk of developing major depression [15]. Divorced and separated people have a higher prevalence of major depression than married people [8]. Major depression generally goes down with age in low and middle-income conversely in high-income countries [8]. This has been confirmed in the research carried out among school going adolescents in central Uganda [16]. Older people who had trouble with basic daily tasks and instrumental daily activities were 2.53 times more likely to have serious depression than those who had no problem [17]. Study investigated the association of social and economic status support with major depression among community-dwellers in India. Other factors within the scope of this study include discrimination, drug and substance abuse, severe dermatological conditions, and chronic general medical and psychiatric conditions [18]. All these factors have been associated with depression both among the general population and among PWA.

Organic factors such as dermatological conditions can modify and trigger a psychological response [19]. The main perpetrators of discrimination against PWA in many sub-Saharan African countries are family members; usually they refused to share their food and clothes with the affected individuals [20]. Discrimination was experienced by close contacts of PWA in 24.4% and by society in 67.4% in Kisangani [21]. Children living with albinism have fewer chances to study and hope for a better future because at school, teachers and fellow students avoid them for fear of being infected with albinism [22]. Due to the high frequency of abuse and kidnapping of children with albinism, many children refused to study [3]. When adults, their physical appearance and the lack the necessary education or work experience, PWA have trouble finding employment and getting married [23]. Stressful life experiences might have a somewhat negative impact on depression. People who have one or two copies of the short allele of the HTT promoter polymorphism show higher depressive symptoms, diagnosable depression, and suicidality in the general population [24]. A qualitative study carried out in the Busoga Region, Uganda shows that PWA are subjected to discrimination, insults, and stressful life experiences on a daily basis because of misconceptions and lack of knowledge

about albinism in this region [25]. In view of this study, although there is a limited literature on depression among PWA, it is clear that some PWA are at risk of depression.

MATERIALS AND METHODS

This is a hospital based cross-sectional study employing quantitative methods conducted among people living with oculocutaneous Albinism (PWA) in Jinja city, within the Busoga sub-region in the eastern part of Uganda. The area was purposefully selected because it has an organized group called the Source of the Nile Union of Persons with Albinism (SNUPA) serving the Busoga region. The study took place in the Psychiatric Outpatient Clinic of Jinja Referral Hospital, which is part of the Department of Psychiatry and Mental Health. The department runs daily from Monday to Friday and receives an average of 700 patients per month with various mental illnesses. The study population was adults with Oculocutaneous Albinism (OCA). Simple random sampling was used to select participants. We included all adults with OCA present in Jinja during the study period. Adults with severe medical conditions, others genetic conditions, other dermatological chronic conditions such as atopic dermatitis, acne vulgaris, psoriasis were excluded. The questionnaire containing sociodemographic factors and the Hopkins Symptom Checklist-25 (HSCL-25) were used for data collection. The HSCL-25 is an interview-administered scale used to assess depression in non-literate groups. Many studies have been carried out in Uganda and East Africa using it to assess depression in both general and specific populations. It consists of a 10-item anxiety subscale and a 15-item depression subscale. Each item is evaluated on a Likert scale from 1 (not at all) to 4 (Extremely).

Data screening, statistical analysis, interpretation and presentation

The data was cleaned and encoded before being entered into Microsoft Excel 2010 and then exported to STATA 15. The mean and medians of sociodemographic and psycho-medical characteristics, as well as standard deviations and interquartile ranges, was calculated (for continuous variables). For categorical variables, STATA 15 was used to calculate proportions, percentages, and frequencies. The prevalence of depression among PWA was obtained by summing the scores obtained from the 15 items of depression by each participant, divided by 15 to obtain the average. To consider positive for depression the cut off 1.75 was used. The results were summarized as frequencies and percentages and presented using pie chart. Factors associated with depression were analysed by both bivariate and multivariate logistic regression analysis. Variables that were plausible and those with a p-value less than 0.2 was considered for multivariate analysis. When the p-value was less than or equal to 0.05, the variable in the final multivariate model was significant. The Odds Ratios (ORs) were displayed along with their 95% confidence intervals and p-values. The chunk test was used to assess interactions and confounding (log-likelihood and 10 percent cut off). All statistical analyses were carried out in STATA 15. The results are presented in the form of tables and graphs.

RESULTS

Descriptive statistics

In this study, the mean age of the participants was 27.5 (\pm 8.9). Majority of the participants were males (60.2%) from rural areas (67.4%) and single (54.4%). Majority were Christians (65.1%) by

religion, with a monthly income above 1 million (54.2%) even though many of them were un-employed (45.8%). The maximum education level attained by the majority was secondary (43.8%). Majority had no family support (52.6%) with a house hold size of more than 5 (72.4%) (Table 1).

Table 1: Social-demographic characteristics of the study participants.

Characteristics	Statistics	
	Frequency	Percentage
Age	Mean=27.5, SD=8.9, Min=18.0, Max=62.0	
Residence		
Urban	125	32.6
Rural	259	67.4
Sex		
Male	231	60.2
Female	153	39.8
Marital status		
Single	209	54.4
Married	144	37.5
Divorced	31	8.1
Religion		
Christian	250	65.1
Muslim	116	30.2
Others	18	4.7
Monthly income		
<500,000	160	41.7
500,000-1,000,000	16	4.2
>1,000,000	208	54.2
Education level		
Primary	161	41.9
Secondary	168	43.8
Tertiary	30	7.8
None	25	6.5
House hold size		
<5	106	27.6
>5	278	72.4
Employment status		
Unemployed	176	45.8
Employed	25	6.5
Self employed	183	47.7
Family support		
Yes	182	47.4
No	202	52.6
History of HIV		
Unknown	207	54
Positive	10	2.6

Negative	166	43.4
History of hypertension		
Unknown	174	45.3
Positive	16	4.6
Negative	195	50.1
History of diabetes mellitus		
Unknown	174	45.3
Positive	15	4.6
Negative	195	50.1
History of skin cancers		
Positive	72	18.7
Negative	312	81.3
Taking chronic medication		
Yes	31	8.1
No	353	91.9
Smoking		
Yes	10	2.6
No	372	97.4
Alcohol use		
Yes	47	12.2
No	337	87.8
Drug use		
Yes	13	3.4
No	371	96.6
Discrimination		
Yes	183	47.7
No	201	52.3
Family history of mental illness		
Yes	59	15.4
No	325	84.6

Note: SD= Standard Deviation, Min=Minimum, Max=Maximum.

Prevalence of depression

251 out of 384 people with albinism were screened positive for depression making the prevalence to be 65.36% with a 95% confidence interval of 60.7%-70.1% (Figure 1).

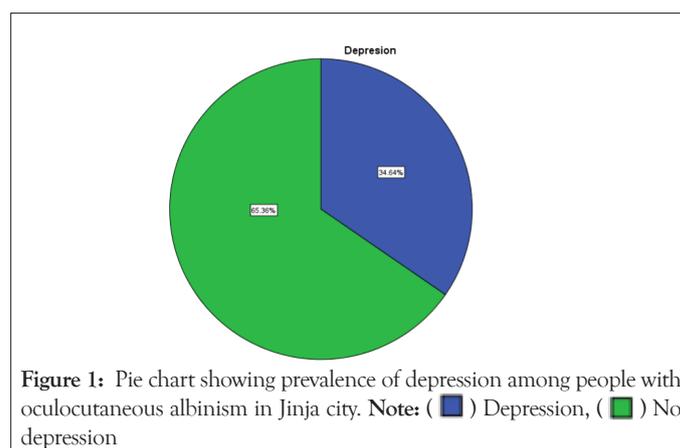


Figure 1: Pie chart showing prevalence of depression among people with oculocutaneous albinism in Jinja city. Note: (■) Depression, (■) No depression

Factors associated with depression

Bivariate analyses: In this study, the factors that had a p value less or equal to 0.2 and therefore factors qualified to go to multivariate

were: Age, being divorced, being Muslim, house hold size greater the 5, lack of family support, positive history of diabetes mellitus, taking chronic medication and alcohol use (Table 2).

Table 2: The results of bivariate analysis of factors associated with depression among people with oculocutaneous albinism in Jinja city.

Characteristic	No depression N=133 n (%)	Depression, N=251 n (%)	Bivariate analysis		
			cOR	95% CI	p value
Age	25.835*	28.311*	1.035	1.008-1.063	0.01
Residence					
Urban	39(31.2)	86(68.8)	Ref		
Rural	94(36.3)	165(63.7)	0.796	0.505-1.255	0.326
Sex					
Male	77(33.3)	154(66.7)	Ref		
Female	56(36.6)	97(63.4)	0.866	0.565-1.328	0.51
Marital status					
Single	76(36.4)	133(63.6)	Ref		
Married	52(36.1)	92(63.9)	1.011	0.650-1.572	0.961
Divorced	5(16.1)	26(83.9)	2.971	1.096-8.059	0.032
Religion					
Christian	80(32.0)	170(68.0)	Ref		
Muslim	48(41.4)	68(58.6)	0.667	0.423-1.051	0.081
Others	5(27.8)	13(72.2)	1.224	0.422-3.550	0.71
Monthly income					
<500,000	68(42.5)	92(57.5)	Ref		
500,000-1,000,000	10(62.5)	6(37.5)	0.443	0.154-1.279	0.433
>1,000,000	55(26.4)	153(73.6)	2.056	1.325-3.191	0.201
Education level					
Primary	53(32.9)	108(67.1)	Ref		
Secondary	61(36.3)	107(63.7)	0.861	0.546-1.357	0.518
Tertiary	13(43.3)	17(56.7)	0.642	0.290-1.419	0.273
None	6(24.0)	19(76.0)	1.554	0.586-4.120	0.375
House hold size					
<5	46(43.4)	60(56.6)	Ref		
>5	87(31.3)	191(68.7)	1.683	1.062-2.667	0.027
Employment status					
Unemployed	65(36.9)	111(63.1)	Ref		
Employed	11(44.0)	14(556.0)	0.745	0.320-1.738	0.496
Self employed	57(31.1)	126(68.9)	1.294	0.836-2.005	0.248
Family support					
No	52(25.7)	150(74.3)	Ref		
Yes	81(44.5)	101(55.5)	0.432	0.281-0.665	<0.001

History of HIV					
Negative	70(33.8)	137(66.2)	Ref		
Positive	4(40.0)	6(60.0)	0.766	0.209-2.805	0.688
Unknown	59(35.3)	108(64.7)	0.935	0.609-1.436	0.76
History of hypertension					
Negative	57(29.5)	136(70.5)	Ref		
Positive	5(31.3)	11(68.8)	0.922	0.306-2.774	0.885
Unknown	71(40.6)	104(59.4)	0.614	0.399-0.946	0.227
History of diabetes					
Negative	63(32.3)	132(67.7)	Ref		
Positive	1(6.7)	14(93.3)	6.682	0.859-51.947	0.069
Un known	69(39.7)	105(60.3)	0.726	0.474-1.113	0.142
History of skin cancer					
Negative	108(34.4)	206(65.6)	Ref		
Positive	25(35.7)	45(64.3)	0.944	0.549-1.622	0.834
Taking chronic medication					
No	130(36.8)	223(63.2)	Ref		
Yes	3(9.7)	28(90.3)	5.441	1.622-18.249	0.006
Smoking					
No	131(35.0)	243(65.0)	Ref		
Yes	2(20.0)	8(80.0)	2.156	0.451-10.303	0.336
Alcohol use					
No	121(35.9)	216(64.1)	Ref		
Yes	12(25.5)	35(74.5)	1.634	0.818-3.265	0.165
Drug use					
No	129(34.8)	242(65.2)	Ref		
Yes	4(30.8)	9(69.2)	1.199	0.362-3.970	0.766
Discrimination					
No	65(32.2)	136(67.7)	Ref		
Yes	68(37.2)	115(62.8)	0.808	0.531-1.231	0.322
Familial mental illness					
No	111(34.2)	214(65.8)	Ref		
Yes	22(37.3)	37(62.70)	0.872	0.491-1.551	0.642

Note:*Mean in the category, cOR=crude Odds Ratio, Ref=Reference category, CI = Confidence Interval.

Multivariate approach

In this study, the variables that were independently associated with depression were age, unmarried status, lack of family support, diabetes mellitus and taking chronic medication. In relation to age, for every 1 year increase in age, the risk of depression increased by 1.059 times. In relation to the marital status, a married participant was 0.505 times less likely to have depression compared to one that was single. This means that

a single person was 1.98 (1/0.505) times more likely to have depression compared to one that is married. Participants, who reported to have family support, were 0.433 times less likely to be depressed. This means that patients with no family support were 2.31 (1/0.433) times more likely to be depressed. Patients with diabetes were 12.03 times more likely to have depression and patients taking chronic medication were 6.583 times more likely to be depressed (Table 3).

Table 3: The results of multivariate analysis of factors associated with depression among people with oculocutaneous albinism in Jinja city.

Characteristic	No depression N=133 n(%)	Depression N=251	Bivariate analysis		
			AOR	95% CI	p value
Age	25.835*	28.311*	1.059	1.020-1.100	0.003
Marital status					
Single	76(36.4)	133(63.6)	Ref		
Married	52(36.1)	92(63.9)	0.505	0.286-0.892	0.019
Divorced	5(16.1)	26(83.9)	1.073	0.342-3.362	0.904
Religion					
Christian	80(32.0)	170(68.0)	Ref		
Muslim	48(41.4)	68(58.6)	0.701	0.422-1.166	0.171
Others	5(27.8)	13(72.2)	2.268	0.643-7.996	0.203
House hold size					
<5	46(43.4)	60(56.6)	Ref		
>5	87(31.3)	191(68.7)	1.357	0.807-2.280	0.049
Family support					
No	52(25.7)	150(74.3)	Ref		
Yes	81(44.5)	101(55.5)	0.433	0.249-0.751	0.003
History of diabetes					
Negative	63(32.3)	132(67.7)	Ref		
Positive	1(6.7)	14(93.3)	12.03	1.117-12.961	0.04
Unknown	69(39.7)	105(60.3)	2.315	0.861-6.223	0.096
Taking chronic medication					
No	130(36.8)	223(63.2)	Ref		
Yes	3(9.7)	28(90.3)	6.583	1.618-26.782	0.008
Alcohol use					
No	121(35.9)	216(64.1)	Ref		
Yes	12(25.5)	35(74.5)	1.648	0.705-3.856	0.249

Note: AOR=Adjusted Odds Ratio, Ref=Reference category, CI=Confidence Interval,*Mean in the category.

DISCUSSION

General characteristics

In this analytical cross-sectional study, we determined the prevalence and factors associated with depression among people living with Oculocutaneous Albinism (OCA) in Jinja city. The health related quality of life of these patients was also described. In this study, the mean age of the participants was 27.5 (\pm 8.9). This trend agrees with the mean age (24.1 \pm 11.3 years) found in Nigeria by Madumbuko [26]; by Inena, et al. (25.6%) in Democratic Republic of Congo [21] and the mean age (32.2 years) found by Samson in Tanzania [27]. This may be explained by the fact that because of sun exposure, the UN estimates that 98% of people with albinism in Africa do not live past the age of 40 years, with skin cancer accounting for at least 80% of fatalities [26]. There were more males than females (male to female ratio

was 1.51:1). This was not the same with the finding in Nigeria [4] and Tanzania [27] where a female preponderance was observed. More participants were from rural areas. This may explain why Lund and colleagues found high rate of discrimination and false beliefs about albinism in the qualitative study carried out in Busoga region [25]. Most participants were single, among participants eligible to marriage. This result was comparable to that noted by Samson in Tanzania [27] and Maduboko in Nigeria [26], where the proportion of singles suitable for marriage was 52.2% and 63%, respectively. This may be the outcome of social discrimination brought on by a lack of knowledge about albinism and superstitious beliefs about the disorder [27]. Only 6% were employed and 52% had no family support. These may explain by the social exclusion and discrimination for which PWA are victims in Africa [27,28].

Prevalence of depression among people with oculocutaneous albinism

In our study, the prevalence of depression among people living with oculocutaneous albinism calculated using Hopkins Symptom Checklist (HSCL) [25] for depression was 65.4% (Figure 1). The finding is higher than the 27.7% prevalence found by Allen and colleagues in the general population of adult in Mbarara District [10]; higher than the nationwide overall prevalence of 29.3% for Uganda [29]; and also higher than the estimated range for sub-Saharan Africa which stands between 9% and 32% [30,31]. This is similar to the 61% prevalence of depression found in HIV-infected female caregivers living in rural Uganda [32]. The HSCL-25 was used in the research. This can be explained by the high risk of psychosocial distress for people living with chronic diseases, particularly those who are socially and economically disadvantaged and live in rural areas, such as those with oculocutaneous albinism [25,32].

A study conducted in 2015 in the east of Nigeria using the General Health Questionnaire (GHQ-28) and the Mini International Neuropsychiatric Inventory for specific ICD-10 diagnoses with a sample size of 100 adults with oculocutaneous albinism found a 51% prevalence of depression among people living with oculocutaneous albinism [4]. This is slightly lower than the prevalence found in this study. This may be due to the lower sample size and the fact that their study was carried out using a diagnostic tool that is more specific than the screening tool used in our study, which is more sensitive.

All results of the studies listed above reveal a high prevalence of depression in the general population and more in vulnerable populations including people living with disfiguring chronic skin conditions. As argued by Cortes, et al. and colleagues that patients who have lesions in parts of their skin that are visible may have emotional problems such as poor self-worth, shame, sorrow, and social isolation. These changes could make people more susceptible to mental illnesses including depression [33]. This would be caused by the biological and psychosocial factors to which people with albinism are exposed; by the lack of knowledge of the population on the preventive and protective measures; by the lack of awareness and early detection of depressive symptoms and by the barriers to access to appropriate health care by the general population and those living with oculocutaneous albinism.

Factors associated with depression among people with oculocutaneous albinism in Jinja city

Depression was significantly associated in this study with age (AOR=1.059, 95% CI=1.020-1.100; p=0.003), unmarried status (AOR=0.505, 95% CI=0.286-0.892; p=0.019), lack of family support (AOR=0.433, 95% CI=0.249-0.751; p=0.003), history of diabetes mellitus (AOR=12.030, 95% CI=1.117-129.613; p=0.040) and taking chronically medication (AOR=6.583, 95% CI=1.618-26.782; p=0.008).

In relation to age, for this study, for every 1 year increase in age, the risk of depression increased by 1.059 times. Our findings were similar to those of Ajose, et al. and colleagues (AOR=2.14, 95% CI: 0.78-3.49) who carried out a 5-year prospective study in Nigeria on quantification and comparison of psychiatric distress in African patients with albinism and vitiligo [34]. This could be explained by the fact that each individual in his life has a vision of a life that he would like, to have an ideal marriage and family, the ideal job, the ideal salary, in short, an ideal life. The more

we advance in age; we sometimes realize that the realities do not allow us to have this expected life. This can expose the person to permanent stress and increase the risk of developing psychological distress and others psychological conditions like depression. As Rodin, et al. claimed that low sense of control over the events and outcomes in one's own life fosters inattention, detachment, disengagement, inactivity, indifference, apathy, and neglect [35]. With the social exclusion of which people with oculocutaneous albinism are victims in Busoga region as described in the qualitative study carried out by Caroline, et al. and colleagues [25], increasing in age and failing to have the expected life condition by people with oculocutaneous albinism in Jinja may explain the increased risk of depression in this category of the population.

Similar results have been found in United State of America (USA). Researchers in the USA examined the effects of maturity, decline, life-cycle stage, survival, and historical trend using data from two samples of adults in the general population: A 1990 sample of 2.031 US adults and a 1985 sample of 2.809 Illinois adults. Adults 80 years of age or older appeared to experience the highest levels of depression, which seemed to rise with age. Authors connected the fact to physical dysfunction, organic decline, and a lack of personal control. They came to the conclusion that the social life cycle is made up of changes in marital, employment, and economic status and concluded that some cyclical statuses can be uplifting, while others can be depressing, leading to depression life-cycle patterns [36]. Also, evidence of biological age related changes in relation with depression have been demonstrated in the study carried out in Sweden by Bhandage and colleagues by analyzing plasma samples from patients with a major depressive episode and control blood donors. They discovered a strong correlation between 2 inflammatory markers: Cystatin D (CST5), Cub Domain-Containing Protein 1 (CDCP1), and age in the patients and control blood donors [37]. They connected them to the change in the chloride gradient across the plasma membrane, which may be partially offset by the slightly elevated plasma GABA content; a characteristic that increases vulnerability to depression with aging [38].

This finding however contradicts Kessler, et al. who claimed that major depression generally goes down with age in low and middle-income as opposed to in high-income countries where the prevalence of depression increases with age [8]. This has been confirmed in the research carried out among school going adolescents in Central Uganda using the Children Depression Inventory, where the total scores range from 0 to 54 with several recommended clinical cut-off scores to indicate elevated depressive symptoms in youth [16]. The different finding in our study may be explained by the fact that these prior studies were carried out on the general population in which the prevalence of depression is less high compared to people living with albinism who are subject to stigmatization, discrimination and social exclusion in several African countries (for the study by Kessler, et al.) [8] and on top of that, on a young population (for the study by Nalugya-Sserunjogi, et al.) [16] who were still under the responsibility of their guardians and were not yet exposed to the psychosocial constraints of life. In relation to the marital status, a married participant was 0.505 times less likely to have depression compared to one that was single. This means that a single person was 1.98 (1/0.505) times more likely to have depression compared to one that is married. Our results were consistent with a research carried out by Liang and colleagues on the relationship between depressive symptoms and marital status among adults including

9780 individuals aged 45 years and older from the China Health and Retirement Longitudinal Study (CHARLS) in 2015 in rural China. A statistically significant relationship existed between marital status and depressive symptoms ($p=0.001$, 95% CI=0.699, 1.428). Separated, divorced, widowed, and never-married people had a higher incidence of depressive symptoms than people who were married [38].

Studies conducted in Nigeria have shown that, in contrast to other dermatological conditions, being celibate seriously impairs the psychological and social well-being of people with oculocutaneous albinism. Compared to albino patients, vitiligo patients were substantially more likely to be married (61% vs. 28%) [34]. In the South-Eastern region of Nigeria, Attama (2013) discovered that individuals with albinism, particularly females, rarely got married. While participating in the study, some of them expressed their regret, saying, "I feel so upset that I am still unmarried at my age, while my younger sisters who are not albinism subjects have all married. It keeps me awake at night, but I hope in God." Another girl added, "My younger sisters are not albinos, they are all married, but I'm still unmarried. This has badly impacted how I feel about life and myself" [4]. This can explain that life satisfaction, which can lead to the development of depression symptoms, may be impacted by marital status [38]. According to Cao, et al. marital status had a significant effect on subjective well-being [39]. Studies have shown that people with partners rate their physical and emotional health more favourably and report feeling happier overall than people who are single do [40]. This is likely because people with relationships have more financial resources and social support [41]. A community study that included 1751 people 65 and older found that spouse dissatisfaction was strongly linked to depressive symptoms [42]. The relationship between marital status, life satisfaction, and depressive symptoms was validated by our study. Adults with oculocutaneous albinism who have never been married, separated, or divorced may have poorer life satisfaction, which can link to depressive symptoms. Participants, who reported to have family support, were 0.433 times less likely to be depressed. This means that patients with no family support were 2.31 (1/0.433) times more likely to be depressed. Including the marital status information discussed above, this finding is in line with cross-sectional research done in a primary care clinic at a Department of Veterans Affairs medical facility in Cyprus. According to this study, individuals who felt their family support was unsatisfactory and who thought their health was poor reported the most psychological discomfort on the SCL-10 and GHQ-12. Regardless of their self-rated health, those with satisfying family support reported little psychological distress. From the standpoint of family function, cognitive-behavioural, interpersonal, and behavioural models of depression [43-45] and behavioural medicine [46], these findings make sense. The impact of physical disease on psychological anguish may be lessened by the belief that family members are trustworthy caregivers. On the other hand, feeling unsupported by family and friends might reduce happiness, family interaction, and positive activities. Distress could then result from these perceptions and actions [45].

As this work was carried out among adult people living with oculocutaneous albinism with an average age of 27 years, this result goes against the idea that the sources of support varied across life periods, with parental support being most important among children and adolescents, whereas adults and older adults relied more on spouses, followed by family and then friends

[47]. This can be explained by the fact that the majority of participants in our study are single yet eligible for marriage but not married; and mainly still have the tendency of depending to their primary family yet they are victims of discrimination within their own families [21]. So, they might have less support from spouse and family. Patients with diabetes were 12.03 times more likely to have depression. Current literature claims that prevalence rates of depression could be up to three-times higher in patients with type 1 diabetes and twice as high in people with type 2 diabetes compared with the general population worldwide [48]. This may be explained in one hand by the bidirectional causal relationship that exists between depression and diabetes mellitus as described by some authors [49-51] and on the other hand, some others claims that depression and diabetes mellitus share the same pathophysiologic mechanism and risk factors, including insulin resistance, oxidative stress and inflammation, and nervous disturbances [52-54]. No previously published studies demonstrated a significant association depression and diabetes mellitus among people living with oculocutaneous albinism. The financial and social costs associated with the treatment and prevention of complications can have a negative impact on the patient's psychological state may serve as a significant risk factor for depression and may justify the association between depression and diabetes mellitus among people with oculocutaneous albinism in Jinja. Patients taking chronically medication were 6.583 times more likely to be depressed. By taking chronically medication, we consider here patients suffering from at least one chronic disease and under treatment for this disease. These results are in agreement with the current literature on the influence of chronic diseases and chronic drug intake on the mental health in the general population. Between 9.3% and 25% of individuals with chronic conditions are thought to have depression [55]. Depression is common in those with long-term conditions like diabetes, coronary heart disease, and hypertension [56]. In comparison to those without multimorbidity, those with several diseases are twice as likely to experience depression [57]. This can be explained by the fact that patients with chronic diseases and their treatments may experience pain, organ dysfunction such as ulcers, renal failure, hepatitis, agranulocytosis, and cancers as side effects of medications for many years, which results in a lower quality of life and a lower ability for social and role adaptation than normal and ultimately causes their denial of their own worth, a sense of powerlessness toward life, and the occurrence of depression [58]. Due to the long-term nature of the illness and its negative effects on quality of life, related research have demonstrated that many patients with chronic diseases also suffer from mental disorders, such as depression [59,60]. No previous studies have reported a significant association depression and taking chronically medicine among people living with oculocutaneous albinism. The impact of concurrent chronic disease in this study population may be explained by the vulnerability to the side effects and undesirable effects of drugs, to organ dysfunction caused by the chronic intake of drugs, and the financial cost of drugs and side effect management for a relatively poor, unemployed population without family support and victims of social exclusion because of the disfiguring chronic skin condition [61,62].

CONCLUSION

This study has shown that the prevalence of depression in people with oculocutaneous albinism in Jinja is higher than generally

reported in the population. The factors strongly associated with it are age, unmarried status, lack of family support, history of diabetes, history of diabetes mellitus and taking chronically medication. Future efforts to support persons living with oculocutaneous albinism, including programs to decrease stigma, improve social supports, and increasing access to treatment for other conditions, have the potential to positively impact patient's mental health.

LIMITATION OF THE STUDY

The study design was cross sectional. So, no cause-effect relationship can be inferred. And the lack of specific tools to assess depression and health-related quality of life among PWA have been considered as the limitations of this study.

DECLARATIONS

All experiments were performed in accordance with relevant guidelines and regulations. Ethical clearance and approval for the experimental protocol were received from institution review board of Kampala International University-Research Ethic Committee under reference: UG-REC-KIU 2022-166.

Ethical approval and consent to participate

Informed consent and respect for participants' voluntary recruitment were done. A written informed consent form was signed prior to participation. Participants' informed consent was sought after the study's details have been thoroughly explained to them in English and the local languages (copy attached in Appendix). Participants who did not wish to participate were not be pushed to do so. Participants were free to leave the study at any time and were not be subjected to any coercion or lose access to the care they were entitled to. Participants with depressive symptoms benefited from treatment by being connected with the Department of Psychiatry and Mental Health of Jinja Regional referral Hospital for follow-up.

Author contributions

Inena G conceived the study, collected and interpreted data, drafted the article. Binti P, Etongo S., Bambale J. contributed in the conception of the study. Peter O, Fazira K, Kizza F, Ilunga R, Ciza P contributed in the data collection. Joshua M and undertook data analysis. Kirabira J and Forry B supervised the study from the conception to the publication. Whingfield R, Alinatwe R, Mutume B provided guidance and critical input throughout the study. All authors read and agreed to the final manuscript.

Competing interests

The authors have no competing interests to declare.

Availability of data and materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request

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