

# Depression among an Immigrant Black Population of African Origin resident in Canada

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## Research Article

**Keywords:** Depression, Immigrant, Nigeria, Canada, Mental health

**Posted Date:** November 15th, 2021

**DOI:** <https://doi.org/10.21203/rs.3.rs-1044087/v1>

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# Abstract

## Background

Lately, there has been a surge of black African-born immigrants to Canada. It is critical to evaluate the extent to which depression has affected this vulnerable and understudied population.

## Methods

Participants completed the Patient Health Questionnaire (PHQ-9) depression scale. Descriptive and multivariate logistic regression analyses were carried out using IBM SPSS.

## Results

About half (51.7%,  $n = 91$ ) of the participants met the criteria for depression. Female participants had a significantly higher PHQ-9 score ( $10.49 \pm 4.226$ ) compared to males ( $8.96 \pm 4.119$ ). Unmarried participants had 27.979 times the odds of being depressed compared to those who were married. Those who had stayed in Canada for more than 10 years had 62.5 times higher odds of being depressed compared to those who had stayed for less than one year.

## Conclusions

More than half of the participants exhibited significant depressive symptoms, suggesting an important mental health concern and the need for intervention.

## Introduction

Globally, the number of international migrants has increased steadily from 173 million in 2000 to 258 million in 2017[1]. The majority of all international immigrants reside in Asia, while North America hosts the third largest number of migrants[1]. The relationship between international migration and development has received increasing attention since the International Conference on Population and Development in 1994, and many migration-related goals have been included in the United Nations Sustainable Development agenda for 2030. Migration is key in achieving the Sustainable Development Goals as it is transformative for the individual, the host countries, and the origin countries[2].

Depression is a leading cause of disability globally with a lifetime prevalence of 12.9% [3]. Depression is strongly linked with suicide, and suicide is a leading cause of death among young people [4]. A recent meta-analysis of 25 studies reported the prevalence of depression among immigrants of different nationalities to be 15.6% [5]. The association between migration and depression is controversial because previous studies have found the link to be inconsistent [6, 7]. A systematic review of mental health among

immigrants by Bas-Sarmiento *et al.*, has reported that although migration is a significant stressor for mental disorders, it does not exclusively lead to mental distress [8]. Other factors such as gender, marital status, length of stay in the host country, social support and employment status are significant risk factors for developing mental disorders [8].

In recent years, a large number of black African-born immigrants have migrated to Canada. Amongst this group, those from Nigeria make up the largest percentage. Nigeria is home to the largest population of blacks in the world, and the lifetime prevalence of major depressive episode amongst its adult population is 3.1%[9]. Canada is an attractive destination for a lot of Nigerians as it presents economic opportunities in sectors like as oil and gas, ICT, health care, and other STEM-related fields which appeal to Nigerian professionals [10]. In 2019, a total of 12, 595 Nigerians migrated to Canada making them the fourth-leading population of new immigrants in Canada [10]. Educational opportunities are also a popular reason for migrating to Canada. About 12,000 Nigerians are currently studying in Canada, and are well-positioned for conversion into permanent resident status because they can leverage their youth, English language fluency, Canadian education, and Canadian work experience [10].

Previous studies have reported a 'healthy immigrant paradox' in Canada [11]. However, this contrasts with other reports where immigrants who have migrated from low- and middle-income countries to high-income countries have been shown to exhibit higher risks of depression relative to their host populations. This indecisive findings necessitates further study.

In this study, the negative effect of immigration due to acculturative stress will guide the understanding of the prevalence and predictors of depression among immigrant Nigerians. An important premise of acculturative stress is that immigration is a significant stressor, and the lifestyle changes and adjustments associated with migration could increase health risks [12]. Contributing factors to poor health and mental disorders among immigrants include; living conditions and endemic diseases in immigrants' countries of origin; social, political, and environmental conditions associated with the immigration process; and social isolation, cultural conflicts, poor social integration and social support, low socioeconomic status, and racial discrimination [13, 14]. Low levels of social support have been associated with depression in previous studies among Nigerians [15– 18]. Nigerian immigrants living in new immigrant destinations may be unable to receive support from family members thus, may be susceptible to depression. Interestingly, in a qualitative study of depression among immigrant Nigerian men in the United States of America, the participants denied the existence of depression and claimed that depression did not exist in the Nigerian culture [19]. Immigrant Nigerian women also had similar beliefs as they also thought that depression was something that affected other people and associated it with spirituality and possession by evil spirits [20]. However, this does not imply that depression does not exist- for instance, Gureje et al. [9] reported that the lifetime prevalence of major depressive episode among adult Nigerians is 3.1%.

Immigrant Nigerians in Canada are an understudied population for whom the prevalence of depression and its associated factors are not known. Considering the increasing population of Nigerians migrating to

Canada, it is important to explore the predisposing factors that may lead to depression among them. The study of depression among Nigerian immigrants is particularly relevant as mental disorders are known to be higher among migrant populations compared to native populations [10, 21]. Promoting good mental health amongst immigrant population is a key concern for policymakers in Canada[22]. In recent years, the number of permanent resident immigrants to Canada has increased, with immigrants from Asian countries (India, China and Philippines) ranked top three, while Nigeria is ranked 4th. Due to deeply-rooted socio-cultural influences in the country of origin of the immigrants, a study on depression among migrants should accommodate contextual differences, hence should be contingent on a homogenous immigrant population. While information on depression among Asian migrants, including those from India, China and Philippines, in Canada have been reported in previous studies[23, 24], there is inadequate information about depression among Nigerian immigrants who make up the largest percentage of African migrants and black population residing in Canada. The present study aimed to assess the prevalence of depression among Nigerian immigrants in Canada, and the predictors of depression among them.

## Methods

A cross-sectional descriptive survey was carried out among the Nigerian immigrant population in Canada. The target population was Nigerians living in Canada, without bias for residency status.

## Study sample

The most recent detailed enumeration of Canadian residents, the Census 2016, revealed a total population of 51,800 Nigerians living in Canada. The sample size was computed using G\*Power software (version 3.1.9) to perform a priori power analyses[25]. The effect size ( $f^2 = 0.15$ ); significance level ( $\alpha = 0.05$ ); desired statistical power ( $1 - \beta = 0.95$ ); and total number of predictors (eight in this study) were entered, and the results indicated that a sample size of 160 is ideal for a regression-based statistical analysis.

## Study instrument

Primary data were gathered using a self-administered PHQ-9 comprising two sections (A and B). Section A contained a 9-item self-report screening tool based on the DSM-IV criteria for major depressive disorder. The PHQ-9 psychometric properties, as well as effectiveness in screening for depression, has been verified by previous studies [26], also, it has been shown to have a 61% sensitivity and 94% specificity in adults [27]. Anchored on a 4-point Likert scale ranging from 0 (not at all) to 4 (often), the survey participants were asked to rate the frequency of nine symptoms over the previous two weeks. Participants' total score could range from 0 to 27, with higher scores indicative of higher depression severity. Section B contained items corresponding to the participants' socio-demographic profile. Survey participants provided information about their gender, age, marital status, educational level, residence status, employment status, annual income, satisfaction with current employment, reason for immigration, duration of stay in Canada, and fear of deportation. To assess level of social support, participants were

asked how many people they could call to give them a ride to the hospital if they fell ill. Participants were also asked if they had ever felt the need to see a mental health professional, if they had ever felt discriminated against, and if they had a chronic illness, to which they could respond 'Yes' (1) or 'No' (0).

## Data collection and analysis

Approval for the study protocol was obtained from the Ethics Research Committee of the Faculty of Pharmaceutical Sciences, University of Nigeria Nsukka (FPSRE/UNN/20/0016.) Using a snowball sampling technique, a web-based survey was conducted on the research population using Google forms, after assurance of confidentiality of responses and voluntariness of participation. Participants were required to give informed consent electronically before participating in the survey. The link to the survey was broadcasted via social media group platforms (WhatsApp and Telegram) for Nigerians living in Canada. Participants were also encouraged to rebroadcast the link to other Nigerian immigrants who were not part of the social media groups. Responses were collected between January 29 and February 29, 2020. Data analysis was conducted using IBM SPSS (version 21.0). The demographic data were subjected to descriptive statistics using frequency analysis. The distribution of the 9-item depressive symptoms measured by the PHQ-9 was carried out using frequency analysis according to the critical threshold scores of having minimal depression (0-4), mild depression (5-9), moderate depression (10-14), moderately severe depression (15-19), and severe depression (20-27). To examine the socio-demographic predictors of depression among Nigerian immigrants in Canada, the primary data were subjected to Logistic regression. Statistical significance was set at  $p < 0.05$ .

## Results

A total of 187 people responded to the survey; 11 people did not complete the questionnaire (completion rate: 94.11%). There were more females than males who completed the survey (67.6% Vs 32.4%). Female participants had a significantly higher PHQ-9 score ( $10.49 \pm 4.226$ ) compared to the males ( $8.96 \pm 4.119$ );  $t(-2.255)$ ,  $p = 0.025$ . Majority of the participants were between 31 and 40 years old (58.5%,  $n = 103$ ). (Table 1) A total of 31 participants (17.6%) reported that they had felt the need to talk to a mental health professional since they arrived Canada. More than half of the study participants said they had felt discriminated against since they arrived Canada (52.8%,  $n = 93$ ). Three participants (1.7%) said they were chronically ill.

More than a third of the study participants had moderate depression (35.8%,  $n = 63$ ) while almost half of them had mild depression (40.9%,  $n = 72$ ). According to the PHQ-9, using a cut-off of greater than or equal to 10, 51.7% ( $n = 91$ ) participants were depressed. (Table 2)

The Nagelkerke  $R^2$  indicates that this model accounted for 55.6% of the variability observed in depression among Nigerian immigrants in Canada. Unmarried participants have 27.979 times the odds of being depressed compared to those who were married ( $p < 0.001$ ). Participants who earned  $< 10,000$  CAD

annually had 32.199 times the odds of being depressed compared to participants who earned >80,000 CAD ( $p = 0.008$ ). Participants who had no support network had 1.140 times the odds of getting depressed compared to participants with >3 people in their support network ( $p = 0.861$ ). People who had stayed in Canada for more than 10 years had 62.5 higher odds of being depressed compared to those who had stayed for less than a year ( $p = 0.021$ ). The odds of being depressed was 12.871 times higher in people who were not at all satisfied with their decision to migrate to Canada compared to those who were completely satisfied with their decision to migrate to Canada ( $p = 0.046$ ). (Table 3)

## Discussion

This study examined the prevalence of depression, as well as its predictors among Nigerian immigrants living in Canada. In line with their socio-demographic profile, it was observed that the majority (91.5%) of the survey participants belonged to the age category of 18 to 30 years (33%) and 31 to 40 years (58.5%). Similar information was captured in a meta-analytic review of 25 studies where it was found that the mean age of international migrants ranged from 25.96 to 47.3 years[6]. Females had significantly higher PHQ-9 scores compared to males in this study. This is consistent with findings from studies on prevalence of depression among immigrants[28][29].

Adopting the universal critical threshold value of greater than or equal to 10 for interpreting presence of depression in the PHQ-9, the present study found that 51.7% of the survey participants were depressed. This result is a significant contrast from a different study which reported a 15.6% aggregate prevalence of depression among international migrants, following a meta-analysis of primary data from 25 studies gathered from 16,121 migrant participants across 20 different countries[5]. This difference may be due to the fact that these previous studies were conducted on a heterogeneous immigrant population, rather than a homogenous immigrant population as in the case of this present study. Nonetheless, although only two of these 25 studies were conducted in Canada, the depression prevalence of 51.7% obtained in the present study suggests that depression is an important mental health problem affecting Nigerian immigrants living in Canada.

In the current study, the results from the Logistic regression revealed that the length of stay, marital status, annual income, and support network were significant predictors of depression. However, satisfaction with current employment was not a significant predictor of depression in the sample population. Length of stay was a significant predictor of depression among Nigeria immigrants living in Canada. In keeping with the findings of a previous study in the United States which showed that the severity of depression was significantly higher in Asian American immigrants who had lived there for more than 10 years [30], Nigerians who had lived in Canada for more than 10 years had 62.5 times higher odds of being depressed compared to those who had stayed for less than a year. This may be explained by the healthy immigrant effect which postulates that newly arrived immigrants are likely to be healthier compared to the native population and that immigrant health will become worse as they live longer in the host country.

Social support is especially important for immigrants as a social capital to help them adapt better in the host community and develop a better sense of community [31]. Social support could broadly be classified into three categories; emotional support, instrumental support and informational support. Emotional support can be viewed as the feeling of being loved and the security of being able to trust someone while instrumental support suggests the availability of direct help; and informational support refers to providing support or guidance[32–34]. The predictive effect of poor support network on depression was corroborated in the current study. The participants who did not have a support network were more likely to be depressed relative to those who had people that provide them emotional and social support. This view is similar to previous studies [35], thus, reinforcing the importance of exposure to emotional and social support networks for the maintenance of mental health among immigrant populations. Being unmarried, which may suggest limited or lack of emotional support was a predictor of depression in this study. This result is in congruence with the findings of a similar study among Ethiopian migrants in Canada [36], and outpatient adults in Nigeria [37]. The number of people the participants could call in case of a health emergency was assessed as level of instrumental support in this study, and was a significant predictor of depression in this study. People who had no one to call in case of a health emergency had higher odds of being depressed.

Furthermore, income significantly predicted depression in this study. Participants with an annual income less than 10,000 CAD were found to be significantly more likely to be depressed than those with earnings above 80,000 CAD. This is not surprising as a majority (55.1%) of the participants in this study are economic migrants, and in agreement with the Ravenstein's Laws of Migration, economic reasons are the major motivation for migration[38]. Search for better economic opportunities are a significant pull factor that influences migration decisions. When migrants do not achieve their economic goal of migration, it is expected that they would feel some level of dissatisfaction with their migration decision. This is substantiated by the findings of some authors [35, 39], however, contradictory findings have also been reported [37]. Interestingly, satisfaction with current employment was found not to significantly predict depression in the current study. This rather unexpected finding may point to the existence of an omitted intervening variable. It may also be explained by the fact that most of the participants in this study have obtained their goal of residency status in Canada, and may consider any form of employment as a valuable addition to this. More so, Nigerians are reputed to be very optimistic individuals and studies have shown that they generally exhibit uncommon satisfactory tendencies in situations where many others would wear out [40, 41]. Immigrants are likely to encounter discrimination in a host country, which could evoke strong negative emotions, lead to psychological distress which may in turn negatively affect mental health[42]. Although more than half of the study participants said they had felt discriminated against since they arrived Canada, perceived discrimination was not a significant predictor of depression in this study. This may be explained by the idea of resilience which refers to 'positive adaptation, social, and psychological competence in times of significant adversity or trauma' [43]. Voluntary migration is likely to be a decision undertaken by resilient people.

In carrying out this present study, some limitations are acknowledged. The PHQ-9 used to assess depression is a screening rather than a diagnostic tool. The web-based nature of the study and the use of

non-probabilistic sampling method further limits the generalizability of the study findings. Nigerian immigrants who may have had no social network and were at increased risk of being depressed may have been systematically excluded from the study. Also, as with all self-reported surveys, there is the possibility of self-reporting bias. A more inclusive study using a probabilistic sampling method would increase confidence of the findings. This study relied on cross sectional data in relation to depressive symptoms felt by the participants in the previous two weeks. Thus, it is difficult to establish the temporal precedence of the outcome variable. Although, there was no element of longitudinal study, it is believed that the cross-sectional data gathered was sufficient to address the study objectives.

## Conclusion

The purpose of this study was to evaluate the prevalence and predictors of depression. The context was Nigerian immigrants living in Canada. More than half of the participants exhibited significant depressive symptoms, suggesting an important mental health concern and the need for intervention. Duration of stay, marital status, annual income, and level of support network were discovered to be significant predictors of depression, while satisfaction with current employment did not have any predictive effect on depression in the study sample. These predictors deserve serious consideration, and could be used as reference points when making decisions on mental health intervention programs for Nigerian immigrants in Canada

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## Declarations

### Data availability

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

### Funding

The authors did not receive support from any organization for the submitted work.

### Conflict of interest

The authors have no relevant financial or non-financial interests to disclose.

### Ethical Approval

Approval was obtained from the Ethics Research Committee of the Faculty of Pharmaceutical Sciences, University of Nigeria Nsukka (FPSRE/UNN/20/0016.). The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

### Informed consent

Informed consent was obtained from all individual participants included in the study.

### Authorship contributions

Deborah Aluh conceptualized the idea, data was collected and partly analyzed by Obinna Anyachebelu while the manuscript was drafted by Deborah Aluh and Osaro Aigbogun. All authors critically revised the manuscript. All authors have reviewed the submitted manuscript and approve the manuscript for submission

## Tables

Table 1: Socio-demographic characteristics of Nigerian immigrants in Canada

Characteristics	Frequency	Percentage
<b>Gender</b>		
Male	57	32.4
Female	119	67.6
<b>Age (Years)</b>		
18-30	58	33.0
31-40	103	58.5
41-50	14	8.0
51-60	1	0.6
61-70	0	0.0
>70	0	0.0
<b>Marital status</b>		
Unmarried	51	29.0
Married	125	71.0
<b>Number of Children</b>		
None	67	38.1
1	29	16.5
2	47	26.7
3	27	15.3
4	5	2.8
>4	1	0.6
<b>Highest Educational Qualification</b>		
High school diploma	3	1.7
Bachelor's degree	79	44.9
Masters' degree	92	52.3
PhD	2	1.1
<b>Resident Status</b>		
Refugee	1	0.6
Student/study permit	10	5.7
Work permit	8	4.5
Permanent Resident	142	80.7
Citizen	15	8.5
<b>Employment Status</b>		
Employed	116	65.9
Unemployed	60	34.1
<b>Annual Income (CAD)</b>		
<10 000	41	23.3
10,000-30,000	40	22.7
31,000-50,000	45	25.6
51,000-80,000	30	17.0
>80,000	20	11.4
<b>Satisfaction with current employment status?</b>		
Not at all satisfied	61	34.7
Slightly satisfied	35	19.9
Moderately satisfied	48	27.3

Very satisfied	24	13.6
Completely satisfied	8	4.5
Reason for Immigration		
Political violence	2	1.1
Educational opportunities	16	9.1
Economic opportunities	97	55.1
All of the above	61	34.7
Satisfaction with decision to migrate		
Not at all satisfied	2	1.1
Slightly satisfied	6	3.4
Moderately satisfied	41	23.3
Very satisfied	66	37.5
Completely satisfied	61	34.7
Fear of Deportation		
No, the situation didn't occur	171	97.2
The situation occurred, but it didn't worry me at all	2	1.1
The situation occurred, and it worried me a rarely	2	1.1
The situation occurred, but it worried me some times	1	0.6
The situation happened and it worried me a lot	0	0
Support Network		
None	23	13.1
1	34	19.3
2	39	22.2
3	13	7.4
>3	67	38.1
Duration of stay in Canada (Years)		
<1	58	33.0
1-5	99	56.3
6-10	13	7.4
>10	6	3.4

Table 2: Severity of depression among participants defined by PHQ-9

Classification	Frequency	Percentage
No depression (0-4)	13	7.4
Mild depression (5-9)	72	40.9
Moderate depression (10-14)	63	35.8
Moderately severe depression (15-19)	26	14.8
Severe Depression (20-27)	2	1.1
Overall Prevalence ( $\geq 10$ )	91	51.7

Table 3: Socio-demographic predictors of depression among Nigerian immigrants in Canada

Predictors	S.E.M	B	95% CI for EXP (B)		Sig
			Lower	Upper	
<b>Marital Status</b>					
Unmarried	0.903	27.979	4.770	164.118	<0.001**
Need for Mental Health professional	0.745	0.154	0.036	0.664	0.012*
Perceived discrimination	0.440	0.429	0.054	0.181	1.016
Remuneration					0.052
<10,000 CAD	1.307	32.199	2.487	416.859	0.008**
10,000-30,000	1.218	9.148	0.840	99.582	0.069
31,000- 50,000	1.193	20.285	1.959	210.022	0.012*
51,000 - 80,000	1.095	6.031	0.705	51.586	0.101
Satisfaction with current employment status					0.487
Not at all satisfied	1.488	8.046	0.436	148.566	0.161
Slightly satisfied	1.504	6.289	0.330	119.923	0.222
Moderately satisfied	1.492	4.899	0.263	91.189	0.287
Very satisfied	1.608	12.992	0.555	303.887	0.111
Duration of stay in Canada					0.051
Less than a year	1.786	0.016	0.000	0.541	0.021*
1-5 years		0.061	0.003	1.501	0.087
6-10 years		0.205	0.007	6.324	0.365
Satisfaction with decision to travel					0.003**
Not at all satisfied	1.279	12.871	1.049	157.889	0.046*
Slightly satisfied	0.704	12.562	3.162	49.910	<0.001**
Moderately satisfied	0.566	3.184	1.051	9.649	0.041*
Support network					0.043*
None	0.745	1.140	0.265	4.907	0.861
1	0.677	0.598	0.159	2.255	0.448
2	0.633	5.511	1.594	19.055	0.007**
4	0.871	2.335	0.424	12.869	0.330