Factors Associated with Mental Health Care Utilization among Neglected Tropical Disease Patients in Three Central Cameroon Healthcare Districts

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ABSTRACT

Introduction: Neglected Tropical Diseases (NTDs) are a major public health issue affecting over 1.5 billion people worldwide, with the African Region bearing the heaviest burden, accounting for more than 40% of global morbidity. Despite the efforts of the Cameroon government and its technical partners on early diagnosis and case management, NTDs remain prevalent, with sequelae, and the stigma that patients suffer. In this context, our study aims to describe the factors associated with seeking mental health care among people affected by NTDs in the Health Districts of Akonolinga, Ayos, and Monatélé.

Materials and Methods: It was a cross-sectional study, conducted over a period of one (01) month from August to September 2023. The study population consisted of People Affected by Neglected Tropical Diseases (PANTDs). Individual and institutional characteristics were examined as variables. Quantitative data from a survey form were entered into Kobo Collect and analyzed using SPSS software version 25.0.

Results: Among 120 people affected by neglected tropical diseases (PANTDs) who participated in the study, only 15 (12.5%) sought mental health care. The factors significantly associated with seeking mental health care among PANTDs in the Health Districts were: age (p-value=0.017), type of treatment (p-value=0.046), discussion of mental health care (p-value=0.046), and the existence of community mental health services (p-value=0.046).

Conclusion: Taking into account mental problems relating to NTDs remains limited. Advocacy deserves to be strengthened and awareness raised at the level of health authorities and within communities for mental health.

Keywords: Associated Factors, Health District, Mental Health, Patients, Neglected Tropical Diseases.

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Crossref Doi: https://doi.org/10.36437/irmhs.2024.7.5.D

Introduction

Neglected Tropical Diseases (NTDs) are a major public health issue affecting over 1.5 billion people worldwide.[1] These diseases include conditions such as snakebite envenoming, rabies, and dengue, which alone cause approximately 200,000 deaths per year. Due to the lack of access to treatments and healthcare, these diseases also result in significant disabilities, disfigurements, and social exclusion for hundreds of millions of people.[2] NTDs represent a substantial economic

burden for developing countries, mainly due to productivity losses related to their long-term effects. Although mass drug distribution strategies have reduced the transmission and prevalence of some NTDs, it remains essential not to overlook the care of individuals already affected and suffering from long-term disabilities.[3]

In Africa, particularly in sub-Saharan Africa, NTDs hinder development.[4] This region bears about 40% of the global NTD morbidity burden. NTDs are endemic in 47 countries across the region, with at least five NTDs co-endemic in 36 countries (78%).[4] These diseases persist in many socio-economically marginalized areas of sub-Saharan Africa[5], serving as markers of extreme poverty and inequality driven by political, economic, social, and cultural systems that negatively affect the health and well-being of populations.[5] Poverty exacerbates NTD infection, which in turn deepens poverty.[6] Affected communities often have low socio-economic status and limited access to healthcare.[6] In addition to physical and psychological discomfort, NTDs pose a significant economic burden on individuals, households, and societies.[6,7] The economic impact of NTDs is likely underestimated due to stigma.[6] Hemorrhagic dengue and rabies require costly intensive care, and the rabies vaccine remains expensive and unavailable in many countries.[2] Moreover, the social stigma associated with disfiguring NTDs has long-lasting effects on quality of life and mental health.[8]

In Cameroon, NTDs are a significant public health issue, primarily affecting rural populations.[7] According to the Cameroonian Ministry of Public Health (#MINSANTE#)[9], 11 of the 20 recognized global NTDs are present in Cameroon, affecting over 150 Health Districts (HD). Among NTDs, those with cutaneous manifestations are increasingly prevalent within communities. It is well-known that delayed care for cutaneous NTDs often leads to disabilities, stigma, and social exclusion. Data from studies such as disability and its determinants among onchocerciasis patients in Nigeria[10], perspectives on integrated care for lower limb disorders caused by podoconiosis and filariasis[11], socio-economic inequalities related to NTDs[12], and knowledge, attitudes, and perceptions of Yaws in the Central African Republic[8], as well as healthcare-seeking behavior and medical follow-up of socially disadvantaged individuals[13], highlight the significance of psychotic issues related to NTDs among affected patients in these communities. It is within this framework that this study aims to determine the factors associated with seeking mental health care among individuals affected by NTDs (PANTDs) in the HD.

Materials and Methods

Study design

It was a cross-sectional study, conducted over one month from August to September 2023. It included all individuals diagnosed with NTDs in healthcare facilities within the Akonolinga, Ayos, and Monatélé Health Districts in the Central Region of Cameroon.

Selection Criteria

Inclusion criteria: All individuals diagnosed with NTDs in the healthcare facilities of the selected HD in the Central Region who agreed to participate were included.

Exclusion criteria: Those who requested to discontinue the interview during data collection, as well as those with incomplete survey forms or who refused to participate, were excluded.

Sampling

Sample size: A total of 120 individuals diagnosed with NTDs in healthcare facilities (FOSA) in the various HD were included in the study.

Sampling Method: A non-probabilistic convenience sampling method was used, involving continuous recruitment of individuals diagnosed with NTDs in FOSAs.

Data Collection and Treatment

A questionnaire was administered to individuals diagnosed with NTDs in the FOSAs of the Akonolinga and Ayos HDs for Buruli ulcer cases and the Monatélé HD for onchocerciasis,

blindness, and filariasis cases. The questionnaire included questions on individual characteristics (sociodemographic, clinical, socioeconomic, sociocultural, and psychological factors) and institutional characteristics.

Data analysis

Data were entered using Kobo Collect software and analyzed with SPSS version 25. Qualitative data were expressed as percentages (%), and quantitative variables as mean ± standard deviation. The prevalence of NTDs was estimated, and simple logistic regressions were applied to identify associated factors. After obtaining crude odds ratios (OR) and P-values from the simple logistic regressions, a binary logistic regression was performed to adjust the OR and P-values of the associated factors. The test was considered significant at $P \leq 0.05$.

Ethical Considerations

Respect for respondents was maintained throughout the study, along with the anonymity of their data. This study was conducted in accordance with the Declaration of Helsinki. Before administering the questionnaire, all respondents were informed of the study's aim and objectives through an oral message. Approval was obtained from the relevant Health District authorities before data collection began. Participants' anonymity was guaranteed, and each respondent gave their consent before answering the questions. Participation in the study was entirely voluntary.

Results

Socio-demographic characteristics of patients

Overall, the majority of individuals affected by NTDs who participated in the study reside in the town of Monatélé (65.8%), in rural areas (99.2%), are aged 36-59 years, are married (60.0%), and are male (50.8%) (Table 1).

Socio-demographic Characteristics	Frequencies (N=120)	Percentage (%)
City		
Akonolinga	26	21.7
Ayos	15	12.5
Monatélé	79	65.8
Area of residence		
Rural	119	99.2
Urban	1	0.8
Age (years)		
20-35	32	26.7
36-59	56	46.7
60 and over	22	18.3
Under 20	10	8.3
Gender		
Female	59	49.2
Male	61	50.8
Level of education		
No education	10	8.3
Primary	53	44.2
Secondary	50	41.7
Higher	7	5.8
Marital status		

Single	35	29.2
Divorced	4	3.3
Common-law	72	60
Widowed	9	7.5

Table 1: Distribution of patients according to socio-demographic characteristics.

Socio-economic and socio-cultural characteristics of patients

Table 2 shows that, overall, the majority of people with NTDs who took part in the study are traders/farmers/breeders (59.2%) and consider their standard of living to be low (70.8%). In addition, the majority of people with NTDs who took part in the study are Catholics (90.0%) and those who believe that their illness is a Bad fate (53.3%).

Socio-economic and socio-cultural characteristics	Frequencies (N=120)	Percentage (%)
Profession		
Shopkeeper/farmer/breeder	71	59.2
Administration and office work	7	5.8
Unemployed	37	30,8
Fisherman	5	4.2
Perception of standard of living		
Low	85	70.8
Average	34	28.4
High	1	0.8
Religion		
Catholic	72	60
Muslim	12	10
Protestant	21	17.5
Other Christian religion	15	12.5
Perception of illness		
Normal	40	33.3
Bad fate	64	53.3
Transgression of habits and customs	16	13.3

Table 2: Breakdown of participants by socio-economic and socio-cultural characteristics

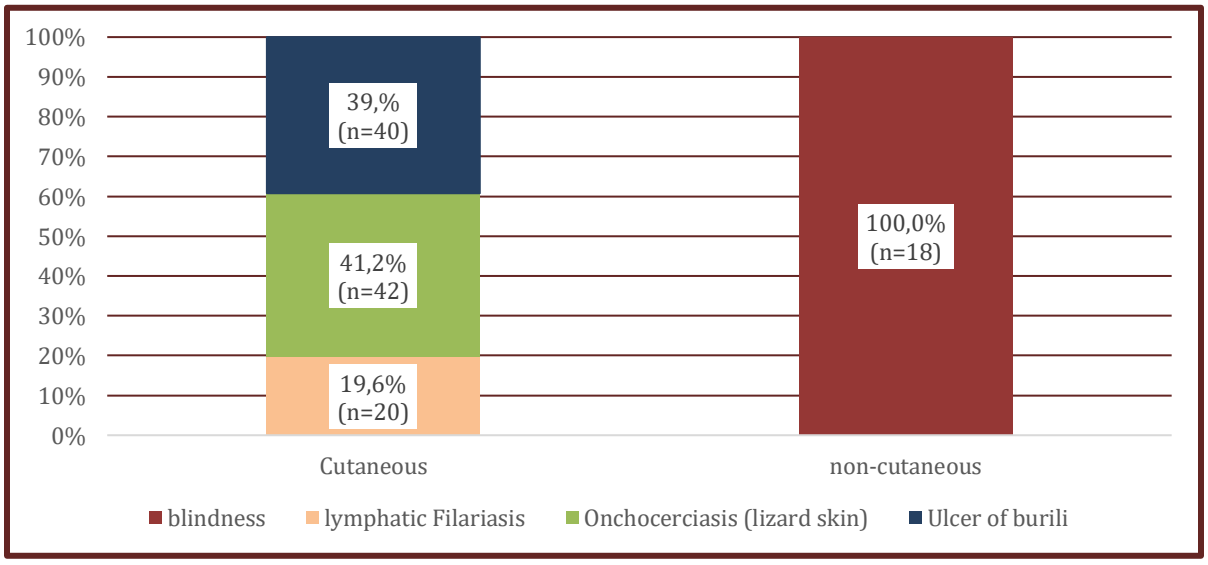
Clinical characteristics of patients.

The majority of participants in the study had been suffering from cutaneous NTDs (85.0%) for no more than two years (40.8%) and had been diagnosed more than one day previously (72.5%). The majority had received pharmacotherapy (89.2%) as part of the management of their disease and had no comorbidities (79.2%) (Table 3).

Clinical characteristics	Frequencies (N=120)	Percentage (%)
Type of NTDs		
Cutaneous	102	85
Non-cutaneous	18	15
Duration of disease		
1 to 2 years	49	40.8
3 years or more	42	35
At least 6 months	29	24.2
Diagnosis time		
Less than an hour	3	2.5
1 day	20	16.7
More than one hour	8	6.7
More than a day	87	72.5
Type of treatment		
Pharmacotherapy	107	89.2
Psychotherapy	1	0.8
Referral to a care service	8	6.7
Psychosocial support	2	1.7
Comorbidities		
No	95	79.2
Yes	25	20.8

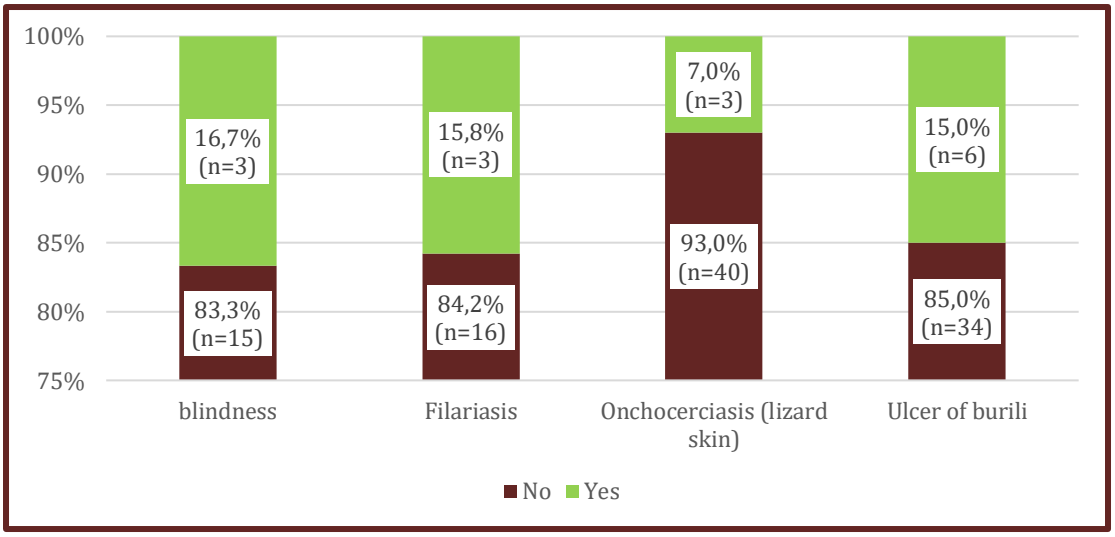
Table 3: Distribution of patients according to clinical characteristics.

Graph 1 shows that Onchocerciasis is the most common cutaneous NTD, accounting for 41.2% of cases, followed by Buruli ulcer.



Graph 1: Distribution of NTDs among patients.

Patients with filariasis (15.8%) and buruli ulcer tended to use mental health care in their situation. However, the association between use and type of NTDs was not significant at the 5% level (chi2= 0.55) (Graph 2).



Graph 2: Mental health care by type of NTD among PANTDs.

Use of mental health care

Overall, of the 120 people with neglected tropical diseases (NTDs) who took part in the study, only 15 (12.5%) had used mental health care. More than half (57.14%) of the participants who did not seek care felt that they did not know why it ought to be done. In addition, the majority of participants who had sought mental health care (66.70%) had received psychosocial support. Only 13.3% received pharmacotherapy. Six out of fourteen patients (42.8%) who sought mental health care did so through associations. The majority of participants who had sought mental health care (66.7%) were satisfied with it. The majority of those with co-morbidities suffered from heart disease (78%) and diabetes (17.1%) (Table 4).

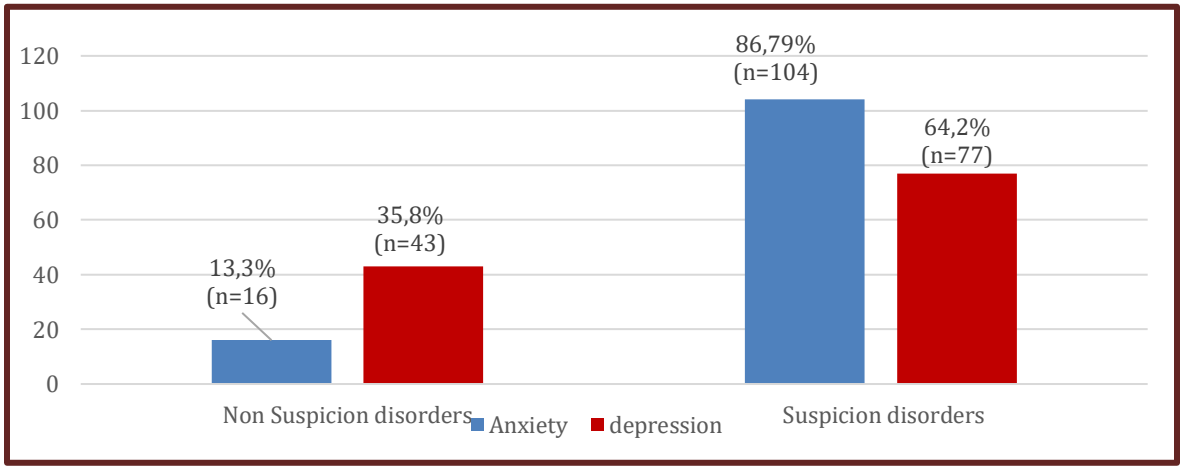
Variables	Frequencies	Percentage (%)
Use of mental health care among PANTDs (N=120)		
Yes	15	12.5
No	105	78.5
Reasons for not using mental health care (N=105)		
Shame	2	1.9
Lack of resources	23	21.9
Don't know	60	57.1
Not important	20	19.1
Type of care received by PANTDs having used mental health care (N=15)		
Ethnotherapy	3	20
Pharmacotherapy	2	13.3
Psychosocial support	10	66.7
People in charge of mental health care (N=14)		
Traditional healer	4	28.6

Association	6	42.8
Social worker	4	28.6
Satisfaction with mental health care (N=15)		
Yes	10	66.7
No	5	33.3
Comorbidities in people with NTDs (N=41)		
Cancer	2	4.9
Diabetes	7	17.1
Heart disease	32	78

Table 4: Use of mental health care by PANTDs.

Psychological characteristics of patients

Overall, depression (64.2%) and anxiety (86.7%) were suspected in the majority of participants (Graph 3).



Graph 3: Levels of anxiety and depression among PANTDs.

The participants in the study had an average negative attitude score of 18.6 ±7.1, which is approximately average for all participants. This score was 21.3±5.2 for perceived discrimination and 17.3±1.9 for fairness. None of these factors was significantly associated with the use of mental health services (Table 5).

Stigma	Min	Mean	Max	Standard deviation
Negative attitude	8	18.6	40	7.1
Perceived discrimination	6	21.3	30	5.2
Fairness	12	17.3	20	1.9
Total	**32**	**57.2**	**85**	**10.1**

Table 5: Central tendency parameters of the stigma score.

Institutional characteristics

The majority of individuals affected by NTDs who participated in the study reported that their treating physician did not mention mental health care (68.3%) during the treatment of the NTD, and that there are no community mental health care services in their area (90%) (Table 6).

Variables	Frequencies (N=120)	Percentage (%)
Mention of mental health care by the doctor		
No	82	68.3
Yes	38	31.7
Cost of treatment		
Affordable	10	8.3
Expensive	87	72.5
Not expensive	3	2.5
Very expensive	20	16.7
Existence of community services in neighborhood		
No	108	90
Yes	12	10

Table 6: Breakdown of people with NTDs by institutional characteristics.

Factors Associated with Mental Health Care

Table 7 reveals that, among the sociodemographic factors, age is the only factor significantly associated with seeking mental health care in individuals affected by NTDs. At the bivariate level, the chi-square statistic associated with participants' age is significant at the 5% threshold (p-value=0.017), showing that the proportion of NTD patients seeking mental health care increases with age. Specifically, mental health care utilization rises from 4.8% among those under 35 years, to 10.7% for those aged 35–59, and to 31.8% for individuals aged 60 and above. At the multivariate level, age remains a significant factor influencing mental health care use. Individuals aged 60 and above are 3.89 times more likely (95% CI: 1.13–12.35; p-value=0.03) to seek mental health care compared to their counterparts aged 35–59. Among the clinical factors, type of treatment is the only factor significantly associated with seeking mental health care in NTD patients. At the bivariate level, the chi-square statistic associated with the type of treatment is significant at the 5% level (p-value=0.046). The data suggests that individuals who were referred to mental health services are more likely to seek mental health care compared to those who received other types of support. Specifically, 37.5% of those referred to mental health services sought care, compared to 33.3% of those who received pharmacotherapy, and only 10.1% of those who received social support. At the multivariate level, the type of treatment remains a significant factor. Individuals referred to mental health services are 9.45 times more likely (95% CI: 1.27–70.37; p-value=0.028) to seek mental health care compared to those who received pharmacotherapy. At the bivariate level, among institutional factors, only discussion of mental health care (p-value=0.046) and the availability of community mental health services (p-value=0.046) are significantly associated with seeking mental health care. The proportion of NTD patients who sought mental health care was higher among participants whose doctor mentioned mental health care (23.7%) and those who had access to community mental health services in their neighborhood (33.3%). However, at the multivariate level, none of the institutional factors significantly influenced the likelihood of seeking mental health care at the 5% threshold.

Variables	Use of mental health care			Chi2	OR	p-value	CI [95%]
	No	Yes	Total				
	n(%)	n(%)					
	105(87.5)	15(12.5)	120(100)				
Age							
Under 35	40(95.2)	2(4.8)	42(100)	0.017**	0.55	0.488ns	0.10-2.93
35-59 years old	50(89.3)	6(10.7)	56(100)		**Ref**	**Ref**	**Ref**
60 and over	15(68,2)	7(31.8)	22(100)		3.89	0,03**	1.13-13.35
Type of treatment							
Pharmacotherapy	98(89.9)	11(10.1)	109(100)	0.046**	**Ref**	**Ref**	**Ref**
Referral to a care service	5(62,5)	3(37.5)	8(100)		9.45	0.028**	1.27-70.37
Psychosocial support	2(66.7)	1(33.3)	3(100)		1.8	0.661ns	0.13-25.04
Doctor mentions mental health care							
No	76(92.7)	6(7.3)	82(100)	0.013**	**Ref**	**Ref**	**Ref**
Yes	29(76.3)	9(23.7)	38(100)		2.23	0.23ns	0.59-8.40
Existence of a community service							
No	97(89.8)	11(10.2)	108(100)	0.023**	**Ref**	**Ref**	**Ref**
Yes	8(66.7)	4(33.3)	12(100)		4.52	0.095*	0.77-26.53

***Significant at 1%; **Significant at 5%; *Significant at 10%; ns: not significant

Table 7: Factors associated with mental health care for people with NTDs.

Discussion

The main objective of our study was to identify and describe the factors associated with seeking mental health care among individuals affected by Neglected Tropical Diseases (NTDs) in the Health Districts of Akonolinga, Ayos, and Monatélé. Our findings indicate that the individual factors linked to mental health care utilization can be categorized into two main types: demographic (age) and clinical (type of treatment).

Influence of Age

The likelihood of seeking mental health care among individuals affected by NTDs increases with age. Those aged 60 and above are more likely to seek mental health care compared to their counterparts aged 35-59 and especially those under 35. This result aligns with the findings of Coulibaly et al. [14] in a study conducted in Burkina Faso, which showed that older individuals with NTDs are more likely to utilize mental health services compared to younger individuals.

This outcome may be explained by the fact that age often correlates with maturity, and older individuals may be more inclined to prioritize mental health care when affected by NTDs. Due to their physiological vulnerability, older adults may be more concerned about their health or the potential worsening of conditions, especially when comorbidities are present. They also tend to have a greater ability to manage their health, particularly if they are retired and have the support of others. On the other hand, younger individuals, due to their age, immaturity, or lack of awareness, may be less likely to seek care. They are often more focused on socio-economic integration, which allows them to take on responsibilities. Coulibaly et al. [14] rightly pointed out that this age group faces psychosocial stress factors such as unemployment, conflicts,

substance use, poverty, and other social changes (marriage, parenthood), all of which can negatively impact mental health and lead to mental health issues.

Applying the Protection Motivation Theory, the decision to seek mental health care by individuals affected by NTDs may result from a combination of attitudes. For the older generation, it appears that factors such as the perceived severity, vulnerability, and fear play a major role in evaluating the threat posed by the disease. These factors influence the five elements of the theory (self-efficacy, response efficacy, severity, vulnerability, and fear), which, in turn, lead to an adaptive behavioral response—in this case, the intention to seek mental health care. Younger individuals, however, may be more prone to maladaptive behavioral intentions (avoidance, denial).

Type of Treatment

Individuals referred to mental health services are more likely to seek mental health care. This result contrasts with the findings of Adjet [15], who conducted a study on Buruli ulcer. They found that patients with NTDs were more likely to disregard medical advice and instead sought help from traditional healers, who were perceived as more accessible and relatable.

From the perspective of Social Influence Theory, spontaneous processes such as imitation, contagion, the formation of collective norms, or conformity based on social environment may shape attitudes towards healthcare. However, according to Protection Motivation Theory, it could be inferred that the effectiveness of a recommendation by healthcare providers encourages patients to adopt health-promoting behaviors. In our study, the type of treatment, specifically the referral made by healthcare personnel, serves as a strong predictor of adherence to recommendations and motivates individuals to protect themselves.

Overall, the majority of individuals with NTDs who participated in the study were merchants, farmers, or herders (59.2%) and considered themselves to have a low standard of living (70.8%). Neither of these factors was significantly associated with seeking mental health care. Our findings are similar to those of Houweling et al. [12], who conducted a systematic study on the socio-economic inequalities associated with NTDs. Their results indicated that the risk of infection or illness was twice as high among socio-economically disadvantaged groups compared to more affluent ones.

Additionally, most participants (90%) identified as Catholic, and over half (53.3%) believed that their illness was due to a curse. Neither of these factors was significantly associated with seeking mental health care. Piamale et al. [8] found, in their study on community knowledge, attitudes, practices, and perceptions related to Yaws (an NTD), that most participants (n=40, 73%) had vague ideas about NTDs. Individuals affected by NTDs are not always well-informed about the origins of their illness and often rely on widely held beliefs within the community. From the perspective of the Health Belief Model, seeking mental health care among individuals affected by NTDs is likely influenced by a series of beliefs. Negative perceptions about NTDs shape practices and the supernatural conception of NTDs may steer individuals toward alternative sources of mental health care (traditional healers, pastors, etc.).

Furthermore, the majority of participants exhibited signs of depression (64.2%) and anxiety (86.7%). Eaton & N'Guessan [16] noted that the prevalence of depression was over 25% among individuals affected by leprosy and even higher (over 40%) among those with lymphatic filariasis. Oumer et al. [17] echoed similar findings in their systematic review on the impact of filariasis and leprosy on disability and well-being, identifying depression and mental distress as common outcomes due to stigma. The mental health burden reported in these studies ranged from 12.6% to 71.7%, with suicidal ideation also being high (18.5%).

Among the 120 individuals with NTDs in our study, only 15 (12.5%) sought mental health care. This proportion is relatively low, although Bailey et al. [18] highlighted the benefits of integrating physical and mental health services for individuals with NTDs. Over half of the participants who did not seek care (57.14%) cited no specific reason for not doing so. Adjet et al. [19], in their study on Buruli ulcer (another NTD) in Yamoussoukro, emphasized that African traditional medicine is often the first therapeutic recourse, serving as a cultural reference for the community and patients.

Conclusion

Neglected Tropical Diseases (NTDs) remain a major public health issue in Cameroon. The general conclusion of this study is that mental health care for NTDs is still limited, and utilization is low. There is a need for advocacy to better plan strategies and allocate diverse resources. Enhanced awareness among communities, healthcare personnel, and individuals affected by NTDs is essential for effectively addressing the mental health aspect of NTD treatment.

Acknowledgments

The author sincerely thanks the Health District officials of Akonolinga, Ayos, and Monatélé for facilitating access and data collection.

Contribution of authors

Ongbeol Victorine and Yvonne O. M. Bassong conceived the study. Ongbeol Victorine participated in data collection and drafted the initial version of the manuscript. Inna A. N. Mbezou conducted the statistical analysis. Cedric F. Tchinda provided a critical review of the manuscript. Louise J. L. Ngo and Yvonne O. M. Bassong supervised the work. All authors have approved the publication.

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How to cite this Article: Victorine. O, Olga Yvonne. B. M, Audrey Inna. M. N, Fossi Cedric. T, Julienne Louise. N. L; Factors Associated with Mental Health Care Utilization among Neglected Tropical Disease Patients in Three Central Cameroon Healthcare Districts; Int. Res. Med. Health Sci., 2024; (7-5): 37-48; doi: https://doi.org/10.36437/irmhs.2024.7.5.D

Source of Support: Nil, **Conflict of Interest:** None declared.

Received: 02-09-2024; **Revision:** 17-10-2024; **Accepted:** 25-10-2024