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Original Article

Perceived stigmatization, psychosocial well-being, and self-esteem among individuals living in leprosy centers in south-west, Nigeria

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Abstract

Background: Leprosy has over time been seen as a symbol of shame and stigmatization as people affected by leprosy continue to be stigmatized and discriminated against even after they have been cured. The study aimed to assess the perceived levels of stigmatization, psychosocial well-being, and self-esteem among individuals living at a leprosy center in South-West, Nigeria.

Methods: A descriptive cross-sectional design of face-to-face research was conducted in a leprosy center using a simple random technique. The study instrument was a self-structured questionnaire containing sociodemographic details, questions on stigmatization towards the individual affected by leprosy and their family members, and questions regarding their psychosocial well-being adapted from literature, as well as questions adapted from the validated Rosenberg Self Esteem Scale (RSES) by Morris Rosenberg to assess their self-esteem. Data were analyzed with the aid of SPSS version 26 software.

Results: A total of 134 participants were included in the study. Most of the participants were females (61.2%) within the age range of 21- 40 years old (32.8%), and are students (25.4%). Out of the 134 participants, 29.1% (39) of them were affected by leprosy. The participants perceived a high level of stigmatization (37.3%), a high level of psychosocial well-being (38.8%), and demonstrated a moderate level of self-esteem (50.7%). The male gender perceived both low (B = -3.054, p = 0.004) and high (B = -1.84, p = 0.049) stigmatization at p< 0.05. The married (B = -5.421, p = 0.004), the Christians (B = 5.424, p = 0.043) and Islamic (B = 7.743, p = 0.011) participants perceived low stigmatization at p< 0.05. The participants within the age range 21 - 40 (B = 6.25, p = 0.019) and 61 – 80 years (B = 7.29, p = 0.017) perceived high psychosocial well-being while the single (B = -4.43, p = 0.049) and married (B = -5.26, p = 0.017) participants perceived low psychosocial well-being at p< 0.05. None of the demographic factors had relationships with self-esteem at p< 0.05. The perceived levels of stigmatization (r= 0.314, p= 0.0001) and psychosocial well-being (r= 0.225, p= 0.009) are associated with the level of self-esteem at p< 0.05.

Conclusion: This study concludes that the individuals affected by leprosy and their family members living at the leprosy center experienced a high level of stigmatization and, a high level of psychosocial well-being but had moderate self-esteem.

Keywords: Leprosy, Stigmatization, Psychosocial Well-Being, Self-Esteem, Leprosy Centre, Leprosy Patients, Family Members, Nigeria

Background

Leprosy is a deforming disease caused by Mycobacterium leprae majorly affecting the peripheral nerves, mucosa of the respiratory tract, and skin of human beings [1] which still occurs in more than 120 countries, with more than 200 000 new cases reported every year [2]. The African continent witnessed a 42% decrease in the prevalence of leprosy from 57,516 cases to 33,690 between the year 2000 and 2010 [3]. In Nigeria, the National Center for Disease Control states that 3,500 people are diagnosed with leprosy every year with 25% of patients having some degree of disability [4]. With the new cases of leprosy being recorded around the world, it is clear beyond doubt that

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leprosy disease still spreads rapidly among local populations despite the isolation, multi-drug treatment, and other preventive measures being implemented to control and eradicate it [5]. Across the world, an estimated two to three million people are permanently disabled and disfigured due to lack of treatment, late diagnosis and complications of leprosy globally usually develop irreversible and progressive disabilities and disfiguring complications [6]. This disability affects beyond the physical dysfunction as it results in Activities of Daily Living (ADL) limitation, social stigmatization, academic exclusion, job discrimination, and social participation restrictions [7]. This stigmatization often happens from both the victims feeling abandoned as well as discrimination from the unaffected population nurturing a negative orientation about the infectious disease which restricts their relationships with survived victims of leprosy [8]. This ultimately results in prolonged feeling of perceived stigmatization and poor level of psychological well-being which usually leads to low self-esteem among patients and relatives living as a family with leprosy. Leprosy has over time been seen as a symbol of shame and stigmatization, such that the survivor of the disease remains in the vicious circle of the impairments stigma and also faces discrimination [9]. Affected individuals develop a personal attribute of being different from other individuals due to the physical complications after treatment of the disease. The orientation of the unaffected population of leprosy being a chronic infectious disease also results in discrimination of the people living with leprosy which contributes greatly to the limitations and negative social attitudes generated by the disease. Families living with leprosy and the significant others of individuals living with leprosy experience underlying stigmatization from the disease [10]. The perceived stigmatization among leprous patients drastically affects their psychological and sociological well-being [11]. The impairment associated with leprosy gives the affected individuals a new approach to their psychology which results in a different interpretation of information and a unique demand for information which helps in the build of their different coping mechanisms. This also leads to a change in their reaction to the public as they are easily angered and impulsive. The sociological effects of the leprosy disease cannot be over-emphasized as it affects their relationships with family members living with leprosy and the friends of leprous clients leading to a limitation of their participation in society. The poor level of psychosocial well-being extends to the family members living with leprosy as they build a belief that they are being stigmatized by society because of their family members who are affected. This will lead to a critical effect on their relationship with other members of society. As a result of stigmatization and poor levels of psychosocial well-being, the self-esteem of affected people is negatively affected [12,13]. After the treatment of the disease, the victims see themselves in a different light rejection, hopelessness, and restriction. They begin to have a feeling of restricted expression of their potential and personal visions. As a result of low self-esteem, they become dependent on their significant others and are more sensitive to the opinions of the public about them. The family members living with leprosy equally develop a low level of self-esteem which results from the feeling of sadness and the fear of being rejected by society due to their relationship with affected individuals who are their relations. Development in the delivery of leprosy care services and the building of functional models will be of great benefit in helping affected individuals in adaptation and holistic rehabilitation in other to cope with the social complications associated with leprosy. The levels of perceived stigmatization, psychosocial well-being, and self-esteem among people diagnosed with leprosy and their family members living in the Leprosy Center in Ogbomosho.

Methods

Study design and setting

A descriptive cross-sectional design was used to assess the perceived level of stigmatization, psychosocial well-being, and self-esteem among families living at a leprosy center in Ogbomoso. The Ogbomoso Leprosy Center is a treatment and rehabilitation center that houses over 200 individuals living with leprosy and their non-leprous family members owned by the Nigerian Baptist Convention in Ogbomoso, Oyo State. The camp is one of the major camps for leprosy in the southwest zone of Nigeria which houses males and females, from various ethnic groups, states, and religions. The center also has worship places and a hospital for the treatment of leprosy patients The drugs and treatment materials are sponsored by the Diamen Foundation, Belgium, and the medical staff from Bowen University Teaching Hospital. A total number of 201 individuals which includes both males and females from different ethnic groups and religions were at the leprosy centre at the time of the study.

Sampling techniques

A simple random sampling method was used in this study. The families living at the Ogbomoso Leprosy Centre were visited and informed about the study. The questionnaire was administered to individuals and family members who gave their consent to participate in the study. A facilitator who was fluent in English and Yoruba language interpreted the items in the questionnaires to the participant after which the appropriate responses were noted.

Inclusion and exclusion criteria

The individuals of both genders and of different religions and ethnic groups who were residents within the Ogbomoso Leprosy Centre who were willing to participate in the study were included. In contrast, those who were not willing to participate were excluded.

Sample size

The sample size was calculated using Taro Yamene's (1967) formula; (n) = N÷[1+N(e2)]; N = 201 and e= 0.05 (assumed error) [14]. The final sample size was calculated to be 147 after adding a 10% non-response rate but only 134 respondents eventually gave their consent.

The instrument for Data collection

The research instrument used for data collection was a self-structured questionnaire containing the following four sections:

Section A: Sociodemographic data: containing 11 Items which include age, gender, occupation, marital status, religion, family size, role in the family, family setting, who is affected, ethnicity, and place of birth.

Section B: Stigmatization: This consists of 15 questions, each adapted from literature to assess the level of perceived stigmatization of people living with leprosy and their family members.

Section C: Psychosocial Well-being: This consists of 14 questions, each adapted from literature to assess the level of perceived psychosocial well-being of people living with leprosy and their family members.

Section D: Rosenberg Self-Esteem Scale (RSES): A standardized instrument developed by Morris Rosenberg (1965) [15]. The RSES consists of 10 questions (with 5 questions each to measure positive and negative feelings about the self), each adapted to assess the level of perceived self-esteem of people living with leprosy and their family members.

Validity and Reliability of Instrument

The questionnaire was written in English language and was read through and approved by the experts from the nursing departmental board of Bowen University to ensure clarity and easy comprehension. A pilot study was also used to validate that the questionnaire was tested among 29 individuals living at the leprosy center (not included in the study). The Cronbach's alpha was used to assess the reliability of the questionnaire and was found to be 0.89.

Dependent variable

The dependent variables include the level of perceived stigmatization, psychosocial well-being, and self-esteem. Percentiles and 95% confidence interval were calculated to divide the stigmatization and psychosocial well-being scores of participants into three groups. Using the calculated percentiles, the overall stigma scores were categorized into three categories: ≤33% = low perceived stigmatization, >33% and < 66% = moderate perceived stigmatization, and ≥66% = high perceived stigmatization. This approach was suggested by Charles et al. because of the universal cut-off points for stigma scores [16]. Also, the calculated percentiles were used to divide psychosocial well-being scores into three categories: ≤33% = low perceived psychosocial well-being, >33% and < 66% = moderate perceived psychosocial well-being, and ≥66% = high perceived stigmatization. The Rosenberg Self-Esteem Scale ("Rosenberg SES") is an instrument designed to measure individual self-esteem. This instrument is the most widely used self-report measure of its kind, developed in the 1960s by Morris Rosenberg. The instrument contains 10 statements that pertain to self-worth and self-acceptance, with a four-point response scale ranging from "strongly agree" to "strongly disagree." The Rosenberg SES score ranges from 10 to 40, with higher scores indicating higher levels of self-esteem. A score ranging from 10–25 would be considered low self-esteem; a score between 26 and 29 represents moderate self-esteem. A score ranging from 30-40 represents a high level of self-esteem. There is a norm table for the Rosenberg SES-10 item inventory".

Independent variables

The age of the participants is categorized as "unknown", "≤ 20 years", "21-40 years", "41-60 years", "61- 80 years", and ">80 years". Their gender is recorded as "Male" and "Female". The occupation of participants has been categorized into "none", "farming", "trading", "student", "shoemaker", "hospital orderly", "cook", "camp worker", "teaching" and "nurse assistant". The marital status of participants was categorized as "single", "married", "divorced" and "widow". The religion of participants has been categorized into "Christianity", "Islam" and "Traditional". The family size of the participants was categorized as "1 to 5", "6 -10 " and "11- 17". The role of the participants in their families is categorized as "father", "mother", "child", and " grandparent". The variable "family setting" was categorized as "nuclear family" and "extended family". The variable "Who is affected in the family" denotes the one living with leprosy was categorized as "myself", "father", "mother", and "others". The ethnicity of the participants was categorized as "Yoruba", "Igbo", "Hausa" and " others". The place of birth of participants which refers to whether they were born at the leprosy center or not was classified as "In the camp", "Before coming to the camp", and "Not sure".

Statistical analysis

Data collected were analyzed using the IBM Statistical Product and Service Solutions (SPSS) Windows version 26. Descriptive statistics were presented in tables as mean, frequencies, and percentages. Inferential statistics including multivariate logistic regression to ascertain the relationship between the sociodemographic factors and the levels of perceived stigmatization, psychosocial well-being, and self-esteem at a p-value less than 0.05. Spearman correlation was used to analyze the associations among the levels of perceived stigmatization, psychosocial well-being, and self-esteem at a p-value less than 0.05.

Results

Socio-demographic characteristics

A total of 134 participants agreed to take part in the study were included with a response rate of 91%. The highest proportion of the participants were in the age range of 21- 40 years old (32.8%), females (61.2%) and students (25.4%) (Table 1). Most participants were Christians (84%), Yoruba indigenes (78.4%) in nuclear family settings (81%) with 1-5 people living together (62.7%) (Table 1). A larger percentage (59%) of the respondents were born before migrating to the Leprosy center while 43.3% of the families were children at the time of study (Table 1). Out of the 134 participants, 29.1% of them were affected by leprosy (Table 1).

Perceived stigmatization among individuals living at the Leprosy Center in Ogbomoso

The results showed that the common stigmatization experienced by individuals living at the leprosy center, Ogbomoso is people talking about them behind their backs (Mean, SD = 3.07, 0.92), people avoiding them (Mean, SD = 2.96, 1.00), people disallowing them from touching their things (Mean, SD = 2.96, 1.06) and refusal of people to buy their products or employ them for services (Mean, SD = 2.96, 1.04) (Table 2). Of the participants, less than half claimed that people always do not allow them to touch their things (38.8%), do not buy their products or employ them for services (37.3%) and people always avoid skin contact with them in public and social gatherings (Table 2).

Table 1: Socio-demographic data of respondents (N=134)

Variable	Characteristics	N= 134 (%)
Age (years)	18 - 20	41 (30.6)
	21-40	44 (32.8)
	41-60	21 (15.7)
	61-80	12 (9)
	> 80	4 (3)
	Unknown	12 (9)
Gender	Male	52 (38.8)
	Female	82 (61.2)
Occupation	None	28 (20.9)
	Farming	19 (14.2)
	Trading	30 (22.4)
	Student	34 (25.4)
	Shoemaker	1 (0.7)
	Hospital orderly	1 (0.7)
	Cook	2 (1.5)
	Camp Worker	15 (11.2)
	Teaching	1 (0.7)
	Nurse Assistant	3 (2.2)
Marital Status	Single	71 (53)
	Married	49 (36.6)
	Divorced	3 (2.2)
	Widow	11 (8.2)
Religion	Christianity	112 (83.6)
	Islam	15 (11.2)
	Traditional	7 (5.2)
Family Size	1-5	84 (62.7)
	6-10	45 (33.6)
	11-17	5 (3.7)
Role in the family	Father	40 (29.9)
	Mother	32 (23.9)
	Child	58 (43.3)
	Grandparent	4 (3)
Family setting	Nuclear	109 (81.3)
	Extended	25 (18.7)
Who is affected in the family	Myself	39 (29.1)
	Father	34 (25.4)
	Mother	18 (13.4)
	Child	8 (6)
	Others	35 (26.1)
Ethnicity	Yoruba	105 (78.4)
	Igbo	14 (10.4)
	Hausa	9 (6.7)
	Others	6 (4.5)
Place of birth	In the camp	15 (11.2)
	Before coming to the camp	80 (59.7)
	Not sure	39 (29.1)

Perceived psychosocial well-being among individuals living at Leprosy Center in Ogbomoso

The result shows that encouragement from their religious faith (Mean, SD = 3.21,1.92), feeling of happiness (Mean, SD = 3.12, 1.93) as well and having hope about their condition (Mean, SD = 3.07, 1.07) lead to perception of the participants about their psychosocial well-being (Table 3). A larger percentage of the participants reported that they are always encouraged by their religious faith (47%), always feel happy (40.3%) and always have hope about their condition (40.3%) (Table 3). Some other participants perceive that people sometimes easily show them sympathy when they need it (45.5%), living in the camp sometimes affects their thinking (41.8%), and that they sometimes feel good about themselves, no matter what others think or say (41.8%) (Table 3).

Table 2: Perceived Stigmatization of Family Clients Living at Leprosy Center in Ogbomoso (N=134)

Variable	Always n (%)	Sometimes n (%)	Rarely n (%)	Never n (%)	Mean	SD
How often do people avoid you?	46(34.3)	55(41)	15(11.2)	18(13.4)	2.96	1.00
How often do people talk about you behind your back	46(34.3)	66(49.3)	7(5.2)	15(11.2)	3.07	1.92
People don't allow you to touch their things	52(38.8)	45(33.6)	17(12.7)	20(14.9)	2.96	1.06
People don't buy your products or employ you for services	50(37.3)	49(36.6)	15(19.2)	20(14.9)	2.96	1.04
People don't like to deliver products and services to your family in the camp	45(33.6)	57(42.5)	13(9.7)	19(14.2)	2.96	1.00
People don't like to exchange money with you	40(29.9)	61(45.5)	18(13.4)	15(11.2)	2.94	1.04
People avoid skin contact with you in public and social gatherings	49(36.6)	47(35.1)	11(8.2)	27(20.1)	2.88	1.12
People always avoid sitting with you on public transport	44(32.8)	45(33.6)	22(16.4)	23(17.2)	2.82	1.18
Your friends don't like visiting you and your family in the camp	36(26.7)	61(45.5)	16(11.9)	21(15.7)	2.84	1.00
How often do you get sexual partners outside the camp?	18(13.4)	61(45.5)	16(11.9)	21(15.7)	2.84	1.00
How often do you attend social events and parties outside the camp?	34(25.4)	36(26.9)	38(28.4)	26(19.4)	2.58	1.17
How often do people abuse you because of your skin or body changes?	25(18.7)	66(49.3)	21(15.7)	22(16.4)	2.70	1.06
How often do people deny you the opportunity to go to school because of your family condition?	27(20.1)	57(42.5)	14(10.4)	36(26.9)	2.43	1.19
Your family members and other relatives never visited you since you moved to the camp	35(26.1)	45(33.6)	18(13.4)	36(26.9)	2.59	1.15
How often were you denied entry to government offices because of your family condition?	27(20.1)	57(42.5)	14(10.4)	36(26.9)	2.56	1.19

Table 3: Perceived Psychosocial Well-being of Family Clients Living at Leprosy Center in Ogbomoso (n=134)

Variable	Always n (%)	Sometimes n (%)	Rarely n (%)	Never n (%)	Mean	SD
You feel bad about your family's condition	49(36.6)	44(32.8)	8(6.0)	33(24.6)	2.81	1.28
You feel ashamed of yourself	34(25.4)	54(40.3)	15(11.2)	31(23.1)	2.68	1.19
You feel good about yourself, no matter what others think or say	44(32.8)	56(41.8)	22(16.4)	12(9.0)	2.99	1.08
Living in the camp affects your thinking	42(31.3)	56(41.8)	49(14.2)	17(12.7)	2.92	1.08
Your friends outside the camp still get in touch with you	47(35.1)	53(39.6)	18(13.4)	16(11.9)	2.98	1.09
People easily show you sympathy when you need it	46(34.3)	61(45.5)	14(10.4)	13(9.7)	3.04	1.02
You easily find someone to talk to when you are sad	41(30.6)	53(39.6)	29(21.6)	11(8.2)	2.93	1.92
Do you have friends outside the camp?	48(35.8)	45(33.6)	25(18.7)	16(11.9)	2.93	1.01
You easily get encouragement from people to achieve your goals	41(30.6)	52(38.8)	24(17.9)	17(12.7)	2.87	1.09
You easily get sad when you think about your condition	43(32.1)	49(36.6)	20(14.9)	22(16.4)	2.84	1.05
You sometimes feel afraid	39(29.1)	53(39.6)	13(9.7)	29(21.6)	2.76	1.10
You feel happy sometimes	54(40.3)	54(40.3)	14(10.4)	12(9.0)	3.12	1.93
You have hope about your condition	54(40.3)	50(37.3)	16(11.9)	14(10.4)	3.07	1.07
Your religious faith helps you in getting encouraged	63(47.0)	46(34.3)	15(11.2)	10(7.5)	3.21	1.92

Perceived self-esteem among individuals living at Leprosy Center in Ogbomoso

The perceived self-esteem result of individuals living at the Leprosy Center in Ogbomoso showed that the participants felt that they have several good qualities (Mean, SD = 3.10, 1.72), the belief that they can do things as well as most other people (Mean, SD = 3.07, 1.87), feelings that they are persons of worth, at the equal plane with others (Mean, SD = 2.98, 1.82), and take a positive attitude toward myself (Mean, SD = 2.98, 1.80) are perceived higher (Table 4). A little above half of the participants agree that: they wish they could have more respect for themselves (53.7%), they take a positive attitude toward themselves (52.2%) and they feel that they have several good qualities (51.5%) (Table 4)

Level of Perceived stigmatization, psychosocial well-being and self-esteem among individuals living at Leprosy Center in Ogbomoso

The results of the level of perceived stigmatization of individuals living at the Leprosy Center in Ogbomoso show that the highest proportion of respondents (37.3%) had a high level of perceived stigmatization, 35.1% had a low level of perceived stigmatization while 27.6% had a moderate level of perceived stigmatization (Table 5). For the perceived psychological well-being of individuals living at Leprosy Center in Ogbomoso, the results revealed that 38.8% perceived themselves as having a high level of psychological well-being, 36.6% perceived a low level of psychological well-being while 24.6% had a moderate level of perceived psychological well-being (Table 5). Considering the level of perceived self-esteem among individuals living at the Leprosy Center in Ogbomoso, half of the participants (50.7%) perceived themselves as having a moderate level of self-esteem, followed by 34.3% who had a high level of perceived self-esteem while 14.9% had low perceived self-esteem (Table 5).

Table 4: Perceived Self-esteem of Family clients living at Leprosy Center in Ogbomoso (n=134)

Variables	Strongly Agree n (%)	Agree n(%)	Disagree n(%)	Strongly Disagree n(%)	Mean	SD
On the whole, I am satisfied with myself	32(23.9)	66(49.3)	28(20.9)	8(6.0)	2.94	1.83
At times I think I am not good at all	25(18.7)	55(41.0)	47(35.1)	7(5.2)	2.73	1.82
I feel that I have several good qualities	40(29.9)	69(51.5)	23(17.2)	2(1.5)	3.10	1.72
I can do things as well as most other people	40(29.9)	67(50.0)	23(17.2)	4(3.0)	3.07	1.87
I feel I do not have much to be proud of.	23(17.2)	60(44.8)	40(29.9)	11(8.2)	2.71	1.85
I certainly feel useless at times	17(12.7)	49(36.6)	59(44.0)	9 (6.7)	2.55	1.80
I feel that I'm a person of worth, an equal plane with others	36(26.9)	66(49.3)	25(18.7)	7(5.2)	2.98	1.82
I wish I could have more respect for myself	31(23.1)	72(53.7)	21(15.7)	10(7.5)	2.93	1.83
All in all, I am inclined to feel that I am a failure	16(11.9)	33(24.6)	55(41.0)	30(22.4)	2.26	1.94
I take a positive attitude toward myself	34(25.4)	70(52.2)	23(17.2)	7(5.2)	2.98	1.80

Table 5: Level of Perceived Stigmatization, Perceived Psychosocial Well-Being, and Perceived Self-Esteem of Individuals Living at Leprosy Center in Ogbomoso (n=134)

Variables	Low level (%)	Moderate level (%)	High level (%)
Perceived Stigmatization	35.1	27.6	37.3
Perceived Psychosocial Well-Being	36.6	24.6	38.8
Perceived Self-Esteem	14.9	50.7	34.3

Relationships between some demographic factors and the levels of Perceived stigmatization, psychosocial well-being, and self-esteem level

The result of the multinomial regression of the relationship between sociodemographic factors and the perceived level of stigmatization of individuals in leprosy center, Ogbomoso (Table 6a) showed that the male gender showed a statistical relationship with both low (B = -3.054, p = 0.004) and high (B = -1.84, p = 0.049) levels of perceived stigmatization at p< 0.05. The married (B = -5.421, p = 0.004), the Christians (B = 5.424, p = 0.043), and Islamic (B = 7.743, p = 0.011) participants are statistically related to low perceived stigmatization at p< 0.05 (Table 6a). The result of multinomial regression evaluating the relationship between sociodemographic factors and perceived psychosocial well-being level of individuals in the Leprosy center in Table 6b also showed that participants within the age range 21 to 40 years (B = 6.25, p = 0.019) and 61 to 80 years (B = 7.29, p = 0.017) demonstrated significant statistical relationships with high psychosocial well-being while the single (B = -4.43, p = 0.049) and married (B = -5.26, p = 0.017) participants had low perceived psychosocial well-being at p< 0.05. Furthermore, the result of multinomial regression of the relationship between sociodemographic factors and perceived self-esteem level among individuals in the Leprosy Center, Ogbomoso at p< 0.05 (Table 6c) showed that none of the demographic factors of the participants showed significant statistical relationships with the level of self-esteem. This may be interpreted to mean that the self-esteem of people affected by leprosy and their family members may receive a boost through health education and counseling against stigmatization thereby improving their psychosocial well-being and overall mental health.

Associations among the levels of Perceived stigmatization, psychosocial well-being, and self-esteem level

The result of the correlation among the perceived levels of stigmatization, psychosocial well-being, and self-esteem of individuals in the leprosy center, Ogbomoso is presented in Table 7. The perceived level of stigmatization showed a weak positive association with psychosocial well-being (r= 0.486, p= 0.0001) and self-esteem (r= 0.314, p= 0.0001) at p< 0.05 (Table 7). Moreover, the perceived levels of psychosocial well-being and self-esteem had a weak positive association (r= 0.225, p= 0.009) at p< 0.05 (Table 7).

Discussion

Leprosy has been associated with diagnosable mental and neuropsychiatric conditions as well as negative feelings and attitudes in affected individuals and their family members [17-20]. Stigmatization and discrimination among several factors continue to affect the psychosocial well-being and self-esteem of the people affected by leprosy as well as their family members [20]. In this study, a high level of perceived stigmatization (37.3%) was observed among the participants. This percentage is higher than the 12-17% and 35.5% of perceived stigma observed in India and Indonesia respectively but lower than the 50% and 52% of perceived stigma observed in studies conducted in Bangladesh and Nepal respectively [21, 22]. The differences in the percentage of stigmatization could be due to differences in the instruments and methods of data collection. Ebenso et al. [24] in their study noted that the stigmatization of leprosy in the western part of Nigeria where this study was carried out has its sources from the messages disseminated from the 1930s onwards by missionaries through Christian churches, the health promotion messages embedded in primary school books and the leaflet commissioned by the government in 1955 to raise awareness on the danger of leprosy [23]. The common stigmatization often experienced by individuals in this study such as people talking about them behind their back, people avoiding them, people disallowing them from touching their things, and refusal of people to buy their products or employ them for services may threaten their social and economic aspects of lives, thereby dampening their mental well-being and self-esteem. This may result in them developing negative feelings and attitudes like suicide, depression, fear, loneliness, sadness, anger, and low quality of life [20].

Table 6a: Relationship between some demographic factors and perceived stigmatization (n=134)

		Low Stigmatization				**High Stigmatization**			
Variables	Categories	B	Sig.	Exp(B)	95%CI	B	Sig.	Exp(B)	95%CI
Age (years)	Unknown	-8.41	0.99	0	0 - .b	-11.0	0.99	1.64E-5	0 - .b
	18 - 20	-7.04	1.00	0.001	0 - .b	-10.5	0.99	2.86E-5	0 - .b
	21-40	-5.94	1.00	0.003	0 - .b	-9.89	0.99	5.07E-05	0 - .b
	41-60	-7.46	0.99	0.001	0 - .b	-7.67	0.99	0	0 - .b
	61-80	15.027	0.99	3357986	0 - .b	13.73	0.99	916037	0 - .b
	> 80	0c	.	.	.	0c	.	.	.
Gender	Male	-3.054	**0.004***	0.047	0.01 - 0.37	-1.84	**0.049***	0.158	0.03 - 1.00
	Female	0c	.	.	.	0c	.	.	.
Occupation	None	-11.47	0.995	1.05E-5	0 - .b	-13.06	0.994	2.14E-6	0 - .b
	Farming	-10.78	0.995	2.09E-5	0 - .b	-18.51	0.991	9.12E-9	0 - .b
	Trading	-11.9	0.994	6.81E-6	0 - .b	-14.31	0.993	6.13E-7	0 - .b
	Student	-10.75	0.995	2.14E-5	0 - .b	-14.14	0.993	7.20E-7	0 - .b
	Shoemaker	-68.45	0.993	1.87E-30	0 - .b	-57.45	0.992	1.13E-25	0 - .b
	Hospital orderly	-24.85	0.997	1.61E-11	0 - .b	-34.0	0.996	1.72E-15	0 - .b
	Cook	-18.09	0.996	1.39E-8	0 - .b	1.395	1	4.034	0 - .b
	Camp Worker	-13.40	0.994	1.51E-6	0 - .b	-17.08	0.992	3.81E-8	0 - .b
	Teaching	-10.97	0.999	1.72E-5	0 - .b	-1.656	1	0.191	0 - .b
	Nurse Assistant	0c	.	.	.	0c	.	.	.
Marital Status	Single	-2.656	0.143	0.07	0.002-2.46	0.46	0.851	1.585	0.013 - 196
	Married	-5.421	**0.004***	0.004	0- 0.182	-1.314	0.575	0.269	0.003 -26.7
	Divorced	4.738	0.998	114.22	0 - .b	-12.27	0.997	4.69E-6	0 - .b
	Widow	0c	.	.	.	0c	.	.	.
Role in the family	Christianity	5.424	**0.043***	226.814	1.2 - 43520	2.233	0.307	9.331	0.128 - 679
	Islam	7.743	**0.011***	2305.8	5.73-9.3E5	4.73	0.058	113.14	0.85 - 15108
	Traditional	0c	.	.	.	0c	.	.	.
Family Size	1 to 5	-16.57	0.987	6.36E-08	0 - .b	-16.45	0.987	7.21E-8	0 - .b
	6 to 10	-17.56	0.986	2.36E-08	0 - .b	-16.84	0.987	4.85E-8	0 - .b
	11 to 17	0c	.	.	.	0c	.	.	.
	Father	47.864	0.976	6.12E+20	0 - .b	43.542	0.978	8.13E+18	0 - .b
	Mother	45.321	0.977	4.82E+19	0 - .b	38.317	0.981	4.38E+16	0 - .b
	Child	45.735	0.977	7.29E+19	0 - .b	41.351	0.979	9.09E+17	0 - .b
	Grandparent	0c	.	.	.	0c	.	.	.
Who is	Myself	-0.745	0.497	0.475	0.06-4.08	-0.267	0.79	0.766	0.11 - 5.48
affected in	Father	1.042	0.384	2.835	0.27-29.56	0.53	0.638	1.699	0.19 - 15.4
the family	Mother	1.668	0.222	5.299	0.36-77.11	0.246	0.856	1.279	0.09 -18.06
	Child	16.578	0.989	15843885	0 - .b	16.832	0.989	20417510	0 - .b
	Others	0c	.	.	.	0c	.	.	.
Ethnicity	Yoruba	-61.33	0.976	2.32E-27	0 - .b	-58.03	0.977	6.26E-26	0 - .b
	Igbo	-53.78	0.979	4.41E-24	0 - .b	-52.93	0.979	1.03E-23	0 - .b
	Hausa	-60.46	0.976	5.55E-27	0 - .b	-57.13	0.978	1.55E-25	0 - .b
	Others	0c	.	.	.	0c	.	.	.

The reference category is Moderate stigmatization. b Floating point overflow occurred while computing this statistic. Its value is therefore set to system missing. c This parameter is set to zero because it is redundant, * means significant at p< 0.05

The male gender is related to high perceived stigma compared to the female gender, this agrees with the study of Rao et al. who observed that men with leprosy are stigmatized in society and kept from traditional services, social participation, and social institutions [22]. This is contrary to findings from most studies in which the female gender was observed to be related to high stigmatization [23-27]. The married participants are related to low perceived stigma, this could be because of support received from their spouses and children as observed by Try [23]. The Christian and Muslim participants in this study perceived low stigmatization; this may be due to the efforts and contributions of these major faiths in addressing leprosy stigmatization and discrimination as highlighted by WHO [28].

The level of Psychosocial well-being among leprosy clients in this study is high. This may be because they have developed cognitive coping strategies through religion and social belief that have helped them in developing strong psychosocial well-being having lived in the center for a very long time. The individuals living at the center also get strong encouragement via their religious faith and counsel from the religious leaders in the center. From the socio-demographic data collected, 84% of people living at the center are Christian. Their ability to see themselves as having the same problem encourages them to be able to relate to each other's feelings. The individuals living at the center also feel they still have hope about their condition because their friends and family members still visit them to empathize with them when needed.

Table 6b: Relationship between some demographic factors and perceived Psychosocial well-being (n=134)

		Low Psychosocial Wellbeing				**High Psychosocial Wellbeing**			
Variables	**Categories**	B	Sig.	Exp(B)	95%CI	B	Sig.	Exp(B)	95%CI
Age (years)	18 – 20	3.19	0.512	24.182	0.002 - 3.33E5	3.63	0.151	37.684	0.27 -5.3E4
	21-40	7.62	0.125	2029.487	0.12- 3.44E7	6.25	**0.019***	515.946	2.82-9.43E4
	41-60	6.82	0.16	916.944	0.067-1.25E7	3.88	0.123	48.303	0.35-6.7E3
	61-80	9.36	0.068	1.16E4	0.504 -2.67E8	7.29	**0.017***	1466.827	3.6-5.98E5
	> 80	4.79	0.349	119.865	0.005-2.7E6	4.10	0.178	60.428	0.15-2.36E4
	Unknown	0b	.	.	.	0b	.	.	.
Gender	Male	1.94	0.095	6.937	0.716-67.164	2.18	0.056	8.811	0.95-82.09
	Female	0b	.	.	.	0b	.	.	.
Occupation	None	-18.27	0.995	1.16E-08	0-.c	-17.0	0.995	4.15E-08	0-.c
	Farming	-14.67	0.996	4.27E-07	0-.c	-16.92	0.995	4.49E-08	0-.c
	Trading	-18.77	0.995	7.08E-09	0-.c	-18.0	0.995	1.53E-08	0-.c
	Student	-18.23	0.995	1.21E-08	0-.c	-18.93	0.995	6.02E-09	0-.c
	Shoemaker	-37.35	.	5.99E-17	5.99E-17 - 5.99E-17	-38.51	.	1.88E-17	1.9E-17-1.9E-17
	Hospital orderly	-38.71	.	1.54E-17	1.54E-17 - 1.54E-17	-40.14	.	3.71E-18	3.7E-18 - 3.7E-18
	Cook	-18.17	0.998	1.28E-08	0-.c	2.4	1	11.02	0-.c
	Camp Worker	-17.91	0.995	1.67E-08	0-.c	-18.37	0.995	1.05E-08	0-.c
	Teaching	-36.63	.	1.23E-16	1.23E-16 - 1.23E-16	-38.57	.	1.78E-17	1.8E-17 - 1.8E-17
	Nurse Assistant	0b	.	.	.	0b	.	.	.
Marital	Single	-4.43	**0.049***	0.012	0 - 0.985	-0.32	0.90	0.73	0.006-81.94
Status	Married	-5.26	**0.017***	0.005	6.89E-5 - 0.40	-0.64	0.78	0.53	0.006-47.10
	Divorced	10.45	0.997	3.46E4	0-.c	12.46	0.997	2.58E5	0-.c
	Widow	0b	.	.	.	0b	.	.	.
Religion	Christianity	2.68	0.236	14.629	0.174-1232.77	1.44	0.429	4.215	0.12-149.46
	Islam	4.96	0.064	142.591	0.745-27304.91	4.04	0.072	56.642	0.7-4585.6
	Traditional	0b	.	.	.	0b	.	.	.
Family Size	1 to 5	-18.29	0.994	1.15E-08	0-.c	-16.74	0.995	5.37E-08	0-.c
	6 to 10	-18.55	0.994	8.78E-09	0-.c	-16.87	0.994	4.73E-08	0-.c
	11 to 17	0b	.	.	.	0b	.	.	.
Role in the	Father	-2.6	0.484	0.074	5.095E-5-108.18	-4.30	0.15	0.014	3.88E-5 -4.72
family	Mother	0.17	0.961	1.188	0.001-1261.8	-4.11	0.149	0.016	6.26E-5 - 4.33
	Child	-0.72	0.841	0.486	0-553.18	-3.92	0.165	0.02	7.97E-5 -4.98
	Grandparent	0b	.	.	.	0b	.	.	.
Who is affected in	Myself	0.36	0.699	1.428	0.23-8.71	-0.59	0.502	0.555	0.1-3.09
the family	Father	0.48	0.625	1.615	0.24-11.03	0.14	0.875	1.155	0.19-6.94
	Mother	0.31	0.778	1.366	0.16 -11.94	-0.62	0.577	0.538	0.06-4.77
	Child	-1.27	0.364	0.28	0.018-4.37	-2.96	0.094	0.052	0.002-1.66
	Others	0b	.	.	.	0b	.	.	.
Ethnicity	Yoruba	1.36	0.546	3.882	0.048-316.57	1.62	0.428	5.073	0.09-280.2
	Igbo	18.29	0.99	8.79E7	0-.c	17.81	0.99	5.41E7	0-.c
	Hausa	-1.45	0.611	0.235	0.001-61.59	1.1	0.648	2.989	0.03-327.4
	Others	0b	.	.	.	0b	.	.	.

a: The reference category is: Moderate Psychosocial Wellbeing. b This parameter is set to zero because it is redundant. c Floating point overflow occurred while computing this statistic. Its value is therefore set to system missing. * Means significant at p< 0.05

The participants within the age range of 21-40 and 61-80 demonstrated high perceived psychosocial well-being. The participants aged 21- 40 years old have the highest population in the camp, This may have boosted their psychosocial well-being as they have many of their peer groups in the camp where they relate together and do things together. Participants aged 61-80 years may have high psychosocial well-being because they have developed coping strategies against the stigma associated with leprosy over the years. Also, the single and married participants in this study perceived low psychosocial well-being, this may be connected with the burden associated with the disease. The level of self-esteem of individuals living at the leprosy center is moderate. This finding contradicts the finding of Teli and Ghorapade [29] in a study of the level of self-esteem among leprosy patients at selected societies of Sangli District that 62.4% of leprosy patients had low self-esteem while 37.6% had moderate self-esteem level with no leprosy patients

having high self-esteem as well as the study by Safaa et al. who recorded 71.9% for low self-esteem [29, 30]. The moderate self-esteem of the participants in this study may be linked to their rehabilitation from the physical disabilities of leprosy and the development of a positive attitude towards themselves, self -and feeling of having good qualities like others. Similar to Teli and Ghorapade [29], the demographic variables were not related to the levels of self-esteem [29]. Both the levels of perceived stigmatization and psychosocial well-being are associated with the level of perceived self-esteem.

Table 6c: Relationship between some demographic factors and perceived Self-Esteem (n=134)

		Low Self Esteem				High Self Esteem			
Variable	**Characteristics**	**B**	**Sig.**	**Exp(B)**	**95% CI**	**B**	**Sig.**	**Exp(B)**	**95% CI**
Age (years)	18 - 20	-43.71	0.991	1.04E-19	0-.b	-49.53	0.994	3.10E-22	0-.b
	21- 40	-22.29	0.995	2.09E-10	0-.b	-49.62	0.994	2.83E-22	0-.b
	41-60	-21.41	0.995	5.04E-10	0-.b	-51.21	0.994	5.78E-23	0-.b
	61-80	-18.77	0.996	7.04E-09	0-.b	-50.41	0.994	1.28E-22	0-.b
	> 80	-18.78	0.996	6.99E-09	0-.b	-47.06	0.994	3.64E-21	0-.b
	Unknown	-39.89	.	4.72E-18	4.724E-18 - 4.72E-18	-68.29	0.992	2.20E-30	0-.b
Gender	Male	1.304	0.279	3.686	0.35- 39.14	0.74	0.273	2.101	0.557-7.923
	Female	0c	.	.	.	0c	.	.	.
Occupation	None	-39.07	0.987	1.08E-17	0-.b	-2.469	0.999	0.085	0-.b
	Farming	-39.57	0.987	6.53E-18	0-.b	-2.923	0.999	0.054	0-.b
	Trading	-40.66	0.987	2.19E-18	0-.b	-2.728	0.999	0.065	0-.b
	Student	-39.15	0.987	9.95E-18	0-.b	-2.383	0.999	0.092	0-.b
	Shoemaker	23.66	0.998	1.87E+10	0-.b	12.247	0.999	2.08E+05	0-.b
	Hospital orderly	-31.27	0.997	2.62E-14	0-.b	-20.96	0.998	7.91E-10	0-.b
	Cook	-38.07	0.995	2.93E-17	0-.b	14.476	0.998	1.94E+08	0-.b
	Camp Worker	-39.49	0.987	7.11E-18	0-.b	-3.068	0.999	0.047	0-.b
	Teaching	-39.9	0.997	4.70E-18	0-.b	14.476	0.999	1.94E+06	0-.b
	Nurse Assistant	0c	.	.	.	0c	.	.	.
Marital	Single	-28.27	0.977	5.28E-13	0-.b	-0.228	0.889	0.796	0.03-19.61
Status	Married	-30.574	0.975	5.27E-14	0-.b	0.937	0.575	2.553	0.097-67.53
	Divorced	-18.92	0.982	6.05E-09	0-.b	-0.661	0.864	0.516	0-972.72
	Widow	0c	.	.	.	0c	.	.	.
Religion	Christianity	0.868	0.736	2.382	0.02-373.0	0.283	0.855	1.328	0.064-27.50
	Islam	0.852	0.771	2.344	0.01-718.5	0.586	0.729	1.797	0.065-49.30
	Traditional	0c	.	.	.	0c	.	.	.
Family Size	1 to 5	-13.21	0.991	1.83E-06	0-.b	16.177	0.994	1.06E+07	0-.b
	6 to 10	-11.43	0.992	1.08E-05	0-.b	17.331	0.993	3.36E+07	0-.b
	11 to 17	0c	.	.	.	0c	.	.	.
Role in the	Father	44.977	0.989	3.42E+19	0-.b	1.683	0.074	5.384	0.85-34.19
family	Mother	44.888	0.989	3.12E+19	0-.b	1.198	0.215	3.312	0.499-21.98
	Child	44.686	0.989	2.55E+19	0-.b	2.002	.	7.4	7.4-7.4
	Grandparent	0c	.	.	.	0c	.	.	.
Who is	Myself	-26.4	0.978	3.42E-12	0-.b	0.19	0.795	1.209	0.289-5.06
affected in	Father	-0.096	0.941	0.909	0.07-11.5	0.647	0.374	1.909	0.459-7.937
the family	Mother	0.194	0.873	1.214	0.11-12.99	0.812	0.394	2.253	0.348-14.59
	Child	0.828	0.667	2.288	0.05-99.74	0.532	0.652	1.703	0.17-17.25
	Others	0c	.	.	.	0c	.	.	.
Ethnicity	Yoruba	54.929	0.987	7.16E+23	0-.b	33.206	0.995	2.64E+14	0-.b
	Igbo	57.074	0.987	6.13E+24	0-.b	31.475	0.995	4.67E+13	0-.b
	Hausa	39.44	0.991	1.34E+17	0-.b	32.095	0.995	8.68E+13	0-.b
	Others	0c	.	.	.	0c	.	.	.

The reference category is Low self-esteem. b Floating point overflow occurred while computing this statistic. Its value is therefore set to system missing. this parameter is set to zero because it is redundant. .* means significant at p< 0.05

The main limitation of this study was the quantitative design, which limited the exploration of variables and data. Some respondents were not literate enough to fill the questionnaire which led to too much time consumption and lack of interest from the respondent in answering some questions. Other limitations to the study are social distancing challenges, physical disability, and risk of infection, level of education and interpretation of research concepts, emotional outbursts or breakdown, poor organization or coordination in the isolated treatment centers, and lack of a sufficient number of research sample that consents to voluntarily participate in the study. This study recommends education of the population outside the leprosy camp to reduce their level of stigmatization towards people living in the leprosy camp and economic integration to

help improve their standard of living and eradicate poverty. More research should be conducted by nurses in the camp to improve the delivery of health care to them and to identify the possible risks and challenges associated with stigmatization and low self-esteem among Family members living at the leprosy center. Further studies should be done with a qualitative design to give room for exploration and support more generalization of results to assess their level of income, pressing needs, and factors exacerbating the experience of stress among family members living at the leprosy center about curriculum design.

Implication to practice

This study contributes to the public health domain of Nursing by calling the attention of nurses to the improvement of psychological and social rehabilitation of leprosy clients. The study proves that healthcare delivery by nurses; most especially those who can be easily stigmatized should be holistic and family-oriented. This study also shows that perceived stigmatization; psychosocial well-being and self-esteem are common factors that should be considered during the nursing process and care plan of individuals, families, or population groups by public health nurses, nurse managers, and policy makers when designing and implementing in-patient care, out-patient care, and healthcare outreach either as periodic health mission or public campaign interventions; thereby ensuring a holistic coverage of all citizens without exclusion of individuals in isolated community settlements.

Conclusion

This study identifies that a higher proportion of individuals living at the Ogbomoso Leprosy Centre had a high level of perceived stigmatization. Nonetheless, a higher percentage still had a high level of perceived psychosocial well-being but a moderate level of self-esteem. The findings highlight the ongoing challenges faced by individuals affected by leprosy, both in terms of social stigma and its impact on their psychological and emotional well-being. The results indicate a high level of perceived stigmatization, which aligns with the historical context of leprosy as a stigmatized and misunderstood disease.

However, it is encouraging to note that despite these challenges, participants also demonstrated a moderate level of psychosocial well-being and self-esteem. The study underscores the importance of holistic care for individuals living with leprosy, emphasizing the need for interventions that address not only the physical aspects of the disease but also its psychological and social consequences. Furthermore, the study highlights the role of religion and faith as sources of welfare and support for individuals in coping with the challenges of leprosy. Findings also suggest that certain demographic factors, such as gender, marital status, and religious affiliation, can influence the level of perceived stigmatization. This emphasizes the need for tailored interventions that consider these factors to effectively address and reduce disease-related stigma. In conclusion, this study provides valuable insights into the mental health challenges faced by individuals affected and isolated in a leprosy center; thereby highlighting their need for comprehensive care, psychological support, and efforts to reduce stigma. It calls for collaborative efforts to improve the lives of those living with leprosy and to promote a more inclusive and compassionate society.

Table 7: Association among the level of perceived Stigmatization, Psychosocial Well-being, and Self-Esteem of Family clients living at Leprosy Center in Ogbomoso (n=134)

No.	Variables	Sig.	Level of Stigmatization	Level of Psychosocial Well-being	Level of Self-Esteem
1	Level of Stigmatization	r	1	0.486	0.314*
		p-value		0.0001*	0.0001*
2	Level of Psychosocial Well-being	r		1	0.225
		p-value			0.009*
3	Level of Self-Esteem	r			1
		p-value			

Abbreviation

RSES: Rosenberg Self Esteem Scale; IBM SPSS: International Business Machine Corporation Statistical Product and Service Solutions; WHO: World Health Organization; ADL: Activities of Daily Living; NCDC: National Center for Disease Control.

Declaration

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Availability of data and materials

Data will be available by emailing peteradedeji2020@gmail.com

Authors' contributions

Peter Oluyemi Adedeji (POA) contributed to the restructuring of the study idea, contributed to the design of the questionnaire, wrote the ethical protocol and the manuscripts and supervised the whole research, contributed to the design of the questionnaires, reviewed and editing of the manuscripts. Isaiah Oluwaseyi Olabisi contributed to the restructuring of the initial project study idea, evaluated the research instrument as a Mental Health Nursing specialist, and contributed to the writing, review, and editing of the manuscript. Oluwadamilola

Joy Aladegbami (OJA) conceived the idea, and design of the questionnaire and helped in the data collection and also in editing of the manuscript. Oluwatosin Adewusi Adedeji (OAA) spearheaded the analysis and editing of the manuscript. All authors have read and approved the final manuscript.

Ethics approval and consent to participate

We conducted the research following the declaration of Helsinki. The ethical protocol was approved by the Bowen University Teaching Hospital Health Research Ethics Committee (BOWENUTH-HREC) with approval number BOWENUTH/REC/178 on 1st July 2021. All family clients who participated by answering the questionnaire did so voluntarily without any form of inducement or coercion in accordance with ethical principles. Privacy and confidentiality were also ensured. A precaution was taken to ensure that in the process of investigating the subjects, the process would cause minimal discomfort to the participants. During the process and after, respondents did not have a traceable means of identification, and all information will be strictly treated as confidential.

Consent for publication

Not applicable

Competing interest

The authors declare that they have no competing interests.

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