MODERN MEDICINE AND PRACTICE
http://inovatus.es/index.php/ejmmp

EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE
Vol. 3 No. 09 (Sep - 2023) EJMMP ISSN: 2795-921X

LEVEL OF STIGMA AND DISCRIMINATION TOWARDS PEOPLE LIVING WITH SICKLE CELL DISEASE IN IBADAN-NORTH LOCAL GOVERNMENT AREA, OYO STATE

Adeola Abiodun Akintomide
University of Ibadan (Public Health Epidemiology)

Peter Olaoluwa Adediji
Nigeria Centre for Disease Control and Prevention.
(Surveillance and Epidemiology Department)

Olanrewaju, Saheed Adewale (MPH)
Osun-State Ministry of Health
(Deputy Director of Pharmaceutical Service)

Omole, Michael Segun (PhD)
School of Health Information Management,
Osun State College of Health Technology, Ilesa, Nigeria.

Francis Adeniyi Balogun JP (RCHP)
Lead city University, Ibadan Nigeria.
Faculty of Basic Medical and Health Science,
Community Health Department

Olufunke Adenike Vaughan
University of Bradford UK

Annotation: Introduction: Sickle cell disease is an inherited condition of significant public health concern, notably contributing to elevated infant mortality rates on a global scale. Individuals afflicted with sickle cell disease often face the risk of being stigmatized, as there are prevalent negative perceptions associated with their illness. Consequently, there is a growing awareness of the presence of stigmatizing attitudes among people living with sickle cell disease. This research endeavors to assess the extent of stigma experienced by individuals living with sickle cell disease

Method: This research employed a cross-sectional study design, employing a multi-stage cluster sampling approach to gather data from 500 respondents. Data collection was facilitated through the use of a semi-structured interviewer-administered questionnaire, which encompassed inquiries about participants' socio-demographic characteristics, their knowledge and beliefs pertaining to sickle cell disease, and their stigmatizing attitudes towards individuals living with this condition. The extent of stigmatization was gauged using Bogardus' social distance scale. The collected data underwent analysis through descriptive statistics, chi-square tests for assessing associations, and multinomial logistic regression to identify factors influencing stigmatizing attitudes, all performed at a 5% significance level

Results: The study involved respondents with an average age of 33.4 years (±10.4), of which 56.4% were female, 58.4% identified as Christians, and 37.8% had completed secondary school education. Among those with low levels of intimacy, 58.9% reported experiencing high levels of stigma. Conversely, 40.6% of those with moderate levels of intimacy exhibited low stigma, while 73.3% of respondents with high levels of intimacy displayed low stigma. The awareness level about sickle cell disease was notably high at 100%. Additionally, 52.6% of respondents had limited knowledge about the disease, whereas 55% held positive beliefs, 52.4% exhibited a favorable attitude, and 52.2% were aware of their genotype status.

In terms of predictors, residing in a monogamous setting (OR=8.25, CI=1.339-50.839) emerged as the sole predictor of moderate stigmatizing attitudes in comparison to low stigmatizing attitudes. On the other hand, having a secondary education (OR=2.04, CI=1.166-3.570), holding positive beliefs (OR=0.49 CI=0.313-0.792), having high levels of intimacy (OR=0.25, CI=0.145-0.455), and having moderate levels of intimacy (OR=0.32, CI=0.191-0.546) were identified as predictors of high stigmatizing attitudes towards individuals living with sickle cell disease in comparison to low stigmatizing attitudes.

Conclusion: It is imperative to implement health education initiatives focused on disseminating knowledge about the causes, treatment options, and prevention strategies related to sickle cell disease. Additionally, anti-stigma intervention programs should be established to mitigate and diminish the stigmatization experienced by individuals living with sickle cell disease.

Key words: Sickle cell disease, Intimacy, Stigma

Background

Sickle Cell Disease (SCD) is a congenital metabolic disorder and a non-communicable health condition of significant global public health concern, playing a substantial role in elevated infant mortality rates worldwide. Sickle Cell Disease (SCD) arises from an autosomal recessive genetic mutation affecting the beta globin gene, where the 17th nucleotide shifts from thymine to adenine, resulting in the substitution of an amino acid (glutamic acid) with valine at position 6, as described by (Rees et al. 2010). Sickle cell disease (SCD) is a global burden that affects people of tropical Africa, Mediterranean Sea, Middle East and South India with the greatest burden in sub-Saharan Africa (WHO 2006; Afolayan and Jolayemi 2011). The proportion of people living with SCD varies widely. Worldwide approximately 20-25 million people have

SCD, about 100,000 people in USA (Hassell 2010), 12-15 million people in sub-Saharan Africa (Akingbola et al, 2014) and a prevalence rate of 2-3% in West and Central Africa (Weatherall and Clegg 2001). Nigeria has the highest burden of SCD worldwide, about 1 million are living with SCD and 40 million are carriers of sickle cell trait (Akinyanju 2010). The annual birth with SCD is over 300,000 worldwide with 150,000 of these births in Nigeria (WHO 2006).

The major sickle cell genotype disorder includes: HbSS (sickle cell disease), HbSC disease, HbS (beta with thalasemia) or Hb E syndrome (Stuart and Nagel 2004). HbSS is the commonest with a severe homozygote phenotype for sickle cell disease (Galadanci et al, 2013). Currently the prevalence of HbSS in Nigeria is about 1-3% (Olarenwaju et al, 2013).

The cost implication for the management of SCD as regards drugs, nutrition, hospitalization and management of crisis is enormous (Kabiti 2008). SCD often comes with episodes of painful crises which could be life threatening hence people living with SCD require adequate care from health care provider, families and loved ones (Jenerette and Brewer 2010). Society's attitude to SCD and people living with SCD inflicts both psychological and psychosocial physical strains on the patients, their parents and relations (Afolayan and Jolayemi 2011).

Stigmatization is the process of identifying an attribute of a person or group and its association with a stereotype that negatively used to qualify someone in a way that is perceived as disgraceful by society (Jenerette and Brewer 2010). The lifelong challenges of SCD create opportunities for people living with the disease to be stigmatised (Jenerette and Brewer 2010). Stigma is a result of ignorance and insensitivity which can be felt by families and relations of people living with SCD. Stigma related with SCD can be attributed to ignorance due to poor knowledge, misinformation, myths, superstition, wrong belief and misconception about SCD (Akinyanju 2010). Stigma associated with SCD may impose negative stereotype on children and adolescent from both racial and ethnic groups (Burnes et al, 2008). Individuals living with SCD may also experience low self esteem, embarrassment, hopeless feelings and other complications as a result of stigma. Literatures have shown association between stigma and depression (Jenerette et al, 2005). Most studies on stigma associated with SCD were among school children, secondary school students and trainee-teachers. Community studies on stigma towards people living with SCD are inadequate hence the aim of this study is to determine the extent of stigma towards people living with SCD in Ibadan North Local Government Area, Oyo State.

The burden of sickle cell disease (SCD) will still increase due to the fact that people are not aware of their haemoglobin genotype status and the importance of genotype screening despite the high burden of SCD in Nigeria. The recommendation made by this study will help policy makers to develop informative programmes to increase awareness of the populace on genotype screening and need for genotype screening before marriage and conception to combat high mortality rate associated with SCD among children and adult.Sickle cell disease (SCD) imposes challenge as regards cost of care and management of SCD on both people living with SCD and their families. The findings of this study will help to create policy action to improve care and treatment for SCD patients and to lay emphasis on socio-economic measures to assist SCD-affected families. People living with SCD are at risk of stigmatization due to perceived negative attitudes about their illness hence level of stigma reported by this study will help to develop and implement stigma reduction strategies aimed at individual and community level to reduce stigma and discrimination associated with SCD.The relevance of stigmatizing attitude is increasingly being recognised among people living with SCD (Dyson et al, 2011). Stigmatizing attitude has been identified among peer group children in schools,

teachers and secondary school students but not so much has been done in the community where people with this disease live hence the need for this study to identify stigma towards people living with SCD in Mokola community.

RESEARCH QUESTION

1. What do respondents know about sickle cell disease?
2. What do respondents belief about sickle cell disease?
3. What proportion of respondents is aware of their haemoglobin genotype status?
4. What stigmatizing attitudes are shown to people living with sickle cell disease?
5. Is there a relationship between stigmatizing attitude and socio-demographic variables?

AIMS AND OBJECTIVES

Broad Objective

To determine the level of stigma and discrimination towards people living with sickle cell disease in Ibadan-North Local Government Area, Oyo State.

Specific Objectives

The objectives of this study are to:

1. Assess respondents' knowledge about sickle cell disease.
2. Assess respondents' belief about sickle cell disease.
3. Determine the proportion of respondent aware of their haemoglobin genotype status.
4. Determine stigmatizing attitude towards people living with sickle cell disease.
5. Determine the association between stigmatizing attitude and socio-demographic variables.

METHODS AND MATERIALS

Study Area

The research took place within the Ibadan Metropolis, situated in the heart of Oyo State, Nigeria. Ibadan, ranking as the third most populous city in the country following Lagos and Kano, holds the status of being the state capital. As of 2006 estimates, Ibadan boasted a population of approximately 4 million residents and is recognized for having the most extensive metropolitan area in the nation. During Nigeria's period of independence, Ibadan held the distinction of being not only the largest and most densely populated city in Nigeria but also the third-largest on the African continent, trailing behind Cairo and Johannesburg.

Geographically, Ibadan is located in South-Western Nigeria, positioned 128 kilometers inland to the northeast of Lagos and 530 kilometers southwest of Abuja, the Federal Capital Territory. The city spans a total area of 1,190 square miles (3,080 km2), featuring an elevation range from 150 meters in the valley regions to 275 meters above sea level. Predominantly, the Yoruba ethnic group constitutes the principal inhabitants of the city. Ibadan is administratively divided into eleven Local Government Areas, consisting of five urban local governments and six semi-urban Local Government areas. This study adopted a cross sectional community-based study

Study site

This research was conducted within the locality of Mokola, a region situated in the Ibadan North Local Government area. Mokola comprises a diverse population, encompassing individuals from low, middle, and

high-income backgrounds. The predominant ethnic group in Mokola is the Yoruba, and the primary occupation of its residents revolves around trading.

Ibadan North Local Government, one of the eleven Local Government Areas within the city of Ibadan, has its administrative center located at Agodi-Gate in Ibadan. Covering an expanse of 27 square kilometers, it is home to a population exceeding 400,000 residents. Ibadan North Local Government shares its boundaries with Ido and Ibadan North-West to the West, Lagelu, Egbeda, and Ibadan South East to the East, and Akinyele to the North.

Notably, there is a lack of healthcare facilities dedicated to individuals living with Sickle Cell Disease (SCD) within the Mokola community. As a result, those affected by SCD seek medical care at the Haematology Day Care Unit of the University College Hospital, a tertiary healthcare facility located approximately 1,200 meters (1 kilometer) away from Mokola.

Study Population

Individuals 18years and above who reside within Mokola was recruited for the study.

Sampling Technique

A multistage cluster sampling was used for this study.

Stage 1: 25 streets were randomly selected using simple random sampling (Balloting).

Stage 2: Block of 20 houses was selected per street using balloting

Stage 3: one household was selected per house in block. Household were selected provided they fall within my inclusion criteria.

Stage 4: one respondent who meets inclusion criteria was selected per household using simple random sampling (balloting).

Data Management and analysis

Fieldwork supervision was diligently carried out, with a thorough examination of each questionnaire to ensure completeness. Subsequently, the collected data underwent a meticulous process, including entry, cleaning, and analysis, employing the Statistical Package for Social Sciences (SPSS) version 20. To maintain data integrity, a comprehensive cleaning procedure was implemented to identify and rectify any inconsistencies. In terms of data privacy, all questionnaires were stripped of any personal identifiers, limiting access solely to authorized personnel, including the Principal Investigator and qualified individuals responsible for handling the data.

Ethical Consideration

Approval for this study was obtained from Ethical Review Committee at Oyo State Ministry of Health. Permission was taken from elders of the community.

RESULT

Socio-demographic characteristics

The socio-demographic characteristics of respondents are presented on Table 4.1. A total of 500 respondents residing in Mokola community in Ibadan North Local Government Area of Oyo State participated in the study. The respondent's age ranged from 18 to 65 years with a mean age of 33.4±10.4years. The age distribution of the respondents showed that 180(36.0%) were in between age group 20-29years. More than half 282(56.4%) of the respondents were females, 269(53.8%) were married and

292(58.4%) were Christian. A vast majority 373(74.6%) of the respondents were Yoruba, 360(72.0%) were from monogamous family setting and 161(32.2%) had no children.

Table 4.1: Respondent's socio-demographic characteristics (N= 500)

Characteristics	Frequency	Percentages
Age (years)		
<19	29	5.8
20-29	180	36.0
30-39	158	31.6
40-49	88	17.6
50-59	35	7.0
60 and above	10	2.0
Sex		
Male	218	43.6
Female	282	56.4
Marital status		
Single	169	33.8
Married	269	53.8
Widowed	23	4.6
Separated	21	4.2
Divorced	14	2.8
Co-habiting	4	0.8
Religion		
Christianity	292	58.4
Muslim	191	38.2
Traditional	17	3.4
Ethnicity		
Yoruba	373	74.6
Igbo	58	11.6
Hausa	51	10.2
Others	18	3.6
Family setting		
Monogamy	360	72.0
Polygamy	140	28.0
Occupation		
Self employed	262	52.4
Unemployed	139	27.8
Employed	99	19.8
Parity(Number of children)		

0	161	32.2
1	67	13.4
2	92	18.4
3	77	15.4
4	47	9.4
5 and above	56	11.2

1

.1 Respondents' Educational Status

Figure 4.1 shows frequency distribution of respondents' educational status. Few 189(37.8%) had completed secondary school, 177(35.4%) had tertiary education, 97(19.4%) had primary school education and 37(7.4%) had no formal education.

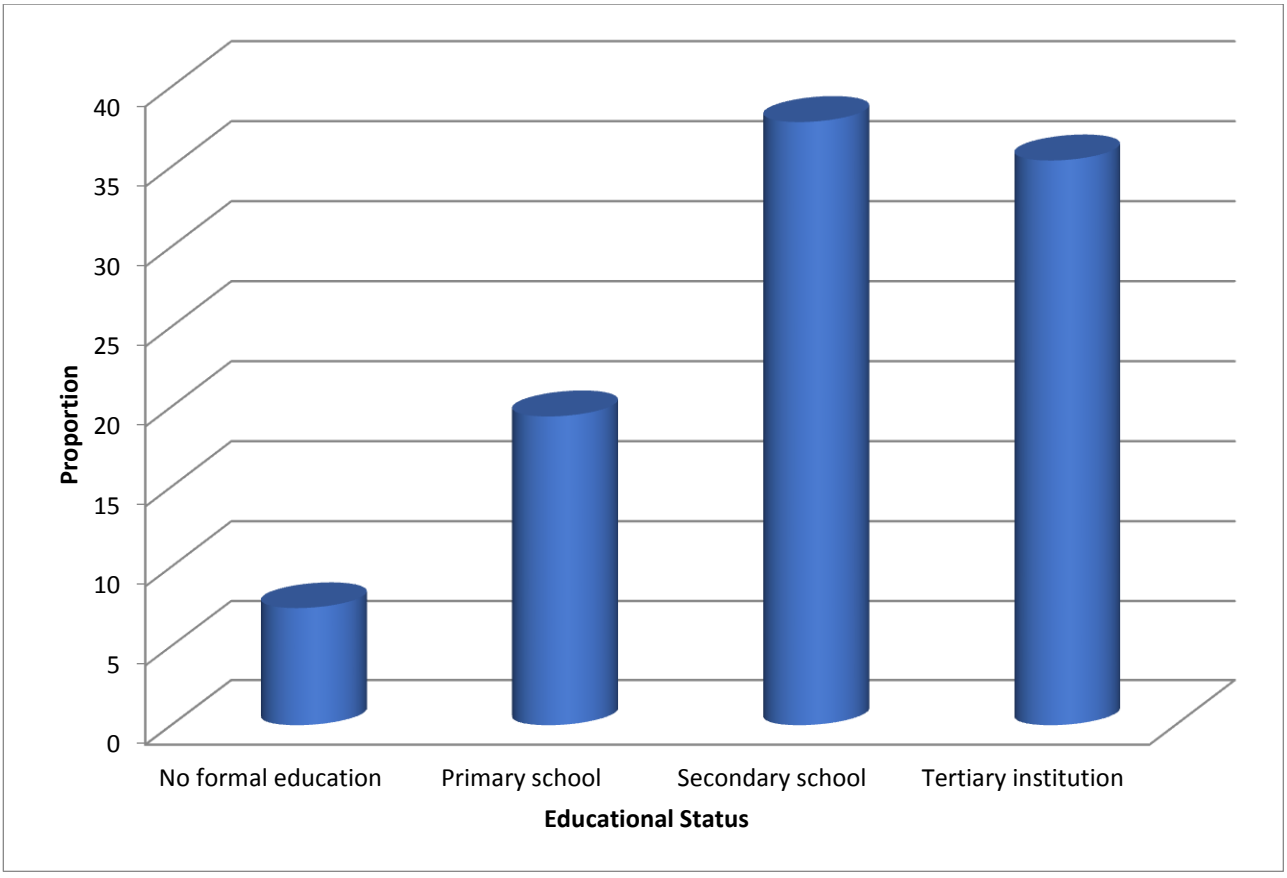

Figure 4.1: Frequency distribution of respondents' educational status

4.1.2 Respondents' Place of Delivery

Figure 4.2 shows frequency distribution of respondents' place of delivery. Less than half 192(38.4%) of the respondents were born in Government hospital, 103(20.6%) in private hospital, 88(17.9%) in Health care facility, 52(10.6%) in mission home, 39(7.8%) in traditional home and 26(5.2%) were delivered at home.

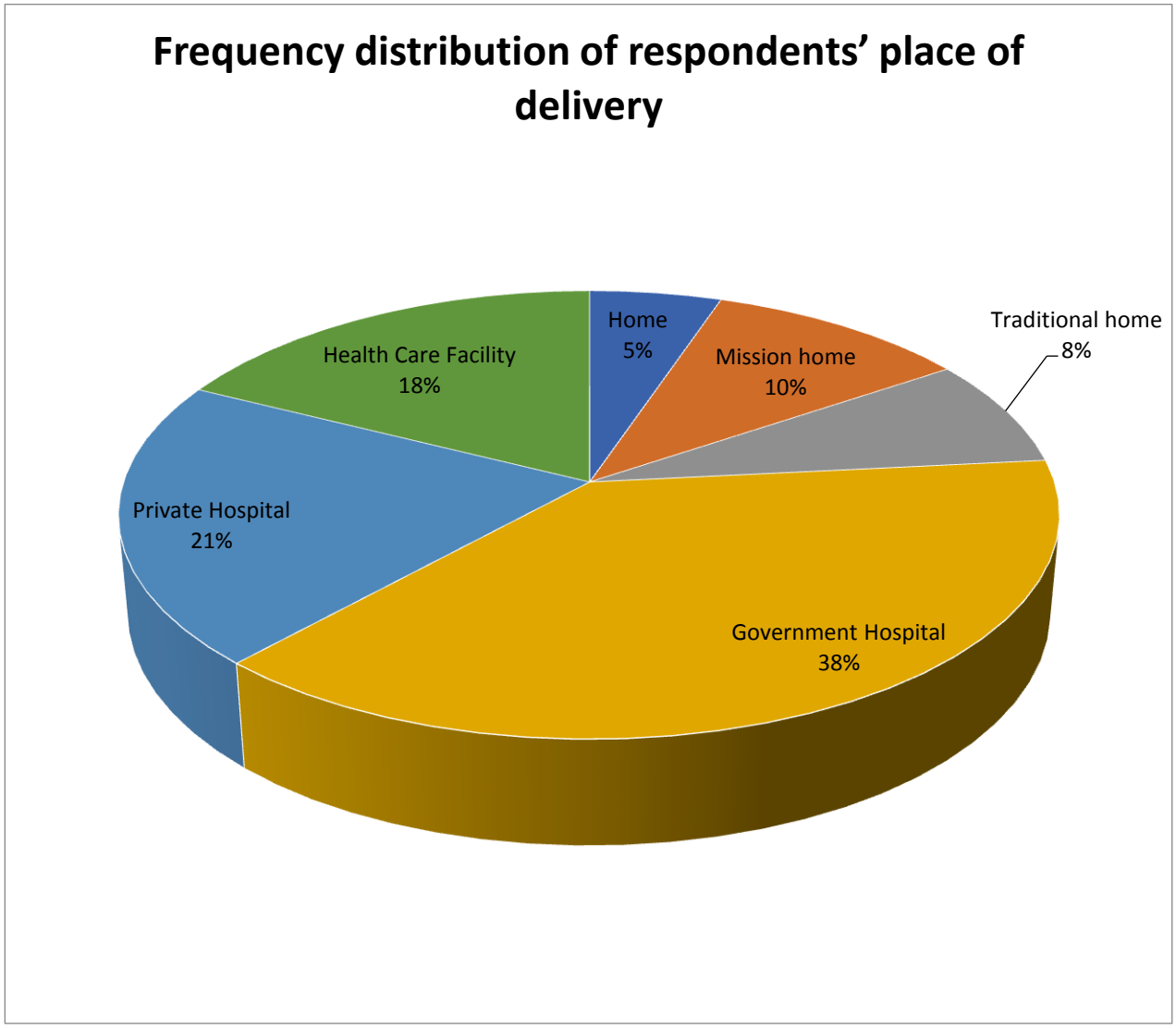

Figure 4.2: Frequency distribution showing respondents' place of delivery

4.2 Awareness about Sickle Cell Disease

The frequency distribution of respondent's sources of information about sickle cell disease (SCD) is presented on figure 4.3. All the respondents were aware of sickle cell disease. Their major sources of information were from Friends/relatives 314(35.8%), radio/TV 237(27.1%) and 20(2.3%) of the respondents heard from no particular source.

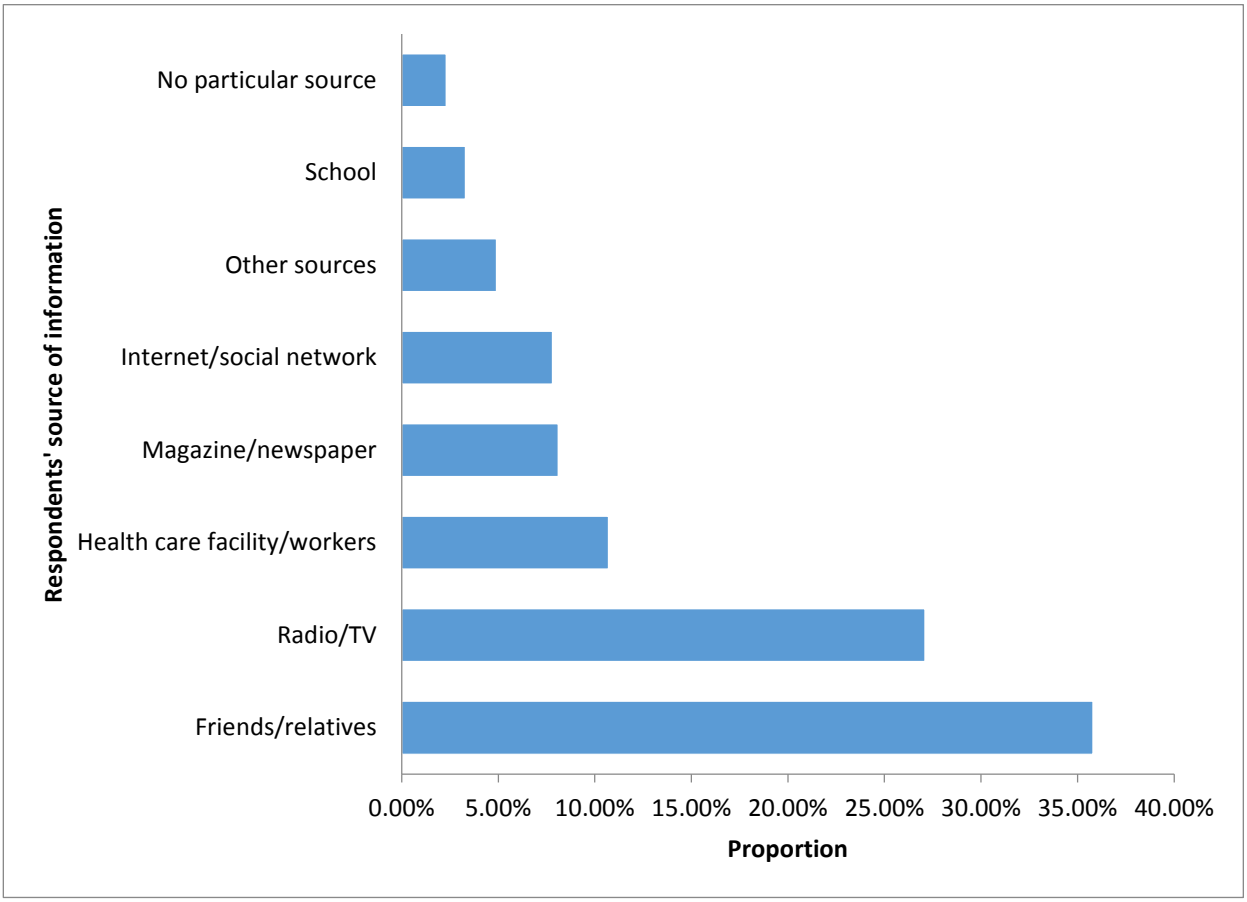

Figure 4.3: Frequency distribution of respondents' sources of information about SCD

4.3 Knowledge about Sickle Cell Disease

Table 4.2 shows the frequency distribution of respondents' response to questions on knowledge about the causes, mode of transmission and diagnosis of sickle cell disease. Higher proportion 323(64.7%) of the respondents correctly reported that SCD affects red blood cell while only 15(3.0%) reported SCD affects the lungs. About half 251(50.2%) of the respondent didn't know about causes of sickle cell disease while 3(0.6%) thought it can be caused by witches and wizards. More than half 297(59.4%) knew that the disease could be inherited, 114(22.8%) didn't know the mode of transmission and 89(17.8%) mentioned that it could be acquired. In terms of signs and symptoms, the most mentioned was painful crisis. Painful crisis was mentioned by 473(14.9%), followed by jaundice 450(14.2%) and pale look 414(13.0%). Concerning mode of diagnosis, 334(66.8%) mentioned through blood test, 145(29.0%) had no idea of how sickle cell disease can be diagnosed and only 21(4.2%) responded it is diagnosed through urine test.

Characteristics	Frequency	Percentages

Table 4.2: Frequency distribution of respondents' response to questions on knowledge about causes, mode of transmission and diagnosis of SCD (N=500)

SCD affects	323	64.7
Red blood cell	15	3.0
Lungs	162	32.4
Don't know		
Causes of SCD		
Malnutrition	12	2.4
Genotype problem	100	20.0
Red blood cell	115	23.0
Bad blood	19	3.8
Witches and wizards	3	0.6
Don't know	251	50.2
Transmission of SCD		
Inherited	297	59.4
Acquired	89	17.8
Don't know	114	22.8
***Signs and symptoms of SCD**		
Painful crises	473	14.9
Jaundice	450	14.2
Pale look	414	13.0
Painful swelling of hand and feet	398	12.5
Frequent illness	374	9.6
Abdominal swelling	357	11.2
Low blood level	343	10.8
Stunted growth	305	9.6
Others	60	1.9
Diagnosis of SCD		
Through blood test	334	66.8
Through urine test	21	4.2
Don't know	145	29.0

4.3.1 Knowledge about hereditary, treatment and Prevention of SCD

Table 4.3 shows frequency distribution of respondents' response to questions on knowledge about hereditary, treatment and prevention of SCD. On the basis of one parent being a carrier, only 132(26.4%) responded correctly that 2 out of 4 children will have the trait and 97(19.4%) answered correctly that 1 out of 4 children will have the disease if both parents were carriers. About half 257(51.4%) knew correctly that a child could inherit the disorder if both parents are carriers while only 85(17.0%) didn't know. Frequency distribution of respondents' response on spouse/partner who discovers that their genotype predisposes them to having children with SCD shows that majority 354(70.8%) wants the relationship discontinued. Some 235(47.0%) responded that SCD could be treated medically and 197(39.4%) mentioned genotype screening as means of prevention for SCD.

Table 4.3: Frequency distribution of respondents' response to questions on knowledge about hereditary, treatment and prevention of SCD (N=500)

Characteristics	Frequency	Percentages
In cases where one parent is a carrier, what is the number of children who will have SCT?		
All the children	46	9.2
None of the children	79	15.8
1 out of 4	227	45.4
2 out of 4	132	26.4
3 out of 4	7	1.4
Don't know	9	1.8
In cases where both parents are carriers, What is the number of children who will have SCD		
All the children	118	23.6
None of the children	29	5.8
1 out of 4	97	19.4
2 out of 4	228	45.6
3 out of 4	21	4.2
Don't know	7	1.4
Child can inherit SCD if;		
Both parents are carriers	257	51.4
Father/mother is a carrier	158	31.6
Don't know	85	17.0
What should spouse/partner do when they discover that their genotype predisposes them to having a child with SCD?		
Discontinue the relationship	354	0.8
Continue with the relationship and damn consequences	30	6.0
Don't know	116	23.2
How SCD can be treated		
Medically	235	47.0
No treatment is available	91	18.2
Spiritually	72	14.4
Traditionally	64	12.8
Don't know	34	6.8
Others	4	0.8
How SCD can be prevented		

Genotype screening	197	39.4
Genetic counselling	162	32.4
Through prayer	74	14.8
Don't know	61	12.2
Others	6	1.2

Characteristics	Frequency	Percentage
Consider haemoglobin genotype screening important (N=500)		
Yes	390	78.0

4.3.2

Respondents' genotype screening practice

Table 4.4 shows the frequency distribution of respondents' genotype screening practice. High percentage 390(78.0%) of the respondents consider haemoglobin genotype screening important, however 270(54.0%) had ever gone for genotype screening, 261(52.2%) knew their genotype status and 239(47.8%) didn't know their genotype status. Among those 239(47.8%) who didn't know their genotype status, 94(39.3%) had no reason for not knowing while 9(239) claim they can't remember their genotype status.

Almost half 124(47.5%) had genotype screening in Government hospital, 69(26.4%) in Laboratory and 68(26.1%) in Private hospital. For the number of times had genotype screening, 124(47.5%) had it once and 15(5.7%) had it several times. 348(69.7%) knew correctly the genotype responsible for SCD to be SS, 127(25.4%) don't know and 8(1.6%) knew it to be AA.

No	110	22.0
Ever gone for genotype screening (N=500)		
Yes	270	54.0
No	230	46.0
Know your genotype (N=500)		
Yes	261	52.2
No	239	47.8
***Reason for not knowing their genotype (N=239)**	94	39.3
No reason	64	26.8
Don't think it's necessary/important	32	13.4
Unaware	23	9.6
Because I don't have the disease	17	7.1
Never gone for the test before	9	3.8
Can't remember		
Place of screening (N=261)		
Government Hospital	124	47.5
Private Hospital	69	26.4
Laboratory	68	26.1
Number of times had genotype screening (N=261)	124	47.5
Once	75	28.7
Twice	47	18.0
Thrice	15	5.7
Others		
Genotype responsible for SCD (N=500)		
SS	348	69.7
AS	17	3.4
AA	8	1.6
Don't know	127	25.4

Table 4.4: Frequency distribution of respondents' genotype screening practice

4.3.3 Respondents' Genotype Status

Figure 4.4 shows frequency distribution of respondents' genotype status. More than half 261(52.2%) of the respondents knew their genotype status. Among those who claim to know their genotype, 153(58.6%) were HbAA, 104(39.8%) were HbAS and 4(1.5%) were HbAC.

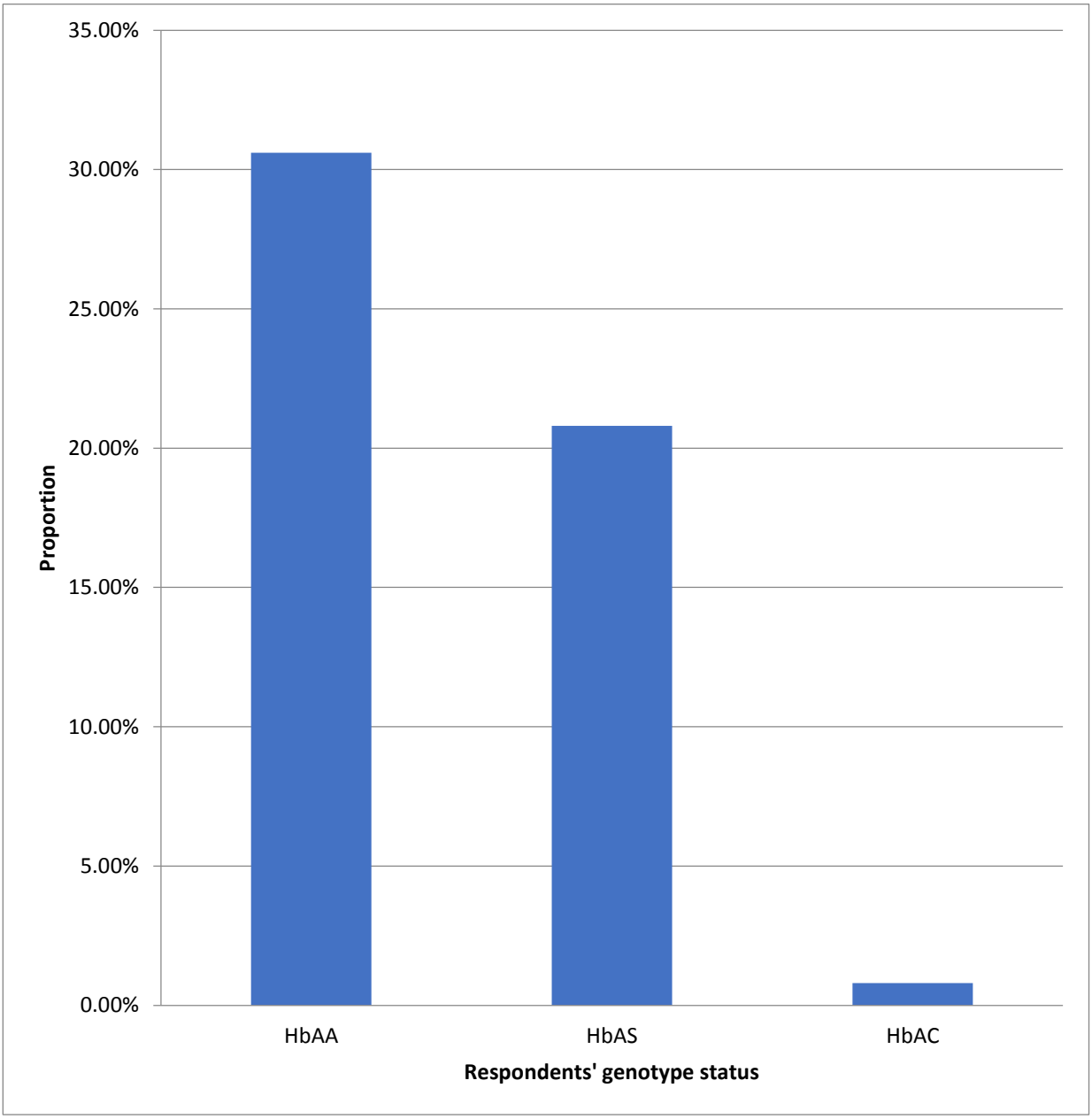

Figure 4.4: Frequency distribution of respondents' genotype status

4.4 Beliefs about Sickle Cell Disease

Table 4.5 shows respondent's belief about sickle cell disease. Majority 401(80.2%) of the respondent believed SCD is life threatening, 448(89.6%) admitted that SCD can be inherited from parents and 326(65.2%) of the respondents' thought SCD can be acquired through contaminated blood. Majority 388(77.6%) of respondents opined that genotype status should be known before marriage or conception and 357(71.4%) of the respondents believed screening test that can reveal presence of SCD is available.

Some 195(39.0%) thought SCD can be cured with herbs while 220(44.0%) believed SCD can be cured if treated early. Respondents' belief that SCD could induce other diseases such as; lungs problem 183(36.6%), stroke 191(38.2%), cardiac problem 202(40.4%) and kidney disorder 193(38.6%). A vast majority 478(95.6%) of the respondents believed that SCD can kill.

Table 4.4: Frequency distribution of respondent's belief about SCD (N=500)

Beliefs about sickle cell disease (SCD)	Yes n (%)	No n (%)
SCD is life threatening	401(80.2)	99(19.8)
SCD is infectious and contagious	162(32.4)	338(67.6)
SCD can be caused by witches, wizards & evil spirits	195(39.0)	305(61.0)
SCD can be inherited from parents with sickle cell trait	448(89.6)	52(10.4)
SCD can be acquired through contaminated blood	326(65.2)	174(34.8)
SCD can be caused by bad food	126(25.2)	374(74.8)
Cause of SCD is unknown	189(37.8)	311(62.2)
You can be a carrier of sickle cell trait without being sick	116(23.2)	314(62.8)
Black people are the ones at risk of having SCD	186(37.2)	314(62.8)
Only men are at risk of SCD	10(2.0)	490(98.0)
Women who are unfaithful are at risk of having SCD	34(6.8)	466(93.2)
SCD can be transmitted through mosquito bite	40(8.0)	460(92.0)
SCD can be transmitted by utilizing personal object belonging to infected person with the disease	134(26.8)	366(73.2)
Genotype status concerning SCD should be known before marriage or conception	388(77.6)	112(22.4)
Screening test that reveals presence of SCD is available	357(71.4)	143(28.6)
SCD can be cured with herbs	195(39.0)	305(61.0)
SCD can be cured if treated early	220(44.0)	280(56.0)
Vaccine has been developed to prevent SCD	50(10.1)	450(90.0)
SCD can induce lungs problem	183(36.6)	317(63.4)
SCD can induce stroke	191(38.2)	308(61.8)

SCD can induce cardiac problem	202(40.4)	298(59.6)
SCD can induce kidney disorder	193(38.6)	307(61.4)
SCD can kill	478(95.6)	22(4.4)

4.5 Level of personal contact	Level of personal contact question	Yes n (%)	No n (%)
	I have a son/daughter who has sickle cell disease	14(2.8)	486(97.2)
	I have a brother/sister who has sickle cell disease	67(13.4)	433(86.6)
	I have a relative who has sickle cell disease	104(20.8)	396(79.2)
	I have a friend/neighbour living with sickle cell disease	223(44.6)	277(55.4)
	I have seen someone who has sickle cell disease	482(96.4)	18(3.6)
	I have heard of someone who has sickle cell disease	497(99.4)	3(0.6)

personal contact

Table 4.6 shows frequency distribution of respondent's level of personal contact with people living with SCD. Only 14(2.8%) of the respondent had a son/daughter with SCD, 67(13.4%) had brothers/sisters living with SCD, 104(20.8%) had relatives living with SCD and 223(44.6%) of the respondents had a friends/neighbours who had SCD. Majority 482(96.4%) had seen and 497(99.4%) had heard of someone living with SCD.

Table 4.6: Frequency distribution of respondents' level of personal contact with people living with SCD (N=500)

4.5.1 Level of Personal Contact Scale

Table 4.7 shows frequency distribution respondents' level of intimacy with people living with SCD. On the level of personal contact scale, 179(35.8%) of the respondents had low intimacy, 165(33%) had moderate intimacy and 156(31.2%) had high intimacy with people living with SCD.

Table 4.7: Frequency distribution of respondents' level of intimacy with people living with SCD (N=500)

Level of personal contact scale	Frequency n	Percentage (%)
Low intimacy	179	35.8
Moderate intimacy	165	33.0
High intimacy	156	31.2
Total	500	100

4.6 SOCIAL DISTANCE

Table 4.8 shows the frequency distribution of respondents' response to questions on stigmatisation towards people living with SCD. For all five questions, most respondents endorsed "No" while minority endorsed the ambivalent opinion "May be". Majority 277(55.4%) of the respondents would not say bad things about anyone with SCD. More than half 270(54.0%) would not avoid being friends with anyone with SCD. Also, more than half 272(54.4%) of the respondents would not avoid having personal contact with anyone who has SCD.

However, a substantial proportion also endorsed negative stigmatizing attitude towards people living

Social Distance Question	Yes n (%)	May be n (%)	No n (%)
Would you gossip about anyone with SCD	241(48.2)	33(6.6)	226(45.2)
Would you say bad things about anyone with SCD	155(31.0)	68(13.6)	277(55.4)
Would you avoid sharing food or eat with anyone who has SCD	237(47.4)	57(11.4)	206(41.2)
Would you avoid being friends with anyone who has SCD	133(26.0)	97(19.0)	270(54.0)

with SCD; 241(48.2%) would gossip about people living SCD and 237(47.4%) would avoid sharing food or eat with anyone who has SCD.

Would you avoid having personal contact with anyone who has SCD	132(26.4)	96(19.2)	272(54.4)

Table 4.8: Frequency distribution of respondents' response to questions on stigmatisation towards people living with SCD

Note: Multiple responses

4.6.1 SOCIAL DISTANCE SCALE

Table 4.9 shows respondents' level of stigmatization towards people living with SCD. On the level of social distance scale, 280(56%) of the respondents had low stigmatizing attitude, 190(38.0%) had moderate stigmatizing attitude and 30(6.0%) had high stigmatizing towards people living with SCD.

Table 4.9: Frequency distribution of respondents' level of stigmatization towards people living with SCD (N=500)

Social Distance Scale	Frequency	Percentage
Low stigmatizing attitude	280	56.0
Moderate stigmatizing attitude	30	6.0
High stigmatizing attitude	190	38.0
Total	500	100

4.7

ATTITUDE TOWARDS PEOPLE LIVING WITH SICKLE CELL DISEASE

Table 4.10 shows frequency distribution of respondents' attitude towards people living with sickle cell disease. More than half 297(59.4%) of the respondents strongly agreed that people living with SCD cannot live normal lives. Few 136(27.2%) agreed that people living with SCD should be ashamed of their disease, 88(17.4%) strongly agreed that they should be blamed for bringing the disease into the community, 90(18.0%) agreed that SCD patients should keep secret about their disease and 102(20.4%) agreed that having less personal contact with people living with SCD will not make them have the disease.

Majority 341(68.2%) of the respondents strongly agreed that affected people with SCD who seek proper medical attention can live normal and prolonged lives and 129(25.8%) agreed that people with SCD do not usually die from disease. More than half 294(58.4%) strongly agreed that people with SCD may have other diseases caused by it and 241(48.2%) admitted that people living with SCD can live up to 60years if medical care is of high quality.

Characteristics	Strongly Agree n (%)	Agree n (%)	Undecided n (%)	Disagree n (%)	Strongly Disagree n (%)

Table 4.10: Frequency distribution of respondents' attitude towards people living with sickle cell disease (N=500)

People with SCD cannot live normal life	101(20.2)	196(39.2)	30(6.0)	90(18)	83(16.6)
People who have SCD should be ashamed of their disease	32(6.4)	104(20.8)	14(2.8)	249(49.8)	101(20.2)
People who have SCD should be blamed for bringing the disease into the community	32(6.4)	56(11.2)	20(4.0)	281(56.2)	111(22.2)
Affected people with sickle cell disease who seek proper medical care can live a normal and prolonged life	152(30.4)	189(37.8)	54(10.8)	76(15.2)	29(5.8)
People with SCD do not usually die from the disease	58(11.6)	71(14.2)	104(20.8)	176(35.2)	91(18.2)
People with SCD may have other diseases caused by SCD	120(24.0)	172(34.4)	71(14.2)	106(21.2)	31(6.2)
People living with SCD can live up to 60yrs if	123(24.6)	118(23.6)	106(21.2)	112(22.4)	41(8.2)

medical care is of high quality					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

4.8 COST AND CARE FOR PEOPLE LIVING WITH SCD

Table 4.9 shows respondents' opinion on cost and care for people living with SCD. High percentage 483(96.6%) of the respondents opined that SCD patients need more care than others, 481(96.2%) opined that people living with SCD frequently visit the hospital because of their illness. However, most 410(82.0%) of the respondents admitted that the cost of medical care for people living with SCD is expensive and 344(68.7%) acknowledged that families who have people living SCD usually become poor due to care and management of their illness

Table 4.11: Respondents' opinion on cost and care for people living with sickle cell disease (N=500)

Characteristics	n (%)	n (%)	n (%)	n (%)	n (%)
Affected people with SCD need love and care	258(51.6%)	225(45%)	4(0.8%)	9(1.8%)	4(0.8%)
People who have SCD need more health care than others	270(54.0)	211(42.2)	3(0.6)	10(2.0)	6(1.2)
People with SCD frequently visit the hospital because of their illness	270(54.0)	221(44.2)	3(0.6)	2(0.4)	4(0.8)
Cost of medical care for people living SCD is expensive	200(40.0)	210(42.0)	41(8.2)	43(8.6)	6(1.2)
Families who have people living with SCD usually become poor due to the care and management of their illness	186(37.2)	158(31.6)	51(10.2)	84(16.8)	21(4.2)

4.9 Respondents' level of knowledge, belief and attitude towards people living with SCD

Table 4.12 shows frequency distribution of respondents' level of knowledge, belief and attitude towards people living with SCD. The mean level of knowledge was 28.2±4.7, about half 263(52.6%) of the respondents had poor knowledge about SCD while 237(47.4%) had good knowledge about SCD.

Respondents' mean level of belief was 14.9±3.7, less than half 225(45.0%) of the respondents had poor belief about SCD while 275(55.0%) had good belief about SCD.

Respondents' mean level of attitude was 56.3±6.7, almost half 238(47.6%) of respondents had poor attitude towards people living with SCD while 262(52.4%) had good attitude about SCD.

4.12 Frequency distribution of respondents' level of knowledge, belief and attitude towards people living with SCD (N=500)

Characteristics	Frequency	Percentage
Level of knowledge		
Poor knowledge	263	52.6
Good knowledge	237	47.4
Level of belief		
Poor belief	225	45.0
Good belief	275	55.0
Level of attitude		
Poor attitude	238	47.6
Good attitude	262	52.4

4.10 ASSOCIATION BETWEEN SOCIAL DISTANCE AND LEVEL OF PERSONAL CONTACT

Table 4.13 shows the relationship between social distance and level of personal contact. There was a statistically significant relationship between level of personal contact and social distance (χ^2 =61.808, p=0.000). Among respondents with high intimacy, 115(73.7%) had low stigmatizing attitude while 5(3.2%) had moderate stigmatizing attitude.

Table 4.13: The relationship between respondents' social distance and level of personal contact

	Social Distance						
	Low	Moderate	High	Total	χ^2	df	P-value
Level of personal contact							
Low intimacy	64(35.6%)	10(5.6%)	106(58.9%)	106			
Moderate intimacy	100(40.6%)	16(9.8%)	48(29.3%)	164	61.808	4	0

High intimacy	115(73.7%)	5(3.2%)	36(23.1%)	156			.000*

*Significant at p <0.0001

4.11 Association between Social Distance and Socio-demographic characteristics

Table 4.14 shows the relationship between social distance and socio-demographic characteristics. There was a statistically significant association between religion (χ^2 = 22.978, p= 0.000), ethnic group (χ^2 = 7.345, p= 0.025), family setting (χ^2 = 17.637, p=0.000), level of education (χ^2 = 51.728, p= 0.000) and Social distance. Among those who were Christians, 188(64.4%) had low stigmatizing attitude while 94(32.2%) had low stigmatizing attitude towards people living with SCD. Among non-yorubas, 61(48.0%) had high stigmatizing attitude while 59(46.5%) had low stigmatizing attitude towards people living with SCD. Among those polygamous family setting, 73(52.1%) had high stigmatizing attitude while 63(45.0%) had low stigmatizing attitude. Among those who had completed secondary school, 97(51.3%) had low stigmatizing attitude while 56(29.6%) had high stigmatizing attitude. Among those who were delivered in traditional home, 21(53.8%) had high stigmatizing attitude while 15(38.5%) had low stigmatizing attitude.

There was no statistically significant association between age (χ^2 =9.252, p= 0.160), sex (χ^2 = 0.341, p= 0.843), marital status (χ^2 = 7.565, p= 0.109), occupation (χ^2 = 9.121, p= 0.058) and social distance.

Table 4.11: Relationship between social distance and socio-demographic characteristics

Characteristics	Social Distance Low	Moderate	High	Total	χ^2	df	P-value
Age							
18-24	51(47.7%)	4(3.7%)	52(48.6%)	107			
25-34	113(57.4%	17(8.3%)	70(34.3%)	204			
35-44	70(59.8%)	6(5.1%)	41(35.0%)	117	9.252	6	0.160
45 and above	42(58.3%)	3(4.2%)	27(37.5%)	72			
Sex							
Male	124(56.9%)	14(6.4%)	80(36.7%)	218			
					0.341		0.843
Female	156(55.3%)	16(5.7%)	110(39.0%)	282		2	
Marital Status							
Single	100(59.2%)	5(3.0%)	64(37.9%)	169			
					7.565		0.109
Married/Co-habiting	151(53.4%)	24(8.5%)	108(38.2%)	283		4	
Others	29(60.4%)	1(2.1%)	18(37.5%)	48			
Religion							
Christian	188(64.4%	10(3.4%)	94(32.2%)	292			

	*	)				22.978		0.000*
S	Muslim	85(44.5%)	18(9.4%)	88(46.1%)	191		2	
i	Traditional	7(41.2%)	2(11.8%)	8(47.1%)	17			
g	**Ethnicity**							
n	Yoruba	221(59.2%	23(6.2%)	129(34.6%	373			
i		)		)		7.345		0.025*
f	Non-Yorubas	59(46.5%)	7(5.5%)	61(48.0%)	127		2	
i	**Family Setting**							
c	Monogamy	217(60.3%	26(7.2%)	117(32.5%	360			
a		)		)		17.637		0.000*
n	Polygamy	63(45.0%)	4(2.9%)	73(52.1%)	140		2	
t	**Level of Education**							
	No formal education	11(29.7%)	9(24.3%)	5(13.5%)	37			
a	Primary school	41(42.3%)	27(27.8%)	22(22.7%)	97			
t	Secondary school	97(51.3%)	63(33.3%)	56(29.6%)	189	36.950	6	0.000*
	Tertiary institution	131(74.0%	66(37.3%)	73(41.2%)	177			
p		)						
<	**Occupation**							
0	Unemployed	47(45.6%)	4(3.9%)	52(50.5%)	139			
.	Self-employed	144(55.0%	18(6.9%)	100(38.2%	262	9.121	4	0.058
0		)		)				
5	Employed	67(67.5%)	5(5.1%)	27(27.3%)	99			
	Place of Delivery							
.	Home/Mission	38(48.7%)	3(3.8%)	37(47.4%)	78			
1	home					9.034		0.001*
2	Traditional home	15(38.5%)	3(7.7%)	21(53.8%)	39		4	
	Hospital	227(59.3%	24(6.3%)	132(34.5%	383			
A		)		)				

s

sociation between social distance and knowledge, belief and attitude of respondents' towards people living with SCD

Table 4.15 shows the relationship between respondents' social distance and knowledge, belief and attitude of respondents' towards people living with SCD. There was a statistically significant association between social distance and level of knowledge (χ^2= 33.759, p=0.000), level of belief (χ^2= 35.870, p=0.000), level of attitude (χ^2= 26.732, p=0.000). Among those who had poor knowledge about SCD, 179(68.1%) had low stigmatizing attitude and among those who had good knowledge, 120(50.7%) had high stigmatizing attitude.

Among those who had good belief about SCD, 187(68.0%) had low stigmatizing attitude and those who had poor belief about SCD, 115(51.1%) had high stigmatizing attitude.

However, among those who had good attitude towards people living with SCD, 175(66.8%) had low stigmatizing attitude and among those who had poor attitude, 117(49.2%) had high stigmatizing attitude.

Table 4.15: Relationship between respondents' social distance and knowledge, belief and attitude of respondents' towards people living with SCD

Characteristics	SOCIAL DISTANCE Low	Moderate	High	Total	χ^2	P-value
Level of Knowledge						
Poor Knowledge	179(68.1%)	14(5.3%)	70(26.6%)	263		
Good Knowledge	101(42.6%)	16(6.8%)	120(50.7%)	237	33.759	0.000*
Level of Belief						
Poor Belief	93(41.3%)	17(7.6%)	115(51.1%)	225		
Good Belief	187(68.0%)	13(4.7%)	75(27.3%)	275	35.870	0.000*
Level of Attitude						
Poor Attitude	105(44.1%)	16(6.7%)	117(49.2%)	238		
Good Attitude	175(66.8%)	14(5.3%)	73(27.9%)	262	26.732	0.000*

*significant at p<0.0001

4.13 Multinomial logistic regression of the factors associated with moderate relative to low stigmatizing attitude towards people living with SCD

Table 4.16 shows the multinomial logistic regression analysis of the factors associated with moderate relative to low stigmatizing attitude towards people living with SCD. Using pearson chi-square and deviance to detect the fitted model, the result showed that the significant value was more than the cut-off point (p>0.05) which implies that the model fit for our sample data (χ_p^2= 872.939, p=0.523; χ_d^2= 659.439, p= 1.00).

For moderate stigma relative to low stigmatizing attitude, respondents' from monogamous family setting were eight times (OR= 8.78, 95% CI= 1.382-55.718, p-value= 0.02) more likely to have moderate stigma relative to low stigmatizing attitude towards people living with SCD compared to those from polygamous family setting.

Table 4.16: Multinomial regression analysis of the factors associated with moderate relative to low stigmatizing attitude towards people living with SCD

Significant Variables	Standard error	Odds Ratio	95% CI	p-value

Table 4.16 cont'd

	(SE)	(OR)	Lower Upper	
Age				
18-24	1.107	0.996	0.114	0.997
25-34	0.838	1.572	8.719	0.589
35-44	0.868	1.123	0.304	0.885
45 and above*			8.116	
			0.207	
			6.216	
Sex				
Male	0.443	1.289	0.505	0.677
Female*			2.825	
Religion				
Christian	1.856	0.098	0.003	0.211
Muslim	1.716	0.500	3.711	0.695
Others*			0.015	
			15.931	
Ethnicity				
Yoruba	0.600	1.191	0.367	0.771
Non-Yorubas*			3.861	
Marital status				
Single	1.279	1.054	0.086	0.967
Married/co-habiting	1.124	2.183	12.914	0.488
Others*			0.238	
			19.648	
Family setting				
Monogamy	0.943	8.777	1.382	0.021**
Polygamy*			55.748	
Level of Education				
No formal education	1.190	2.824	0.274	0.383
Primary school	1.048	0.230	29.016	0.161
Secondary school	0.544	1.127	0.030	0.826
Tertiary institution*			1.790	
			0.387	
			3.273	

Multinomial regression analysis of the factors associated with moderate relative to low stigmatizing attitude towards people living with SCD

Significant Variables	Standard error	Odds Ratio	95%	p-

	(SE)	(OR)	CI Lower Upper	value
Parity				
0-1	0.945	0.896	0.139	0.908
2-4	0.797	0.858	5.595	0.848
4 and above*			0.180	
			4.072	
Place of Delivery	0.703	0.937	0.236	0.926
Home/Mission home	1.215	0.750	3.716	0.813
Traditional home			0.069	
Hospital*			8.111	
Level of knowledge				
Good knowledge	0.529	1.069	0.181	0.900
Poor knowledge*			1.136	
Level of Belief				
Good belief	0.468	0.454	0.181	0.091
Poor belief*			1.136	
Level of Attitude				
Good attitude	0.491	0.675	0.386	0.429
Poor attitude*			0.908	
Level of personal contact	0.688	0.335	0.087	0.112
High intimacy	0.553	1.353	1.289	0.585
Moderate intimacy			0.457	
Low intimacy*			4.003	

4.14 Multinomial logistic regression of the factors associated with high relative to low stigmatizing attitude towards people living with SCD

Table 4.17 shows multinomial regression analysis of the factors associated with high relative to low stigmatizing attitude towards people living with SCD. For high stigma relative to low stigmatizing attitude, respondents' who had completed secondary school were approximately two times (OR= 1.99, 95% CI= 1.138-3.497, p-value= 0.02) more likely to have high stigma relative to low stigmatizing attitude towards people living with SCD compared to those who had completed tertiary education.

Table 4.17 also shows multinomial regression analysis of the factors associated with high relative to low stigmatizing attitude towards people living with SCD. For high relative to low stigmatizing attitude, those who had good belief about SCD were approximately two times (OR= 0.59, 95% CI= 0.319-0.812, p-value= 0.01) less likely to have high stigma relative to low stigmatizing attitude towards people living with SCD compared to those who had poor belief about SCD. For level of personal category, those who had high

intimacy were four times (OR= 0.25, 95% CI= 1.0.142-0.449, p-value= 0.000) less likely to have high stigma relative to low stigmatizing attitude and those who had moderate intimacy were three times (OR= 0.32, 95% CI= 0.189-0.543, p-value= 0.000) less likely to have high stigma to low stigmatizing attitude towards people living with SCD compared to those with low intimacy.

Table 4.17 shows the multinomial regression analysis of the factors associated with high relative to low stigmatizing attitude towards people living with SCD

Significant Variables	Standard error (SE)	Odds Ratio (OR)	95% CI Lower Upper	p-value
Age				
18-24	0.503	0.824	0.293	0.715
25-34	0.426	0.812	2.323	0.625
35-44	0.393	0.879	0.353	0.744
45 and above*			1.870	
			0.417	
			1.899	
Sex				
Male	0.230	0.668	0.426	0.078
Female*			1.047	
Religion				
Christian	0.845	2.768	0.528	0.228
Muslim	0.816	4.226	14.514	0.077
Others*			0.854	
			20.915	
Ethnicity				
Yoruba	0.276	0.890	0.518	0.671
Non-Yorubas*			1.527	
Marital status				
Single	0.530	1.130	0.400	0.818
Married/co-habiting	0.406	0.907	3.191	0.810
Others*			0.238	
			2.011	
Family setting				
Monogamy	0.281	0.699	0.403	0.203
Polygamy*			1.212	
Level of Education				
No formal education	0.631	1.583	0.460	0.466
Primary school	0.415	1.701	5.152	0.201

Secondary school	0.286	1.995	0.754	0.016**
Tertiary institution*			3.838	
			1.138	
			3.497	

Table 4.17 cont'd: Multinomial regression analysis of the factors associated with high relative to low stigmatizing attitude towards people living with SCD

Significant Variables	Standard error (SE)	Odds Ratio (OR)	95% CI Lower Upper	p-value
Parity				
0-1	0.503	0.902	0.336	0.837
2-4	0.409	0.920	2.418	0.838
4 and above*			0.413	
			2.049	
Place of Delivery				
Home/Mission home	0.312	1.342	0.729	0.345
Traditional home	0.523	1.639	2.472	0.345
Hospital*			0.588	
			4.572	
Level of knowledge				
Good knowledge	0.264	1.509	0.824	0.219
Poor knowledge*			2.319	
Level of Belief				
Good belief	0.238	0.509	0.319	0.005**
Poor belief*			0.812	
Level of Attitude				
Good attitude	0.245	0.676	0.506	0.676
Poor attitude*			1.321	
Level of personal contact				
High intimacy	0.294	0.252	0.142	0.000***
Moderate intimacy	0.271	0.320	0.449	0.000***
Low intimacy*			0.188	
			0.543	

DISCUSSION CONCLUSION AND RECOMMENDATIONS

Discussion

Socio-demographic characteristics

Findings showed that Muslim and those who were delivered in traditional home had high stigmatizing attitude. However, those from monogamous family setting were more likely to have moderate to low stigmatizing attitude and those who had completed secondary school education were more likely to have high to low stigmatizing attitude towards people living with SCD.

Awareness and knowledge about sickle cell disease (SCD)

All the respondents were aware of sickle cell disease and their major sources of information were friends/relatives, radio/TV and Health Care Facility/workers. A study carried out among secondary school student in Jos, Nigeria (Olarenwaju et al, 2013) reported high level of awareness and also mentioned health professionals, internet, friends and family as major source of information which is similar to this study. Most of the respondents' knew correctly that SCD affects the Red Blood Cell (RBC) and it is an inherited disorder. A study in Southern Nigeria among trainee-teachers (Ani et al 2012) identified that majority respondents' knew correctly that SCD is heritable and that it affects RBC which was similar to the findings of this study. Major signs and symptoms found by this study include: painful crises (bone and joint pains), jaundice (yellow eyes and skin), pale look (anaemia), frequent illness and abdominal swelling. A study carried out in Ilorin metropolis among secondary school students (Durotoye et al 2013) reported yellowness of eyes, on and off bone pains, frequent illness and anaemia as the major signs and symptoms of SCD which is similar to our study findings. Despite high awareness about SCD, respondents 52.6% had poor knowledge about the cause, mode of transmission from parents, treatment and prevention of SCD. A study carried out in Ilorin (Durotoye et al, 2013) reported that 36.3% had poor knowledge which is lower than the poor knowledge score in this study. This may be due to the fact that knowledge score was grouped into a 3-point likert scale in this study. Another study among secondary school students in Jos (Olarenwaju et al, 2013) reported that respondents' knowledge about the cause and prevention of SCD was low which is similar to these findings. The proportion of people who knew their genotype were 52% which is similar to studies which reported 52% (Durotoye et al, 2013) and 59% (Olarenwaju et al, 2013) respectively. Another study among undergraduates among Ekiti University students (Olubiyi et al 2013) reported proportion of those who were aware of their genotype status to be 90.3% which contradicted this study. The reason for this may be that genotype status was determined during admission process.

Belief and Attitude about SCD

Despite respondents' good belief about SCD, some still had inaccurate belief that SCD can be infectious and contagious, caused by evil spirits and cured with herbs. A study in Port Harcourt among trainee-teachers (Ani et al 2012) also reported that respondents had inaccurate belief that SCD can be caused by evil spirits, cured by spiritual healers and infectious. The attitude identified by this study people living with SCD cannot live normal life. A study carried out in Lagos among secondary school students (Ola et al, 2013) also reported that respondents' feel people living with SCD cannot live normal life.

As regards the cost of care and management of SCD, majority agreed that the cost of medical care is enormous which is similar to the reported stated by Kabiti IA 2008. He reported in his profile that the cost implication for the management of SCD is enormous. This support our findings hence policies on socio-economic measures should be developed to assist SCD-affected families.Majority opined that SCD patients need more love and care. A study also that SCD patient require adequate care from health care provider, families and loved ones because SCD comes with painful crises (Jenerette and Brewer 2010).

Association between social distance and significant variables

In this study, the significant variables associated with social distance were religion, ethnicity, family setting, level of education, place of delivery, level of personal contact, knowledge, belief and attitude. Respondents who had high stigmatizing attitude were those from monogamous family setting, delivered in traditional homes, with low intimacy, good knowledge and non-yorubas.

A similar study on stigmatizing attitude among secondary school students in Nigeria (Ola et al, 2013) reported significant variables associated with social distance were gender, belief that SCD can be caused by bad foods, being unaware that the condition is heritable, not knowing SCD affects red blood cell, belief that people living with SCD cannot live normal life and having less personal contact which contradicted findings of this study. This may be their choice of test for analysis (linear model regression). This study found less stigma but substantial proportion endorsed attitude associated with stigma social would gossip about anyone with the disease and would avoid eating or sharing food with anyone who has the disease. This study revealed that those who had high intimacy with people living with SCD had low stigmatizing attitude. In a study on attitude towards mental illness among young people in Australia (Jorm and Wright 2008) found that exposure to mental disorders was associated with reduced social distance which is similar to this study finding. Another study among secondary school students in Nigeria (Ola et al 2013) stated that a closer level of contact or familiarity with people affected with SCD was associated with a less stigmatising attitude which is also similar to our findings.

Factors associated with stigmatizing attitude

In this study significant factors associated with stigmatizing attitude were family setting for moderate to relative low while secondary education, belief and level of personal contact for high relative to low. Those from monogamous family setting were eight times more likely to have relative moderate to low stigmatizing attitude towards people living with SCD. However, those had completed secondary education were approximately two times more likely to have high relative to low stigmatizing attitude towards people living with SCD. A similar study on stigmatizing attitude among secondary school students in Nigeria (Ola B et al, 2013) reported significant factors associated with social distance as belief that people with SCD cannot live normal life and having less personal contact with SCD which is not similar to the findings of this study which may be due to use of ANOVA for regression model.

CONCLUSION

Despite high level of awareness, respondents had poor knowledge about cause, treatment and prevention of SCD. Respondents' with high intimacy had low stigmatizing attitude. Although the study found less stigma but a few number of respondents' still engage in attitudes associated with stigma towards people living with SCD. This study provides useful information to plan programmes for anti-stigma in the community towards people living with SCD

RECOMMENDATION

I hereby recommend that:

1. Knowledge about cause, treatment and prevention of SCD should be increased because it's crucial for the management of SCD.
2. There should be awareness campaign on the importance of genotype screening so that the populace can be more informed on reasons why they need to voluntarily go for genotype screening.

3. Policies to improve care and treatment for SCD patients should be put in place and emphasis should be laid on socio-economic measures to assist SCD-affected families.

4. Strategic intervention anti-stigma programmes should be put in place to reduce stigma towards people living with SCD among adults in various communities.

REFERENCES

1. Abdel-Meguid N, Zaki MSA and Hammad SA (2000): Premarital genetic investigations: effect of genetic counselling. Eastern Mediterranean Health Journal. 6(4):652- 660. Afolayan JA and Jolayemi FT 2011. Parental attitude to children with sickle cell disease in selected health care facility in Irepodun Local Government Kwara State, Nigeria. Ethno Med. 5(1):33-40.
2. Agbanusi O, Amaechi C, Onyejizu C, Osuroji C, Chukwuma A and Arua I (2007): Sickle cell anaemia. Awareness of sickle cell anaemia and its heterozygote state among undergraduate students of the University of Nigeria, Enugu. Medikka Journal of the University of Nigeria Medical Students. ISSN 03331-1643.
3. Akingbola TS, Bamidele TO, Salako B, Layden B, Hsu LL, Cooper RS, Gordeuk VR and Saraf SL (2014): Comparison of patients from Nigeria and the USA highlights modifiable risk factors for sickle cell anaemia complications. Informa Health Care USA. 10.31109/03630269.2014.927363.
4. Akinyanju OO 2010. The National burden of sickle cell anaemia and the way forward. Page 1-18.
5. Al-Gazali LI, Alwash R and Abdulrazzaq YM (2005): United Arab Emirate; communities and community genetics. Community genetics. 8:186-96
6. Ani C, Aranda AM, Kinanee J, Ola B and Kramer T (2012): Trainee-teachers' stigmatizing attitude towards sickle cell disorders in Nigeria. European Journal of Educational Studies. 4(3): 349-360.
7. Ani C, Ola BA, and Coker AO (2011): School children's stigmatizing attitude towards peers with epilepsy in Nigeria. Vulnerable Children & Youth Studies. 6 (4):330–338.
8. Anie KA, Egunjobi FE and Akinyanju OO (2010): Psychological impact of sickle cell disorder perspective from a Nigerian setting. Globalization and Health. 6:2.
9. Animasahun BA, Nwodo U and Njokanwa FO (2012): Prenatal screening for sickle cell anaemia: Awareness among health professionals and medical students at Lagos State University Teaching Hospital and concept of prevention by termination. Journal on Paediatry Hematology Oncology. 34:252-256.
10. Ashley-Koch A, Yang Q and Olney RS (2000): Sickle haemoglobin allele and sickle cell disease: A human genome Epidemiology review (HUGE). American Journal of Epidemiology. 151(9):839-845.
11. Ballas SK, Bauserman RL, Mccarthy WF, Castro OL, Smith WR, Waclawiw MA (2010): Hydrourea and acute painful crises in sickle cell anaemia. Effects on hospital. J Pain Symptom manage. 40(6):870-882.
12. Bhatia M and Walters WC (2008): Haemopoietic cell transplantation for thalasaemia and sickle cell disease: Past, present and future. Bone Marrow Transplant. 41:109-117.
13. Bogardus ES (1933): A social distance scale. Sociology and Social Research. 17: 265– 271
14. Brousse V, Maakani J and Rees DC (2014): Clinical review: Management of sickle cell disease in the community. BMJ 348:1765 doi: 10.1136/bmj.g1765.
15. Brousseau DC, Owens PL, Mosso AL, Panepinto JA and Steiner CA (2010): Utilization and rehospitalisation for sickle cell disease. JAMA. 303(13):1288-1294.

16. Burnes DP, Antle BJ, Williams CC and Cook L (2008): Mothers raising children with sickle cell disease at the intersection of race, gender, and illness stigma. Health Social Work. 33(3):211-220.
17. Butt G (2008): Stigma in the context of hepatitis C: Concept Analysis. Journal of Advanced Nursing. 62(6):712-714.
18. Corrigan PW, Edwards AB, Green A, Diwan SL and Penn DL (2001): Prejudice, social distance and familiarity with mental illness. Schizophrenia Bulletin. 27(2):219-225.
19. Davies SC, Cronin E, Gill M, Greengross P, Hickman N and Normand C (2000): Screening for sickle cell disease and thalasaemia. A systematic review with supplementary research. Health Technology Assessment. 4(3).
20. Delicat-Loembet LM, Elguero E, Arnathau C, Durand P, Ollomo B, Ossari S, Mezui-me-ndong J, Mboro TM, Becquart P, Nkoghe D, Leroy E, Sica L, Gonzalez J, Prugnolle F and Renaud F (2014): Prevalence of the sickle cell trait in Gabon: A Nationwide Study. Infections, Genetics and Evolution. 25:52-56.
21. Hamideh D and Alvarez O (2013): Sickle cell disease related mortality in the United State of America (1999-2009). Paediatry Blood Cancer. 60: 1482-1486.
22. Hartree N and Gronow H (2012): Sickle cell disease and sickle cell anaemia. 2779(2).