ASSESSMENT OF HEALTH EDUCATION STUDENTS' KNOWLEDGE OF SICKLE CELL AND RHESUS FACTOR INCOMPATIBILITY IN THE UNIVERSITY OF ILORIN

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ABSTRACT: *The incidence of Sickle Cell and Rhesus Factor disorders has a considerable impact on death rates across the world. Unmarried students in the Department of Health Education at the University of Ilorin were tested on their knowledge of Sickle Cell and Rhesus Factor compatibility. The study looked at how knowledge about Sickle Cell illness and Rhesus Factor compatibility varied according to gender, (ii) academic level, (iii) age, and (iv) religion. The study used a survey-style descriptive research approach. The study's participants were single students in the Department of Health Education. A multi-stage sampling process was used to choose 200 respondents for the study. Data was collected using a validated structured questionnaire with a reliability value of 0.72. The data was analyzed using descriptive statistics of percentages, and inferential statistics of independent test and Analysis of Variance (ANOVA) at the 0.05 alpha level. Among the findings were that:*

1. *The level of knowledge of sickle cell was moderate.*

2. *The level of knowledge of Rhesus factor compatibility was also moderate.*

3. *There was no statistically significant difference in the knowledge of sickle cell based on gender ($t_{[198]} = 1.21$, $p>0.05$).*

4. *There was no statistically significant difference in the knowledge of sickle cell based on age range ($t_{[198]} = 1.218$, $p>0.05$).*

5. *There was no statistically significant difference in the knowledge of sickle cell on religion ($t_{[198]} = 1.491$, $p>0.05$).*

The study revealed, among other things, that the students' understanding of Sickle Cell and Rhesus Factor compatibility was moderate. As a result, it was suggested that students be educated about the consequences of Sickle Cell and Rhesus Factor incompatibility through health symposiums, public announcements, and social media, as well as the various ways in which it can be avoided, to aid in the development of their knowledge and to assist groups and individuals in making informed decisions in such health matters.

KEYWORDS: Rhesus Factor, Sickle cell, Health Education, Knowledge

INTRODUCTION

Sickle Cell Disease (SCD) affects over 100 million people worldwide, with around 300,000 newborns diagnosed each year. SCD births are most common in Sub-Saharan Africa, which has high rates of under-five mortality and accounts for more than half of all SCD deaths (Azeem, Elsayed, Sherbiny & Ahmed, 2011). This suggests that people with sickle cell anaemia have a shorter lifespan than the general population. According to Chijioke and Kolo, many are already living into their fourth decade (2009). With an annual birth rate of 150,000 births, the prevalence rate of sickle cell trait in Nigeria is estimated to be between 20 and 30 per cent (Abdulhameed & Yalma, 2021). Sickle cell disease (commonly known as SCD) affects around 2% to 3% of Nigeria's population, with about a quarter of Nigerians being healthy carriers of a faulty haemoglobin gene (Afolayan & Jolayemi, 2011).

Sickle cell disease (SCA) is a hereditary blood condition that generates sickle-shaped red blood cells by decreasing the effectiveness of haemoglobin (the oxygen-carrying component of the red blood cell) (Alagbe, Susu & Dosunmu, 2013). HbSS, HbSC, Hb, and Hb+ are all SCDs that fall under the category of hemoglobinopathies (Hb) (Alpha and Beta Thalassaemia). Sickling of the red blood can cause mild to severe issues (Illness), according to Abioye-Kuteyi et al. (2009) and Saganuwan (2016), which can be aggravated by bacterial, viral, and parasitic infections. Gallstones, children's strokes, jaundice, acute chest syndrome, bone crisis (pain episodes), priapism (painful abnormal penile erection), and leg ulcers are some of the more common illnesses, while abnormal renal function and bone marrow failure are rare pathological conditions that require immediate treatment.

The physical and emotional consequences of SCD, like those of other non-communicable chronic diseases, have an impact on the health of carriers, their families, and the country as a whole. According to Ilesanmi, children with SCD are typically smaller or thinner than their healthy peers, and they may feel furious and less cognitively capable since they regularly skip school and have academic challenges (2013). In addition, as children with SCD enter puberty, they are more prone to experience low self-esteem, social disengagement, and depression. In women with SCD, high-risk pregnancies and anaemia are common, and they can exacerbate the foetus' underlying disease. The previous study has connected SCD's endemic nature in Africa to a lack of knowledge, ignorance, beliefs, and myths (Bazuaye & Olayemi, 2009; Galadanci, Wudil, Balogun, Ogunrinde, Akinsulie, Hasan-Hanga, Mohammed, et al., 2014).

The discovery of the ABO blood types and the rhesus factor (Rh) marked a significant advancement in transfusion medicine and clinical medicine. A, B, AB, and O1 are the four primary blood types, and the rhesus factor can be positive or negative in anyone. The ABO and rhesus blood type systems have varied distributions based on ethnicity, race, socioeconomic class, and population, and they do not change over time (Sidhu, 2016). Olaniyan (2016) stated that, while blood type is 100 per cent heritable, the environment may have a role in determining whether blood type is handed down through natural selection more frequently to the next generation. According to Bamidele (2016), the ABO and rhesus blood types have been the most therapeutically important of all blood groups since their discovery in 1901 and 1939. They have an important role in transfusion medicine, particularly in haemolytic transfusion reactions and haemolytic sickness, although not solely. Blood types are classified by the presence or absence of the Rh antigen, also known as the Rh factor, which is on the cell membranes of red blood cells (erythrocytes) (Britannica Encyclopaedia, 2018). The earliest technique for

identifying Rh antigen in human blood used rhesus monkey blood, thus the term Rh (Mannaseh, 2019).

When Rh-positive blood is transfused, the Rh antigen poses a risk to Rh-negative people who do not have the antigen. The immune system creates anti-Rh antibodies in reaction to the alien Rh antigen, even if negative repercussions do not show the first time Rh-incompatible blood is given. If Rh-positive blood is given after antibodies have grown, the foreign red blood cells will be attacked and clump together, or agglutinate. Hemolysis, or the disintegration of red blood cells, causes serious illness and, in the worst-case scenario, death (Olsen & Russells, 2018). Rh-positive children of Rh-incompatible parents suffer a similar risk during pregnancy when the mother is Rh-negative and the father is Rh-positive. The first child of such parents is usually unaffected unless the mother has developed anti-Rh antibodies as a result of an incompatible blood transfusion.

During labour, however, a little amount of the foetus' blood may enter the mother's system. The mother then produces anti-Rh antibodies, which attack any Rh-incompatible fetus in subsequent pregnancies (Olsen & Russells, 2018). This causes erythroblastosis fetalis, often known as neonatal hemolytic disease, which can be fatal to the fetus or kid shortly after birth. Erythroblastosis fetalis is commonly treated with one or more exchange transfusions. If the mother has Rh-incompatibility, the sickness can be avoided by immunizing her firstborn with Rh immunoglobulin after birth. The Rh vaccine destroys any fetal blood cells before the mother's immune system may generate antibodies.

Individuals are affected differently by the Rhesus factor and Sickle Cell Anemia. Miscarriages are one of these ramifications, according to Abdulhameed and Yalma (2021), which may eventually lead to infertility in the patient, and the issue has been treated. If the mother's blood and the foetus's blood are incompatible, patients with Rhesus factor incompatibility may have miscarriages. The mother's blood type, for example, might be Rh-negative while the foetus' is Rh-positive. According to Sanganuwa (2016), when this happens, the mother and the unborn child are likely to have Rhesus Factor incompatibility. Infertility is another side effect, albeit it is uncommon among individuals. Patients may have infertility as a result.

Sickle cell anaemia also has an effect on pregnancy. The oxygen distribution of red blood cells changes dramatically throughout the pregnancy. Blood cells must be able to carry oxygen, but this is not the case with sickle cell anaemia because the faulty red blood cells reduce the amount of oxygen provided to the growing newborn, causing the baby's growth to stall. Furthermore, sickle cell disease affects both males and females, however, males are affected more commonly than females (Abioye-Kuteyi et al., 2009). Puberty delays are most likely to blame (sexual maturation, priapism, and gonad malfunction).

Adoption is one of the potential solutions to this problem since it helps people avoid pregnancy-related complications. Patients who want to avoid the hazards of pregnancy, infertility, and parenthood can easily choose child adoption. Sickle cell individuals adopt children for a variety of reasons, including infertility, the desire to avoid childbearing complications, and concerns about the propagation of genetic illnesses. The research would pay attention to these significant discoveries in order to arrive at the most suited responses.

In today's Nigerian society, the prevalence of Sickle Cell Diseases and Rhesus Factors needs quick attention since it affects everyone, regardless of tribe, culture, class, age, or position. As a result, people's knowledge and awareness, particularly among unmarried people, are now necessary in order to conduct and experimentally actualize worries about their control in the near future. Unmarried children's sensitization might assist to lessen the repercussions and prevalence of Sickle Cell Disease and Rhesus Factors in Nigeria. The prevalence of the aforementioned diseases would be reduced if unmarried teenagers were better educated on how to deal with them. Most Nigerians, according to Adukaye (2016), lack the requisite understanding to treat Sickle Cell Disease and are regularly misled by false and harmful information. Moronkola and Fadairo (2006) proposed that ongoing disease sensitization and information distribution might assist to reduce sickness prevalence. According to these experts, Nigerians are uninformed about the prevalence of Sickle Cell Disease and Rhesus Factors in the country (Ikechukwu, 2016; Ezinne, 2019), which should not be the case. The only research currently available in Nigeria on the Assessment of Knowledge of Sickle Cell Disease and Rhesus Factors has focused primarily on pregnant women.

Unmarried persons in Nigeria have been reported to be ignorant and misinformed about the two ailments. In actuality, some solitary individuals still believe in the existence of Abiku (a mythological creature connected to the Rhesus Factor) and other questionable Sickle Cell Disease myths (Moronkola & Fadairo, 2006). As a result, doing research on the evaluation of knowledge of Sickle Cell Diseases and Rhesus Factor Compatibility among unmarried youth in Ilorin-south, Kwara state's local government area, is concerning. The current study will attempt to address a gap in the literature that has been identified.

Statement of the Problem

The study's concern is that unmarried youngsters in Ilorin south local government area, Kwara state, are unaware of sickle cell and rhesus factor compatibility. To the best of the researchers' knowledge, little or no research has been done to examine the understanding of Sickle Cell Disease and Rhesus Factor Incompatibility among unmarried people in Ilorin-South, Kwara State. Following the discovery of a gap in the literature, the current study will aim to fill that gap. Hence, the study will look at whether single people are aware of the hazards of Sickle Cell Incompatibility before marriage and how it affects couples in their varied marital lives. In addition, the study will look at whether unmarried teenagers are aware of how Sickle cell incompatibility affects pregnancy in order to preserve their views on the issue. Furthermore, the study hopes to investigate if unmarried youths are aware of how adoption might serve as an option for prospective pregnancy complications in Sickle Cell Patients, as well as whether they are aware of the hazards of Rhesus Factor incompatibility before marriage and its long-term consequences. Finally, the study will seek to determine if unmarried teenagers are aware of how Rhesus Factor Incompatibility causes miscarriage and whether they are aware of how Rhesus Factor Incompatibility may be resolved in the study region.

Purpose of the Study

The major goal of this study was to see how well, the students in the Health Education Department of the University of Ilorin knew about sickle cell and rhesus factor incompatibility.

Research Questions

The following questions were raised to guide this study

1. What is the level of knowledge of sickle cell among Health education students of the University of Ilorin?

2. What is the level of knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin?

Research Hypotheses

The following hypotheses were postulated for this study

Ho_1: There is no significant difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on gender.

Ho_2: There is no significant difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on age range.

Ho_3: There is no significant difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on religion.

Ho_4: There is no significant difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on academic levels.

Ho_5: There is no significant difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on gender.

Ho_6: There is no significant difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on age.

Ho_7: There is no significant difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on religion.

Ho_8: There is no significant difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on academic levels.

METHODOLOGY

The descriptive research design of the survey type was used in this investigation. All Health Education Undergraduates at the University of Ilorin in Kwara State were included in the study. Sample size selection employed a multistage sampling process to choose 200 Health Education students. The data was collected using a researcher-designed questionnaire (which had 12 items on Sickle Cell disorders and 10 items on the consequences of Rhesus factor incompatibility) organized in a two-response-type with a reliability coefficient of 0.70. To address the study questions, the data was analyzed using descriptive statistics of percentages, and inferential statistics of independent test and Analysis of Variance (ANOVA) at a 0.05 alpha level.

RESULTS

71 (35.5%) of the 200 students sampled for this study were boys, while 129 (64.5%) were girls. In addition, 123 (61.5%) of them were between the ages of 18 and 25, while 77 (38.5%) were 26 and older. Furthermore, 108 (54%) of them were Christians, while 92 (46%) were Muslims. Furthermore, 119 (59.5%) of them were in the 400 level, 26 (13.3%) in the 300 level, 36 (18.0%) in the 200 level, and 19 (9.5%) in the 100 level.

Answers to Research Questions

Descriptive statistics of percentages and bar-chart were used to answer all the research questions.

Question One: What is the level of knowledge of sickle cell among Health education students of the University of Ilorin?

The replies of the participants were analyzed using percentages. Because the questionnaire on sickle cell knowledge had 12 items with two responses, the maximum, lowest, and range scores were 12, 24, and 12, respectively, while the range was divided into three (i.e. 12/3=14). Students with scores ranging from 12 to 16, 17 to 20, and 21 to 24 were classified as having a low, moderate, or high level of knowledge, respectively. Table 1 shows the summary data of the participants.

Table 1: Level of knowledge of sickle cell among Health education students of University of Ilorin

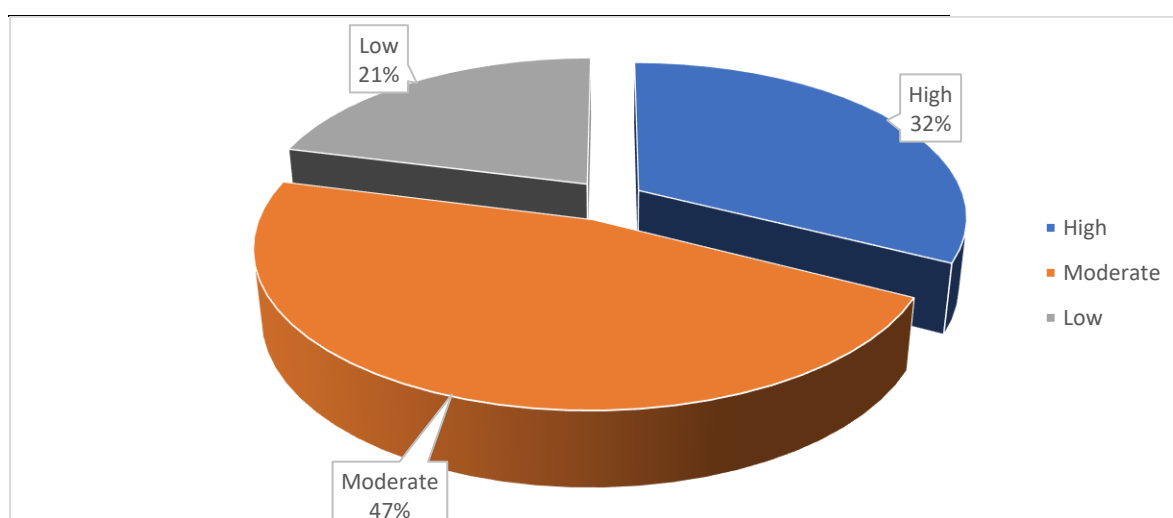| Level of knowledge of sickle cell	Score Range	Frequency	Percentage
High	21 – 24	65	32.5
Moderate	17 – 20	93	46.5
Low	12 – 16	42	21.0
Total		200	100.0

Figure 1: Level of knowledge of sickle cell

Table 1 and Figure 1 show that 65 (32.5%) of the 200 students sampled for this study had a high level of sickle cell knowledge, 93 (46.5%) had a moderate level of sickle cell knowledge, and 42 (21%) had a low level of sickle cell knowledge. Thus, the level of sickle cell knowledge among University of Ilorin Health Education students was modest.

Question Two: What is the level of knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin?

Percentage analysis was used to assess participants' knowledge of rhesus factor incompatibility. Given that the questionnaire on rhesus factor incompatibility included ten items, the maximum, minimum, and range scores were 10, 20, and 10, respectively, while the range was split into three (i.e. 10/3=3.3). Students with scores between 10 and 13; 14 and 16; and 17 and 20 were classified as having little, moderate, or high understanding of rhesus factor incompatibility, respectively. Table 2 shows the summary data of the participants.

Table 2: Level of knowledge of rhesus factor incompatibility among Health education students of University of Ilorin

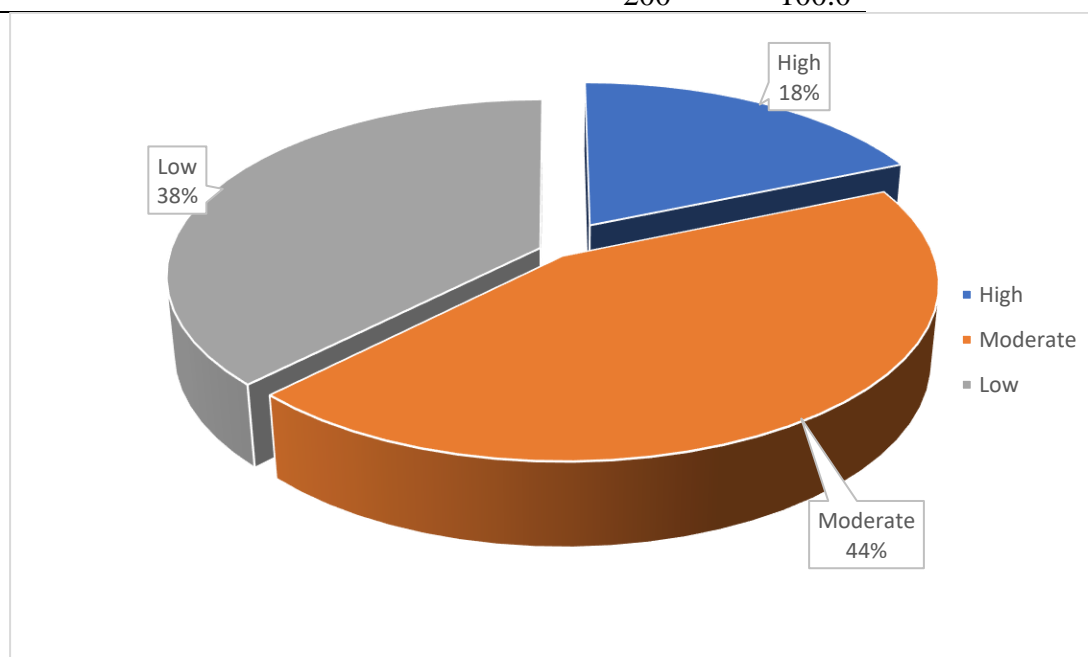| Level of knowledge of rhesus factor incompatibility	Score Range	Frequency	Percentage
High	17 – 20	39	19.5
Moderate	14 – 16	92	41.0
Low	10 – 13	79	39.5
Total		200	100.0

Figure 2: Level of knowledge of rhesus factor incompatibility

Table 2 and figure 2 show that out of 200 students surveyed, 39 (19.5%) had a high level of rhesus factor incompatibility knowledge, 92 (41.0%) had a moderate level of rhesus factor incompatibility knowledge, and 79 (39.5%) had a low level of rhesus factor incompatibility

knowledge. Thus, the degree of understanding of rhesus factor incompatibility among University of Ilorin Health Education students was modest.

Hypotheses Testing

Hypotheses were tested using an independent test and Analysis of Variance (ANOVA) at a 0.05 alpha level**.**

Ho$_1$: There is no significant difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on gender.

Table 3: t-test statistics showing the difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on gender

Gender	No	Mean	S. D.	df	t-value	Sig	Remark
Male	71	20.441	2.389				
				198	1.427	0.131	**Not Rejected**
Female	129	19.518	2.742				

significance at p>0.05

Table 3 indicates that a p-value of 0.131 computed at 0.05 alpha level yields a t-value of 1.427. The null hypothesis one is kept since the p-value of 0.131 is larger than the 0.05 level of significance. As a result, there is no statistically significant difference in sickle cell knowledge among University of Ilorin Health Education students based on gender ($t_{198} = 1.21$, p>0.05).

Ho$_2$: There is no significant difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on age range

Table 4: t-test statistics showing the difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on age range

Age Range	No	Mean	S. D.	df	t-value	Sig	Remark
18 – 25years	123	21.128	2.783				
				198	1.218	0.174	**Not Rejected**
26years and above	77	20.241	2.624				

significance at p>0.05

The t-value 1.218 is produced with a p-value of 0. 174 calculated at the 0.05 alpha level, as shown in Table 4. The null hypothesis two is retained since the p-value of 0.174 is larger than the 0.05 criterion of significance. As a result, there was no statistically significant difference in sickle cell knowledge among University of Ilorin Health Education students based on age range ($t_{198} = 1.218$, p>0.05).

Ho₃: There is no significant difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on religion.

Table 5: t-test statistics showing the difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on religion

Religion	No	Mean	S. D.	df	t-value	Sig	Remark
Christianity	108	19.921	3.173				
				198	1.491	0.071	**Not Rejected**
Islam	92	21.017	2.821				

significance at p>0.05

Table 5 reveals that the t-value 1.491 is obtained with a p-value of 0.071 computed at a 0.05 alpha level. Since the p-value of 0.071 is greater than the 0.05 level of significance, null hypothesis three is retained. Therefore, there was no statistically significant difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on age range ($t_{\{198\}} = 1.491$, $p>0.05$).

Ho₄: There is no significant difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on academic levels

Table 6: ANOVA summary of the difference in the knowledge of sickle cell among Health education students of the University of Ilorin based on academic levels

Variables	Sum of Squares	df	Mean Square	F	Sig.	Remark
Between Groups	372.538	3	124.179			
Within Groups	16856.371	196	86.002	1.444	0.119	**Not**
Total	20029.909	199				**Rejected**

Insignificance at p>0.05

The F-value of 1.444 with a p-value of 0.119 estimated at the 0.05 alpha level is presented in table 6. The null hypothesis two is kept since the resulting p-value of 0.119 is larger than the 0.05 level of significance. This means that there was no significant difference in sickle cell knowledge among University of Ilorin Health Education students based on academic levels (F 3, 196 = 1.444, p>0.05).

Ho₅: There is no significant difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on gender

Table 7: t-test statistics showing the difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on gender

Gender	No	Mean	S. D.	df	t-value	Sig	Remark
Male	71	19.793	2.642				
				198	1.149	0.217	**Not Rejected**
Female	129	20.370	2.851				

Insignificance at p>0.05

Table 7 shows that the t-value 1.149 is obtained with a p-value of 0.217 computed at a 0.05 alpha level. Since the p-value of 0.217 is greater than the 0.05 level of significance, null hypothesis five is retained. Therefore, there was no statistically significant difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on gender ($t_{\{198\}} = 1.149$, p>0.05).

Ho6: There is no significant difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on age range.

Table 8: t-test statistics showing the difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on age range

Age Range	No	Mean	S. D.	Df	t-value	Sig	Remark
18 – 25years	123	18.873	2.239				
				198	1.331	0.139	**Not Rejected**
26years and above	77	21.543	2.671				

Insignificance at p>0.05

Table 8 indicates that a p-value of 0.139 computed at 0.05 alpha level yields a t-value of 1.331. The null hypothesis six is kept since the p-value of 0.331 is larger than the 0.05 level of significance. As a result, there was no statistically significant difference in rhesus factor incompatibility knowledge among University of Ilorin Health Education students based on age range (t198 = 1.331, p>0.05).

Ho7: There is no significant difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on religion.

Table 9: t-test statistics showing the difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on religion.

Religion	No	Mean	S. D.	df	t-value	Sig	Remark
Christianity	108	20.534	2.371				
				198	1.334	0.119	**Not Rejected**
Islam	92	20.241	2.562 3				

significance at p>0.05

The t-value 1.334 is produced with a p-value of 0.119 estimated at the 0.05 alpha level, as shown in Table 9. The null hypothesis seven is kept since the p-value of 0.119 is larger than the 0.05 threshold of significance. As a result, there was no statistically significant difference in rhesus factor incompatibility knowledge among University of Ilorin Health Education students depending on religion (t_{198} = 1.334, p>0.05).

Ho8: There is no significant difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on academic levels.

Table 10a: ANOVA Summary Statistics of the difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on academic levels.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	624.969	3	208.323	2.285	.042
Within Groups	17866.667	196	91.156		
Total	21191.637	199			

significance at p<0.05

When evaluated at the 0.05 alpha level, the F-value 2.285 was obtained with a p-value 0.042, as shown in Table 10a. The null hypothesis four was rejected since the resulting p-value of 0.042 was less than the 0.05 criterion of significance. This revealed a significant difference in understanding of rhesus factor incompatibility among University of Ilorin Health Education students based on academic levels (F 3, 196 = 2.285, p0.05).

Following the discovery of a substantial difference between the means, additional tests were conducted on various combinations of means to determine where the discrepancy arose. Duncan's Post Hoc technique was used to run the test at a 0.05 alpha level. The Post Hoc technique is a statistical method for determining which of the many groups created the difference.

Table 10b: Duncan's Post Hoc pairwise comparisons showing the difference in the knowledge of rhesus factor incompatibility among Health education students of the University of Ilorin based on academic levels

Academic Levels	N	Subset for alpha = 0.05		
		1	2	3
100level	19	23.2131		
200level	36	24.5405		
300level	26		27.0000	
400level	119			33.2195
Sig.		.372	.099	.084

Means for groups in homogeneous subsets are displayed

a. Uses Harmonic Mean Sample Size = 34.842

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed

Table 10b demonstrated that 400level students, followed by 300level students, had stronger knowledge of rhesus factor incompatibility with regard to their mean scores, while 200level and 100level students had the least knowledge of rhesus factor incompatibility with respect to their mean scores.

DISCUSSION

The findings of this study suggested that sickle cell knowledge among University of Ilorin Health Education students was moderate. This suggests that health education students do not have all of the essential sickle cell information. This supports the findings of Adewoyin et al. (2015), who found that the majority of respondents (63.5 per cent) had a basic understanding of sickle cell disease. Despite their high degree of awareness, Uche, Olowoselu, Augustine, Ismail, Akinbami, Dosunmu, and Balogun (2017) discovered that just 37.5 per cent of them had a good understanding of SCD. This might be attributed to a lack of screening centres and poor SCD education. According to Adewoyin et al. (2015), the average life expectancy in the developed world is 40 to 60 years, compared to 40 years or less in the developing world. This could be due to the developed world's high level of knowledge, which they believe is due to researchers in the United Kingdom and the United States of America reporting good knowledge of SCD.

Furthermore, the results of this study revealed that health education students at the University of Ilorin had a modest understanding of rhesus factor incompatibility. This indicates that pupils are not yet sufficiently familiar with Rhesus factor incompatibility. Rhesus disease, often known as "Rh incompatibility," is a genetic condition that affects a future pregnancy's baby. Rh illness occurs when a mother with an Rh-negative blood type has a child with Rh-positive blood cells, resulting in the formation of Rh antibodies. However, according to Mokaya (2014), 80% of the women she surveyed were unaware of Rhesus factor incompatibility.

The findings of this study revealed that there is no statistically significant difference in sickle cell knowledge among University of Ilorin Health Education students based on gender, age

range, religion, or academic levels. This finding is consistent with Bamidele (2016), who found that people's knowledge of sickle cell anaemia was inadequate regardless of gender or religious practices, and Moronkola and Fadairo (2006), who found that youths' knowledge of sickle cell disease and genetics was grossly inadequate before marriage. Similarly, Uche et al. (2017) discovered that age, gender, religion, or Hb phenotype did not affect knowledge.

In the same line, the results of this study revealed that there was no statistically significant difference in understanding of rhesus factor incompatibility among University of Ilorin Health Education students based on gender, age range, or religion. However, there was a substantial variation in awareness of rhesus factor incompatibility among University of Ilorin Health Education students depending on academic levels. Higher academic levels exhibited a greater understanding of rhesus factor incompatibility, which might be attributed to information obtained during years of studying health education and associated courses.

IMPLICATIONS TO RESEARCH AND PRACTICE

Students, parents, health professionals, governments, and every other educational stakeholder in Nigeria can benefit greatly from this research. The current study would be useful to the aforementioned stakeholders in order to lower the prevalence of sickle cell disease and Rhesus Factor problems in Nigeria to the greatest extent possible. When knowledge is lacking among pupils, predominance will undoubtedly take over the scene. As a result, it is envisaged that the current study's findings would be of critical importance to unmarried students' knowledge in order to communicate such knowledge and information to other persons and organizations. In conclusion, the outcomes of this study will be extremely useful to future scholars who are interested in performing similar research in various geographical areas and domains of expertise.

CONCLUSION

With respect to the findings of this study, it could be concluded that Health education students of the University of Ilorin had partial knowledge of sickle cell and rhesus factor incompatibility and no discrepancy existed in the knowledge of sickle cell and rhesus factor incompatibility among male and female Health education students regardless of their age difference, gender and religion practices.

Based on the findings of this study, the following recommendations were proffered;

1. Health education students should be well-versed in sickle cell and rhesus factor incompatibility in order to have the knowledge and capacity to properly educate the public, as needed by health educators.

2. Health education lecturers should break sickle cell and rhesus factor incompatibility lectures into units to enable mastery learning and nurture sickle cell and rhesus factor incompatibility knowledge among students.

3. More awareness about screening centres should be made through pamphlets, jingles and advertising on social media platforms

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