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An Inquiry into Blood Donor Ship of Undergraduate Nursing Students in a Christian-Based Tertiary Institution in Jamaica

Paul AndrewBourne[1], Kerron Barker-Gollab[2], Shanique Haughton[2], Jennie-Lee Julye-Edwards[2], Toni-Ann Richards[2], James Fallah[3], Calvin Campbell[4], Clifton Foster[5], Caroline McLean[2]

[1] Department of Institutional Research, Northern Caribbean University, Mandeville, Manchester, Jamaica, WI.
[2]Department of Nursing, Northern Caribbean University, Mandeville, Manchester, Jamaica, WI.
[3]Department of Dental Hygiene, Northern Caribbean University, Mandeville, Manchester, Jamaica, WI.
[4]Department of Mathematics and Engineering,
Northern Caribbean University, Mandeville, Manchester, Jamaica, WI.
[5]Department of Biology, Chemistry, and Environmental Sciences,
Northern Caribbean University, Mandeville, Manchester, Jamaica, WI.

Abstract

Introduction: All countries should have blood supply systems that are safe, affordable, and sufficient in an effective health system. One pint of blood could be the difference between life and death (American Red Cross, 2021). Blood is needed for all the body's vital organs to function effectively, highlighting the importance of blood in all living organisms. Therefore, this research seeks to find (1) the degree of blood donation among undergraduate nursing students in a Christian-based tertiary institution in Jamaica? (2) the attitude towards blood donation among undergraduate nursing students in a Christian-based tertiary institution in Jamaica? (3) the knowledge level of undergraduate nursing students in a Christian-based tertiary institution towards blood donation?

Method: This was a descriptive cross-sectional study designed to collect data from undergraduate nursing students in a Christian-based-tertiary institution in Jamaica. Researchers used non-probability sampling to obtain the data from 431 sampled respondents using a standardized survey created in Google Forms, followed by data transfer into IBM SPSS for Windows 10 Version 25.

Results: The findings revealed that 32.9% (n=142) of the sampled respondents are blood donors, and 67.1% (n=289) do not donate blood. Findings also showed that 63.3% (n=274) knew how blood donation occurs, compared to the 36.4% (n=157) who were not aware. In addition, 87.7% (n=378) had a positive attitude towards blood donation, and 69.6% (n=300) encouraged others to donate blood.

Conclusion: Blood donation is low among undergraduate nursing students in a Christian-based tertiary institution in Jamaica**.**

Keywords: Blood, Donation, Christian- based tertiary, Institution, Behavior, Nursing students, Jamaica, Knowledge, Attitude.

Introduction

Blood is a critical fluid for humans' and animal existence (American Red Cross, 2021; Singh, 2018). The American Red Cross indicates that communities can sustain the health of their members when individuals volunteer to donate their blood, which explains a famous adage Just one pint of blood could be the difference between life and death' (American Red Cross, 2021). The blood delivers the nutrients and oxygen required for all human and animal cells and transports metabolic waste products away from the cells (the U.S. Library of Medicine, 2015; Hirsch, 2019).

According to Mayo Clinic Staff (2021), blood donation is a sterile voluntary procedure that can help save the lives of persons in need. For example, some individuals may need blood during a surgical procedure, during childbirth, or a person with anemia if they have a specific disease requiring a blood transfusion. In addition, the American Society of Hematology (2021) outlined that there are five characteristics of the blood: 1) carrying cells and antibodies that fight infections, 2) bringing waste products to the kidneys and liver, which filter and clean the blood, 3) forming blood clots to prevent excess blood losses, 4) regulating body temperature, and 5) transporting oxygen and nutrients to the lungs and tissues. According to the NHS Blood Transplant (2020), the blood slogan was carefully designed in keeping with the apprehension of people, and the importance of blood to human existence.

There are four types of blood donation: whole blood donation, power red or double red cell donation, platelet donation, and plasma donation. During whole blood donation, one pint of blood is collected from the donor and tested. The power red or double red cell donation, platelet donation, and plasma donation occur through the process of apheresis. Apheresis is the process in which the separation of cellular and soluble blood components using a machine. The type of donation that a donor may have is dependent on their blood type. There are four blood groups (A, B, AB, and O). These four blood types further divide into eight blood groups based on an individual's inherited gene. Blood groups are either RhD positive or negative. Group O is the universal donor, while Group AB is the universal plasma donor and the universal recipient. A blood donor is an individual who voluntarily has blood drawn from their veins. A blood recipient is an individual who receives donated blood. The blood requires testing before being transfused to recipients. There are specific pre-screening requirements for blood donors, such as age, weight, good health, travel restrictions, and pregnancy. An individual cannot donate if they have a cold, flu, or any form of infection; if they have travelled to countries where there are high cases of mosquito-borne diseases and the COVID-19 infection; it is not advisable to give blood while pregnant or breastfeeding) (American Red Cross, 2021; WHO, 2018).

Theoretical Framework

Theories serve to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions. According to Masser et al. (2008), “theories in applied contexts are necessary tools because they integrate and order existing empirical findings as well as serving to guide research by generating new predictions. To that end, several sociological, psychological, and organizational theories underpin the behaviour of blood donation" (p. 5).

The theoretical framework that underpinned this study was the theory of planned behaviour (TPB), an extension of the theory of reasoned action. Masser et al. (2008) affirm that the TPB is a well-known behavioural decision-making model designed to account for an individual’s intention to engage in a particular behaviour during a specific timeframe and location.TPB asserts that people possess the ability to exercise self-control over all their behaviours. “Behavioral intent” is the critical construct within the TPB framework. An individual's attitude toward a behaviour, subjective norm, and perceived behaviour control influence an individual's actual behaviour. The idea is that acting on a specific behaviour will produce an expected outcome while weighing the “risks and benefits.”The TPB underpins health behaviours, an individual's intention to participate in a particular behaviour, such as a blood donation, among others. The TPB framework supports the principle that achieving a specific outcome depends on a person’s ability and motivation (Abd Hamid, Basiruddin, & Hassan, 2013; Ajzen, 2020).

TPB has several limitations. It assumes that individuals have the resources and opportunities to act on a particular behaviour. It also fails to address the required time to move from intention to action. There is no consideration of economic and environmental factors, even though they may influence behaviour. It views the decision-making process as linear that results in behaviour. Finally, it only accounts for intention and motivation but not for other factors such as past experiences (Ajzen, 2020). Despite these limitations, TPB is one of the most enduring theories in predicting blood donation intentions and behaviour (Masser et al., 2008). The TPB provided a framework for this study’s survey instrument by guiding the research questions. The construct “intention” is influenced by undergraduate nursing students’ knowledge of blood donation, attitudes (positive or negative attitudes toward blood donation and barriers), and perceived behavioural control (confidence about feeling capable of donating blood).

Literature Review

Blood shortage is a serious global issue. The provision of information on donation needs is critical for the donors to give blood. Nursing students identified having knowledge and awareness as an essential factor in providing blood for donation drives (Kananai et al., 2021; Endalew, 2019; Cicolini et al., 2019; Papagiannis et al., 2015; Almeida Oliveira et al., 2015&Mayaki et al., 2016). However, there were several reasons that nursing students gave as to why they were not blood donors. Most nursing students indicated a lack of engagement regarding blood donation participation (Kananai et al., 2021; Endalew, 2019). Some students shared that their reason for not donating blood, and even those in nursing behaviour like the people in the

general population (Kananai et al., 2021; Cicolini et al., 2019; Papagiannis et al., 2015; Almeida Oliveira et al., 2015; Mayaki et al., 2016; Dejene et al., 2021; &Roberts, Taylor & Pyle, 2015). Some nursing students did not donate blood because of fear of their status and worried about their health (Endalew, 2019). In contrast, other nursing students indicated a lack of time to donate blood (Cicolini et al., 2019). Others expressed unfitness to donate blood (Endalew, 2019; Cicolini et al., 2019). At the same time, many nursing students do not favour giving blood because of psychological and medical reasons (Papagiannis et al., 2015; Mayaki et al., 2016; Dejene et al., 2021); & Mikla et al., 2015). Some students favoured donating blood for monetary gains, rewards, or other opportunities (Papagiannis et al., 2015).

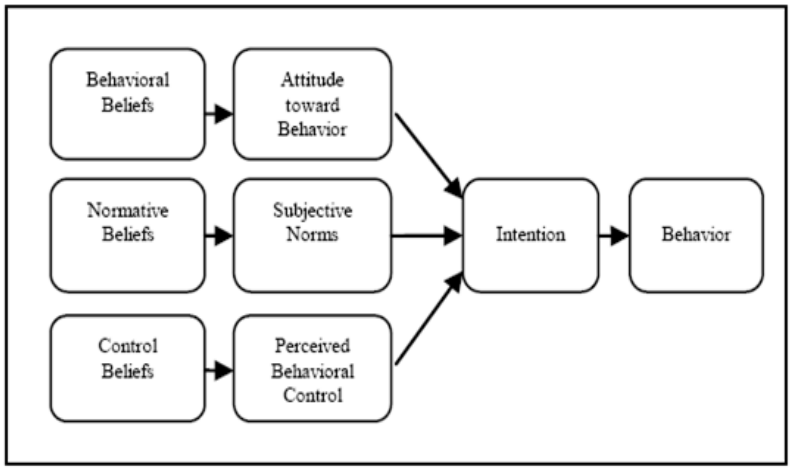
Consequently, this lack of engagement has made blood donation an area under frequent discussion. Abd Hamid, Basiruddin, and Hassan (2013) asserted that the application of the TPB, which demonstrates consistent groundwork for examining the connection between beliefs, attitudes, normative influence, intention, and behaviours, may be beneficial in addressing the lack of blood donation awareness and engagement.

The essence of TPB is that a person's readiness to perform a specific behaviour, also known as behavioural intention, will likely cause the actual behaviour to occur. For example, a willing and motivated person will likely participate in the learning process by listening to the lecture and participating in the class. TPB framework shows that both intention and actual behaviour are from individuals' attitudes and subjective norms. In an attempt to predict an individual intention and actual behaviour, TPB spells out three main factors, which are: an Attitude toward Behavior (ATB), Subjective Norms (S.N.), and Perceived Behavioral Control (PBC)." Hamid et al. (2013) provided the following definitions forATB, S.N., and PBC:

Attitude towards Behavior (ATB). ATB is the first construct of TPB and is an overall evaluation of one's behaviour.

Subjective Norms (S.N.). By definition, norms are something that reflects the feeling of personal responsibility to perform a behaviour. It also implies an individual's social pressure or influence to be involved in a specific behaviour.

Perceived Behavioral Control (PBC). PBC is an individual's perception of their ability to perform a behaviourbased on the personal feeling of having control over their behaviour. Sometimes, PBC is often confused with individual self-efficacy, which is people's beliefs about their capabilities to produce a performance that influences events that affect their lives.



Source: Godin & Kok (1996) and Kan & Fabrigar (2017).

Figure 1.The Theory of Planned Behaviour

Masser et al. (2008) built on Ajzen and Fishbein's(1985)seminal work regarding the Theory of Reasoned Action (TRA) from 1975 and stated that "attitude and norms have additive effects on intentions, the relative strength of which will vary across behaviours and populations. Based on an expectancy-value attitude model, people's beliefs concerning the consequences of the behaviour influence their attitudes, weighted by the importance or value placed on these consequences. The perceived expectations of specific individuals and groups weighted by people's motivation to comply with these referentsdetermine subjective norms.

Similar to attitude and subjective norms, judgments of perceived behavioural control are belief-based. Specifically, perceived behavioural control is conceptualized as a function of people's beliefs concerning the likelihood that different factors (control beliefs) may interfere with the performance of the behaviour weighted by the perceived power of the control factor" (Masser et al., 2008). Ajzen and Fishbein (1980) indicated that the underlying beliefs that distinguish behavioural performers from non-performers or intenders from non-intenders should be targeted in any campaigns or efforts designed to increase the performance of the focal behaviour.

Masser et al. (2008) shared that TPB has been adapted in many prior studies and has shown the predictive success of the required behaviour. A few such examples are: in predicting the intention to donate blood and halal food purchasing, technology usage among students and teachers, and condom use, and mammogram intention. They argued that, in the field of blood donation, prior studies conducted to test the construct**s** of the TPB showed a significant association between the constructs of ATB, S.N., and PBC and the intention to donate blood. Therefore, all the TPB components prove relevant and meaningful in foreseeing the people's intention to perform the behaviour **(**Masser et al., 2008**).**

Methods and Materials

This study was a descriptive cross-sectional design used to collect data from undergraduate nursing students in a Christian-based-tertiary institution in Jamaica. Researchers used non-

probability sampling (convenience) to obtain the data from 431 sampled respondents using a standardized survey created in Google Forms, followed by data transfer into IBM SPSS for Windows Version 25.0. Several studies presented evidence that this research design is reliable (Babbie, 2010; Creswell, 2013; Neuman, 2014; Polit, 1996; Rea & Parker, 2014).Quantitative research, according to Bhandari (2020), is the process of collecting and analyzing numerical data. This method served to gather information to achieve the following research questions: What is the degree of blood donation among undergraduate nursing students in a Christian-based tertiary institution in Jamaica? What is the attitude towards blood donation among undergraduate nursing students in a Christian-based tertiary institution in Jamaica? What is the knowledge level of undergraduate nursing students in a Christian-based tertiary institution towards blood donation? The collection of data was from May 30, 2021, to June 21, 2021. Researchers collected data from undergraduate nursing students at a Christian-based institution, Northern Caribbean University (NC)U.

A questionnaire link was created and sent to the NCU Director of Nursing for email distribution among each year group. Each year group also received the questionnaire link via WhatsApp messaging, and each individual received a telephone call, collect responses for the questionnaire. The responses from the questionnaire were transcribed to a data set and were analyzed using the IBM SPSS version Statistics 25 software, obtained from Northern Caribbean University's Aeorion system. The preceding data tables depict the questionnaire responses.

Results

Table 1 shows the demographic characteristics of the sample respondents, n=431. The majority were females 96.3% (n=415) compared to the 3.7% of males (n=16). Also, the majority of the respondents were aged 18-24 (54%, n=234).

Table 1.Demographic Characteristics of the Sampled Respondents n=431

Details	% (n)
Gender	
Female	96.3 (415)
Male	3.7 (16)
Age Cohort	
18-24 years	54.3 (234)
25-31 years	31.8 (137)
32-38 years	8.8 (38)
39-45 years	3.5 (15)
45+ years	1.6 (7)

Table 2 shows the degree of blood donations among undergraduate nursing students in a Christian-based tertiary institution in Jamaica. Of the sample size n=431, only (32.9%, n=142) are blood donors.

Table 2.Showing the degree of blood donation among undergraduate nursing students in a Christian-based tertiary institution, n=431

Details	% (n)
Do you donate blood?	
Yes	32.9 (142)
No	67.1 (289)
How often do you donate blood?	
1-3 times yearly	10.4 (45)
4-6 times yearly	2.3 (10)
Every year	15.5 (67)
Not applicable	71.7 (309)
Do you plan on donating blood in the future?	
Yes	60.8 (262)
No	14.6 (63)
Maybe	24.6 (106)

Table 3 shows the attitude towards blood donation among undergraduate nursing students at a Christian-based in Jamaica. Sample size, n=431. Although (87.7%, n=378) has a positive attitude towards blood donation; only 29.9% (n=129) donate blood voluntarily.

Table 3.Attitude towards blood donation among undergraduate nursing students at a Christian-based institution=431

Details	% (n)
Do you have a positive attitude toward blood donation?	
Yes	87.7 (378)
No	12.3 (53)
Do you encourage relatives or friends to donate blood?	
Yes	69.6 (300)
No	30.4 (131)
Do you volunteer to donate blood without being asked?	
Yes	29.9 (129)
No	70.1 (302)
Would you ever accept blood donation?	
Yes	87.2 (376)
No	12.8 (55)

Table 4 showing the knowledge level of undergraduate nursing students. Of the sample size, only 63.3% (n=274) knows about the blood donation procedure.

Table 4.Showing the knowledge level of undergraduate nursing students towards blood donation in a Christian-based tertiary institution, n=431

Details	**% (n)**
How is the procedure of blood donation done?	
Yes	63.3 (274)
No	36.4 (157)
How much blood is taken from each person during a withdrawal?	
Yes	48.0 (207)

No	52.0 (224)
Do you have any chronic non-communicable illness?	
Yes	10 (43)
No	69.6 (300)
Maybe	20.4 (88)
Do you have any other illness that prevents you from donating blood?	
Yes	10.2 (44)
No	64.7 (279)
Maybe	25.1 (108)
When a person donates blood, does it take 24-48 hours for the blood to restore?	
Yes	29.2 (126)
No	11.8 (51)
Maybe	58.9 (254)
Do you know your blood type?	
Yes	65.9 (284)
No	34.1 (147)

Table 5 shows why undergraduate nursing students at a Christian-based institution in Jamaica donate blood or do not donate blood. n=431. Of the sample size, the majority do not donate blood because of fear of needles (25.3%, n=109), while the majority donate blood to help a relative (26.6%, n=112).

Table 5.Reasons why undergraduate nursing students at a Christian-based institution donate blood or do not donate blood. n=431

Details	**% (n)**
Reasons for donating blood	
To help a relative	26.6 (112)
To help a friend	18.3 (79)
For moral satisfaction	11.1 (48)
To gain experience	12.1 (52)
Not applicable	64.0 (276)
Reasons for not donating blood	
Fear of giving blood	18.1 (78)
Fear of needle	25.3 (109)
I did not know when/where, or how to donate blood	13.5 (58)
New tattoo/piercing	7.4 (32)
Underweight	6.7 (29)
Anaemia	17.6 (76)
Not applicable	44.5 (192)

H_0- There is no statistical association between the selected issues and the gender of undergraduate nursing students in a Christian-based tertiary institution in Jamaica.

H_1- There is a statistical association between the selected issues and the gender of undergraduate nursing students in a Christian-based tertiary institution in Jamaica.

Table 6 presents a cross-tabulation between some selected issues and the gender of undergraduate nursing students in a Christian-based tertiary institution in Jamaica. The findings revealed that: There is a statistical association between fear of giving blood and gender of respondents ($\chi 2$ critical= 5.024 < $\chi 2$ obtained = 7.377, P= 0.007) Hence, we reject the null hypothesis. There is a statistical association between fear of needles and the gender of respondents ($\chi 2$ critical= 5.024 < $\chi 2$ obtained = 5.370, P= 0.020). Hence, we reject the null hypothesis. However, all the other selected issues have no statistical association between the genders of the respondents.

Table 6.A cross-tabulation between selected issues on blood donation and gender of respondents, n=431

Selected Issues	Gender		Total	χ^2, P-value
	Female	Male		
	% (n)	% (n)	% (n)	
Blood donators				0.156, 0.693
Yes	32.8 (136)	37.5 (6)	32.9 (142)	
No	67.2 (279)	62.5 (10)	67.1 (289)	
Frequency of Blood donation				
1-3 times yearly	10.4 (43)	12.5% (2)	10.4 (45)	2.122, 0.547
4-6 times yearly	2.2 (9)	6.3 (1)	2.3 (10)	
Every year	15.9 (66)	6.3 (1)	15.5 (67)	
Not applicable	71.6 (297)	75.0 (12)	71.7 (309)	
Why don't you donate blood?				
Fear of giving blood				7.377, 0.007
Yes	17.1 (71)	43.8 (7)	18.1(78)	
No	82.9 (344)	56.3 (9)	81.9 (353)	
Fear of needle				5.370, 0.020
Yes	24.3 (10)	50.0 (8)	25.3 (109)	
No	75.7 (314)	50.0 (8)	74.7 (322)	
New tattoo and/or piercing				1.333, 0.248
Yes	7.7 (32)	0.0 (0)	7.4 (32)	
No	92.3 (383)	100.0 (16)	92.6 (399)	
Underweight				0.006, 0.938
Yes	6.7 (28)	6.3 (1)	6.7 (29)	
No	93.3 (387)	93.8 (15)	93.3 (402)	
Anemia				3.557, 0.059
Yes	18.3 (76)	0.0 (0)	17.6 (76)	
No	81.7 (339)	100.0 (16)	82.4 (355)	
Participate in future blood donations				5.864, 0.053
Yes	60.2 (250)	75.0 (12)	60.8 (26.2)	
No	142 (59)	25.0 (4)	14.6 (63)	
Maybe	25.5 (106)	0.0 (0)	24.6 (106)	

H^0-There is no statistical association between the selected issues and the age cohort of undergraduate nursing students in a Christian-based tertiary institution in Jamaica.

H^1-There is a statistical association between the selected issues and the age cohort of undergraduate nursing students in a Christian-based tertiary institution in Jamaica.

Table 7 presents a cross-tabulation between some selected issues and the age cohort of undergraduate nursing students in a Christian-based tertiary institution in Jamaica. The findings revealed that: There is a statistical association between frequency of blood donation and the age cohort ($\chi 2$ critical= 23.337 < $\chi 2$ obtained = 23.862, P= 0.21). Hence, we reject the null hypothesis. However, all the other selected issues have no statistical association between the age cohorts.

Table 7.Cross-tabulation between selected issues on blood donation and age cohort of respondents, n=431

Selected Issues	Age Group					Total	χ^2, P-value
	18-24 years % (n)	25-31 years % (n)	32-38 years % (n)	39-45 years % (n)	45+ years % (n)	% (n)	
Blood donors							9.812, 0.44
Yes	27.8 (65)	35.0 (48)	47.4 (18)	46.7 (4)	57.1 (7)	32.9 (142)	
No	72.2 (169)	65.0 (89)	52.6 (20)	53.3 (8)	42.9 (3)	67.1 (289)	
Frequency of Blood donation							23.862, 0.21
1-3 times yearly	9.8 (23)	10.9 (15)	7.9 (3)	6.7 (1)	42.9 (3)	10.4 (45)	
4-6 times yearly	1.3 (3)	4.4 (6)	0.0% (0)	6.7 (1)	0.0 (0)	2.3 (10)	
Every year	13.2 (31)	13.9 (19)	28.9 (11)	26.7 (4)	28.6 (2)	15.5 (67)	
Not applicable	75.6 (177)	70.8 (97)	63.2 (24)	60.0 (9)	28.6 (2)	71.7 (309)	
Fear of giving blood							2.616 0.624
Yes	81.2 (190)	81.0 (111)	86.8 (33)	93.3 (14)	71.4 (5)	81.9 (353)	
No	18.8 (44)	19.0 (26)	13.2 (5)	6.7 (1)	28.6 (2)	18.1 (78)	
Fear of needle							4.543, 0.337
Yes	74.4 (174)	72.3 (99)	84.2 (32)	86.7 (13)	57.1 (4)	74.7 (322)	
No	25.6 (60)	27.7 (38)	15.8 (6)	13.3 (2)	42.9 (3)	25.3 (109)	
New Tattoo and/or piercing							3.292, 0.510
Yes	94.4 (221)	90.5 (124)	92.1 (35)	86.7 (13)	85.7 (6)	92.6 (399)	
No	5.6 (13)	9.5 (13)	7.9 (3)	13.3 (2)	14.3 (1)	7.4 (32)	
Underweight							4.780, 0.311
Yes	95. 3 (223)	89.8 (123)	92.1 (35)	93.3 (14)	100 (7)	93.3 (402)	

Discussion

Blood donation involves a healthy person donating blood products, including whole blood, red blood cells, plasma, or platelets (Blood Donation, 2015). Persons may choose to volunteer blood for many reasons, including to help those who are ill or injured. In 2018, about 118.4 million blood donations occur globally, including 40% from countries with high income, accounting for 16% of the world population (WHO, 2020). The World Health Organization reported that in 2020 in the high-income countries, 54% of the blood donation got transfused to children under 5-year-old, and 75% to adults 60 years and over. Additionally, there has been a collection of 106 million blood donations taken from 13,300 blood centres from 169 countries (Blood safety and availability, 2020). A sample of 1000 people revealed that the donation rate for high-income countries was 31.5 donations, 6.8 donations in low-income counties, and 5.0 blood donations in low-income countries (Blood safety and availability, 2020).

During a regular donation, the procedure should be painless and safe. An adult gives at least 8% of their average blood volume at each blood donation, which amounts to approximately 470 ml or one pint of blood. Post transfusion, the body will take at least 24-48 hours to restore the blood given, except for red blood cells, which take between 10-12 weeks to replenish (Blood donation, n.d.). The American Red Cross states that the blood donation procedure includes pre-donation education, collecting health history, and assessing vital signs and weight. After registration, a site is selected on either arm and cleaned; a sterile needle punctures the skin for vascular access. The donor then gets connected to either a gravity flow or a machine for blood withdrawal. The donation procedure for whole blood 45 minutes on average, while other types of donations take a bit longer, after which there are refreshments and recovery (The American Red Cross, 2021, The Blood Connection, 2021).

According to the Jamaican Ministry of Health and Wellness website, there are only 5-10 donors, at any of the blood donation centres in Jamaica. The WHO states that based on Jamaica's population, the target for blood donation should be 50,000 units of blood. However, according to the National Blood Transfusion Service, not enough Jamaicans donate blood, creating fewer supplies and more demand (Give Blood Today, 2019).

The current study found that 32.9% of undergraduate student nurses in Jamaican Christian-based tertiary educational institution were blood donors, exceeding health sciences college students in Northeast Ethiopia (Dejene, Tefera, Dires, Gedamu, Getachew, & Ademe, 2021), and lower than (57.1%) that of college students (i.e., medical, nursing, and engineering) in Bhubaneswar city, India (Raghuwanshi, Pehlajani, & Sinha, 2016), and marginally more than university Students in Kilimanjaro, Tanzania (Elias, Mauka, Philemon, Damian, Mahande, & Msuya, 2016).Among the blood donors, 15.5% of the undergraduate nursing students donated blood every year, 10.4% donated blood 1-3 times yearly, and only 2.3% donated 4-6 times annually. Twenty respondents who donated blood did not disclose how often they did. These persons answered 'not applicable.' Furthermore, 60.8% of undergraduate Nursing students plan to donate blood in the future, 14.6% did not plan on doing so, while 24.6% were not sure.

When analyzing the attitude of these undergraduate nursing students (i.e., entire population, n=431 students), it revealed that 87.7% of them had a positive attitude towards blood donation, 69.3% of them encouraged others to donate blood, 29.9% of them volunteered to donate blood, and 87.2% would accept a blood donation. The knowledge level of the undergraduate nursing students showed that 63.3% knew how the procedure of blood donation occurred, 48% knew the allowable blood volume that an adult might donate. As it relates to non-communicable ones, 69.6% did not know if they had any non-communicable diseases such as Hypertension and Diabetes. 64.7% also did not know if they have any other diseases. The findings also showed that only 29.2 % of the respondents knew how long it took the body to replenish blood after a donation, and 65.9% of undergraduate nursing students knew their blood type. The researchers conclude that knowledge does not necessarily translate into behaviour change. Bourne, Richards, & Holder-Nevins (2013) studied the knowledge, attitude, practices, and readiness among university science students toward non-remunerated blood donation in a middle-income developing country, supporting this current study's conclusion. Bourne, Richards, & Holder-Nevins (2013) found that 20% of undergraduate students have donated blood although at least 90% were knowledgeable of blood donation sits, transfusion, and the importance of blood donation to human existence. According to the Jamaica Information Service, a blood donor should be between the ages of 17 and 60 years old, be negative for HIV/AIDS, Syphilis, Hepatitis B & C, and Human T-lymphotropic Virus (HTLV) (Get the facts – Blood donations, 2020). 18.1% of undergraduate nursing students do not donate blood because they fear giving blood. 25.3% do not donate blood because they have a fear of the needle, 13.5% of them did not know when, where or how to donate blood, 7.4% could not donate blood because they had a new tattoo and/or piercing, 6.7% of them were underweight, and 17.6% has Anaemia.

When comparing the fear of giving blood with the gender of the undergraduate nursing students who did not donate blood, the findings revealed a statistical association between the two variables. Hence, we reject the null hypothesis. 17.1% (71) females were afraid of giving blood, compared to males 43.8% (7). The same is true about the fear of needles, as 24.3% (10) of the blood donors are females who fear needles, while males were 50% (8). There were no other statistical associations between gender and any other variable. On the other hand, when comparing the frequency of blood donation with the age cohort of the undergraduate nursing students who donate blood, it showed that donors between the ages of 18-24 donated the most, with a total of 57 donors. The results indicate a statistical association between the two variables, and we reject the null hypothesis.

Possible Limitations

The sample is not representative of the population of all undergraduate nursing students in Jamaica, as it relates to only the undergraduate nursing students who attend a Christian-based institution in Jamaica.

Conclusion

The assumption is that the degree of blood donation involvement is low among undergraduate

nursing students in a Christian-based tertiary institution in Jamaica due to the small number of undergraduate nursing students who indicated they are blood donors. In addition, the attitude of undergraduate nursing students in a Christian-based tertiary institution in Jamaica towards blood donation is high (87.7%); but this is not translating to high voluntary blood donation behaviour. Although some students would be blood recipients and encourage others to donate blood, the majority do not voluntarily donate blood.

The research indicated that some of the undergraduate nursing students were more knowledgeable on blood donation than their peers. However, not all students know blood donation procedures, the volume of blood required, or how long it takes the body to replenish blood. Some nursing students also lacked the knowledge of how, where, and when they could donate blood. These results confirm that further education about blood donation may impact the level of participation among the students for blood donation**.**

Recommendation

Based on our research, it is evident that undergraduate nursing students low blood donors. An individual who is in good health and meets all the blood donation criteria can donate blood. The researchers recommend that more undergraduate nursing students get educated about the proper procedure of donating blood. Nursing students who donate blood should get a good night's rest, hydrate their body, and eat a healthy meal 1-3 hours before blood donation, especially foods rich in iron. The iron helps support the production of haemoglobin, while vitamin C helps your body absorb the iron. Eating a healthy meal will keep the sugar level stable and prevent lightheadedness as it prepares for blood loss. We recommend educating the nursing students on foods to eat. Some foods to take into consideration after donating blood would be liver, dried beans, green leafy vegetables like spinach, fish, red meat, poultry, raisins, and beans, or anything that contains iron and vitamin C. (Only my health. 2021)

We also believe that the university's support of health fairs, donation incentives, and awareness initiatives may enable blood drives to be recurring scheduled events. This move will alley fears and misconceptions about blood donation. We recommend that the university host blood drives and teaching sessions about blood donations increase awareness. The undergraduate nursing students could participate in blood donation as a volunteer to donate blood or as a nursing student in training where they would assist with the donation. This way, they become more knowledgeable and show more interest. Clubs in the university should come up with creative ways to promote and encourage club members to donate blood, to increase the number of blood donors. In addition, we recommend that the university collaborates closely with the Mandeville Regional Hospital to promote awareness in schools to improve the current low number of blood donations. Recommended places to donate blood can be at any of the nine-location island wide such as; National Chest Hospital, Port Antonio Hospital, St Ann's Bay Hospital, May Pen Hospital, Mandeville General Hospital, Cornwall Regional Hospital, Falmouth Hospital, Savanna-la-Mar Hospital, and the University Hospital Blood Bank.

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