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Unlocking the Willingness: Investigating the Factors Affecting Young Adults' Intention to Donate Blood Stem Cells

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Abstract

This study was conducted in South Africa to identify and understand the perceptions and attitudes of young adults towards blood stem cell donation. Despite a global rise in demand for blood stem cells, less than 1% of South Africans are registered donors, indicating a severe shortage. A cross-sectional quantitative survey was carried out among 276 young adults aged 18 to 35 years across various provinces. Data were collected on attitudes, subjective norms, perceived behavioural control, and intention towards blood stem cell donation. The data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with bootstrapping (5000 resamples). The results show that all three antecedents of the Theory of Planned Behaviour significantly influenced intention: attitude ($\beta = 0.196$, $p < .001$), subjective norm ($\beta = 0.476$, $p < .001$), and perceived behavioural control ($\beta = 0.325$, $p < .001$), explaining 41.2% of the variance in intention ($R^2 = 0.412$). These findings highlight that young adults who hold positive attitudes, feel social encouragement, and perceive control over the donation process are more likely to express willingness to donate. The study underscores the critical role of social marketing and awareness campaigns in enhancing donor participation and mitigating the blood stem cell shortage in South Africa.

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INTRODUCTION

The field of blood stem cell donation has become increasingly important in recent times, providing hope to millions of people who are suffering from incurable illnesses all over the world. According to the South African Bone Marrow Registry (SABMR), in 2021, peripheral blood stem cell donation, also known as blood stem cell donation, has been acknowledged as a critical intervention in the global healthcare landscape. Filgrastim is given to the donor to enhance the release of blood-forming cells from the bone marrow into the bloodstream. According to Amiri-Farsani et al. (2024), filgrastim is a process in which a naturally occurring protein that stimulates the production of white blood cells is used to treat conditions such as neutropenia. Neutropenia is a condition characterized by an abnormally low count of neutrophils that can leave individuals more susceptible to infections (Kenyon & Babic, 2023). Therefore, increasing filgrastim numbers in the bloodstream would enhance the body's ability to combat potential infections.

The blood stem cell donation process is like the non-invasive nature of traditional blood donation and is convenient. After the donation, the cells are extracted by a procedure that separates them from the donor's blood, which is drawn from one arm. It is then processed, and the residual parts are given back to the donor via the other arm. It is impossible to overestimate the importance of this process because it is essential in treating a wide range of life-threatening illnesses, such as leukaemia, aplasia, different forms of anaemia, immunological deficiencies, and metabolic disorders. It also improves the quality of life of the recipient and provides a possible treatment route for many of these illnesses (Blood Stem Cell, 2021).

To increase awareness, spark interest, and inspire people to donate to stem cell banks, social marketing techniques have been actively applied globally to promote and support voluntary blood stem cell donation. With an emphasis on initiatives meant to sustain or modify specific behaviours that are advantageous to both people and society as a whole, this strategic approach aims to use social marketing's potential to affect behavioural change for the betterment of society (Dessels, Alessandrini & Pepper, 2018). The main objective of these programmes is to create an informed and encouraging community that is eager to take part in the life-saving practice of stem cell donation.

As a vital resource for hundreds of South Africans with blood-related illnesses, Qing-Shuo (2018) emphasises the significant role from the South African Bone Marrow Registry (SABMR) plays in this endeavour. In South Africa, less than 1% of the population is registered as blood stem cell donors, despite a potential donor pool exceeding 30 million people. This percentage figure is considerably lower when compared to 13% in Cyprus, 12% in Israel and 9% in Germany (SABMR, 2022). According to SABMR (2022) annual report, there are 78 000 registered donors in South Africa. The report further highlights that for individuals in need of blood stem cell donation, the odds of finding a compatible donor are as low as 1 in 100 000, with even slimmer chances for patients of colour (SABMR, 2022).

The SABMR faces a significant challenge in creating a racially diverse registry, which is reflective of South Africa's demographic makeup, as patients have the best chance of finding a match within their ethnic grouping (SABMR, 2022). The current donor ethnicity distribution is as follows: Indian/Asian – 9.9%; Black African – 10%; Coloured – 7.8%; White – 67%; and other/unknown – 5.2% (SABMR, 2022). This highlights the urgent need to increase the donor pool for enhanced match probabilities through the increase in awareness of the importance of understanding the perceptions and attitudes of young adults towards blood stem cell donation.

According to Statistics South Africa's Census (2022), the South African population is approximately 62 million, with the following racial breakdown: Black African – 81.4%; Coloured – 8.2%; White – 7.3%; Indian/Asian – 2.7%; and other/unknown – 0.4%.Therefore the demand for blood stem cell donations consistently outstrips the supply, largely due to widespread misconceptions and a lack of awareness about the donation process (Fingrut et al., 2021). Moreover, the stated demographic information further highlights the urgent need to increase the donor base, a challenge that is not

unique to South Africa but is a global concern in healthcare.

Studies carried out in diverse geographical areas, in areas such as North Gondor, Ethiopia, revealed disparities in knowledge and perspectives regarding blood donation, highlighting the significance of focused educational and advertising initiatives (Enawgaw, Yalew & Shiferaw, 2019). Learning from their own market insights, the South African National Blood Service (SANBS) has in recent years rolled out marketing and educational campaigns, notably the "No-Stereotypes" initiative. The latter campaign aims to dispel myths surrounding blood donation and to encourage broader participation in donation practices.

Additionally, demographic analyses like the ones conducted by Abbott (2021) show a worrying trend in the habits of blood donors, with younger persons participating at a significantly lower rate than those of older generations. The sustainability of blood and stem cell donation programmes is threatened by this demographic shift, underscoring the necessity of better engaging younger populations. To ensure the continued viability of donation programmes, young adults – defined by Statistics South Africa (2022) as those between the ages of 15 and 35 – who make up a sizable fraction of the population must be included. The targeted young adults for this study were between the ages of 18 and 35.

The current study intends to investigate the approaches used to encourage the donation of blood stem cells in greater detail, with an emphasis on the effectiveness of social marketing strategies in removing obstacles to donor recruitment and retention. This paper aims to bring about vital insights into how to mobilise and maintain a strong donor community, ultimately advancing the global mission to save lives and to improve the health outcomes of people facing dire medical challenges, by analysing the intersection of social marketing concepts with the selfless act of blood stem cell donation.

Problem statement

Despite significant efforts by the SANBS to create awareness and uptake in blood stem cell donation, not many people have heeded the call over the years. Similarly, other organisations through various marketing campaigns have faced the problem of insufficient blood and stem cell donors in South Africa, therefore highlighting a critical gap in the public health and medical spheres. The goal of these programmes is to demystify and encourage donation behaviours among the general public. They include magazine pieces, television advertisements, and the strategic use of digital platforms (Xie et al., 2022; Soliman & Boenigk, 2019; Pereira, Souza, Shigaki & Lara, 2019). Unfortunately, the situation is still dire: as of 2020, less than 1% of South Africans were actively donating blood, and even fewer were donating blood stem cells (SANBS Annual Report, 2020). This indicates that there is an urgent need to investigate the obstacles that prospective donors must overcome to remove these obstacles and create an environment that will encourage higher donation rates.

The body of literature examining the various factors that influence individual decisions regarding blood and stem cell donations reveals a complex array of determinants. Research by Fernandes et al. (2022), Roberts et al. (2017), and Mohammed & Essel (2018) has investigated individual perceptions, the influence of cultural cues and past experiences, and a general lack of awareness, particularly in a few countries found in sub-Saharan African contexts, which leads to fear and misconceptions. These studies highlight the multifaceted nature of the issue, encompassing informational, social, and psychological factors that shape donation behaviour.

Moreover, in South Africa, incentives like recognition, cash awards, or paid time off are frequently mentioned as major motivators for people to donate, as they are driven by a desire to help friends and family rather than nameless recipients (Mohammed & Essel, 2018). This result is in contrast with findings of other regions (Matubatuba et al., 2023; Van Dyke et al., 2020) where non-financial incentives, such as health check-ups and donor recognition programmes, have been successful in increasing donation activities. These variations highlight the need for tailored motivational techniques that align with

the distinct cultural and societal factors that characterise South Africa.

Understanding young adults' attitudes and opinions about donation is crucial to finding solutions to the shortage of blood stem cell donors. This group is essential to maintaining and growing the donor base, so targeted approaches are needed to increase awareness and encourage their involvement. Little is understood regarding the influence of social media and other online platforms on young adults' attitudes and views regarding blood stem cell donation, particularly in the context of South Africa. Making the most of these media's communication reach offers a great chance to inspire, educate, and involve a new generation of donors.

Furthermore, there is a huge vacuum in the literature about blood stem cell donation in South Africa, which is one of the main reasons this study was conducted. There is an immediate need for thorough studies that can bridge the gap in knowledge regarding the best ways to improve donor recruitment and retention, given the paucity of research on blood stem cells in South Africa. By filling this gap, this study hopes to improve the body of knowledge on blood stem cell donation in academia and offers useful suggestions for creating donor recruiting strategies that will have a greater overall impact. In order to address South Africa's urgent need for blood stem cells and increase the pool of potential donors, this initiative is essential to save lives and enhance the health of those in need of life-saving medical procedures. Hence based on the backdrop of the problem statement, the underlying research question of this study is: *Which Theory of Planned Behaviour antecedent has the most effect in better understanding the perceptions and attitudes of young adults towards blood stem cell donation in South Africa?*

Research objectives

The empirical objectives that guide this study are:

- To investigate the factors that influence young adult's behaviours towards blood stem cell donation in South Africa,
- to determine attitudes towards blood stem cell donation among young adults in South Africa.

Literature review

Overview of blood stem cell donation

Blood is essential for our existence because an insufficient blood level in our bodies can lead to a lack of oxygen necessary for survival (Jin, Yang, Han, Xuefeng & Li, 2021). Individuals suffering from blood cell diseases such as leukaemia and anaemia, along with other chronic conditions related to blood, often find that blood transfusions are critical to improving their quality and expectancy of life. Consequently, it is increasingly important to understand the concept of blood stem cell donation. Enhancing awareness and reducing misconceptions and negative reactions towards blood stem cell donation are vital steps forward.

Blood stem cell donation involves a process where a cell, taken from the bone marrow, undergoes various transformations to become either a white or red blood cell. It is crucial to note that there are two types of stem cells: embryonic and bone marrow stem cells. Embryonic stem cells, collected in small amounts from umbilical cord blood at birth and transplanted, are generally used for children and young adults. Meanwhile, bone marrow stem cells, which form and are released into the bloodstream, are crucial in bone marrow transplants, predominantly used in cancer treatments (Amiri-Farsani et al., 2024).

Therefore, a blood stem cell donation, or peripheral blood stem cell transplant, is a procedure that collects healthy blood cells from an individual to replace the damaged or destroyed bone marrow in a patient in need. Before receiving the donation, the patient is given an injection to increase the stem cell count in their blood. This process, known as apheresis, involves collecting blood through a needle placed in the arm, which then passes through a blood cell separator machine (Kenyon & Babic, 2023). After donating blood stem cells, it is recommended that the donor avoid any strenuous activities for a 24-hour period to safeguard their well-being.

Blood stem cell donation campaigns as a social marketing initiative

Social marketing is defined by O'Cass & Griffin (2015) as an initiative that is aimed at addressing social issues that are of public concern

and impact the well-being of individuals within a community or society at large. Grigoryan (2019) describes a social marketing campaign as a multifaced process that is directed at eliciting and advocating societal changes with two main goals, namely: To encourage individuals to change and adopt a new behaviour; and to change policies and to better societal conditions. This perspective is supported by Matubatuba, Strydom and Martin (2023), who assert that the essence of social marketing lies in converting individuals into advocates of change, thereby transforming beliefs into actionable values. Rundle-Thiele et al. (2019) emphasise that the goal of social marketers should be to motivate individuals to embrace new behaviours, modify existing ones, or cease negative actions, such as drunk driving or drug abuse. David and Rundle-Thiele (2019) further elucidate that the core outcome of social marketing campaigns is to prompt or elicit behavioural changes.

Social marketing campaigns have been employed to encourage participation in activities like physical exercise (Xie, Damiano & Jong, 2022) and, pertinent to this study, blood stem cell donation. These campaigns, often spearheaded by non-profit organisations like the SANBS and SABMR, serve the dual purpose of benefiting society and promoting cause-related initiatives such as blood stem cell donation (Duh & Dabula, 2021; Grigoryan, 2019; Xie et al., 2022). O'Cass & Griffin (2015) highlight that the positive reception of social marketing campaigns and the adoption of new, positive social behaviours can be attributed to the motivational factors that persuade individuals to become blood stem cell donors. Saunders, Barrington and Sridharan (2015) argue that social marketing can trigger involuntary mental and physical responses in individuals, driving them towards a pre-determined behaviour. Thus, it is imperative for social marketing campaigns to adhere to ethical standards that promote social change, given that non-profit organisations are subject to ethical scrutiny (Grigoryan, 2019).

Matubatuba, Strydom and Martin (2023) suggest that disseminating information is a crucial starting point for fostering a willingness to donate blood. It can also be noted that the key determinants of behavioural intention in blood stem cell donation include factors like self-efficacy and normative perceptions (Roberts et al., 2017).

Theoretical background and hypotheses development

According to Tornikosi and Maalaoui (2019), the Theory of Planned Behaviour (TPB), developed by Ajzen (2012), is a model designed to predict and understand social behaviour. It also serves as a framework for assessing behavioural change. Within this model, an individual's behaviour is influenced by his/her intentions, which reflect the motivation and effort he/she is willing to invest in engaging in the behaviour in the future (Hagger & Hamilton, 2021). The TPB identifies three critical factors that shape intention: attitude, subjective norm, and perceived behavioural control (Mohammadi, Abdekhoda & Nadrian, 2021).

The Theory of Planned Behaviour (TPB) has been applied in various behavioural fields, proving effective in predicting and explaining many health-related behaviours (Hagger & Hamilton, 2021; Kan & Fabrigar, 2020; LaCaille, 2013). This relevance extends to the current study on blood stem cell donation, a health-related topic where the TPB can help explore the motives behind individuals' decisions to donate or not and to assess the potential for changing negative behaviours through TPB model.

Understanding the three determinants of intention is crucial as it sets a better understanding on what precursors are imperative for intention to exist. Attitude encompasses the individual's evaluation of the behaviour as positive or negative, influencing their willingness to engage based on cognitive and affective assessments (Desmidt & Meyfroodt, 2021; LaCaille, 2013; Mohammadi et al., 2021; Ting et al., 2020). Subjective norm refers to the perceived social pressures that have an impact on an individual's decision to engage in the behaviour, considering the views of social groups such as family, religion, and friends about the behaviour, and their descriptive norms, which influence their actions (LaCaille, 2013; Mohammadi et al., 2021). Perceived behavioural control, which can directly influence both intention and behaviour, is defined as the individual's belief in having the necessary resources, opportunities, and skills to engage in the behaviour (Desmidt & Meyfroodt,

2021; Kan & Fabrigar, 2020).

Hypothesis development

Attitudes towards blood stem cell donations

Attitudes are a factor that contributes towards positive and negative behaviours regarding the donation of blood stem cells, and the potential factors influencing these attitudes amongst young adults (Ting et al., 2020; Almojel et al., 2021). According to Arminda et al. (2020:1-13) regarding the relationship between the attitudes and the intention towards blood stem cell donation, it was found that the intentions toward blood stem donation were indirectly influenced by attitudes to donate blood stem cells. It was also found that their self-efficacy is the greatest influence towards blood stem cell donation, followed by moral norms additionally having a high indirect influence on their attitude to donate blood stem cells. The following hypothesis is formulated:

H1: Attitude towards blood stem cell donation has a significant influence on young adults' intention to donate blood stem cells.

Subjective norm towards intention

At first glance, the relationship between subjective norm and the intentions towards blood stem cell donation is important. Subjective norms are referred to as beliefs that most people approve or disapprove of the behaviour; therefore, a perception about someone's behaviour is then influenced by the judgement of a significant other (AL-Shammary & Hassan, 2023). It is thus suggested that an individual's intention to donate blood is influenced by significant others and will determine if an individual is willing or not willing to donate blood – that the likelihood of someone donating blood will be influenced by someone who influences them (Xie et al., 2022). The following hypothesis is formulated:

H2: Subjective norm has a significant impact on young adults' intention to donate blood stem cells.

Perceived behavioural control towards intention

Perceived behavioural control refers to the perceived level of control that individuals have over performing the behaviour (Ajzen, 2012). It also refers to the perception of an individual regarding how easy it is to perform a certain behaviour of interest, which will vary across different situations and actions, thus having varying perceptions on a person's behavioural control when faced with different situations (Fernandes et al., 2022). According to AL-Shammary and Hassan (2023), it was found that there is strong evidence of a direct link between one's perceived behavioural and one's intention to donate blood. The following hypothesis is formulated:

H3: Perceived behavioural control has a significant positive impact on young adults' intention to donate blood stem cells.

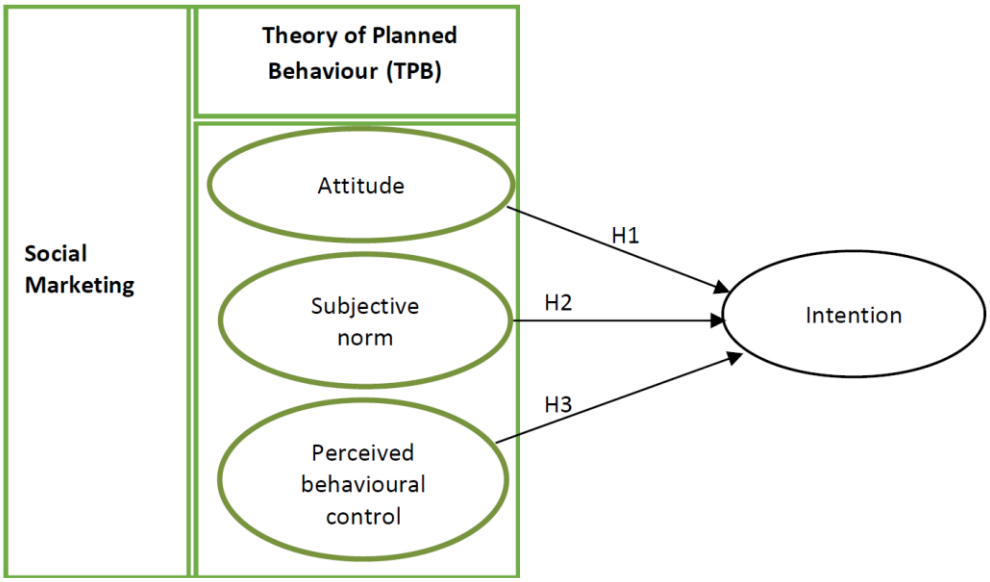

Figure 1. Conceptual model

Conceptual model for the study

The proposed conceptual model in figure 1 shows the proposed relationships between constructs of interest in this study. The relationships are between the independent variables (attitude, subjective norm and perceived behavioural control) and dependent variable (intention). The study uses the TPB to explain the influence of social media communication on young adults' perceptions and attitudes towards the intention to donate blood stem cells.

METHOD

Considering that a model with hypotheses had to be tested, quantitative research method was used to collect and analyse data. The study was cross-sectional in its design and online structured questionnaires were used to survey the respondents.

Sampling

The study targeted young individuals aged 18 to 35 years from various provinces across South Africa. Following the receipt of ethics clearance from the university's ethics committee, a survey research strategy employing an online questionnaire was utilised. This approach facilitated the collection of substantial data in a cost-efficient manner from the target population (Saunders, Lewis & Thornhill, 2019). Due to limitations in accessing respondents stemming from cost containment measures, a non-probability sampling technique was employed, with convenience sampling being the method of choice. The online questionnaires were disseminated across social media platforms, including Instagram, Twitter, LinkedIn, and Facebook. The participants first received a cover letter along with a consent form, which outlined the study's objectives, emphasised the voluntary nature of participation, and required clicking a "yes" button to signify consent before proceeding to the questionnaire. Screening questions were utilised to ensure the recruitment of the appropriate target market. It is important to note that the respondents were not offered any incentives for their participation in this study.

Measures

The multi-item scales were used in this study to measure the variables making up the proposed conceptual model, as adapted from the work of Dilotsotlhe and Inseng (2020) and Ajzen (1991). A five-point Likert scale was employed, ranging from 1 (strongly disagree) to 5 (strongly agree). A pilot study with 20 respondents was carried out to test the constructs' reliability and validity. Based on the findings, adjustments were made to the wording of some items, and a few items were removed to enhance the constructs' reliability for the main study. In total, 400 questionnaires were distributed for the main study, of which 276 were fully completed, resulting in a response rate of 69%. These 276 respondents met the recommended minimum sample size of 200 to 500 for conducting structural equation modelling, as suggested by Kline (2014).

Data analysis

Structural equation modelling SmartPLS version 27 was used to conduct partial least squares structural equation modelling (PLS-SEM). This was employed to test the measurement model and the hypothesised relationships within the structural model. Further, the bootstrapping function (5000 resample) was applied to assess the significance level of path and has been adopted by previous studies (Gwebu, 2022; Thusi, 2022). For convergent validity, the average variance extracted (AVE) method was adopted, while the Fornell and Larcker (1981) method and the heterotrait-monotrait ratio of correlations (HTMT) (Hair et al., 2022; Henseler et al., 2015) were used to assess discriminant validity. Cronbach's alpha and composite reliability were adopted as measures of reliability based on the set minimum threshold of ≥0.60 (Cronbach's alpha) and ≥0.70 (Bagozzi & Yi, 2012) for composite reliability. Multicollinearity was assessed by means of the variance inflation factor (VIF) and values should be below 5 (Hair et al., 2018).

RESULTS AND DISCUSSIONS

Profile of respondents

The study's demographic characteristics encompassed the respondents' gender, education level, and income level. A total of 276 participants were included in the sample, with a slightly higher proportion of females (51.4%) compared to

Table 1. Test of reliability and convergent validity

Construct	Item	Factor loading	VIF	Cronbach's alpha	Composite reliability	Average variance extracted
Attitude			1.209	0.839	0.872	0.577
Donating blood stem cells is a good thing to do.	ATD1	0.724				
I believe that donating blood stem cells can help save someone's life.	ATD2	0.712				
I would feel proud if I donated blood stem cells.	ATD3	0.822				
Donating blood stem cells is beneficial to society.	ATD4	0.769				
I have a positive attitude towards donating blood stem cells.	ATD5	0.768				
Intention				0.952	0.969	0.913
I intend to donate blood stem cells in the future.	BI1	0.947				
I am willing to register as a blood stem cell donor.	BI2	0.968				
I would consider donating blood stem cells if someone needed my help.	BI3	0.952				
Perceived behavioural control			1.136	0.914	0.934	0.741
I feel confident that I could register as a blood stem cell donor if I wanted to.	PBC1	0.903				
I believe I have the ability to donate blood stem cells if needed.	PBC2	0.829				
The process of donating blood stem cells feels manageable to me.	PBC3	0.817				
I have enough access to information about how to donate blood stem cells	PBC4	0.824				
Whether or not I donate blood stem cells is entirely up to me.	PBC5	0.925				
Subjective norm			1.153	0.601	0.711	0.697
People who are important to me think I should donate blood stem cells.	SN1	0.830				
My friends would support me if I decided to donate blood stem cells.	SN2	0.839				

Source: Data processed by Author

males (48.6%). In terms of education, the respondents exhibited varying levels: 27.1% held a bachelor's degree, 31% completed Grade 12, 26.9% possessed a post-matric certificate or diploma, 13% held a postgraduate degree, and 2% did not progress beyond Grade 12.

Measurement model

To assess the validity of the constructs, factor loadings and average variance extracted (AVE) were examined for convergent validity. The reliability of the constructs was assessed through Cronbach's alpha and composite

reliability. In Table 1, all but three items (BI4, SN3, and SN4) exhibited weak factor loadings, while the remaining items demonstrated strong loadings, ranging from 0.712 to 0.968. The Cronbach's alpha values ranged from 0.601 to 0.952, demonstrating acceptable internal consistency, while the composite reliability values ranged from 0.711 to 0.969. The average variance extracted (AVE) values ranged from 0.577 to 0.913, indicating that a substantial amount of variance was explained by the constructs. The variance inflation factor (VIF) values ranged from 1.136 to 1.209, all falling within the acceptable threshold.

To assess discriminant validity, the Fornell and Larcker (1981) method was employed. Each construct's AVE was compared to the squared inter-construct correlation, measuring the shared variance between the same construct and all other reflectively measured constructs in the structural model (Hair et al., 2019). The square root of each construct's AVE was found to be greater than the correlations with other latent constructs, and the shared variance among all constructs did not exceed their respective AVEs, as depicted in Table 2. These results confirm the attainment of discriminant validity as expected.

Table 2. Fornell and Larcker criterion for discriminant validity

	Attitude	**Intention**	**Perceived behavioural control**	**Subjective norm**
Attitude	0.760			
Intention	0.416	0.955		
Perceived behavioural control	0.259	0.307	0.861	
Subjective norm	0.284	0.484	-0.146	0.835

Source: Data processed by Author

Furthermore, Table 3 provides the heterotrait-monotrait ratio (HTMT) which was employed to further validate the results, as recommended by Hair et al. (2019) and Henseler et al. (2015). To establish discriminant validity using this criterion, the HTMT construct values were measured against the threshold of 0.85. In this analysis, the HTMT test yielded a maximum value of 0.660, well below the threshold of 0.85. Additionally, the significance test of the measures' discriminant validity through bootstrapping revealed that the highest value within the upper confidence interval was 0.377, indicating that the HTMT is significant. These findings affirm the establishment of adequate discriminant validity.

Table 3. HTMT criterion for discriminant validity

	Attitude	**Intention**	**Perceived behavioural control**	**Subjective norm**
Attitude				
Intention	0.377			
Perceived behavioural control	0.331	0.297		
Subjective norm	0.428	0.660	0.265	

Source: Data processed by Author

Assessment of the structural model

Figure 2 presents the R^2 value for the structural model. The model explains a 41.2 variance in stem cell donation intention among the young adult population of South Africa (R^2 = 0.412). For consumer behaviour studies, R^2 values of 0.20 are considered high. Henseler et al. (2015) indicate that values of 0.67, 0.33 and 0.19 are considered substantial, moderate and weak values. Table 4 summarises the structural model path coefficients, t-values, p-values and the hypotheses proposed in this study.

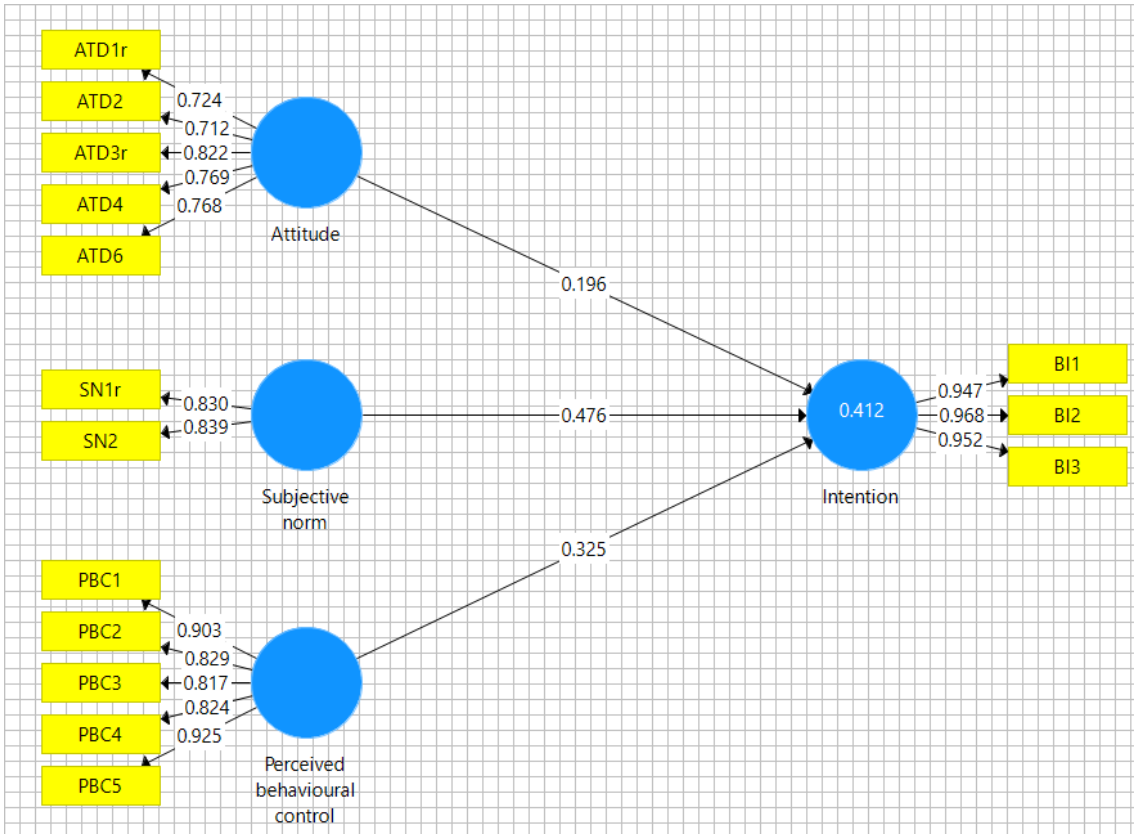

Figure 2. Structural model with path coefficients and value
Source: Data processed by Author

Table 4. Summary of structural model analysis

		Path coefficient	T-statistics	P-values	Results
H1	Attitude -> intention	0.196	4.464	0.000	Supported
H2	Subjective norm -> intention	0.476	10.392	0.000	Supported
H3	Perceived behavioural control -> intention	0.325	6.239	0.000	Supported

Source: Data processed by Author

The results presented in Table 4 suggest that all three structural relationships showed positive significance and were supported. The results indicate that attitude (β=0.196; p-value<0.05), subjective norm (β=0.476; p-value<0.05), and perceived behavioural control (β=0.325; p-value<0.05) were all positively

significant in young adults' intentions towards blood stem cell donation. A positive value and a significant p-value are necessary to accept or support the study's hypotheses to test them. Thus, the hypotheses were supported due to their positive and significant relationships with intention.

Discussion and implications

This study used the TPB as its theoretical framework to investigate the factors that lead young adults in South Africa to think about donating blood stem cells. This approach not only adds to the body of knowledge already available on pro-social actions and intents, but it also addresses the pressing need to increase the number of blood stem cell donors in the South African environment.

One of the study's key findings is that attitudes play a crucial role in determining intentions about blood stem cell donation. This finding lends credence to the TPB's claim that

behaviours that are positively viewed are more likely to be adopted. This result is in support of a study from Italy which found attitudes having a positive contribution on people's intention to donate blood stem cells (Fernandes et al., 2022). This realisation implies that enhancing the attitudes of young adults via educational initiatives that debunk myths and emphasise the life-saving benefits of blood stem cell donation may considerably boost their propensity to contribute. These kinds of actions might change public attitudes and promote a more donation-friendly atmosphere.

The study also highlights the significant influence of subjective norms, stressing the role that social networks and peer pressure have in the decision-making process around donations. The results of this study are in line with those of Ting et al. (2020) in Malaysia, where they found a positive relationship between subjective norm and the intention to donate blood stem cells. This demonstrates how societal norms regarding blood stem cell donation can be positively influenced by the use of social proof, such as peer donation stories and testimonials.

Another important element that emerged was perceived behavioural control, which suggests that young adults are more likely to contribute when they feel capable and have access to the tools they need. These results are also in congruence with the results of the study done in Israel by Ting et al. (2020). Therefore, easing the donation procedure and offering all-encompassing assistance can allay worries and help prospective donors feel more comfortable about making the decision to contribute.

These findings serve as a basis for public health initiatives aimed at young adults, which emphasise the advantages of charitable giving and the positive effects such acts have on the community as well as debunk misconceptions. Crucial first efforts include promoting conversations in peer groups and providing clarity on the donation procedure. Furthermore, educational programmes and easily accessible information might improve young donors' sense of behavioural control by dispelling the mystery surrounding the donation process from registration to actual donation. Working together with community and educational institutions can help to create a more knowledgeable and accepting climate for donations.

In a related vein, the research examines how health marketing initiatives may encourage blood donation through community involvement. Such campaigns, which emphasise both personal and societal obligations regarding blood donation, may use instructive and interactive movies to make donor eligibility requirements, the donation procedure, and its advantages clear. These campaigns can employ social media sites such as Instagram and Facebook, which are popular among the study's target group. These platforms are suggested because, according to the study's findings, the majority of the respondents were in the 20 to 29 age range, and Dixon (2022) and Ceci (2023) found that the largest Facebook and Instagram users were, respectively, individuals in the 25 to 34 age range. Through this campaign, those who do not donate blood will be made aware of the repercussions of their actions and may grow to feel obligated to save the lives of others, including friends and family who may share their experiences with them.

Furthermore, the substantial impact that attitudes have on the desire to donate blood implies that emotional appeals and moral obligations combined with marketing methods could successfully raise the number of donations. People can be moved by short films on YouTube Shorts or other platforms that use personal anecdotes to highlight the need of blood donation and change their intention to give by underlining the crucial role that each individual can play in addressing the blood shortage. Xie et al. (2022) state that emotional appeal is an effective method to increase the engagement of an audience on YouTube videos. These videos could show how the process of donating blood could change lives, further utilising the effectiveness of personal stories and real-life examples (Romero-Domınguez et al., 2021). According to Kemp (2022), there were 20.35 million YouTube users in South Africa in 2022, and 61.4% of the country's population saw YouTube advertisements. Ceci (2023) notes that 25 to 34 year olds are globally the age group that uses YouTube the most, which is consistent with this study's targeted respondents' age range.

Limitations and future research directions

While this study provides valuable insights, it also acknowledges several limitations. Firstly, there is a gap in the literature regarding the influence of social media on blood stem cell donation, which hindered our ability to assess the impact of social media in raising awareness among young adult people. Future research could delve into the effectiveness of social media campaigns in enhancing donation intentions by exploring the nuanced impacts of different platforms. It may also be beneficial to investigate specific demographic or psychosocial factors that could further elucidate the hesitancy or motivation to donate blood stem cells among this population. Moreover issues with blood donation, perhaps other body tissues in Africa would be an interesting avenue to research and discuss in more depth to make future studies more interesting.

Secondly, the study relied on online survey questionnaires for data collection, limiting face-to-face interaction with potential respondents. This approach may have introduced biases or limitations in the responses obtained.

In light of the limitations mentioned, future studies might benefit from a mix of quantitative and qualitative research methods, such as focus groups or interviews, to attain a deeper understanding of the motivations and barriers related to blood stem cell donation among young adults.

CONCLUSION

In conclusion, this research sheds light on the determinants of young adults' intentions to donate blood stem cells in South Africa, highlighting the critical roles of attitudes, subjective norms, and perceived behavioural control. By understanding and addressing these factors, targeted interventions can be developed to increase donor numbers within this key demographic, thereby contributing significantly to public health outcomes and the well-being of individuals requiring blood stem cell donations.

Ethical approval and consent to participate

The ethics clearance certificate and support letters were obtained from the University of South Africa's ethical committee before the data collection process started. All the study participants were informed about the aim and purpose of the study, the importance of their participation, and their verbal informed consent were obtained. Also, the study participants were informed about their right to stop or discontinue the completion of the questionnaire should they not want to continue with answering the research questions.

Author contribution

The author, Nombulelo Dilotsotlhe, collected and analysed the data, and she thereafter wrote all the sections of the manuscript by herself.

Conflict of Interest

The author declares that there are no competing interests.

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Data availability

The author will share the data from this study upon reasonable request; requests can be sent to the corresponding author details.

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