

Awareness, Motivation and Barrier of Blood Donation among Adults in Puncak Alam

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ABSTRACT

Background: In Malaysia and other countries, the availability of blood products is closely linked to the number of individuals who volunteer to donate blood. However, the capacity usage of blood nowadays is very demanding and has raised concern for many health facilities as the blood supply is below the reserve target. **Objective:** This study aimed to determine the relationship between the level of awareness, motivation, and barriers to blood donation among adults in Puncak Alam, Selangor. **Methods:** The study involved a cross-sectional survey that utilized web-based questionnaires to collect responses from 194 participants. The respondents were selected through convenience sampling. **Results:** It was found that the highest percentage of the respondents, 90 (46.4%) had a moderate level of awareness towards blood donation. The mean for motivating factors was 100.38 (SD=21.15). The majority of the respondents, 151 (77.8%) voted "I donate blood because it is important to help other people" as the primary reason that motivates them to donate blood. The mean for the barrier was 5.84 (SD=2.40). It was found that more than half of the 120 (61.9%) respondents cited fear of feeling faint or dizzy after donation as the most deterring factor. The relationship between the level of awareness and motivation and barriers was statistically significant, with weak correlations ($p<0.05$, $r=0.176$) and ($p<0.01$, $r=0.197$), respectively. **Conclusion:** Most of the respondents had moderate awareness, high motivation, and fewer barrier to donating blood. Thus, a campaign about blood donation can be held at attractive centres such as shopping complexes, universities, hospitals, and blood donation centres in order to increase the number of blood bags.

Keywords: Adult; Awareness; Barriers; Blood Donation; Motivations

INTRODUCTION

Blood donation refers to the act of voluntarily giving blood, which is then used to save lives by providing vital medical treatments to people in need. Blood transfusions are used to treat a wide range of medical conditions, including surgeries, cancer treatment, blood disorders, and trauma cases. Based on reports from the World Health Organization (WHO, 2022), 118.54 million blood donations are collected worldwide. The current situation in Malaysia is equivalent to only 22.5 donations for every thousand people (Ling *et al.*, 2018). The Director General of Health Malaysia reported a 40% decrease in blood collection in 2020 compared to previous years. Only 67,135 blood bags were collected between March 2020 and May 2020. In addition, bloodstock at the Malaysian whole blood bank exhibited a declining trend, particularly during this pandemic era. Most people are afraid of contracting disease or infection through blood donation procedures, especially during this pandemic era (BERNAMA, 2020). It shows that the level of awareness is still low because blood donation will not transmit any disease to the blood donors. According to the findings of a study carried out by Salimah *et al.* (2018), the respondents have a low level of knowledge about blood donation. Research findings by Tan *et al.* (2019) also point to only 18.5% of the donors having adequate knowledge, while 81.5% had inadequate knowledge. The research conducted by Sham *et al.* (2019) revealed that the desire to help others and establish good practice was ranked as the most important factor (98%) for blood donation. The study revealed that altruistic behavior was a primary motivation for young blood donors. This study shows the importance of promoting altruistic values and behaviors

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in society, as they can increase blood donations and potentially save lives. In addition to the motivating factors, there are also barriers to blood donation. The barriers may discourage individuals from donating blood, resulting in a low number of blood donors. In the study conducted by Chin *et al.* (2018), the most prevalent barrier to blood donation was fear of needle prick, pain, or discomfort (45.3%). People are willing to donate blood within their community when they know there's a need, but the barriers to donation vary by context and population, so it's important to understand these barriers locally for specific groups (Haw *et al.*, 2023). According to Mishra (2016), the same conclusion was reached in other studies in which the majority of respondents feared needles and needle insertion pain. All these reasons will reduce the public's interest in becoming volunteer blood donors. Thus, the effect of blood supply is below the reserve target. The low blood supply has serious implications for patients who require blood transfusions. Without a sufficient and sustainable blood supply, patients' lives are at risk, and the quality of medical services may be compromised. This highlights the urgent need to address the issue of low blood donation rates in the area. This issue has caused complications, as some suppliers have been compelled to limit the amount of blood that each health care system or hospital can order in order to ensure that the greatest number of hospitals have access to the limited supply. It also means that hospitals may face difficulties if the blood supply is in high demand, such as during a mass casualty incident (Barnhard, 2022). Studies show that effective strategies are needed to increase blood donation depending on factors like public education, timely donor reminders during shortages, and a friendly staff attitude to motivate donors and overcome barriers (Mohammed, & Essel, 2018). This study aims to investigate blood donation awareness, motivations, and barriers among adults in Puncak Alam, Selangor. This study is novel because relatively little research has been conducted in Malaysia, especially in Selangor. This study provides valuable insights for future research and interventions aimed at increasing blood donation rates in Malaysia by focusing on this understudied area. The study may contribute to the literature on blood donation motivations and behaviours in the region, filling a research gap and providing a deeper understanding of these three variables.

METHODOLOGY

Study Design, Location, and Target Population

This study was carried out using a descriptive cross-sectional study design. The target population of this study comprises adult individuals aged between 18 to 65 years who are residents of Puncak Alam, located in Selangor, Malaysia. This particular population and setting were chosen because it is a rapidly growing urban area and can provide a representative sample of the larger Selangor population. This study used self-sampling to target a specific population due to limitations posed by COVID-19.

Sample Size Calculation, Inclusion and Exclusion Criteria

The recommended sample size is 194, with a 5% margin of error, a 95% confidence level, and a 50% response distribution, according to the Raosoft sample size calculation. As for inclusion criteria, only individuals who lived in the Puncak Alam area for at least one year, including students, were eligible to participate. They were between the ages of 18 to 65 years and understood either Bahasa Malaysia or English. Whereas respondents who work as healthcare personnel were excluded to prevent bias. The participants were presented with comprehensive information and given the option to provide informed consent. Furthermore, to ensure confidentiality, the participant's information was anonymized, and the sources remained unidentifiable.

Instruments

A web-based survey via Google Form was used to conduct questionnaires, which were spread through social media platforms such as WhatsApp, Facebook, Instagram, and Twitter. The questionnaire consists of four sections: Section A collected demographic data, including gender, age, education, race, marital status, and donor status. Section B was a 24-item questionnaire adapted from Zucoloto and Martinez (2018) to assess awareness of blood donation. It contained two dichotomous questions, 17 trichotomous questions, and five multiple-choice questions. A 'Yes' answer scored 1, while 'No' and 'I do not know' answers scored 0. The total score ranged from 0 to 24, with a score indicator of 19 or higher indicating the best performance and 13 or lower indicating poor performance. The cut-off points for the level of awareness were 0 to 13 for poor awareness, 14 to 18 for moderate awareness, and 19 to 24 for good awareness. Section C contained a questionnaire adapted from Karacan *et al.* (2013) to identify factors that motivate adults to donate blood. This section consisted of 28 items rated on a Likert

scale, with scores ranging from 1 to 5. If the respondents scored higher, it means they were more likely to donate blood. The Section D questionnaire was adapted from Mohammed and Essel (2018) to determine the barriers to blood donation. It contained nine items on a dichotomous scale of '0' (Yes) and '1' (No). The total score ranges from 0 to 9. The higher the score that respondents get, the lower the barrier to donating blood. Prior to conducting the main research, a pilot study involving 30 adults was conducted, and it was determined that the instruments had an acceptable Cronbach's Alpha (Awareness, $\alpha=0.724$, Motivator, $\alpha=0.972$ and Barrier, $\alpha=0.700$). s questions, 17 trichotomous questions, and five multiple-choice questions. A 'Yes' answer scored 1, while 'No' and 'I do not know' answers scored 0. The total score ranged from 0 to 24, with a score indicator of 19 or higher indicating the best performance and 13 or lower indicating poor performance. The cut-off points for the level of awareness were 0 to 13 for poor awareness, 14 to 18 for moderate awareness, and 19 to 24 for good awareness. Section C contained a questionnaire adapted from Karacan *et al.* (2013) to identify factors that motivate adults to donate blood. This section consisted of 28 items rated on a Likert scale, with scores ranging from 1 to 5. If the respondents scored higher, it means they were more likely to donate blood. The Section D questionnaire was adapted from Mohammed and Essel (2018) to determine the barriers to blood donation. It contained nine items on a dichotomous scale of '0' (Yes) and '1' (No). The total score ranges from 0 to 9. The higher the score that respondents get, the lower the barrier to donating blood. Prior to conducting the main research, a pilot study involving 30 adults was conducted, and it was determined that the instruments had an acceptable Cronbach's Alpha (Awareness, $\alpha=0.724$, Motivator, $\alpha=0.972$ and Barrier, $\alpha=0.700$).

Data Analysis

The collected data was analysed using descriptive statistical methods such as mean, standard deviation, frequency, and percentages. Pearson correlation was used as a statistical tool to investigate the relationship between the level of awareness, motivators, and barriers to blood donation. Pearson correlation is a measure of the strength and direction of the linear relationship between variables.

Ethical Consideration

The present study received ethical clearance prior to the commencement of the study from the Research Ethics Committee of Universiti Teknologi MARA (UiTM), Malaysia on 25th February 2022 with the reference number REC/12/2021 (MR/1102).

RESULTS

Socio-Demographic Information of the Respondents

Table 2 presents the background characteristics of the participants. The age distribution showed that the largest proportion of respondents were between the ages of 20 and 35 years (54.6%), followed by 36 to 50 years (27.3%) and those below 20 years (18.0%). Education-wise, most participants held a bachelor's degree (45.9%), followed by a diploma (34.0%), while a minority had only completed secondary school (7.2%), and the rest had completed postgraduate studies or had other qualifications (10.8%). Most respondents were Malays (91.2%), followed by Chinese (6.2%) and Indians (1.5%), while the rest were from other races (1.0%). Concerning their donor status, over half of the participants had never donated blood (53.1%), while 30.4% were first-time donors and 16.5% were repeat donors.

Table 1: Socio-Demographic Information (N=194)

Characteristics	n	%
Gender		
Male	70	36.1
Female	124	63.9
Age		
< 20	35	18.0
20–35	106	54.6
36–50	53	27.3

Education		
Secondary School	14	7.2
Diploma	66	34.0
Bachelor	89	45.9
Postgraduate	21	10.8
Others	4	2.1
Race		
Malay	177	91.2
Chinese	12	6.2
Indian	3	1.5
Others	2	1.0
Marital Status		
Never Married	42	21.6
Married	131	67.5
Divorced/separated /widowed	21	10.8
Donor Status		
Never	103	53.1
Fist Time	59	30.4
Repeat	32	16.5

Awareness towards Blood Donation

Figure 1 showed a study on awareness of blood donation among adults in Puncak Alam. Out of 194 respondents, 36 (18.6%) had poor awareness, 90 (46.4%) had moderate awareness, and 68 (35.0%) had good awareness. The mean (SD) awareness score was 16.65 (4.16) out of 24.

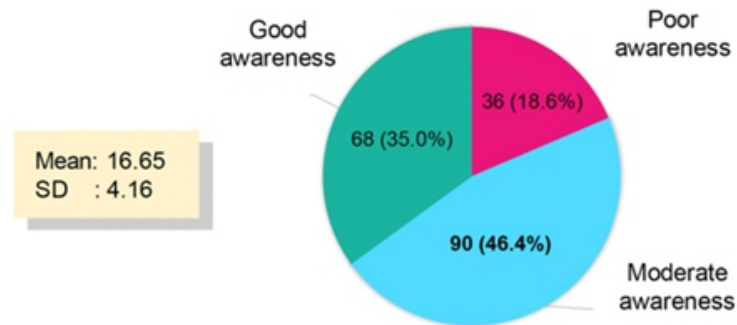


Figure 1: Level of Awareness towards Blood Donation among Adults

Motivation to Donate Blood

Participants' responses to the 28 factors that motivated blood donation were summarized descriptively in Table 2. Approximately three quarters of the 151 respondents (77.8%) chose "I donate blood because it is important to help other people" as the most motivating factor to donate blood. Meanwhile, "I feel forced because of social pressures (e.g., supervisor, manager, and acquaintances)" was the least commonly chosen motivating factor 21 (10.8%).

Table 2: Factors That Motivate to Donate Blood

Items	n	%
“I donate blood because it is important to help other people”	151	77.8
“I believe that one day I might also need a blood”	149	76.8
“By donating blood, I got the idea of saving a life”	141	72.7
“I think blood donation benefits my own health”	139	71.7
“For me, blood donation is primarily a moral duty”	135	69.6
“Religious reasons (to gain reward given by God, etc.)”	135	69.6
“I can test my own courageousness during blood donation	132	68.1
“Whenever I see the blood bank logo or an advertisement for blood donation, I get a good feeling”	131	67.5
“Blood donation is important to me”	130	67.1
“Donating blood makes me feel needed”	127	65.4
“An important reason for donation is that I get a health check for free”	125	64.4
“Donating blood makes me feel better about myself”	125	64.4
“Donating blood makes me feel important”	122	62.9
“I think that blood donation is a task for each individual”	121	62.4
“I donate because I feel compassion towards the receivers of blood products”	119	61.3
“The announcements, blood donation campaigns, educational publications, banners, posters cause to donate blood”	117	60.3
“My wife/husband think blood donation is an important activity”	114	58.8
“Donating blood is an important thing in my life”	107	55.2
“My friends think it is important that I donate blood”	96	49.5
“Blood donation is a way to make new friends”	94	48.5
“If I do not contribute no-one else will”	89	45.9
“My colleagues, and other people I know, place high value on volunteering as blood donor”	87	44.9
“I donate blood for the recompense of goodness to me”	87	44.9
“ donate blood because when I needed blood for myself before it was hard to find”	85	43.8
“ donate blood because I know that my blood type is very hard to get”	79	40.7
“Taking praise and support by the blood bank officials”	58	29.9
“ seldom think about blood donation, it is a habit”	42	21.7
“ feel forced because of social pressures (e.g., supervisor, manager, and acquaintances)”	21	10.8

Table 3 indicates that the mean score for motivation was 100.38 (21.15). Thus, it shows that the majority of the respondents had higher motivations to donate blood.

Table 3: Descriptive Data for Motivation to Donate Blood

Variable	Mean	SD	Minimum	Maximum
Motivation to donate blood	100.38	21.15	31	139

Barrier of Blood Donation

From the bar chart in Figure 2, the fear of feeling faint or dizzy after donation was rated as the most significant deterrent by 120 (61.9%) respondents. Fear of contracting disease or infection is also one of the barriers against which most of the respondents 98 (50.5%) voted. On the other hand, donated blood may be sold, which was the least barrier chosen by the respondents 20 (10.3%), followed by the absence of a gift or reward 39 (20.1%). The mean score for barriers was 5.84 (2.40). Thus, the data shows a large number of respondents had a lower barrier to donating blood.

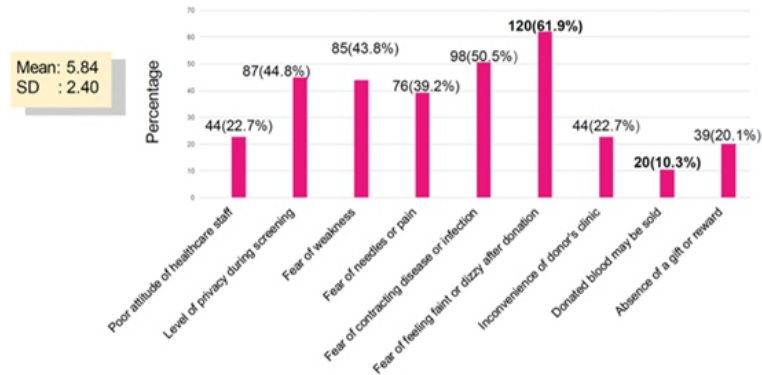


Figure 2: Barrier of Blood Donation Amongst Adults

Relationship between the Level of Awareness, Motivation, and Barriers to Donate Blood

There was a positive correlation between the level of awareness and motivation and barriers to donating blood. Table 4 shows that the correlation coefficient (*r*) between the level of awareness and motivation and the barrier to blood donation were 0.176 and 0.197, respectively, indicating a weak relationship. This result also shows that the relationship between the level of awareness and motivation and the barrier to blood donation was statistically significant (*r*=0.176, 0.197). However, there is no relationship between motivation and barriers to blood donation (*r*=0.074), which is not statistically significant.

Table 4: Relationship Between Level of Awareness, Motivation, and Barrier

Variables	1	2	3
Level of Awareness	-	-	-
Motivation	0.176*	- 0.074	-
Barrier	0.197**		-

p*<0.05 *p*<0.01

DISCUSSION

Awareness towards Blood Donation

The current finding shows that respondents had a moderate level of awareness of blood donation. In line with the result, Alharbi *et al.* (2018) also found that the majority of participants categorized their levels of awareness towards blood donation as moderate, followed by good and poor. However, most studies demonstrated a high level of awareness among the respondents, including those in Malaysia. According to Chin *et al.* (2018), almost all respondents had adequate awareness about blood donation. Zainal Abidin (2021) further emphasized that most respondents had adequate awareness of blood donation. Even though most of the studies mentioned that blood donation awareness was good, some studies showed low awareness. For instance, the study by Santos *et al.* (2021) found that the level of awareness about blood donation was low among the respondents. In line with other studies involving health science students, Musa and Shaaban (2019) observed low levels of awareness about donation requirements. Similarly, in a study conducted by Tan *et al.* (2019), poor knowledge or awareness about blood donation was reported. From all the results stated above, there are still people with low awareness of blood donation. According to research by Majdabadi *et al.* (2018), a lack of knowledge about blood donation may reduce people's interest in giving blood. Students studying health sciences should be made more aware of the value of blood donation through targeted strategies. Additionally, techniques for inspiring and motivating students should be created (Abidin, & Shet, 2021). Thus, proper education and aggressive promotion regarding blood donation are needed in order to increase their awareness, as adequate awareness of blood donation is an important factor for blood donation. The possible demographic differences between the populations studied in the two studies could account for the difference in levels of awareness observed. Further research could explore these and other factors in greater depth to better

understand the factors that contribute to differences in awareness of blood donation among different populations. In summary, the research highlights the importance of persistent efforts to promote awareness of blood donation, particularly among individuals who may have inadequate knowledge about the process and benefits.

Motivation to Donate Blood

This study has found that, generally, the respondents had a higher motivation to donate blood. Approximately three-quarters of the respondents chose "I donate blood because it is important to help other people" as the main factor that motivates them to donate blood, followed by "I believe that one day I might also need blood" and "by donating blood, I got the idea of saving a life". The research conducted by Chin *et al.* (2018) supported the finding that the primary motivator for individuals to become blood donors is their belief that blood donation is an altruistic act aimed at promoting the health and welfare of others. Mohammed and Essel (2018) also highlighted that over four-fifths of the donors endorsed the desire to help others in need of blood as a motivation. Not only that, but Sham *et al.* (2019) also found that the most highly rated motivating factor for donating blood was to help others and to create good practice. However, this factor was lower in a study conducted by Mulatu *et al.* (2017), in which the majority of the respondents only donated blood to relatives or friends instead of unknown people. On the other hand, "taking praise and support from the blood bank officials" and "I seldom think about blood donation; it is a habit" were rated positively by just less than half of all respondents. "I feel forced because of social pressures" was the least commonly chosen motivating factor among the respondents. However, most of the studies found that the least reported motivations were "receiving gifts" (Klinkenberg, 2021), which is similar to previous studies conducted by Chin *et al.* (2018), which show that "gift/money" which they gave was the least motivating factor. According to Mohammed and Essel (2018), the offer of compensation (incentives) for blood donation was the least motivating. Thus, understanding the factors influencing blood donation behaviour is vital to developing effective strategies to address blood donor motivation and retention. A new and important aspect of the study is the finding that the respondents in this study had a higher motivation to donate blood because it is important to help other people. This suggests that altruism is a significant motivator for blood donation and highlights the importance of promoting the idea of donating blood as a selfless act for the benefit of others. This could be important information for the government and organizations to consider when designing promotional and motivational campaigns for blood donation. Overall, the study contributes to our understanding of the factors that motivate individuals to donate blood and emphasizes the importance of promoting altruism and selflessness as key motivators.

Barrier of Blood Donation

The most obvious finding to emerge from this study is that respondents had fewer barriers to donating blood. In this study, the most highly rated deterring factor was the fear of feeling faint or dizzy after donation. This finding is also similar to a study by Shaz *et al.* (2017), where most respondents thought that feeling faint or dizzy would result after donating blood. The fear of feeling faint or dizzy may be a more immediate concern for potential donors, as it could affect their ability to carry out daily activities after the donation. This could lead to a greater perceived risk and a higher deterrent effect. A different study showed that fear of contracting disease or infections is the most common reason that can deter people from donating blood. A study by Sachdev *et al.* (2021) reported that 55% of respondents avoid donating blood because of fear of disease transmission. This could be due to increased awareness and the implementation of safety measures in mass media or hospitals, such as the use of sterile equipment and procedures to prevent the transmission of infections. It could also be attributed to educational campaigns and public health initiatives that emphasize the safety and importance of blood donation in saving lives, thus reducing fears and misconceptions about the process. Therefore, there is a need to eliminate the misconceptions about blood donation is necessary in order to increase the number of blood donors in the future (Chin, 2018).

The level of privacy during screening was also identified as one of the most frequently cited obstacles by the respondents in this study. Similar to Mohammed and Essel's (2018) findings, the level of privacy provided during the pre-donation screening was deemed a formidable barrier to blood donation. It could be related to the discomfort or embarrassment that some individuals may experience during the pre-donation screening process, which involves asking personal and medical questions. Improving the privacy and confidentiality of the screening process could help alleviate these concerns and encourage more individuals to donate blood. The study has identified several new and important aspects related to the barriers to blood donation. The fear of feeling faint or dizzy after donation was found

to be the most highly rated deterring factor, which differs from most previous studies that identified fear of disease transmission as the main barrier. Privacy during pre-donation screening was also marked as a strong barrier, while the poor attitude of staff and inconvenience of the donor's clinic were found to be less significant barriers. The study emphasizes the need for health promotion and campaigns to reduce fear and overcome barriers to blood donation.

Relationship between the Level of Awareness, Motivation, and Barriers to Donate Blood

Based on the study findings, there was a statistically significant relationship between awareness and motivations and barriers to donating blood. However, the relationship between motivation and barriers did not have statistical significance. The study findings indicate that awareness is an important factor in determining the motivations and barriers to donating blood. This suggests that people who are more aware of the importance and benefits of donating blood are more likely to be motivated to do so. On the other hand, those who are less aware may face more barriers to donating blood, such as fear or a lack of knowledge about the donation process. Interestingly, the study did not find a statistically significant relationship between motivation and barriers. This may suggest that even when individuals are highly motivated to donate blood, they may still face barriers that prevent them from doing so. According to Alfouzan (2018), people who showed higher awareness of blood donation were more likely to donate blood. A study by Otifi *et al.* (2020) also mentioned that increased awareness of blood donation might increase voluntary blood donation as people are more motivated to donate blood. The new and important aspects of this study include the relationship between awareness, motivation, and barriers to blood donation. The study highlights that awareness plays a crucial role in motivating people to donate blood, as individuals who have higher awareness about blood donation are more likely to donate. Additionally, the study suggests that a lack of awareness is a significant barrier to blood donation. The study's findings could inform strategies for promoting voluntary blood donation, with a focus on increasing awareness about blood donation.

The study's results are in line with the basic ideas of the Theory of Planned Behaviour (TPB) by Ajzen, (1991) and the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975). The correlations between awareness, motivation, and barriers, as well as the prevalence of altruistic views, show that these ideas can be used to predict behaviour when it comes to giving blood. This shows that TPB and TRA are both good ways to understand and predict the complex relationship between awareness, motivation, and barriers to blood donation choices.

CONCLUSION

The study found that the respondents had a moderate level of awareness of blood donation, indicating a need for proper education and aggressive promotion. The respondents had a higher motivation to donate blood, with altruism being the most significant motivator. The fear of feeling faint or dizzy after donation was the most significant barrier to blood donation, while the level of privacy and confidentiality concerns was relatively low. The study emphasizes the importance of promoting altruism and selflessness as key motivators and implementing safety measures to reduce fears and misconceptions about the process. However, the study was conducted in Selangor, Malaysia, and may not be representative of other populations and regions; thus, future studies can use a larger and more diverse sample size to increase representativeness. Furthermore, to mitigate self-selection bias, researchers can employ a random sampling method instead of relying solely on self-sampling via social media platforms. Additionally, utilizing a mixed-methods approach that combines both qualitative and quantitative research methods can offer a more comprehensive understanding of blood donation behaviour and its underlying factors.

Conflict of Interest

The author declares that they have no financial or personal relationships with other individuals or organisations that could improperly influence their work or create a conflict of interest in relation to the manuscript.

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