

KNOWLEDGE, ATTITUDE AND PRACTICE ON BLOOD DONATION AMONG UNIVERSITY STUDENTS: A SYSTEMATIC REVIEW OF LITERATURE

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ABSTRACT

Objective: Students are considered as the best source to mitigate the need for blood experienced especially among nations on a low resource. This study assessed the knowledge, attitude, and practices of students in relation to blood donation in a developing country.

Methods: This study utilized a systematic review of the literature to assess the knowledge, attitude, and practices of students on blood donation. Using the keywords on eight research databases, the search was able to run 53 hits. Full texts, peer-reviewed, quantitative research design, in English language and published within the year 2013-2018 were the inclusion criteria observed in the review. Appraisal on methodological quality of literature was done on the gathered studies. There are five (5) studies that were considered appropriate for review.

Results: Findings revealed that all literature were conducted from developing countries. Students are knowledgeable and has a good attitude towards blood donation, however, there is a low turnout on the actual practice and volunteerism in donating blood. More specifically, students inclined to health have better knowledge and attitude compared students in non-health related course. Female students are found to have low intention to donate. Interventional strategies that are suggested by the literature are mass media and enhancing donor efficiency.

Conclusion: Evaluating the results of the previously conducted studies revealed the high knowledge and attitude of students in developing countries relative to blood donation. There is a need to intensify education and advocacy campaigns to translate knowledge and attitude into practice.

Keywords: Knowledge, Attitude, Practice, Blood Donation, Students, Developing Country

INTRODUCTION

Blood donation has long been taught of as an act of altruism. From a single donation alone, three blood components may be derived useful to specific patient needs. A pack of blood may prolong the lives of patients with blood loss, leukemia, hemophilia, maternal deliveries, major traumatic injuries and even those who are for transplants. Similarly, blood donation is considered as a vital measure in emergency preparedness for disaster and an essential component in the efficiency of the health care delivery system. There are certain parameters that must be observed for a person to donate blood which may include an ideal body weight, blood pressure, pulse rate; Hemoglobin values of at least 125 gm/dL and most importantly; without existing medical conditions like cancer, cardiac diseases, STDs, lung diseases, or those exposed on high risk occupation among others.

The need for blood is experienced by all countries across the globe but is found to be more of a challenge by most

developing countries primarily because of the lack of people who are willing to donate blood, and the lack of blood donor system (Shan *et al.*, 2002). Globally, the recruitment of voluntary blood donors remains as one of the major challenges most especially in developing countries. A common problem is the lack of safe and low-risk voluntary blood donor because of some cultural beliefs, lack of knowledge on the benefits of donating blood as well as the lack of blood donation advocates (Shan *et al.*, 2002, Sandborg, 2007 ; Viswanathan, 2001). Certain issues on blood safety come from non-voluntary blood donors or those classified as remunerated donors. Generally, it is observed that the non-voluntary blood donors have lower retention and are found to be carriers of transfusion- transmissible infections (TTIs) including Hepatitis, Malaria, Syphilis and even HIV/AIDS (Strauss, 2001 ; van der Poel, Seifried & Schaasberg, 2002). Furthermore, studies have suggested the link of knowledge and attitude to the success of blood donation practice including the barriers and motivators which plays a significant role in

transforming a person to become a blood donor.

The World Health Organization recommends that blood must be collected from voluntary non-remunerated donors (VNRD) because it is found to have lower rates of transfusion-transmissible infections making it generally the ideal way to secure safe blood (World Health Organization, 2010). Likewise, the incidence of misinformation on medical and social history are unlikely among VNRD since their source of motivation is grounded on the premise of giving a gift of life to those in need (World Health Organization, 2010 ; Dubey *et al.*, 2014). To meet the global demand for blood and blood products, some studies have considered university students as a potential source (Ngoma, 2013). Focusing collection on this age group is for reason that they are considered healthy, active, receptive, and comprise most of the population. They are the healthiest source of safe blood compared to another age group who may be carriers of TTIs (World Health Organization, 2010, Arsad *et al.*, 2016 & World Health Organization, 2010).

In realizing this, it is necessary to investigate the knowledge, attitudes, and practices of this target group which can be used as a basis by the health department especially in low sourced countries in developing more effective strategies to increase the number of voluntary blood donors from this age-group and sector of the population.

METHODOLOGY

Aim

A systematic literature review was undertaken to examine published articles focusing on the concept of knowledge, attitude, and practices related to blood donation involving students. The key questions guiding the literature review were:

1. What does the literature say about the knowledge of students pertaining to blood donation?
2. What attitude do these students have in relation to the act of donating blood?
3. What is the common practice of blood donation among these students?
4. What other themes exist in the literature?

Search Strategy

A systematic literature review is appropriate for the diverse range of literature published about the concept of KAP on blood donation among students. The review consisted a comprehensive search in eight research databases including Academic Search Premier, CINAHL, Education Research Complete, ERIC, Psychology and Behavioral Science Collection, Gale, PubMed, and Health Research and Development Information Network (HERDIN). The search utilized the 5-keyword combination namely 'Knowledge', 'Attitude', 'Practice', 'Blood donation', and 'students'. The search was done May 22-23, 2018.

Inclusion and exclusion criteria

The following are the inclusion and exclusion criteria applied to the identified articles:

Inclusion criteria:

- (1) Completely contains the keywords Knowledge, Attitude, Practice, Blood donation and Students as variables of the study
- (2) Published within the year 2013-2018
- (3) In full-text
- (4) Peer-reviewed
- (5) Research design utilized is quantitative
- (6) In the English language

Exclusion criteria:

- (1) Incomplete keywords or lacking variables
- (2) Published earlier than 2013
- (3) Non-full-text
- (4) Non-peer-reviewed
- (5) The research design is qualitative
- (6) Language is not in English

Search results

The first search resulted in 53 hits. The number reduced to 16 after a reappraisal of titles. Thirty-seven (37) titles and abstract that were outside the years 2013-2018, and not classified as a scholarly journal article were eliminated. All in all, there are five (5) studies that were considered suitable for review upon checking that it is in full-text and in the English language. The process observed to denote pertinent studies for this critical review is shown in the following figure.

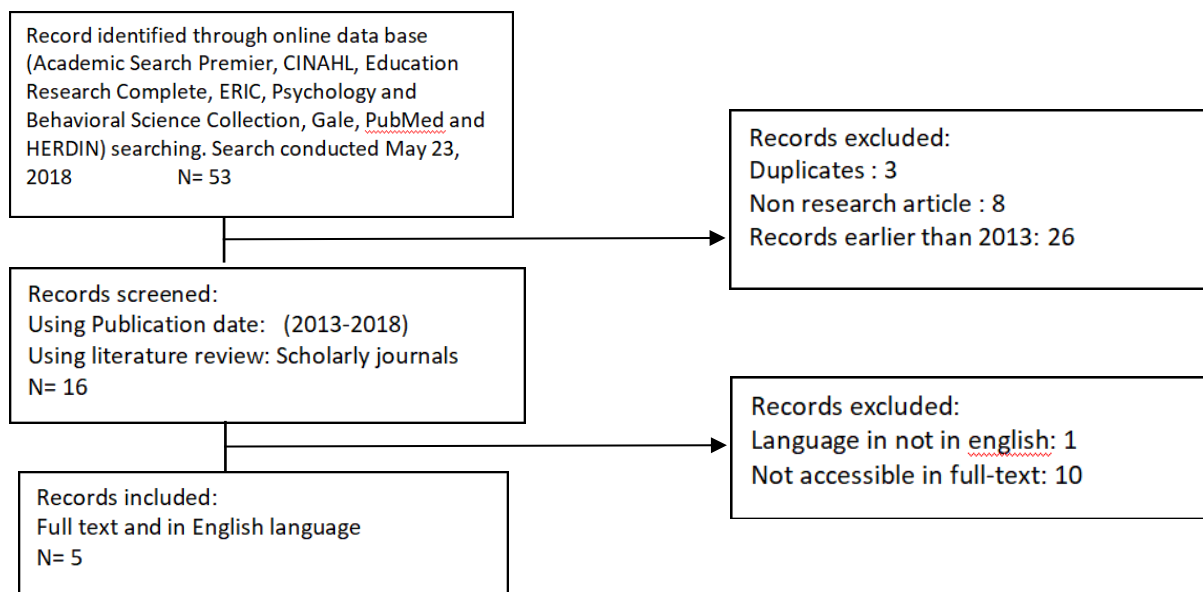


Figure: PRISMA flowchart

Appraisal and data synthesis

The researchers utilized a checklist to appraise quantitative studies being a popular tool to valuate methodological quality of quantitative papers (Kmet, Lee & Cook, 2004). The instrument comprise 12 items components individually scored between 0-2. Quality appraisal was separately done by two authors using the appraisal checklist which was later consolidated and analyzed. It revealed that the quality score in this review ranges between six (6) to twelve (12) with twelve as the highest possible score.

Due to the variety of instruments used and differences in samples used by the studies in the retrieved articles, a meta-analysis of data was not possible. Thematic analysis technique was utilized being the most appropriate technique best fit for this review (Centre for Reviews and Dissemination, 2008). A summary of

data extracted from the articles were collated in a table and analyzed manually. The extracted data from studies included the following: author, year, country, number of student respondents, nature of program enrolled by the sample, research design, areas assessed on the KAP questionnaire, key findings on knowledge, attitude, and practices to blood donation and other relevant findings.

RESULTS

The findings of this review are presented according to its (1) general characteristics of literature; (2) methodology; (3) knowledge on blood donation; (4) students' attitude on blood donation; (5) the actual practice of blood donation among students, and; (5) factors affecting knowledge, attitude and practice on blood donation; and (6) interventional strategies in enhancing blood donation practice among students (Table).

Table: Summary of Literature

Authors /Year	Research Design	Samples/ Response Rate	Topics assessed on KAP questionnaire	Key Findings	Other findings
Kowsalya <i>et al.</i> , 2013	Cross sectional	N=371 Medical students	Knowledge on the Nature of donation, requirements for donation, tests carried in blood banks, storage, blood components, usage of blood, benefits to blood donors; Attitude and Practice on blood donation;	Practice can be enhanced by improving knowledge, and positive attitude on blood donation among college students.	
Raghuwanshi <i>et al.</i> , 2016	Cross sectional	N= 399 Medical and Non - medical students	Knowledge of blood donation process, and blood transfusion, practice of donation, attitude of donors, intervention strategies in recruiting voluntary donors	Knowledge varies according to gender, degree program, and parents job, There is no difference in knowledge based on residence status, and type of family structure Voluntary blood donation is found among non-medical students,	

				males, with parents on medical jobs, and belonging in a joint family	
Gebresilase <i>et al.</i> , 2017	Cross sectional comparative	N=360 Medical and Non - medical students	Knowledge, attitude, practice level	<p>Female students were more likely to have better knowledge than male students</p> <p>Health science students have better attitude compared to non -health related.</p> <p>Female non - health science students were more likely to donate blood and has favorable attitude than male non - students.</p>	<p>Oromo Ethnicity has more favorable attitude to blood donation compared to students with Amhara background.</p> <p>The higher the academic year of the student in non - health related course, the more likely are they to practice donate blood, however students in lower</p>

					years have more desirable attitudes.
Chopra and Jauhari 2015	Cross sectional	N-278 Medical students	Awareness and knowledge on frequency of donation, cause and willingness for donation, attitude and practice of blood donation	Medically inclined students have high knowledge in blood donation, but there is low in actual practice because of the lack of opportunities to donate. Males have higher participation in donation because they are more associated with outdoor activities, decision making or getting more opportunity.	Mass media/ Academics enhances students' knowledge on blood donation.
Tadesse <i>et al.</i> , 2018	Cross sectional	N= 351 Health Science students	Knowledge on voluntary blood donation benefits, risks, eligibility criteria; attitude, practices,	Knowledge on blood donation is related to the year level, program enrolled, and exposure to mass media,	Midwifery students have more favorable attitude toward blood

			associated factors	Students who have less knowledge are less likely to have favorable attitude towards voluntary blood donation.	donation compared to nursing.
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General characteristics of the literature

Meticulous selection and evaluation of articles were done on the remaining works of literature after screening. The literature included were conducted from developing countries which highly relates to the characteristic of the intended recipient of the results of this review. The articles were published from Pakistan Journal of Biological Sciences (2013); Indian Journal of Community Health (2015); Journal of Clinical and Diagnostic Research (2016); BioMed Central (2017) and I Med Pub (2018). Most studies were conducted in India (Kowsalya *et al.*, 2013; Raghuwanshi, Pehlajani, & Sinha, 2016 ; Chopra, & Jauhari, 2015) and the remainder originated from Ethiopia (Gebresilase, Fite & Abeya, 2017 ; Tedesse *et al.*, 2018).

METHODOLOGY

The literature utilized survey approach in a cross-sectional research design and involved students whose degree program relates to health, where two from this (Raghuwanshi, Pehlajani & Sinha, 2016 ; Gebresilase, Fite & Abeya, 2017) compared the group to a non-health related set of students. Sample size ranged between 278-399 students. The studies employed the use of a questionnaire as a means of gathering the needed data on knowledge, attitude, and practice (KAP) on blood donation. More specifically, Nature on donation, screening tests in blood banks, blood components, eligibility requirements for donors, usage of blood and benefits to blood donors were variables assessed in the study of Kowsalya *et al.*, (2013) and Tedesse *et al.*, (2018). Variables on the blood donation process, blood transfusion, intervention strategies in recruiting voluntary donors were included in the study of Raghuwanshi, Pehlajani & Sinha (2016). Aside from KAP Chopra and Jauhari (2015) included the variables frequency of donation as well as the different causes and willingness for donation. There were three (3)

studies (Raghuwanshi, Pehlajani & Sinha, 2016; Chopra & Jauhari, 2015 ; Tedesse *et al.*, 2018) who discussed their ethical procedure which was done by seeking ethical clearance from an institutional review board.

Knowledge on Blood Donation

The studies assessed basic knowledge of blood and blood products, blood donation process, and eligibility requirements for blood donors (Kowsalya *et al.*, 2013; Raghuwanshi, Pehlajani & Sinha, 2016; Tedesse *et al.*, 2018). Three from the five available literature discussed that students have high awareness based on the high scores observed in their overall score in knowledge (Kowsalya *et al.*, 2013, Raghuwanshi, Pehlajani & Sinha, 2016 ; Tedesse *et al.*, 2018). The study of Gebresilase, Fite & Abeya (2017), however, presented the difference in knowledge between health-related students from non-health where knowledge favors the former. Chopra & Jauhari (2015), more specifically discussed the age requirement and frequency as their measures of knowledge on blood donation.

Kowsalya *et al.*, (2013) found that most students are knowledgeable on the suitable age requirement for blood donation, followed by the knowledge on ideal blood pressure, health benefits of donating blood to donor, weight requirement, blood screening tests, amount of blood extracted per session, blood components, number of lives saved in one pack of donated blood, and lastly, the maximum storage days of each donated blood.

Tedesse *et al.*, (2018) elaborated on the measures for knowledge items. Based on the study it revealed that the students are knowledgeable in terms of types of blood; the potential transfer of disease from an infected blood; human blood being not artificially made;

sources of blood for donation; groups considered as ineligible for donation which may include: smokers, with multiple sexual partners, on chronic alcoholism, HIV infected blood, diagnosed with low or high blood pressure, persons with maintenance medications, allergies and fever.

The Attitude on Blood Donation

The literature gathered revealed that health-related students have a more positive attitude on blood donation compared to students in non-paramedical degrees (Kowsalya, 2013; Raghuwanshi, Pehlajani & Sinha, 2016; Chopra & Jauhari, 2015; Gebresilase, Fite & Abeya, 2017 & Tedesse *et al.*, 2018). Based on the gathered attitude statements from the literature, there are two classifications that can be made – positive and negative responses.

Literature revealed that among paramedical students, both positive and negative attitudes are present (Kowsalya, 2013). Among positive attitudes were the lack of request from these students to become donors. The students claimed that no one ever asked them to become blood advocates. For some few donors, they believe voluntarily donating blood is a good habit and act of practicing their social responsibilities. Another is the unawareness of donating stations, or the lack of time and opportunity to join in blood caravans. Majority of the students answered that they will encourage other people to become blood donors. They affirm that the source of blood is from the voluntary non-remunerated donors. In worst case scenarios, the students are also willing to donate when needed especially in times of emergency situations (Raghuwanshi, Pehlajani & Sinha, 2016). Remarkably, most of the students in both groups answered that they will not receive any payment for donating blood. The satisfaction of being able to extend aid to others is enough reason to extend help (Kowsalya, 2016; Chopra & Jauhari, 2015 & Gebresilase, Fite & Abeya, 2017). Most students will donate blood because they believe it has no significant effect to them as donors, while at the same time being able to help friends, relatives, and even unknown people who are in need (Chopra & Jauhari, 2015). Some students consider earning a certificate as a small incentive for donating blood is a rewarding experience. However, more than half of this students feel they still

need their parents' permission prior to donating blood, perhaps they feel the decision is not theirs alone but rather require approval from their parents (Kowsalya, 2016; Tedesse *et al.*, 2018).

Among the negative attitudes observed, the self-perception of being medically unfit scored highest, followed by the perceived anemic-effects of blood donation, the chances of getting harmed or infected, perception on how blood donation lowers immunity, the lack of interest to donate, fear of bodily weakness, fear of the procedure, the need for monetary compensation. Some students in the non-medical field feel that being a paid donor is acceptable (Raghuwanshi, Pehlajani & Sinha, 2016; Chopra & Jauhari, 2015; Tedesse *et al.*, 2018).

Practice on Blood Donation among Students

The practice of blood donation is low and is non-voluntary among students regardless of whether they are pursuing a health-related degree program or not, except for the one study India where more than half have experienced donating blood (Kowsalya, 2013; Raghuwanshi, Pehlajani & Sinha, 2016; Chopra & Jauhari, 2015; Gebresilase, Fite & Abeya, 2017 & Tedesse *et al.*, 2018). Tedesse *et al.* (2018) found in their study that medical reason was found to be the most common reason for not being regular donor among students. The same author found that the lack of information and fear of weakness and parental restriction are other major reasons deterring regular blood donation. Furthermore, the same study found that among blood donors, helping friends and family, altruism, and social responsibilities are the main reason for donating blood. Students also responded that lack of being requested to donate blood, the long waiting time, and discomfort after donation is among the reasons why they don't consider being regular donors (Kowsalya, 2013).

Factors affecting the knowledge, attitude, and practice of blood donation among students

Based on literature, there are several factors that influence the knowledge, attitude, and practice of blood donation among students. Knowledge in blood donation is affected by gender, degree program, year level, and exposure to mass media information. Female are found to be more knowledgeable compared to

males (Raghuwanshi, Pehlajani & Sinha, 2016 & Gebresilase Fite & Abeya, 2017). By virtue of their academic exposure, medically inclined students or those enrolled in health-related courses have high knowledge (Raghuwanshi, Pehlajani & Sinha, 2016; Chopra & Jauhari, 2015 ; Tedesse *et al.*, 2018). Two works of literature suggests that mass media information contributed to the students increase in knowledge on blood donation (Chopra & Jauhari, 2015 ; Tedesse *et al.*, 2018). Similarly, it is found that being female, enrolled in a health-related course, and has high knowledge generally have a better attitude on blood donation (Gebresilase, Fite & Abeya, 2017; Tedesse *et al.*, 2018).

There are several factors affect the practice on blood donation. Despite high levels of knowledge, the lack of opportunities to donate was found to be the main reason why there is a low actual voluntary blood donation practice among students. It also revealed that females have high interest to donate but it is the males who do the actual participation of donating blood (Raghuwanshi, Pehlajani & Sinha, 2016; Chopra & Jauhari, 2015 ; Tedesse *et al.*, 2018). A conflicting result in the study highlighted the inverse relationship of knowledge to practice. It revealed that more non-medical students are voluntary blood donors compared to medically inclined students whose parents were also in medical professions (Raghuwanshi, Pehlajani & Sinha, 2016).

Interventional Strategies for enhancing blood donation practice among students

The need to promote the practice of blood donation is necessary to strengthen and realize volunteerism as well as increase the collection of safe and healthy blood. Literature have suggested that promotion is proven to be a successful strategy in increasing awareness and retention of blood donors. One strategy that may be done is incorporating the concept of blood donation in school curriculum and the periodic conduct of blood donation awareness programs. The literature revealed that mass media play a big role in information dissemination (Kowsalya *et al.*, 2013, Chopra & Jauhari, 2015 ; Tedesse *et al.*, 2018). Information from friends and relatives, school, and even from blood donors themselves are effective in raising awareness to others on the need to become blood donors. The ease of

providing blood donation camps and transport of students to the donation station is recommended for donor efficiency (Raghuwanshi, Pehlajani & Sinha, 2016 ; Chopra & Jauhari, 2015). Likewise, it is also advisable that blood banks provide a master list of donors described as 'blood donors diary' to easily locate healthy donors and remind them of their next blood donation session.

DISCUSSION

The most important finding that was established on this review is the fact that, students regardless of their enrolled degree program, have a varying degree in terms of knowledge and attitude toward blood donation. Results revealed non-exclusivity of high KAP to blood donation in favor to students whose program or courses are inclined to paramedical nature. It can be established that regardless of exposure, literature suggest that students display similar KAP on blood donation. There is a commonality to all literature reviewed that there is a low practice of blood donation among this age group and sector in the society. Although students may possess good knowledge and attitude toward blood donation, it does not translate into their actual practice.

The literature reveals that undeniably, there is a general lack of KAP among students to blood donation, this is largely perception based, hence cannot be regarded as an objective data. The tools or instruments used by the studies included in this review were based on the self-report and perception of students on blood donation. This can be an area where researchers can consider and explore predictors for low practice in blood donation. The worldwide efforts of the WHO to increase voluntary donation among developing countries is still far from its achievement based on the gathered literature. Countries still need to work hard and double its efforts in increasing the participation of these healthy potential donors into an active voluntary role. While it may already be an achievement that awareness as well as attitude among this group is high, a question remains on why despite it all, they remain uninvolved. Researchers need to focus on improving and solving issues hindering the actual practice on blood donation.

Considering the methodology used, it was found that

the different tools or instrument used to gather data on knowledge, attitude and practice are measured on different descriptors. The variability of student respondents was also considered. This means that although the students in this review have high scores on knowledge and attitude or low in practice it cannot be generalized as the same because of the difference on what constructs and structure were included from the variety of the instruments used. The different constructs used by the different literature nevertheless may be utilized to create a single instrument incorporating all studies on KAP on blood donation. This way, a more substantive KAP on blood donation questionnaire may be devised. By gathering and integrating all constructs into one a more meaningful instrument may be created that could provide the best measures of knowledge, attitude and practice among students regarding blood donation. Perhaps if a single tool can capture the entirety of KAP to blood donation among this sector, more comprehensive and reliable interventions may be done to increase participation of student's vis-a-vis stable supply of blood ready for use by the community. Furthermore, it can be noted that the reviewed methodologies used by the literature are descriptive in nature. There is a need for a more rigorous approach to determining how to increase student involvement in the practice of actual blood donation as well as how to resolve factors that hinder their voluntary blood donation practice.

There were two studies who did not expound on the merits of ethical clearance (Kowsalya *et al.*, 2013 ; Gebresilase, Fite & Abeya, 2017). Because the respondents included in their study involves students who may also be minors, the need for ethical clearance from an institutional review board or at least an ethics review committee is essential. This omits the possibility of by-passing the right to be informed while ensuring that human rights in relation to serving as respondents of a research study is protected.

The included literature observed thorough sampling through power analysis except for one study who failed to discuss the sampling technique done to determine the sample size used (Kowsalya *et al.*, 2013). Similarly, the sample sized used by the literature is small which makes the results dubious to be applicable and

transferable to other settings. Though it may be true that transferability is an issue, one thing is for certain based on the commonality of the findings – there are high knowledge and attitude but low practice in blood donation among university students. Despite the methodological issues and challenges observed in this review, evidently, there is one common finding. It is recognized that certainly, there is a lack of blood donors among developing countries most especially among students who are considered as one of the best sources of healthy blood.

This review limited only to eight (8) databases namely including Academic Search Premier, CINAHL, Education Research Complete, ERIC, Psychology and Behavioral Science Collection, Gale, PubMed, and Health Research and Development Information Network (HERDIN). Further, the developing countries involved in the review were limited only to what literature was gathered. Therefore, it is recommended to search more literature from other databases which are related to the subject discussed. Another limitation is the exclusion of non-peer reviewed and qualitative literature. There is much information that may be provided that may not have been discussed by the literature included in this review which highlighted only papers in scholarly journals. An integrative review of literature is therefore recommended.

CONCLUSION

Evaluating the results of the previously conducted studies revealed the high knowledge and attitude of students in developing countries relative to blood donation. However, it cannot be denied that there is low involvement to the practice of donating blood neither as a voluntary donor. This non-translation in actual blood donation practice in spite of their desirable knowledge and attitude calls for a deeper investigation and intervention. As a nation classified as a developing country, there is a need to intensify education and conduct of massive advocacy campaigns to increase the number of blood donors in this sector of the society.

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