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Exploring clinical perspectives: A scoping review of the healthcare provider's views into the challenges of dealing with vasovagal reactions among whole blood donors in Singapore

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Abstract

Blood donation is an essential practice to help save many lives. In Singapore, blood donors donate whole blood or a blood component of either a platelet or a plasma through a voluntary, non-remunerated blood donation which plays an important role in the national goal of securing a supply of safe blood products. Although blood donation is a safe process, there's still a worrying percentage among the group of blood donors having adverse reactions during or after the procedure. One of these is vasovagal reaction, also known as vasovagal syncope, that is usually characterized by weakness, sweating, dizziness, or pallor before the sudden loss of consciousness which poses a significant concern within the context of blood donation as it interferes in the whole process and potentially raising major issues regarding the blood donor's safety. Managing vasovagal reaction has already been well-documented in the literature, however, challenges posed by it may vary, potentially affecting the entire blood donation process. Therefore, this scoping review seeks to explore vast literature covering the healthcare providers' views of the challenges encountered while managing vasovagal reactions among whole blood donors.

Keywords: Blood donors; Healthcare providers; Vasovagal reactions; Vasovagal syncope

1. Introduction

Blood donation is a valuable contribution and a vital part of healthcare worldwide that gives way to blood transfusion as a life-saving procedure for individuals who have lost large amounts of blood or severe haemorrhage due to accidents or any life-threatening conditions such haematological conditions or cancers. Donating blood is a safe process although rare incidences of adverse reactions may happen during or after the procedure. The most common complication is the possible development of hematoma upon needle removal, while the second most common adverse side effect of blood donation is syncope, which is most often vasovagal in nature.

During a vasovagal reaction or vasovagal syncope that is characterized by a combination of vasodilation and a sudden drop-in heart rate, leading to a significant decrease in blood pressure, individuals may show symptoms or typically experience weakness, sweating, dizziness, or pallor and a cold sweat before losing consciousness. Vasovagal reactions are often triggered by several factors. These may be due to a person experiencing emotional stress or heightened emotion and anxiety, while some individuals may experience this type of reaction upon seeing blood, or when they felt pain during a needle insertion or any medical procedure. Standing for a long period of time in a hot and crowded environment can also be a reason due to the pooling of blood in the lower extremities. And lastly, low blood volume, because of a person being dehydrated and hungry, can be also susceptible to vasovagal reactions. This is particularly

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relevant as it poses challenges for healthcare providers and can be an unpleasant experience for donors by affecting their safety and comfort, thereby leading them to develop a fear for needles and may never return for a subsequent donation resulting for a decreased blood donor return rates and blood banks losing a significant number of collected blood units (France et al., 2005; Wiersum-Osselton & Van der Kreek, 2014).

There have been significant studies in understanding and identifying various risk factors about vasovagal reactions among whole blood donors including an increased number of trials of physiological and psychological prevention interventions that have been reported in recent years resulting in many blood collection agencies to implement evidence-based strategies (Thijsen & Masser, 2019). However, the knowledge gap pertaining to the lack of research findings about the challenges being faced by the healthcare providers in dealing with donors experiencing vasovagal reactions is the aim of this study, ultimately leading to produce beneficial insights that may help promote and contribute to the improvement of blood donation procedures, training, and well-being of both donors and the healthcare team.

2. Eligibility criteria

2.1. Participants

The participants to be included in this study are likely to be the healthcare providers that are directly engaged all throughout the blood donation processes, particularly those who have vast experiences and judgements into the proper management of vasovagal reactions among whole blood donors. Participants that may potentially be included are the

- **Doctors:** Healthcare professionals responsible for screening and allowing potential donors to proceed with the blood donation and oversees the entire blood collection processes including the emergent management of possible complications.
- **Nurses, Phlebotomists and Nursing attendants:** these are healthcare professionals directly involved and responsible for the collection of blood and whose primary focus is direct observation and continuous monitoring of whole blood donors from the beginning to the end of the blood donation process.
- **Paramedics:** these are the professionals involved in responding to donors who need further medical attention and other medical emergencies that may emerge during the event of the blood donation.
- **Donor Recruitment and Retention Managers:** Professionals in-charge of the recruitment and retention of blood donors who may have valuable insights relevant to the challenges posed by vasovagal reactions.

While the possible exclusion criteria that will be based on characteristics ensuring specificity and relevance of the research may include

- **Executives and Clerks:** Non-clinical staff in-charge of administrative support regarding blood donation as their views and insights may not be directly related and applicable to the study.
- **Inexperienced Healthcare Providers:** professionals with insufficient experience or direct exposure to the clinical management of vasovagal reactions among blood donors.
- **Communication Barriers:** Individuals with notable language barriers that may hinder clear and effective communication and better understanding of the objectives of the study.

2.2. Types of Sources

Qualitative studies will be considered that focus on qualitative data including, but not limited to, designs such as phenomenology, grounded theory, ethnography, qualitative description, action research and feminist research. In addition, scoping reviews that meet the inclusion criteria will also be considered. Text and opinion papers will also be considered for inclusion in this scoping review.

3. Methods

The proposed scoping review will be conducted in accordance with the JBI methodology for scoping reviews (Aromataris & Munn, 2020).

3.1. Search strategy

The search strategy will aim to locate both published and unpublished studies. An initial limited search of MEDLINE, the Cochrane Database of Systematic Reviews and *JBI Evidence Synthesis* was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for PubMed, Google scholar and Cochrane. The search strategy, including all identified keywords and index terms, will be adapted for each included database and/or information source. The reference list of all included sources of evidence will be screened for additional studies. Studies published in the English Language will be included. Studies published within the last ten years will be included to maintain the credibility and relevance of the source materials. The databases to be searched include general website searching with Google as the main search engine, PubMed, Google scholar and Cochrane will also be included. Sources of unpublished studies/ gray literature to be searched include bibliographic databases and trials registers.

3.2. Study/Source of Evidence selection

Following the search, all identified citations will be collated and uploaded into Zotero V 6.0.27/ 2023 citation management system and duplicates removed. Following a pilot test, titles and abstracts will then be screened by two or more independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant sources will be retrieved in full and their citation details imported into the JBI System for the Unified Management, Assessment and Review of Information (JBI SUMARI) (JBI, Adelaide, Australia) (Munn et al., 2019). The full text of selected citations will be assessed in detail against the inclusion criteria by two or more independent reviewers. Reasons for exclusion of sources of evidence at full text that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion, or with an additional reviewer/s. The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram (Tricco et al., 2018).

3.3. Data Extraction

Data will be extracted from papers included in the scoping review by two or more independent reviewers using a data extraction tool developed by the reviewers. The data extracted will include specific details about the participants, concept, context, study methods and key findings relevant to the review question/s. A draft extraction form is provided (see **Appendix II.I***).* The draft data extraction tool will be modified and revised as necessary during the process of extracting data from each included evidence source. Modifications will be detailed in the scoping review. Any disagreements that arise between the reviewers will be resolved through discussion, or with an additional reviewer/s. If appropriate, authors of papers will be contacted to request missing or additional data, where required.

3.4. Data Analysis and Presentation

In this study, analysis and presentation of data will be tabulated (See **Appendix II.2.**) outlining the characteristics of the study, information of the participants, identification of possible challenges, issues or barriers to effective clinical management and strategies, potential research recommendations and details of the study for citation and referencing.

3.5. Concept

The concept of the study refers to the broad examination of healthcare providers' clinical perspectives and unique viewpoints pertaining to the management of possible struggles and obstacles in dealing with vasovagal reactions, which might be fainting and other related symptoms specifically occurring during or after the process of whole blood donation. The concept's key elements that may be included in the study will be:

- **Clinical Perspectives:** The review will focus on gathering awareness, judgements, opinions and insights from healthcare professionals' experiences who are engaged directly in managing and caring of individuals particularly the blood donors experiencing vasovagal reactions during or after donating their blood.
- **Challenges:** The focus of the review is to identify and understand the challenges that the healthcare providers are facing due to vasovagal reactions among whole blood donors that may include important factors such as providing ways to prevent occurrences, emergent response to reaction, post-donation advice and education, and long-term management.
- **Whole Blood Donors:** To distinguish it from other types of blood donation, the scope of the review will only be limited to whole blood donors who had vasovagal reactions pre and post donation.

While Specific Exclusion Criteria may include

- **Apheresis donors:** The scope will exclude any studies that are related to partial or component blood donors specifically donating blood components such as platelets or plasma.
- **Non-Clinical views:** Studies that solely focus regarding the perceptions and experiences of blood donors will be excluded.
- **Non-English Literature:** To ensure linguistic uniformity, other literatures not published in English will be excluded.
- **Outdated Studies:** To maintain the study's currency and relevance, outdated or irrelevant literature may also be excluded from the review.

3.6. Context

The prime focus is about obtaining insights of the challenges dealt by healthcare professionals posed by the specific physiological response in the context of blood donation. In this study, cultural and sub-cultural factors will be considered as attitudes and reactions may differ and vary within communities and various geographical locations. Cultural beliefs and practices can also be an important aspect to include as this may greatly affect and influence how vasovagal reactions can be approached. Specific racial or gender-based interests may also be considered for exploration of possible disparities and any unique potential challenges dealt by a particular demographic group, as well as the consideration of the racial and ethnic factors that may comprehensively ensure understanding of the varying challenges from a diverse population. The setting of the study will be in a blood donation centre and mobile blood drives across Singapore, ensuring varying perspectives of healthcare providers considering their workplace location, access to healthcare resources and various donor demographics. Those studies that solely focus on donor perspective or do not explore healthcare provider's views, and studies with limited relevance about managing vasovagal reactions of whole blood donors will be excluded from this review.

4. Results

The primary aim of this scoping review is to provide a comprehensive overview of the available literature that currently exists about healthcare providers' perspectives of the challenges associated during the management of vasovagal reactions among whole blood donors. The results of this study will be organized and presented thematically, aiming to highlight the issues dealt by healthcare providers and eventually lead to recommend insights into the possible aspects to be enhanced.

5. Conclusion

Through the broad analysis and synthesis of the literature, the review aims to offer insights into the key concepts, emerging themes and gaps in the research. This review also seeks to guide future research and clinical interventions, ultimately imparting to the betterment, safety and efficiency of the whole blood donation process.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict of interest in this project

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Appendices

Appendix I: Search strategy

Full search strategy using an electronic database via PubMed advanced search

(“healthcare providers" OR "clinicians" OR "medical professionals" OR "nurses" OR "doctors") AND ("vasovagal reactions" OR "fainting" OR "syncope" OR "hemovigilance") AND ("whole blood donors" OR "blood donation" OR "donor reactions" OR "blood donor perspectives") AND English[lang]

Appendix II: Data extraction instrument

Appendix II.I JBI template source of evidence details, characteristics and results extraction instrument.

Scoping Review Details
Scoping Review title:
Review objective/s:
Review question/s:
Inclusion/Exclusion Criteria
Population
Concept
Context
Types of evidence source
Evidence source Details and Characteristics
Citation details (e.g. author/s, date, title, journal, volume, issue, pages)

Country
Context
Participants (details e.g. age/sex and number)
Details/Results extracted from source of evidence (in relation to the concept of the scoping review)
E.g. Quality of Life Domains assessed
E.g. Number of items in tool
E.g. details of psychometric validation of tool

Appendix II.2 Planned analysis and presentation of data

Category	Data Points
Characteristics of the planned study	- Design:
	- Setting:
	- Duration:
	- Inclusion/Exclusion Criteria:
Information of the intended participants	- Types of Healthcare provider:
	- Total number of intended Participants:
	- Demographic data:
Identified possible challenges	- Nature of vasovagal Reactions:
	- Frequency and Severity of reactions:
	- Challenges encountered:
Clinical Management and Strategies	- Preventive Measures employed:
	- clinical Intervention provided:
	- Educational or Training Programs provided:
Barriers to safe and efficient management	- Systematic level:
	- Individual level:
	- Possible resource constraints:
Possible Recommendations	- Management:
	- Further Research
Details of the study literature for citation and reference	- Title of the study:
	- List of authors:
	- Journal/literature:
	- Date of publication:
	- Web address/DOI: