RESEARCH ARTICLE

Barriers to safe anaesthesia care in South Asian countries: a virtual focus group discussion

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Abstract

Objective: To identify barriers to safe anaesthesia practice across the South Asian region.

Method: The qualitative study was conducted from September 2020 to August 2021 at the Department of Anaesthesiology at a leading medical university after getting exemption from the ethics review committee of the Pakistan Society of Anaesthesiologists. The sample comprised anaesthetists from 6 countries of the South Asian Association for Regional Cooperation. Data was collected through a focus group discussion held virtually using the Zoom app on September 22, 2020. The proceedings were transcribed and the data was subjected to thematic analysis.

Results: Of the 12 anaesthetists, 4(33.3%) were from India, 3(25%) from Pakistan, 2(16.7%) from Bangladesh, and 1(8.3%) each from Sri Lanka, Nepal and Afghanistan. There were 2 main themes identified; Safe anaesthesia and barriers to safe anaesthesia. They had 4 and 6 subthemes, respectively. The participants agreed that fresh medical graduates were not choosing anaesthesia as a preferred career specialty. One major concern raised was that qualified anaesthetists were leaving their countries for better-paid jobs abroad.

Conclusion: The lack of a definition describing qualified anaesthetists in South Asian countries was pointed out. Lack of basic monitoring and drugs, brain drain, lack of ownership, lack of training programmes, lack of accountability, weak leadership, and disconnect between professional societies and governments were identified as the main barriers to safe anaesthesia.

Key Words: Safe practice, Anaesthesia, Developing countries, Developed countries.

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Introduction

Every year, millions of people require surgical interventions across the globe. Out of the total world population of 7.9 billion, nearly 5 billion lack access to safe and affordable care.[1] The inability of the majority of the world population to access safe anaesthesia and surgical care is a reality known for >40 years.[2] The worst affected populations are in low- and middle-income countries (LMICs) where 9 out of 10 people are unable to access safe basic surgical and anaesthesia care.[3] Over the past 20 years, there have been several publications from high-income countries (HICs) related to the safe practice of anaesthesia, indicating that anaesthesia-related mortality has reduced from 2 in 10,000 to 1 in 200,000 patients. However, in LMICs it can still be as high as 1 in 300.[4,5] Safety standards of anaesthesia, as practised in the HICs, cannot be matched in the LMICs due to various reasons, such as poor infrastructure, shortages of trained anaesthetists, essential drugs, equipment and supplies.[6] Until safe access to surgical interventions is recognised globally as a major burden of disease, it is unlikely that anaesthesia services will be duly supported.

In 2018, International Standards for a Safe Practice of Anaesthesia were published jointly by the World Federation of Societies of Anaesthesiologists (WFSA) and the World Health Organisation (WHO).[7] These standards highlighted the important facilities and equipment necessary for safe anaesthesia care provision globally, and were devised for the guidance of anaesthesia providers, professional anaesthesia organisations, hospital administrators and governments. Similar to all LMICs, provision of safe surgical care and associated safe anaesthesia care in South Asian Association for Regional Cooperation (SAARC) countries is a challenge. The current study was planned to identify barriers to safe anaesthesia practice across the South Asian region.

Subjects and Methods

The qualitative study was conducted from September 2020 to August 2021 at the Department of Anaesthesiology at Aga Khan University Hospital, Karachi, Pakistan after getting exemption from the ethics review committee of the Pakistan Society of Anaesthesiologists. The Safety and Quality of Practice Committee of WFSA had formulated a subcommittee to find the barriers in providing safe anaesthesia care in SAARC countries. The subcommittee conducted a focus group discussion (FGD), inviting anaesthetists from across SAARC countries to identify barriers to safe anaesthesia practice in the region.

The academic physicians fulfilling the inclusion criteria were selected which were six of the eight SAARC countries.

A virtual FGD was conducted with selected participants representing 6 of the 8 SAARC member countries. FGD is a qualitative research methodology used to gain an in depth understanding of social issues. The current FGD was held on September 22, 2020, using the Zoom app due to the coronavirus disease-2019 (COVID-19) pandemic that was in its active phase at the time. The FDG's duration was planned to be 120 minutes, as opposed to the recommended 60-90 minutes, as technical glitches were anticipated.

The participants were chosen from 6 of the 8 SAARC countries based on their clinical excellence and academic contributions towards promoting anaesthesia in their respective countries, as recognised by their professional societies. The group was gender-balanced. The anaesthetists who were not actively practising anaesthesia in a tertiary care hospital were excluded.

The decision on the number of participants from each country was made considering the population of the participating countries. One participant was invited from countries with population of less than 100 million, 2 from countries with population between 100 and 200 million, and 3-4 each from countries with population of or over 200 million.

Emails describing the objectives and other details of the virtual FGD, assurance of confidentiality, possible risks and benefits, and the option of withdrawal at any stage were sent to the selected anaesthetists. All those invited agreed to participate.

The FGD was conducted by a team based in Pakistan and included two anaesthetists and one researcher with expertise in qualitative research. Every participant was assigned an identification (ID) number instead of using the name and the country of residence to ensure confidentiality and to minimise bias. After obtaining informed consent and before the start of virtual FGD, participants were asked to complete a short registration form regarding demographic characteristics and details of employment in their respective countries.

To explore the topic, a questionnaire was developed containing 2 basic questions and 7 sub-questions. Each question was open-ended with a distinct purpose. The sequence of questions was carefully organised to explore each point and to reflect on the comments received by the group. Effort was made to keep the discussion focussed and prevent the participants from getting confused or worn out by a long discussion. The questions were simple and short, with clear wording, so that the participants would not end up discussing the question itself rather than discussing the issue being asked in the question (Table 1).

The research expert moderated the virtual FGD, while an anaesthetist member of the team acted as the co-moderator. The co-moderator and the other anaesthetist recorded the minutes and summary of the FGD. The entire discussion was video recorded with the permission of the participants. Moreover, audiotaping was carried out through the central recording system.

Table-1: Focus group discussion (FGD) quationnaire.

A What do you understand by 'safe anaesthesia practice?
B What are the barriers to providing safe anaesthesia?
1.What role does availability/lack thereof of human resource (trained work force) play in this?
2.How is 'safety' ensured in training the trainees/residents?
3.What measures has your country/institution taken to minimize errors in anaesthesia?
4.Are the hospitals/healthcare facilities obliged to follow any monitoring standards?
5. What is the situation about availability or maintenance of equipment?
6.What external/state regulation is present to ensure safe anaesthesia?
7.What is the process of accountability?

A strict word-for-word transcription of the entire recording was completed by a trained person. As the FGD was held online, non-verbal interactions and cues could not be noted. The transcription was kept true to the original text. An effort was made to transcribe the statements as accurately as possible through proofreading. Two rounds of reviewing the transcription were carried out for reliable and trusted quality control. Thematic analysis was used to analyse the FGD. Two members of the research team individually read the transcripts and meeting notes from two sources for in-depth analysis of the data.

Thematic analysis was selected as this is the appropriate approach to analyse people's views, opinions, knowledge, experiences and values, and was relevant to the topic of the FGD. Manual thematic analysis of the transcription of the FGD was commenced by the researchers following Miles and Huberman strategy of 'three concurrent flows of activity: data reduction, data display, and conclusion drawing/verification'.[8]

Open coding was the initial step. Sections of the text were highlighted and labelled with phrases or sentences and short codes. Next, the codes were scrutinised to identify patterns among them, and key words were generated.

Data was closely examined to identify common themes, topics, ideas and patterns of meaning that came up repeatedly. Several key words were pooled into themes, and further categorised into subthemes. It was ensured that themes were useful and accurately represented the data. The data set was again compared with the themes.

For the presentation of the data under derived themes and subthemes, direct quotes by the participants were taken from the transcripts. As English was not the first language of the participants, the direct quotes of the participants revealed grammatical errors. However, to maintain the originality and credibility of the data, the researchers decided not to rectify those errors. To determine interrater reliability, the team members as well as the participants individually reviewed the transcript, suggested amendments, and gave final approval. Furthermore, rigour and trustworthiness were instituted by following Lincoln and Guba's criteria.[9]

Results

Of the 12 anaesthetists, 4(33.3%) were from India, 3(25%) from Pakistan, 2(16.7%) from Bangladesh, and 1(8.3%) each from Sri Lanka, Nepal, and Afghanistan. There were 2 main themes identified: Safe anaesthesia and barriers to safe anaesthesia. They had 4 and 6 subthemes, respectively (Table 2).

The first theme was based on the participants' understanding of what constituted 'safe anaesthesia.' Discussion started by emphasising the basic principle of bioethics; 'at least, do no harm.' Participants unanimously agreed that the concept of safety in healthcare starts first and foremost with avoiding harm. The concept encompasses issues like knowing one's limitations, preventing, and avoiding negligence, and enhancing skills and knowledge to keep pace with medical advancements.

Table-2: Themes and sub-themes

Themes	Sub-Themes
Safe Anaesthesia	Safe Environment
	Effective Monitoring
	Patient Cantered Care
	Outcome of Anaesthesia
Barriers To Safe Anaesthesia	Untapped Clinical Specialty
	Brain Drain
	Dearth of Anaesthesiologists
	Inadequate Training
	Lack of Essential Equipment
	Weak Leadership

The majority of the participants felt that safe anaesthesia meant an overall safe environment.

"*One thing is the safety of the patient; another is the safety of the anaesthetists themselves and one other point is the safety of the environment as well*."

A safe environment was defined as a place where patients, anaesthetists, and other care providers are physically safe, where safe improvisation in equipment or logistics is practised, where checklists are available and are followed, where quality assurance mechanisms are in place and a system of adverse events reporting is present and mechanisms exist to report and minimise medical errors. This was the prevailing opinion irrespective of their public or private healthcare affiliations.

The majority participants said that safety in anaesthesia was integrally related to essential monitoring. Comparing the currently available monitoring facilities with what should be minimally available, one participant said:

"*We cannot have adequate machinery, adequate equipment, or things to provide the safest kind of anaesthesia . . . We have to improvise according to our sources and the cost-effectiveness.*"

Almost all participants felt that essentials like basic monitoring equipment, essential drugs, and other resources were mandatory in order to provide safe anaesthesia. Defining monitoring standards according to regional realities rather than taking what international guidelines enlist was emphasised. Discussion about national standards for safe anaesthesia led to the conclusion that most SAARC countries have no such standards available, and there was a dire need to follow due process for developing them. India and Sri Lanka have national guidelines, while some provinces in Pakistan have initiated efforts to develop them. However, the pandemic caused a delay in progress.

There was divided opinion regarding the "*ownership of the patient*" for safe anaesthesia. The majority of participants felt that this concept was not commonly practised in SAARC countries, and anaesthetists take responsibility for intraoperative care only, while the surgical teams are left with pre- and post-operative care. The participants felt that safe anaesthesia practice entailed taking ownership of the patient and providing holistic, patient-centred care, including pre-operative preparation, intra-operative planning and execution, and improved follow-up. A difference of practice was reported about the ownership of patients within the current public and private healthcare setups.

The participants emphasised that safe anaesthesia was a wider concept than merely a good outcome. The outcome can be good without essential monitoring,

which is a potentially unsafe activity.

"*Outcome of my patients are good, even [when] I am not using mandatory monitoring of pulse oximetry.*"

On the same note, reduction in mortality was not considered the hallmark of safe anaesthesia. The group was of the firm opinion that safe anaesthesia entailed much more than just the outcomes because if unsafe practices were routinely employed, a probability of poor outcome was always there.

The second theme was based on the participants' responses to the question: "*What are the barriers to providing safe anaesthesia?"*. This was explored using seven sub-components, including the role of availability/lack thereof of human resources, availability of medication and equipment, infection control strategies, safety in training, obligation to follow monitoring standards, recognise and remedy medical errors, role of external regulators, and the processes of accountability.

Most participants agreed that medical students and fresh graduates were not choosing anaesthesia as a preferred career speciality, and this had caused the existing pool of anaesthetists to persistently shrink. The reasons discussed were multiple, and included lack of proper guidance at the undergraduate level, lack of proper anaesthesia curriculum for medical students, insufficient theoretical and practical component in undergraduate training, and, generally, not enough awareness about the specialty of anaesthesia.

"*There is a lack of guidance at the undergraduate level. There is a lack of curriculum. The medical students, doctors are not exposed to the practical training of anaesthesia and, secondly, not exposed to the theoretical component of anaesthesia*."

"*When I graduated, I did not know much about anaesthesia. There were just 5 marks for anaesthesia and most students just skipped reading anaesthesia for 5 marks. I think what we can do is give more weightage to anaesthesia [in undergraduate training*]."

The participant from Afghanistan reported that the discipline of anaesthesia was relatively new and was still evolving in Afghanistan.

"*This discipline is new in Afghanistan, just 6 years that anaesthesia training programmes have been established, therefore the number of anaesthetists is very low*."

A concern was voiced by some of the participants that qualified anaesthetists were leaving their countries for better-paid jobs and living conditions in the United Kingdom and Middle Eastern countries. Some participants emphasised that enough well-trained anaesthesia personnel were only available in urban areas and acknowledged the insufficient number in peripheral hospitals, leading to unsafe practices in rural areas.

"*Number of [trained] anaesthetists available in urban area are not comparable with rural areas … the smaller hospitals and the general hospitals as you go away from the main cities, the anaesthesia practice is mostly in the hands of medical officers who are trained for some [shorter] time*."

A repeatedly surfacing issue was that of the suboptimal anaesthetist-to-surgeon ratio. Data from the College of Physicians and Surgeons Pakistan (CPSP), the national postgraduate training accrediting body, was quoted showing 1 anaesthetist for 15 surgeons in the country. Data from other countries was not available.

The absence of a consensus definition of who should be categorised as a qualified anaesthetist in SAARC countries was said to have given space to untrained professionals for administering anaesthesia, an obvious barrier to safe anaesthesia care.

"*For most of the private-sector hospitals, a cheaper anaesthetist is best whether qualified or not.*"

Concerning safety in training, a general view was that graded training in anaesthesia was affected by high patient workload, especially in public-sector hospitals. High workload demanded looking after many patients simultaneously and leaving the trainees unsupervised. The disparity in training standards was also emphasised by some participants. The absence of good pre-operative assessment, urban-rural setting differences with less-than-optimal supervision in rural healthcare institutions and conduct of anaesthesia without required optimisation were other factors considered to hinder the provision of safe anaesthesia. Another point of consensus was of an unmet need of continuing professional development. In the same context, lack of availability of biomedical engineering services to maintain equipment and anaesthesia machines were considered a limitation.

The participants felt that it should be the responsibility of the individual institutions to ensure proper documentation, ensure minimum monitoring standards, maintain quality of care, develop mechanisms for reporting adverse events/complications, develop systems to recognise and minimise medical errors, and develop effective leadership to enable safe anaesthesia services. It was the responsibility of the state to develop standards of care, ensure safety in training, introduce uniformity in the standards of care in public and private healthcare institutions, improve salary structure to retain trained workforce, and establish accountability processes.

There was hesitation among the participants about sharing their country's data due to lack of documentation and unclear distribution of resources. Disconnect between professional societies and governments, constant brain drain, lack of implementation of local, national, and international standards, task shifting, and lack of effective leadership were emphasised as barriers.

Discussion

It has been globally recognised that access to safe anaesthesia for essential surgical care is a basic human right, and should be available to all patients. Anaesthesia is inherently a complex discipline, and its safe provision requires a high level of expertise and appropriate resources. This has been a challenge, especially in poor-resource healthcare setups in LMICs. Even in HICs, including Canada, Australia and the United States, lack of anaesthesia care providers has been identified as a major contributing factor to the shortfall of safe surgical and obstetric care in rural and remote areas.[10] These views were echoed by the FGD participants about safe anaesthesia and its provision. The participants felt that safety in anaesthesia is integrally related to developing minimal monitoring standards according to regional realities as opposed to following those developed by the HICs. There was unanimity towards defining monitoring standards according to limited resources available in SAARC countries, developing regional guidelines, and implementing them in practice.

Concerning the barriers in safe anaesthesia provision, most participants felt that lack of awareness of the discipline of anaesthesia, lack of proper guidance of medical students to pursue a career in anaesthesia, disparity in postgraduate training standards and brain drain of well-trained postgraduates have major contributions. The national and regional professional bodies should thoughtfully develop strategies to overcome these barriers.

This virtual FGD was able to bring out some major concerns, like the ownership of patients during the entire per-operative period. A lacuna in defining a qualified anaesthetist and task shifting was also identified. The Lancet Commission on Global Surgery has also recommended "task-sharing" of essential skills in anaesthesia, surgery and caesarean delivery to ensure high-quality surgical outcomes in areas with a deficit of specialty-trained surgeons, anaesthetists and obstetricians.[11] It was a general opinion that the task shifting and task sharing can temporarily solve the crisis of critical shortage of anaesthetists, but everyone strongly felt the need to increase the workforce of anaesthetists for a permanent solution. Another concern was an obvious disconnect between professional societies and governments, and the absence of accountability by the state. The role of professional bodies towards finding temporary and long-term solutions was emphasised I insufficient access to safe anaesthesia for essential surgical care has a huge economic impact.[12]

The current study has limitations, the most important being selection bias as the respondents who agreed to participate in the study were academically and clinically proficient in anaesthesia, which means a mix of trainees or human resource staff perceptions could have been missed. This issue was mitigated by recruiting a wide range of participants from multiple segments of the healthcare system, like private and public hospitals, to generalise the findings. Furthermore, in-depth interviews were not conducted which may have added richness to qualitative responses. However, responses were assembled around the themes presented, and no response was omitted from being presented in the results. Despite the limitations, the current study provided contextual knowledge regarding the barriers to safe anaesthesia care in South Asia.

The recommendations of the study were forwarded to WFSA with the aim of possible incorporation into LMIC standard of Anaesthesia. In addition, these would also be discussed in SARC Anaesthesia platform for due implementation. It is necessary to involve health ministry officials and other decision-makers of SAARC countries in implementing the current joint WFSA and WHO standards to ensure timely access to safe anaesthesia and surgical care to reduce the economic burden and improve healthcare outcomes in the region.

Curriculum development is needed to ensure the inclusion of theoretical learning and practical training of anaesthesia in undergraduate medical institutions. To enhance the number of anaesthetists, it is essential to incentivise the specialty additionally for postgraduate training.

It is imperative to ensure regular monitoring mechanisms, safe anaesthesia measures, adequate human resources, provision of essential equipment, and implementation of the WHO surgical checklist in both public and private hospitals.

Conclusion

The FGD identified major challenges in the delivery of safe anaesthesia care services across South Asia. These are issues to overcome, such as shortage of anaesthetists,

effective monitoring by health authorities for safety, and brain drain. Systematic improvement in healthcare training, structural development of anaesthesia as a subject in undergraduate and postgraduate medical curriculums and implementing externally validated guidelines for anaesthesia management could conceivably enhance the anaesthesia care in South Asia.

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Author's Contributions

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