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A Practical Guide for Researchers to Conduct Online Focus Group Discussions

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ABSTRACT

This practical guide's main goals are to assist researchers in understanding online focus group discussions (e-FGD), emphasise the need to obtain a range of viewpoints, and provide novices with a step-by-step approach to ensure successful preparation, execution, and analysis. e-FGD provides a convenient, accessible platform for gathering diverse opinions and experiences from participants across multiple sites, overcoming geographical barriers. In the current digital era, they accommodate participants' schedules and increase flexibility while delivering fast, cost-effective insights. This guide provides easy-to-follow instructions supported by evidence from recent research. e-FGDs are particularly valuable in fields like medical education, revealing insights often missed in quantitative studies. Although there are obstacles such as limited resources, digital literacy, and connectivity issues, these challenges promote open, spontaneous conversations and more comprehensive data. Future research could explore artificial intelligence (AI)-based moderation, multilingual adaptation, and cross-cultural comparisons. By following this guide, researchers will be equipped to conduct e-FGDs effectively and foster inclusive, meaningful dialogue.

Keywords: *Focus group discussion, Medical education, Research method, Qualitative research*

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INTRODUCTION

Focus group discussion (FGD) is a pivotal educational research method in medical research, offering qualitative insights into participants' perspectives through their opinions and experiences. To ensure efficient planning, implementation, and analysis, this article defines FGD, emphasises its importance for capturing diverse perspectives, and provides a step-by-step guide for novices.

Krueger (1) defined focus groups as organised discussions aimed at collecting data on a specific subject from participants in a relaxed, non-threatening environment, emphasising the conducive atmosphere for data gathering. FGDs are carried out to learn about subjects' knowledge, viewpoints, experiences, and attitudes towards topics of interest, and to seek clarification of behaviours that would be challenging to find using other modalities (2). Furthermore, Morgan (3) described focus groups as a research method that gathers data through group interactions on a topic set by the researcher, highlighting the importance of group dynamics and focused discussion. FGD, to put it briefly, is a qualitative research technique that leverages group dynamics to generate deeper insights by using interactive group conversations that examine participants' views, attitudes, experiences, and behaviours on a given issue. FGD can be utilised either as an independent method or alongside other qualitative (4) and quantitative data collection techniques. Standalone FGDs are usually used to learn people's opinions on specific subjects or to gather information from specific groups. The key benefits of FGDs include evaluating preconceived notions and observations, methodically answering the research question for clarification, and creating relevant codes by hearing participants' responses in their own words and voices. A bias-free compilation of the participants' thoughts, opinions, perceptions, and remarks is an extra advantage. Furthermore, since the majority of health-related illnesses occur in social settings, FGDs are important for understanding the social context of medical research and healthcare (5). The FGD output can be used to supplement, amplify, and illustrate contents for the hypothetical model (which most of the researchers have). This way, the FGD results offer substantial insight into the relevant components of the research subjects covered.

As technology has advanced, researchers are increasingly using online focus group discussions (e-FGD) to overcome geographical barriers, offering a simple, accessible platform for collecting a range of participant perspectives and experiences from various locations. It accommodates participants' schedules and increases participation flexibility while offering timely, cost-effective information. The subsequent sections will delineate key steps to conduct e-FGD in three distinct phases, namely, e-FGD preparation, conducting e-FGD and e-FGD analysis.

Phase 1: Preparing e-FGD

Step 1: Design an e-FGD study plan

Combining with existing qualitative or quantitative data collection methods, e-FGDs enable researchers to achieve data triangulation (6, 7). This approach enhances the depth and reliability of research findings by integrating results from multiple methodologies, allowing them to complement and enrich each other for a more comprehensive understanding of the research questions. When adopting the e-FGD procedure, researchers must design a comprehensive e-FGD study plan by selecting appropriate methodologies, developing protocols, preparing guiding documents, and formulating questions aligned with the research objectives (Tables 1–5). Additionally, researchers need to facilitate focus groups with well-prepared plans for recording sessions, analysing data, and reporting results (8). Researchers should obtain ethical approval from their institutional review boards at the very beginning of their e-FGD planning process, especially if they plan to use third-party digital platforms for data collection and processing.

Table 1: Example of an outline of the e-FGD sessions

Session	1st	2nd	3rd	4th	5th	6th	7th
Date							
Facilitators	Example: 1–2						
Duration in minutes	Example: 100–120						
Total participants	Example: 6–12						
Year of study							
Male participants							
Female participants							
Selection	Example: Email/WhatsApp/Mobile						
Conduction	Example: Online synchronous (Zoom)						
Recordings sources	Example: Online recording + field notes						

Table 2: Sample of e-FGD protocol

Mode	Synchronous online (----add name of software)
Objective	A qualitative exploration of (add your research topic here)
Level of study of the participants	
e-FGD Sampling	Purposeful sampling (Total participants; example: 40, total groups = 7)
Pilot testing	1st session (Example: Total 6 participants) 2nd session (Example: Total 7 participants)
Main e-FGD	3rd session (Example: Total 5 participants) 4th session (Example: Total 5 participants) 5th session (Example: Total 8 participants) 6th session (Example: Total 6 participants) 7th session (Example: Total 3 participants)
Verifying the saturation	7th session (Example: Total 3 participants)
Duration	2 hours per session
Written consent	A well-versed and informed consent (Appendix A) is to be taken from all participants. All collected and related data, information, facts, and participants recorded dialogue will be kept confidential.
Safety risk	It is anticipated that there shall be no safety risk or psychological distress to the attending participants.
The direct benefit to the participants	The direct benefit to study subjects is allowing them to express thoughts about how they feel regarding research topics (add your research topic here).
The indirect benefit to society	The provided data shall be utilised to generate meaningful themes related to the research objectives to produce an insightful explanation of the research topic (add your research topic here).
Participant guidance	A participant information sheet (PIS) comprised details on the purpose of the study (Appendix B), and what participation involves and outlined how all ethical considerations had been addressed.

e-FGD guide	This shall comprise all pertinent details at various stages (pre-during-post) of e-FGD (Appendix C).
Conflict of interest	The researchers declare no conflict of interest.
e-FGD assistant incentives	Appreciation letter (you may include any other incentives of your choice).
Participants' incentives	Token of appreciation or redeemable coupons, to be given after e-FGD (add any other incentive you like).
Moderator	Researcher (add the name of the researcher).

Step 2: Determine sample size and session frequency

Applying the data saturation concept and evaluating topic adequacy at the conclusion of each session can help you determine the optimal number of participants and sessions. To find a basic description of the research issue under discussion, the concept of saturation is frequently utilised to guide the selection of a suitable sample size for this component (qualitative) of the study. It is a common observation that when issues being studied are saturated, further data collection no longer yields valuable insights (9). Hence, it is imperative to continue collecting data from the FGD participants until the point of adequacy or saturation (10) is reached. Although appropriate ideal sizes vary, focus groups are typically small. Some suggest that the ideal number of FGD participants is 6 to 12 (11), while others suggest 5 to 7 (1), 5 to 25 (12), between 8 and 12 (13), at least 15 (14), 7 to 89 (9), but must not exceed 100 (15). Considering these recommendations, the e-FGD sample size can be kept between 5 and 100, as shown in Table 3, depending on the nature of the research objectives. The size of an FGD sample is influenced by various factors that influence data saturation, where smaller samples are suitable for homogenous, transparent populations with content experts and well-trained researchers, while larger samples are needed for broader research questions, heterogeneous populations, abstract topics, and studies using single methods or multiple perspectives (16). Nonetheless, continue holding focus groups until it appears to have reached a saturation point, at which point themes are reiterated and no fresh data is obtained. In thematic analysis, coding needs to stop when no new codes arise which suggests data saturation (17). Consider the data saturation points by reading and re-reading transcripts of each e-FGD and developing initial codes right after the end of every session.

Table 3: The recommended sample size for FGD

Author	Recommended sample size
Bertaux et al. (14)	At least 15
Creswell et al. (12)	5 to 25
Barnett (13)	8 to 12
Ritchie et al. (15)	Should not exceed 100
Mason (9)	7 to 89
Polite (11)	6 to 12

Step 3: Recruit suitable participants for the e-FGD

Recruit participants using a non-probability purposive sampling (3), ensuring they meet eligibility criteria, give informed consent, and are briefed on their role and rights. Purposive

sampling recognises individuals with pertinent characteristics to answer research questions (18). The communication can be carried out using emails and the WhatsApp mobile app and the following points shall be considered mandatory for the e-FGD participants:

- a. Cannot take part in more than one e-FGD session.
- b. Must submit written consent (Appendix A) before the e-FGD session.
- c. The participant must be able to read and speak in English (or any other language of researcher's choice, most suited to research setting) without any difficulty.

Step 4: Develop and structure e-FGD questions

Create a discussion guide (Appendix C) and specific, open-ended questions that support the study's goals and allow for in-depth analysis and inquiry. Focus groups are most effective when examining specific or well-defined themes; otherwise, the gathered information is likely to be dispersed, making data analysis difficult (2). A meeting among research team members to prepare the right questions to produce the best information from FGDs is mandatory. As a result of this meeting, clear, specific statements related to the research objectives can be prepared, along with essential discussion points. An example of a summary of questions across different categories (opening, key, and closing) with a stipulated time duration is available in Table 4.

Table 4: List of sample questions with relevant information

Category	Focus area	Sample questions	Approximate duration (in minutes)
Opening questions	Everyday life issues	In general, what were your feelings in the past 10 days?	10
	Potential solutions	What did you do to make your difficulty less?	10
	Communication and relationship	From your experience, how such difficult times have affected your interaction, communication, and empathy with the family, peers, colleagues, teachers, and university staff?	10
Key and focus questions	Everyday life issues	Could you describe the difficult times that disturbed your routine life?	20
	Potential solutions	Could you be more specific in describing the strategies you selected to address your challenging times? Could you share your experiences in terms of your applied strategies?	20
	Communication and relationship	How would you describe your relationship with friends, family, peers, teachers and university staff? What are your experiences with the outcome of using strategies in terms of your communication and relationships?	20
Closing questions		Is there anything else you want to add? How would you conclude what we have talked about today?	30

During the e-FGD, the researcher remains concerned with participants’ accounts of their life experiences and viewpoints, so the questions should be realistic. This, of course, influences the interview questions, management, and analysis during FGDs. The precise comments of participants serve as the foundation for answering the research question (19). With appropriate arrangements for data collection, the researchers will be able to summarise what participants are replying to specific questions during the e-FGD and have interpretations based on (a) notes taken during the focus group meetings; (b) a review of the recordings; and (c) a textual analysis of the recordings’ transcripts. Moreover, the questions during the sessions are open-ended, so the collected responses are descriptive rather than limited to yes-or-no categories. The following are examples from the actual sessions, where the discussion usually comprised but was not limited to questions: (a) How would you describe your feelings in the past 10 days?; (b) What did you do to make your difficulty less?; and (c) Did such situations affect your empathy during interaction or communication with your family, friends, peers, teachers, and the university staff? Additionally, the researcher went beyond these questions by asking follow-up questions, allowing for a potentially more in-depth conversation; asking ‘what and why’ repeatedly to elicit a deeper explanation; and using inquiry-building-up questions to subtly challenge a participant to be honest (Table 5). This helps participants to elaborate more of their points during sessions. As most FGDs focus on sensitive or emotionally tricky topics, the moderator must end the sessions on a more neutral or positive note (20).

Table 5: Examples of follow-up questions used in e-FGD

Follow-up questions	Could you provide more details about what you were feeling when you mentioned it? What is the reason behind your feelings? What led you to think that way? Can you give further explanation on why you feel that way? What prompted you to act in that manner? Do you genuinely believe that? Your tone seems unsure; what are your true thoughts?
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Developing a discussion guide with key points (Appendix C) as a framework for e-FGD questions and probes is essential. A well-structured guide enhances data collection efficiency and expands the scope of gathered insights. It outlines the key issues and topics to be discussed, ensuring a logical flow throughout the session. The probing questions in the guide are designed to encourage deeper discussion rather than dominate it. Starting with general introductory inquiries that become progressively detailed and precise as the conversation unfolds, the subjects should flow naturally. To promote meaningful talks, the guide should contain open-ended, unambiguous, objective, and non-threatening questions. To improve the discussion guide and ensure its effectiveness, at least two pilot sessions are advised before the actual e-FGD.

Step 5: Protect participants through ethical safeguards

Protect participant autonomy, confidentiality, and rights by assigning neutral facilitators, providing full study information, and allowing voluntary withdrawal. Study participants may be at risk for institutional vulnerability if researchers hold supervisory or teaching positions at their academic institutions. People may feel under pressure to engage to protect their academic standing as a result. Their sense of autonomy throughout the e-FGD may be affected by such fear-induced participation, which could also influence their decision to continue or discontinue the study. To mitigate this risk, researchers should implement the

following safeguards to ensure voluntary participation and protect participants' freedom throughout the process:

- a. The briefing session and participants' recruitment must be conducted by researchers assisted by a neutral research assistant (ideally an MSc or PhD candidate or equivalent) who has no role in the participants' academic activities.
- b. Details on the study purpose, participation criteria, methodology, and participation benefits must be shared with the agreed participants via WhatsApp, email, or another preferred mode of contact. Similarly, written information on risk, confidentiality, subjects' privacy, and the right to terminate must also be shared.
- c. Participants should be informed that their participation is voluntary and that they may withdraw from the study at any time. Their discontinuation will not affect their progress in the study course.
- d. The right of withdrawal is granted and clearly stated to the participants at the start of every e-FGD. Participants who wish to withdraw from the study can send a message via WhatsApp, mobile or email to the research assistant at any time before the start of e-FGD or even during the session.
- e. Only secure, encrypted platforms should be used, and identifiable data must not be uploaded without participant consent.
- f. Transcripts and audio files should be stored on password-protected, institution-approved servers.
- g. All AI-generated transcripts should be reviewed manually to correct errors and ensure accuracy.
- h. The use of any transcription software should be clearly stated in the ethics application and participant information sheets.

Step 6: Facilitate and manage e-FGD sessions effectively

Facilitate e-FGD sessions using an online platform (e.g., Zoom), ensuring smooth communication, respectful dialogue, effective moderation, and comprehensive data capture. Requirements for essential resources needed for data collection during e-FGD are mentioned in Table 6.

Table 6: Important resources for e-FGD

e-FGD resources
Technology and software Video conferencing platform (Zoom, Microsoft Teams, etc.) Stable internet connection Backup internet options (hotspot, additional Wi-Fi) Headsets with microphones
Audio-visual equipment Webcam (for those who do not have integrated cameras) External microphones (if needed) Screen sharing software (if presentations are involved)
Facilitation and support Moderator/facilitator Co-host or technical support staff Note-taker
Communication and coordination Email invitations with clear instructions Calendar invites Follow-up emails with discussion summaries

The most popular and widely used format for FGDs at the moment is synchronous online (Zoom), which enables participants to respond to each other and exchange ideas, views, interpretations, and perspectives in a safe, non-threatening qualitative discourse. This enables researchers to gather information from volunteers across different regions.

The choice of virtual platform can significantly influence the optimal size and management of e-FGDs. Key factors include visual layout, bandwidth capacity, and interactive features such as breakout rooms and chat functions. For instance, Zoom is appropriate for groups of 6 to 10 people because it supports gallery view. Although dependable, Google Meet and Microsoft Teams only show fewer users on screen at once and offer fewer breakout rooms, so they are better suited for smaller groups of four to six people to maintain visibility and participation. Bandwidth constraints, especially in low-resource settings, can further limit effective group size. In such cases, reducing participant numbers or encouraging audio-only participation may improve session stability. Therefore, when selecting a platform, researchers should consider these technical capacities and adapt group size to optimise communication, interaction, and overall session quality.

During e-FGD, all the participants are expected to keep the web camera on, and this helped to identify and evaluate their non-verbal cues, including facial expressions, eye contact, and body language. Adopt a phenomenological perspective, involving three-stage processes beginning with the moderator forming the background; the participants continuing with the discussions of their real-life experiences. They shall later on conclude with a reflection on the meaning of the experience (21).

Even with careful planning, focus group talks may still be interrupted by unforeseen circumstances. To guarantee continuity, reduce delays, and preserve the integrity of the research process, backup plans must be in place. Be prepared, and:

- a. Ensure all participants have a charged mobile hotspot or backup device.
- b. Keep a secondary meeting link (e.g., Zoom and Microsoft Teams) ready; share both in advance. Assign a trained co-moderator who can immediately take over if the primary moderator disconnects.

- c. Provide all moderators with the same facilitator's guide and researcher contact list.
- d. Pre-test an alternate platform and distribute its access details to participants beforehand.
- e. If the primary platform fails, switch immediately and notify participants via group SMS or email.
- f. Establish a group chat (e.g., WhatsApp or Slack) for real-time coordination among researchers and with participants.
- g. Define escalation steps: primary phone call → SMS → email.
- h. Record sessions locally as well as in the cloud.
- i. Save chat logs and transcripts in an auto-sync folder accessible to all moderators.

Phase 2: Facilitating e-FGD Sessions

Step 1: Create a conducive online discussion environment

Create a safe, respectful, and technically sound environment by establishing ground rules, using icebreakers, and ensuring the platform is ready. An e-FGD session should be a small group (6 to 12 members, optimally 4 to 8 based on our experience) that meets with a trained moderator to facilitate discussion of a chosen topic in a non-threatening, relaxed environment. All e-FGDs must be recorded online and are planned to last 90 to 120 minutes (22). Consider rewarding each participant with a token of appreciation for their time (e.g., gift coupons, cash vouchers, honoraria, certificates, etc.).

Establishing clear guidelines for civil and open discourse, such as promoting active listening, permitting uninterrupted speech from all participants, and honoring differing viewpoints, is the first step in ensuring a successful online focus group. Use icebreakers at the beginning to build rapport and create a comfortable atmosphere. To prevent interruptions, test the platforms, microphones, and recording equipment before the session to ensure technical readiness. To maintain participation and a great experience, you should also provide honoraria for participants' time and input.

Step 2: Adapt and apply a structured discussion guide

Adapt a clear, flexible discussion guide (e.g., Appendix C) with open-ended questions and follow-up prompts to explore participants' perspectives in detail. Conduct pilot sessions to test question flow and technical setup before official data collection. A standardised guide comprising pertinent discussion points is essential (e.g., Appendix C). To gather meaningful insights, ensure your questions are open-ended, encouraging participants to elaborate. For example, instead of asking 'Did you like the product?' ask 'What did you like or dislike about the product?' or 'How did the product meet your needs?'. Use prompts to dig deeper, such as 'Can you tell me more about that?' or 'Why do you feel that way?' Allow flexibility in the discussion to explore emergent themes naturally, as they may provide valuable insights. Conduct at least two pilot sessions to refine your approach, test the flow of questions, and identify any technical or logistical issues before the main session.

Step 3: Engage participants and manage group dynamics

Maintain a collaborative environment, manage dominating voices, and support quieter ones to fairly engage all participants. While keeping an eye on both verbal and nonverbal clues for comfort and involvement, use probing and careful listening to extract insightful information. Be proactive in addressing disruptions, such as technical issues or signs of disengagement, to maintain a smooth, productive discussion. Ensuring that everyone feels heard and respected is key to gathering diverse and valuable insights.

Step 4: Capture and summarise key insights in real time

Capture discussions accurately through session recordings and real-time note-taking. Conduct post-session debriefs to highlight emerging themes, identify patterns, and ensure critical data is retained for analysis with your team to summarise the main discussion points, identify patterns, and ensure that no critical insights are overlooked. This process helps thoroughly analyse the data and refine future discussions.

Step 5: Moderate neutrally and sustain research objectivity

Moderate with neutrality by avoiding bias, which can be common in FGD sessions (23), and centering the discussion on participants' experiences. Ask insightful and illuminating questions to increase comprehension while letting unanticipated ideas come to you naturally. Throughout the focus group, impartiality must be maintained by refraining from introducing prejudices or personal viewpoints. For instance, do not provide your own viewpoint or judgement if a participant expresses an opinion that you disagree with. Use clarifying and reflective questions to deepen understanding while allowing organic flow for unexpected insights. It is essential to maintain objectivity throughout the focus group, which can be achieved by avoiding the injection of personal opinions or biases. For example, if a participant shares an opinion you may not agree with, refrain from offering your own perspective or judgement; instead, ask clarifying questions like, 'Can you explain why you feel that way?' Base follow-up questions on participants' responses, ensuring the discussion remains focused on their perspectives rather than any preconceived notions. It is crucial to ensure all voices are heard and respected, giving each participant the opportunity to share their thoughts. While it is important to keep the discussion on track, allow for an organic flow of conversation, which can lead to valuable, unanticipated insights.

Phase 3: Analysing e-FGD Data

Step 1: Prepare data for analysis

Prepare high-quality recordings and accurate field notes for each session. Transcribe each session promptly and share recordings with the research team. Summarise each group's responses question-by-question to guide improvements for subsequent sessions and to support iterative data collection. The warm-up for your full focus group analysis can be based on the first focus group. Since data collection and analysis are done concurrently, focus group sessions must be planned and coordinated so that one group can be transcribed before the next is conducted. Consider writing a summary of each group, focusing on question by question. This helps immensely in spotting whether you need more information on a particular question in the next session. This also helps identify where the group did not

fully answer a question, so they can be more alert and careful in the next group. Appendix D presents the consolidated criteria for reporting qualitative studies (COREQ) with a 32-item checklist, which was used to make FGD findings robust (24).

Step 2: Familiarise with the data and generate initial impressions

Read and reread the transcripts until you are fully immersed in them. Make notes and underline your first impressions. Use this procedure to reduce the amount of data while identifying insightful statements and patterns that support the study's goals. e-FGD sessions, in particular, generate a large amount of qualitative data. A two-hour session may take 5 to 6 hours to transcribe, yielding many pages of transcripts. Therefore, one of your primary goals in data analysis is to reduce the data, and the purpose of the research will guide your approach (1).

Step 3: Code data and develop meaningful categories

Systematically code all the relevant portions of the text that address your research questions. Begin with open coding and revise codes as needed. Have two researchers code independently and reconcile differences to ensure consistency. Use qualitative software (e.g., ATLAS.ti or NVivo) for efficiency. Group related codes into categories to lay the groundwork for the theme development. This will help you systematically and usefully organise your data. It is not necessary to code every line of text. This process will help condense the data and extract key ideas without losing their meaning.

At that point, you will be able to get early concepts for code. The researcher should hold a detailed meeting with all research team members to develop early concepts for the code. Assign two experts; both shall start coding a transcript separately. Each passage of text that seemed to be relevant to or mainly addressed your study's main issues is to be coded as you go through each transcript. Before the remaining transcripts are finished, codes must be compared, reviewed, and adjusted when both experts have finished. Sometimes existing codes are modified, and other times new codes are created. This initially starts as a manual process, working through printouts of the transcripts with pens and highlighters.

The researcher examines combined codes, groups the associated codes into categories, and tags the categories based on their relevance and relations. The researcher works with all that has been coded during this procedure and can develop code categories that guide further study. Once the code sets are categorised, the available data becomes more organised and richer, allowing new relationships among various groupings to be discovered. This exercise helps organise the data, which shall be later sorted into expressive themes and theory.

Step 4: Conduct thematic analysis and develop an emerging theory

Sort linked categories into more general themes according to their theoretical significance, incidence, and relevance. Identify sub-themes and match them to your research inquiries. Use thematic mapping and coding frameworks (e.g., Figure 1) to construct theory-informed insights. As a result, you will provide the information gleaned from the existing study as well as the key themes at this pivotal time (in chronological sequence). Their value is based on how well they represent the research issues. At this point, the extracted points about your

main themes will provide a suitable response to your research question. An illustration of the steps for a codes-to-theory model of codification and categorisation during thematic analysis is depicted in Figure 1. Details of each step are presented in the subsequent sections.

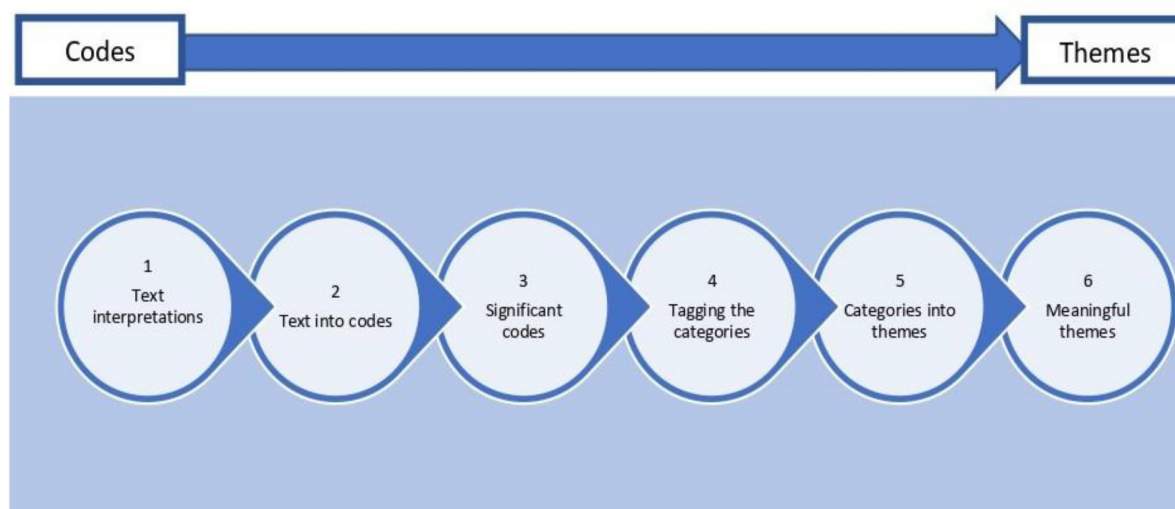


Figure 1: Steps of the codes-to-theory process (25).

Now, you will start to notice themes due to the coding and categorisation procedures. Consequently, the obvious next step is to identify and precisely state the themes in the dataset. Everything yielded by the coding and categorisation process at this stage is grouped to determine themes. As you search for themes, the researcher concludes the data and begins developing theory statements based on the research questions, objectives, and the selected qualitative data analysis method. At this stage, it is crucial to thoroughly revise the resulting themes for better organisation. Moreover, each theme is appraised to determine its applicability and differences from other themes (7). As focus group data are analysed one group at a time, the researchers could use multiple groups to determine whether the themes that emerge in one group also appear in others. After the data has been categorised, the researcher can begin drafting the written analytical report and use the constant comparative technique to determine the frequency of themes. However, calculating the instances of a statement is only one step in the analytical process. The researcher must now take into account the six essential concepts to prevent potential personal bias such as occurrence, usefulness, concentration, particularity, internal reliability, and participant view of importance. These will help the researcher yield essential outcomes as logical themes (Figure 2).

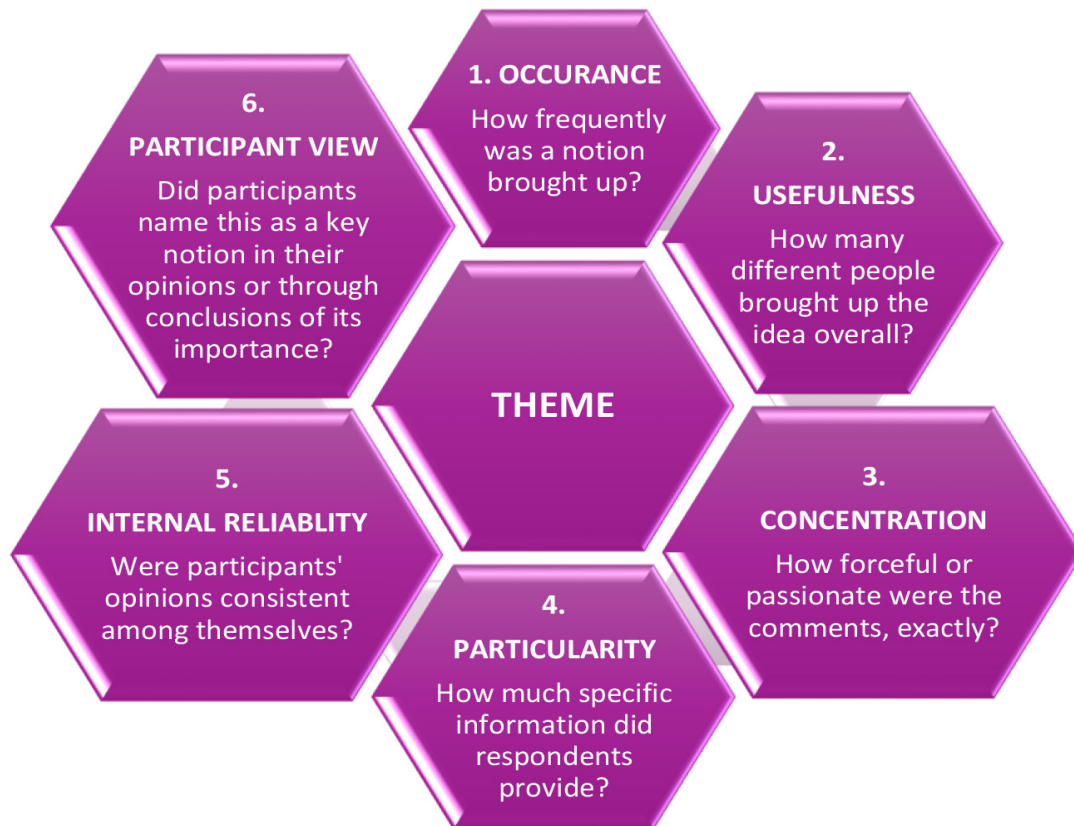


Figure 2: Six impulses considered for yielding crucial outcomes as logical themes.

Step 5: Refine and validate themes across groups

Cross-check themes across multiple focus groups to assess consistency, saturation, and relevance. This helps to validate whether the themes are universally relevant or specific to certain groups. Assess theme saturation by analysing whether new conversations offer original perspectives or if the same topics keep coming up. Themes should be modified as needed to increase coherence and clarity, while ensuring they fairly represent the variety of viewpoints expressed. Additionally, review the relevance of each theme relative to the overall research objectives to ensure they align with the key questions. Continuously refining themes will help maintain focus and relevance throughout the analysis. Regularly revisiting and revising themes also prevents overlooking subtle yet important insights. This approach strengthens the conclusions and enhances the reliability of the findings.

Step 6: Ensure trustworthiness and analytical rigour

To ensure the credibility of your findings, apply measures such as triangulation by cross-referencing with other data sources (where applicable). Conduct inter-coder reliability checks by having two researchers double-code the data for consistency. To ensure transparency throughout the analytical process, maintain an audit trail. If appropriate, use member checking to validate findings with participants so they may attest to or elucidate the veracity of the insights. These actions increase the validity and dependability of your findings. To strengthen the validity of findings, four essential factors shall be addressed,

such as internal validity, external validity, findings' dependability or reliability, and findings' objectivity or confirmability (26, 27). The researcher's accommodations (examples) for these concerns are summarised in Table 7.

Table 7: Validity measures for e-FGD findings

Constancy facets	Stage	Requirements	Detail (sample answers)
Internal validity	In-session	Trained moderator (principal researcher)	He/she has participated in qualitative research seminars and workshops to receive training before conducting the e-FGD.
		Extended interaction	Two pilot sessions before the e-FGD will help the researcher refine the duration and content, ensuring clearer discussion points and effective participant engagement.
		Triangulation	Incorporated other sources of data collection, too. (add details here)
	In-session and post-session	Confirmation measures	The researcher will clarify any unclear parts of the interview with participants and check their interpretations throughout the study.
	Post-session	Method triangulation	The researcher may triangulate the interview findings with other outcome measures obtained from sources beyond the e-FGD, such as surveys, documents, observation notes, or quantitative records.
External validity	In-session	Purposive sampling	The researcher shall select participants with diverse backgrounds to obtain a wide range of responses.
Reliability	Post-session	Code-recode technique	After the initial coding, the researcher must revisit the dataset weeks later to verify its accuracy.
		Inter-rater reliability	Using the stepwise recompilation reliability test, the researcher shall ask a co-researcher to independently code a few randomly selected interviews (about 3 to 4). The co-researcher will use the comprehensive coding glossary developed during the researcher's open coding.
		Audit trail	The researcher must maintain a detailed record of the interviews and analysis procedures to enable other researchers to replicate the study.
Confirmability	In-session	Reflexivity	The researcher will need to discuss personal reflexivity, detailing how their professional experience may have influenced their interpretation and the measures they have taken to minimise bias.
	Post-session	Audit trail	The researcher must keep a detailed record of the e-FGD and the subsequent analysis for auditing purposes.

Step 7: Summarise core insights using participant voices

Summarise findings with direct quotes to illustrate key themes and participant perspectives. To effectively communicate the findings of your e-FGD, extract direct quotes that illustrate key themes, allowing participants' voices to highlight the core insights. These quotes not only enrich the narrative but also provide a clear connection between the themes and participants' perspectives. Present the findings in a structured narrative, organising the insights in a way that flows logically and makes it easy for readers to follow the key points.

Make sure your presentation is clear by tying the themes back to your research aims and showing how each one connects to the study's questions or objectives. This will ensure that the results are pertinent and significant while also helping maintain concentration. By connecting the insights to your research objectives, you strengthen the coherence of your analysis and provide a clear, actionable summary of the e-FGD.

Step 8: Write and report the final findings

Draft a comprehensive report detailing the study's methodology, findings, and interpretation. Structure the report clearly and transparently, including appendices (e.g., codebooks, COREQ checklist). Compare findings with existing literature, highlight contributions, and propose future research directions. Highlight the parallels and discrepancies between your findings and the body of existing research in the discussion section. Provide suggestions for future research directions and note any gaps in the existing literature that your study may have revealed. This comparison not only puts your findings in context, but it also shows how they add to the larger field of study, enhancing scholarly discourse and directing future research.

These steps 1 to 8 offer a systematic approach for effective, efficient, and trustworthy data collection using e-FGD. The summary of key steps is provided in Table 8.

Table 8: Summary of e-FGD phases and key steps

Phase	Step	Description
Phase 1: Preparing e-FGD	Step 1: Design an e-FGD study plan	Design a comprehensive e-FGD study plan by selecting appropriate methodologies, developing protocols, preparing guiding documents, and aligning with research objectives.
	Step 2: Determine sample size and session frequency	Determine the appropriate number of participants and sessions by applying the principle of data saturation and reviewing themes after each session for adequacy.
	Step 3: Recruit suitable participants for the e-FGD	Recruit participants using purposive sampling, ensuring they meet eligibility criteria, give informed consent, and are briefed on their role and rights.
	Step 4: Develop and structure e-FGD questions	Develop clear, open-ended questions and a discussion guide that align with research objectives, allowing space for probing and deep reflection.
	Step 5: Protect participants through ethical safeguards	Protect participant autonomy, confidentiality, and rights by assigning neutral facilitators, providing full study information, and allowing voluntary withdrawal.
	Step 6: Facilitate and manage e-FGD sessions effectively	Facilitate e-FGD sessions using an online platform, ensuring smooth communication, respectful dialogue, effective moderation, and comprehensive data capture.

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Table 8: (Continued)

Phase	Step	Description
Phase 2: Facilitating e-FGD sessions	Step 1: Create a conducive online discussion environment	Create a safe, respectful, and technically sound environment by establishing ground rules, using icebreakers, ensuring platform readiness, and allocating honoraria. Plan for sessions to last 90–120 minutes and record all discussions for transcription and analysis.
	Step 2: Adapt and apply a structured discussion guide	Adapt a clear, flexible discussion guide with open-ended questions and follow-up prompts to explore participants' perspectives in depth. Conduct pilot sessions to test question flow and technical setup before official data collection.
	Step 3: Engage participants and manage group dynamics	Engage all participants equitably by encouraging quieter voices, managing dominant ones, and maintaining a collaborative space. Use probing and attentive listening to draw out meaningful insights while monitoring verbal and non-verbal cues for comfort and involvement.
Phase 2: Facilitating e-FGD sessions	Step 4: Capture and summarise key insights in real time	Capture discussions accurately through session recordings and real-time note-taking. Conduct post-session debriefs to highlight emerging themes, identify patterns, and ensure critical data is retained for analysis.
	Step 5: Moderate neutrally and sustain research objectivity	Moderate with neutrality by avoiding bias, withholding personal opinions, and focusing the discussion on participants' experiences. Use clarifying and reflective questions to deepen understanding while allowing organic flow for unexpected insights.
Phase 3: Analyzing e-FGD data	Step 1: Prepare data for analysis	Prepare high-quality recordings and accurate field notes for each session. Transcribe each session promptly and share recordings with the research team. Summarise each group's responses question-by-question to guide improvements for subsequent sessions and to support iterative data collection.
	Step 2: Familiarise with the data and generate initial impressions	Immerse yourself in the transcripts by reading and re-reading them. Take notes and highlight initial impressions. Use this process to begin reducing data volume while identifying meaningful patterns and quotes that align with the research objectives.
	Step 3: Code data and develop meaningful categories	Systematically code relevant portions of the text that address your research questions. Begin with open coding and revise codes as needed. Have two researchers code independently and reconcile differences to ensure consistency. Use qualitative software for efficiency. Group related codes into categories to lay the groundwork for theme development.
	Step 4: Conduct thematic analysis and develop emerging theory	Group related categories into broader themes based on occurrence, relevance, and theoretical significance. Identify sub-themes and align findings with your research questions. Use thematic mapping and coding frameworks to construct theory-informed insights.
	Step 5: Refine and validate themes across groups	Cross-check themes across multiple focus groups to assess consistency, saturation, and relevance. Adjust or consolidate themes based on their clarity and alignment with research objectives. Use this process to ensure depth and breadth of interpretation without losing meaning.

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Table 8: (Continued)

Phase	Step	Description
Phase 3: Analyzing e-FGD data	Step 6: Ensure trustworthiness and analytical rigour	Apply qualitative validation strategies including triangulation, inter-coder checks, audit trails, and member checking. Address key validity dimensions—credibility, transferability, dependability, and confirmability—to strengthen the trustworthiness of your findings.
	Step 7: Summarise core insights using participant voices	Summarise findings with direct quotes to illustrate key themes and participant perspectives. Link each theme to the original research questions, providing a coherent and compelling narrative of the e-FGD results.
	Step 8: Write and report the final findings	Draft a comprehensive report detailing the study's methodology, findings, and interpretation. Structure the report clearly and transparently. Compare findings with existing literature, highlight contributions, and propose future research directions.

CONCLUSION

FGDs are valuable qualitative research tools for gathering in-depth perspectives, particularly in medical education and research, as they reveal insights often missed in quantitative studies. Incorporating e-FGDs adds flexibility, allowing them to serve as standalone methods or complements to other research techniques, thereby broadening perspectives. They save time and reduce costs, making them especially beneficial in medical research, where swift yet comprehensive feedback is essential. e-FGDs also accommodate participants' availability, fostering inclusivity by enabling participation from diverse geographical locations. e-FGDs create a flexible environment that encourages honest, spontaneous discussion, leading to richer, more meaningful data collection.

This guide offers a practical framework for conducting e-FGDs, particularly in medical education research. However, obstacles such as institutional resource limitations, digital literacy disparities, and connectivity issues in low-resource environments could make its adoption difficult. Furthermore, depending solely on digital platforms could result in participation bias, leaving out people with limited access to or comfort with technology. In order to improve inclusivity and efficacy in a variety of research settings, future studies should examine the incorporation of artificial intelligence (AI)-based moderators to assist facilitation, the translation of e-FGDs into other languages, and cross-cultural comparative analyses.

REFERENCES

1. Krueger RA. Focus groups: a practical guide for applied research. Thousand Oaks, CA: Sage Publications; 1994.
2. Kitzinger J. Qualitative research: introducing focus groups. *BMJ*. 1995;311(7000):299–302. <https://doi.org/10.1136/bmj.311.7000.299>
3. Morgan DL. Focus groups. *Annu Rev Sociol*. 1966;22:129–52. <https://doi.org/10.1146/annurev.soc.22.1.129>

4. Yusoff MSB, Latiff ARA, Ong EBB, Manan HA, Ismail NA, Rahim NAA, et al. Academic workloads: insights from medical and non-medical lecturers' experience in Universiti Sains Malaysia. *Educ Med J*. 2024;16(3):119–39. <https://doi.org/10.21315/eimj2024.16.3.10>
5. Carter S, Henderson L. Approaches to qualitative data collection in social science. In: Bowling A, Ebrahim S, editors. *Handbook of health research methods: investigation, measurement and analysis*. Berkshire: Open University Press; 2005. p. 215–30.
6. Denzin NK. *Sociological methods: a sourcebook*. New York: Routledge; 2017. <https://doi.org/10.4324/9781315129945>
7. Patton MQ. Enhancing the quality and credibility of qualitative analysis. *Health Serv Res*. 1999;34(5 Pt 2):1189–208.
8. Wong LP. Focus group discussion: a tool for health and medical research. *Singapore Med J*. 2008;49(3):256–60.
9. Mason M. Sample size and saturation in PhD studies using qualitative interviews. *Forum: Qual Soc Res*. 2010;11(3).
10. Glaser B, Strauss A. *Discovery of grounded theory: strategies for qualitative research*. New York: Routledge; 2017. <https://doi.org/10.4324/9780203793206>
11. Polite D. *Generating and assessing evidence for nursing practice*. Philadelphia: Wolters Kluwer; 2015.
12. Creswell JW. *Research design: choosing among five traditions*. London: Sage Publications; 1998.
13. Bloor M, Frankland J, Thomas M, Robson K. *Focus groups in social research*. London: Sage Publications; 2002. <https://doi.org/10.4135/9781849209175>
14. Bertaux D. From the life-history approach to the transformation of sociological practice. In: Bertaux D, editor. *Biography and society: the life history approach in the social sciences*. London: Sage Publications; 1981. p. 29–45.
15. Ritchie J, Lewis J, Elam G. Designing and selecting samples. In: Ritchie J, Lewis J, editors. *Qualitative research practice: a guide for social science students and researchers*. London: Sage Publications; 2003. p. 77–109.
16. Roslan NS. *Development, validation and evaluation of a professional resilience training module for medical interns [dissertation]*. Kelantan: Universiti Sains Malaysia; 2021.
17. Braun V, Clarke V. To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qual Res Sport Exerc Health*. 2021;13(2):201–16. <https://doi.org/10.1080/2159676x.2019.1704846>
18. Kelly SE. Qualitative interviewing techniques and styles. In: Bourgeault I, Dingwall R, de Vries R, Kelly SE, editors. *The Sage handbook of qualitative methods in health research*. Thousand Oaks: Sage Publications; 2010. <https://doi.org/10.4135/9781446268247.n17>
19. O'Connor CA, Dyson J, Cowdell F, Watson R. Do universal school-based mental health promotion programmes improve the mental health and emotional wellbeing of young people? A literature review. *J Clin Nurs*. 2018;27(3–4):e412–26. <https://doi.org/10.1111/jocn.14078>
20. Briller SH, Schim SM, Meert KL, Thurston CS. Special considerations in conducting bereavement focus groups. *Omega (Westport)*. 2007;56(3):255–71. <https://doi.org/10.2190/OM.56.3.c>

21. Wimpenny P, Gass J. Interviewing in phenomenology and grounded theory: is there a difference? *J Adv Nurs*. 2000;31(6):1485–92. <https://doi.org/10.1046/j.1365-2648.2000.01431.x>
22. Ahmed SA, Hegazy NN, Kumar AP, Abouzeid E, Wasfy NF, Atta K, et al. A guide to best practice in faculty development for health professions schools: a qualitative analysis. *BMC Med Educ*. 2022;22(1):150. <https://doi.org/10.1186/s12909-022-03208-x>
23. Huang W-Y, Chang H-Y, Kao C-J, Huang Y-P, Chang M-W, Chuang Y-J, et al. Establishing clinical psychologists' core competencies and sub-competencies in Taiwan through a focus group discussion. 2024;28(3):122–35.
24. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. 2007;19(6):349–57. <https://doi.org/10.1093/intqhc/mzm042>
25. Saldana J. *The coding manual for qualitative researchers*. Los Angeles: Sage Publications; 2009.
26. Guba EG. Criteria for assessing the trustworthiness of naturalistic inquiries. *Educ Commun Technol*. 1981;29(2):75–91. <https://doi.org/10.1007/BF02766777>
27. McGrath C, Palmgren PJ, Liljedahl M. Twelve tips for conducting qualitative research interviews. *Med Teach*. 2019;41(9):1002–6. <https://doi.org/10.1080/0142159X.2018.1497149>

Appendix A: FGDs Participant consent [sample]

Dear students, we are recruiting participants from the ----- medical year at the ---- Medical School, for our Online Focus Group Discussions (e-FGD). These discussions aim to collect medical students' views about issues related to ----- . Interested participants must fill out the following form.

Principal Investigator

Main Supervisor

Purpose (Sample)

This study investigates the students' opinions on ----- . As part of this study, you are to participate in an online Focus Group Discussion (e-FGD) and answer structured and open-ended questions. This e-FGD will take approximately 90 minutes.

Participants' Rights

I understand that my responses will be kept strictly confidential and available only to the researcher. No one can identify me when the results are reported, and my name will not appear anywhere in the written report. Please do not share other people's identities or responses from the focus group with others to maintain the anonymity of the participants outside of the e-FGD. I also understand that I may skip any questions or tasks that I do not wish to answer or complete. I understand the consent form will be kept separate from the data records to ensure confidentiality. I may choose not to participate or withdraw at any time during the study without penalty. I agree to have my verbal responses video-recorded and transcribed for further analysis, with the understanding that my responses will not be linked to me personally in any way.

Consent to Participate

I acknowledge that I am at least eighteen years old and understand my rights as a research participant as outlined above. I understand that I am participating in a study of my own free will.

I acknowledge that my participation is fully voluntary.

Participant Name: _____ Signature: _____

Year of Study: _____ Date: _____

Gender: _____ Ethnicity: _____ (More details can be added as required)

Appendix B: Participant's Information Sheet (PIS) [sample]

Dear student, kindly read the following instructions which are required to be followed during the e-FGD. These instructions are made to help every participant feel comfortable and express his/her views appropriately.

1. Ensure you have completed and submitted a participation consent form before the e-FGD, indicating your willingness to participate.
2. For participation, find a place where internet connectivity is good, with minimum surrounding noise.
3. Before the start of e-FGD, please check your volume settings, microphone/speaker, and camera.
4. If your mobile phone is nearby, please turn it off or keep it on silent mode.
5. Keep drinking water close by (if you prefer).
6. When asked, introduce yourself.
7. Keep your camera/webcam ON during e-FGD (unless the Moderator asks you to turn it OFF).
8. If you feel uncomfortable during the meeting, you have the right to leave or to pass on any questions. There is no consequence for leaving.
9. Being present is voluntary.
10. This e-FGD will be of synchronous online nature through Zoom© software which shall enable the moderator's screen to be shared (if needed) with all participants. Feel free to use options available within Zoom© software, e.g., 'raise hand' and 'unmute' etc., depending on your needs and if instructed by the moderator.
11. The meeting is not a counseling session or support group.
12. Someone will be available after the meeting if you need support, and we will provide detailed information (if required, about the research).
13. We expect you to keep personal and shared stories "in the room;" do not share the identity of the attendees or what anybody else said with anybody else outside of the meeting.
14. Everyone's ideas will be respected.
15. Do not comment on or make judgments about what someone else says, and do not offer advice.
16. One person talks at a time.
17. It is okay to take a break if needed.
18. Everyone has the right to talk. The moderator may ask someone who is talking a lot to step back and give others a chance to talk and may ask a person who is not talking if he or she has anything to share.
19. There are no right or wrong answers.
20. At the end, the moderator may indicate by asking you, for example, "Is there anything else you want to share that we haven't talked about yet?" at this point you may take the last opportunity to share which you think was missed earlier.

Appendix C: FGDs Guide [sample]

The setting of the group discussion

Getting participants to show up online: notifications can be sent through email/mobile/WhatsApp notifications. The contact details for participants can be collected with the help of student/class leaders, who had first informed the class about the research so that the interested subjects are able to give their contact details for all future correspondence.

Instruments: recording of the discussion can be done using the online recording features of the online meeting platform (Zoom).

Moderator: the researcher will play the role of moderator.

Informed consent: Emails can be sent to all potential participants one week prior to the focus group with an informed consent form (Appendix A) to be signed and returned prior to the e-FGD, a weblink to join the online group, and an offer to take part in a test call for those unfamiliar with the software or who wished to test their hardware.

Pre-Session
Steps
(Organising data
collection setup)

Moderator's guide: Asking the “right” questions always ensure a successful e-FGD with students. A summary of e-FGDs questions (Table 4) is finalised. These shall be finalised after the initial literature search and discussion within the research team members. Once this list is finalized, these questions must be noted to be asked/discussed during the e-FGDs, pertaining to the students' experiences. Further elaboration on the discussion can also be done utilising exploratory questions.

Participant information sheet (PIS): This includes details on the purpose of the study, what participation involved, and outlined how all ethical considerations had been addressed (Appendix B).

FGD questions: We keep the questions simple, short, and clear and the number of questions reasonable (maximum 10) to prevent the participants from getting disorganized or worn out by a long discussion.

Scope of questions: 1) *Probe questions:* to introduce participants to the actual discussion topic and make them feel relaxed for sharing their opinion. 2) *Follow-up questions:* to investigate further deep into the discussion topic and to record participants' individual opinions. 3) *Exit question:* to check that nothing is missed that needs to be discussed.

Appendix C: FGDs Guide [sample]

The setting of the group discussion	
In-Session Steps (Data collection)	Introduction: The moderator delivered an overview of the objectives of the discussion, and introductions of all the participating students were made. (Approximately 15 minutes.)
	Relationship building: At the beginning, easily responded questions were initiated to encourage participants to talk and share easily. (Approximately 20 minutes.)
	In-depth exploration: The moderator concentrated on the major queries, encouraging participants to disclose their accurate feelings and thoughts. (Approximately 60 minutes.)
	Conclusion: The facilitator recapped the inferences collected, and participants explained, approved, and or elaborate on the information discussed during the session. (Approximately 25 minutes.)
Post-Session – Steps (Analysing data and reporting findings)	The recordings must be altered into a verbatim transcript. Then coding the data in the transcript. This involves sorting and assigning data into categories. ATLAS.ti software version 9 or NVivo can be used to code, sort, and assign data (http://atlasti.com). Reporting of group discussion starts with a general finding of the discussion and then a thematic analysis of the code. The lead researcher may document reflective comments in the form of noteworthy points stated and/or address throughout the e-FGD to give transparency and contribute to the overall credibility of our study.

**Appendix D: Consolidated Criteria for Reporting Qualitative Studies (COREQ) –
a 32-item checklist**

No.	Item	
Domain 1: Research team and reflexivity	Interviewer/ facilitator	Which author(s) conducted the interview or focus group?
	Credentials	What were the researcher's credentials?
	Occupation	What were their occupations at the time of the study?
	Gender	Were the researcher male or female?
	Experience and training	What experience or training did the researcher have?
	Relationship with participants	Was a relationship established prior to study commencement?
	Participant knowledge of the interviewer	What did the participants know about the researcher? <i>e.g., personal goals, reasons for doing the research</i>
Domain 2: Study design theoretical framework	Interviewer characteristic	What characteristics were reported about the interviewer/facilitator? <i>e.g., bias, assumptions, reasons and interests in the research topic</i>
	Methodological orientation and theory	What methodological orientation was stated to underpin the study? <i>e.g., grounded theory, discourse analysis, ethnography, phenomenology, content analysis</i>
	Sampling	How were participants selected? <i>e.g., purposive, convenience, consecutive, snowball</i>
	Method of approach	How were participants approached? <i>e.g., face-to-face, telephone, mail, e-mail</i>
Participant selection	Sample size	How many participants were in the study? Total 40 participants in 7 focus groups from 4 July 2022 to 20 August 2022

Appendix D: Consolidated Criteria for Reporting Qualitative Studies (COREQ) –
a 32-item checklist

No.	Item	
Participant selection	Non-participation	How many people refused to participate or dropped out? Reasons?
	Setting of data collection	Where were the data collected? e.g., <i>home, clinic, workplace</i>
	Presence of non-participants	Was anyone else present besides the participants and researchers?
	Description of sample	What are the important characteristics of the sample? e.g., <i>demographic data, date</i>
	Interview guide	Were questions, prompts, and guides provided by the authors? Was it pilot tested?
Data collection	Repeat interviews	Were repeat interviews carried out? If yes, how many
	Audio/visual recording	Did the research use audio or visual recording to collect the data?
	Field notes	Were field notes made during and/or after the interview or focus group?
	Duration	What was the duration of the interviews or focus group?
	Data saturation	Was data saturation discussed?
	Transcript returned	Were transcripts returned to participants for comment and/or correction?
Domain 3: Analysis and findings	Number of data coders	How many data coders coded the data?
	Description of the coding tree	Did authors provide a description of the coding tree?
	Derivation of themes	Were themes identified in advance or derived from data?
	Software	What software, if applicable, was used to manage the data?
	Participant checking	Did participants provide feedback on the findings?
	Quotation presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g., <i>participant number</i>
	Data and findings consistent	Was there consistency between the data presented and the findings?
	Clarity of major themes	Were major themes clearly presented in the findings?
	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?
Reporting		