Online focus groups in qualitative health research amid COVID 19: A technical and quality assessment guide

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Submitted to: JMIR Formative Research
on: February 27, 2021

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Abstract

The current pandemic has intensified the challenges experienced when conducting face-to-face focus group discussions as consequences of quarantines and physical distancing. These challenges include suspending real time focus groups (FGs) in qualitative research, and a transition from the conventional approach to an online setting. The purpose of this article is to conduct a literature review about various online platform that can be used to conduct FGs in order to help qualitative researchers to select the platform through which they can conduct good quality, time-efficient, and cost-effective online focus group discussions in qualitative health-related research. An overview of the pros and cons of synchronous and asynchronous online FGs and examples from qualitative health-related research is provided in the article. This is followed by an investigation of available quality assessment criteria for qualitative research and proposing a set of quality criteria that can be applied when conducting online FGs. Finally, a technical guideline representing technical specifications and features of various platforms is illustrated to help researchers to utilize the platform that best addresses their research needs.

(JMIR Preprints 27/02/2021:28288)
DOI: https://doi.org/10.2196/preprints.28288

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Abstract

The current pandemic has intensified the challenges experienced when conducting face-to-face focus group discussions as consequences of quarantines and physical distancing. These challenges include

suspending real time focus groups (FGs) in qualitative research, and a transition from the conventional approach to an online setting. The purpose of this article is to conduct a literature review about various online platform that can be used to conduct FGs in order to help qualitative researchers to select the platform through which they can conduct good quality, time-efficient, and cost-effective online focus group discussions in qualitative health-related research. An overview of the pros and cons of synchronous and asynchronous online FGs and examples from qualitative health-related research is provided in the article. This is followed by an investigation of available quality assessment criteria for qualitative research and proposing a set of quality criteria that can be applied when conducting online FGs. Finally, a technical guideline representing technical specifications and features of various platforms is illustrated to help researchers to utilize the platform that best addresses their research needs.

Keywords: online focus groups; qualitative research, pandemic, quality criteria, online platform

Introduction and Background

Since the evolution of coronavirus disease (COVID-19) in Wuhan, China in 2019, and the rapid nature of spread until its categorization as a pandemic, it led to significant and extensive reshaping of healthcare, economic, and social sectors globally [1, 2]. Statistical estimates and

simulations of infectious diseases offered little information on the extent of the human catastrophe and the misery caused by this pandemic [3]. Around 92 million people worldwide have been diagnosed with COVID-19 in just a year and about 2 million have died [4]. Strict measures have been adopted globally to limit social interactions and control the infection spread [1]. This resulted in restricting travels, canceling or postponing large-scale sports and tournaments, disrupting cultural and religious events, and suspending schools [1].

Research evidence played an important role in informing government policies and in directing clinical approaches to the diagnosis and treatment of COVID-19 infected individuals [5]. Since the start of the outbreak, research studies undertaken on COVID-19 increased tremendously with an exceptional degree of collaboration and global dedication [6]. However, a balance between novel approaches, and high-quality, and cost-effective was necessary [6]. In addition, timely research is required for a wide array of research types including epidemiological researches, researches about perception of diseases and health-seeking attitudes, social behaviors towards viral transmission, and barriers to care [7].

Qualitative research is a crucial component in the healthcare field, which seeks to produce rich evidence that cannot be obtained and examined while conducting quantitative research [8]. Qualitative research has been often acknowledged as an important approach that provides valuable insights and allows researchers to investigate the behavioral and interoperation dimensions of epidemiological and clinical researches [9], and hence, it can be employed during the COVID-19 pandemic to answer research questions related to people's perceptions of illness, treatment, and outbreak response [9]. Furthermore, qualitative research can be also utilized to explore the aggravation of health, social and economic status caused by the pandemic, to investigate the roles of various leadership styles, and to study the application of healthcare reorganization to meet the pandemic demands [10, 11].

Focus groups (FGs) are a well-established, valuable data collection technique for qualitative

health-related research [12-14]. A focus group is an organized discussion about a research topic with a group of participants to gain their joint perspectives. FGs are particularly useful when participants are similar in their background and experience and co-operate with each other, which yields a complex discussion [15] This approach is originally supposed to be carried out in a face-to-face modality to facilitate the interaction between participants and researchers, which contributes to yielding a large amount of qualitative data about individuals' knowledge and perceptions that impact their behaviors [13, 16, 17]. Despite considered a robust approach for collecting data in qualitative research, FGs continues to lag behind due to substantial logistical challenges that restricts effective participation, such as date, time, and location [18]. High costs associated with transcript and participant compensation are resource challenges associated with conducting FGs in qualitative health-related research [19].

The COVID-19 pandemic has increased the challenges associated with conducting face-to-face FGs as a consequence of quarantines and social distancing requirements. These challenges necessitate the suspension or postponement of face-to-face FGs, or a transition from the conventional approach to an online setting [20]. Notably, there has been global leverage of technological resources to conduct FGs in time-efficient and cost-effective manners [6], and hence, technological advancements facilitated the transition from conventional face-to-face FGs to an online modality [21-24].

Conducting online FGs become an increasingly popular method for collecting qualitative data in several research fields since the advancement of technology and the popularity of internet use [25-28]. Online FGs are generally computer-mediated "communication event" in which a group of individuals virtually assemble to discuss a specific topic mimicking a face-to-face approach [29-31]. Online FGs interactions can be conducted in the form of text, voice, video, or a combination of these, and can be held either synchronously or asynchronously [28, 30]. Despite the evolvement of better technologies that allow researchers in health qualitative researches to mirror face-to-face FGs

experience by conducting online FGs to collect data utilizing a range of synchronous audio-video (AV)-enabled, and web conferencing platforms, particularly during the current COVID-19 pandemic, it is noted that the majority of the discussed modalities in the literature focuses on text-based FGs. The quality of data produced by online FGs in the field of health-related research remains relatively unexamined. Furthermore, the availability of technical guidance reports about the features of the most commonly used synchronous AV-enabled and web conferencing platforms that best suit health-related research requirements, and the optimal use of them are also lacking. Therefore, this review aims to (1) review the pros and cons of online FGs in qualitative health-related research; (2) propose quality assessment criteria of online FGs in qualitative health-related research; and (3) provide a technical guide and a comparison between the most commonly used synchronous AV-enabled and web conferencing platforms (i.e., WebEx, Zoom, and MS Teams).

Pros and cons of online FGs

Online FGs evolution has started out in the marketing industry with the utilization of asynchronous Internet techniques [28, 32]. Asynchronous Internet environment is a non-concurrent interactive communication that occurs through closed email discussions, discussion boards, weblogs (blogs), newsgroups, or LISTSERV mailing lists [22, 33, 34]. Asynchronous text-based online FGs have been employed in various health-related research in a number of different forms [32, 35-41]. Asynchronous online FGs offered a mean to facilitate participant recruitment and involvement, especially for geographically dispersed and participants [32, 42]. Participation in asynchronous online FGs also offered the advantage of an identity shield which facilitates free-flowing and more open discussions especially when related to sensitive topics in contrast to face-to-face FGs [19, 24, 43, 44]. Other forms of the text-based online FGs have which demonstrated success is the real-time interaction, namely, such as synchronous computer-mediated messaging applications, such as like Audium, MSN messenger, AIM, Google Hangouts, Gaim, Trillian, Kadu, Pidgin, and web messaging facilities like Facebook Live Messenger, etc. The current technological advancement facilitates real-

time communications among participant where they can be seen and heard through the evolvement of synchronous “audio-video” (AV)-enabled applications (e.g., Skype, AnyMeeting, Google Hangouts, Facebook Video Chat, etc) and web conferencing platforms (e.g., Zoom, Cisco-WebEx, Meetings.io, etc.) [34]. These approaches have been utilized in health-related research fields in providing consultation services, improving quality of care, and in collecting qualitative data for research projects [45-48]. Synchronous online FGs through AV-enabled and web conferencing platforms were employed in qualitative health-related research in a way that closely resembles the conventional face-to-face FGs. This technology provides a real-time interaction among researchers and participants across a wider range of geographical locations where internet service is accessible [33]. The opportunity for participants and the moderator to concurrently see and listen to each other allowed for immediacy and spontaneity in responses which facilitate the active role of the moderator, and support the interaction, engagement and nonverbal activity among participants [33]. Hence, this technology enable researchers to examine the quality of the discussions, and to gain better insights and deeper perspective about the communications [33]. This technology was employed in carrying out FGs as a cost-saving technique because it eliminates travel costs on both researchers and participants [34].

Nevertheless, this transition from face-to-face FGs to online FGs was challenged with the uncertainties about their appropriateness as an alternative approach to face-to-face FG [43]. Researchers argue that Asynchronous text-based techniques are inadequate for monitoring fundamental components of FGs, such as the moderator’s role, nonverbal behaviors, and the group atmosphere and dynamics [49, 50]. Moreover, synchronous text-based applications have the challenges of skill-related limitations, such as participants’ typing speeds, which may affect the spontaneity of interactions [21]. Furthermore, conducting online FGs using synchronous AV-enabled or web conferencing platforms have several potential technological and logistical constraints. For instance, it necessitates the availability and accessibility of internet connection by all potential

participants, in addition to functioning audio and video (AV) equipment, especially for desktop computers [51]. In some cases, the quality of internet connection and the AV tools matter, especially if capturing hidden non-verbal reactions from participants is important to the researchers [51]. Also, having a an adequate level of knowledge and skills in using computer is required for both researchers and participants [34]. Likewise, an appropriate surrounding environment, where no interruptions and distractions are experienced, should be assured for optimal FGs discussions [51, 52]. These all besides the unanticipated technical issues that may arise when conducting FGs with a large number of participants [34, 51, 52].

The use of online AV-enabled or web conferencing platforms in conducting FGs is growing in the health-related research literature. Several studies in the literate have discussed the experience of researchers and participants with online FGs. In a recent study conducted by Archibald et al. (2019), the authors, as a part of a broader study investigating stakeholders' perspectives on frailty and frailty screening, have examined the suitability and the acceptability of using Zoom as a video conferencing platform in collecting qualitative data in the context of health-related research [53]. Participants in this study (researchers and participants) highly valued Zoom venues referring to their unique features, conveniences, ease of use, security, interactivity, and cost-effectiveness. This study suggested the viability and the suitability of Zoom platform in collecting qualitative data, which makes it an alternative to other mediums. Furthermore, The study suggested that researchers should provide participants with written instructions and/or practice sessions before the actual conduction of the FG in order to reduce possibilities of technical difficulty incidences [53].

Video-enabled online FGs were also utilized in Matthews et al. (2018) study which aimed to exploring the factors influencing the national implementation of advanced practitioner radiation therapy in Australia [54]. A comparative analysis of the application, effectiveness, and limitations of Zoom platform and other settings (e.g., online text-based and conventional face-to-face FGs) revealed that despite the technical difficulties that were experienced, this platform was advantageous

in enabling effective participation of dispersed healthcare professionals, which have resulted in an enriched and quality data collected. The study proposed that video-enabled platforms are useful and can potentially be applied to other health-related research [54].

Likewise, Tuttas (2014) has investigated the impact of onboarding experiences on travel nurses job performance using a convergent, parallel, mixed-methods approach where the qualitative data was collected via synchronous FGs using a web conferencing platform (i.e., Cisco WebEx) [47]. The useful features of this platform was discussed in Tuttas (2015) methodological paper, which allowed for mimicking traditional, face-to-face FGs in the immediacy of response that resulted in a high level of group interaction and engagement [33]. The researcher concluded that web-conferencing platforms offer promising alternative means for conducting face-to-face FGs than other internet-assisted methods.

In another qualitative study, Smith (2014) has explored the experience of low vision therapists and occupational therapy students in their use of WebEx technology while attending an online FG designed to refine the Low Vision Independence Measure (LVIM) [55]. The study concluded that WebEx technology can provide meaningful data, offer a suitable environment for an open discussion of ideas among participants, and affordable means of achieving a purposeful sample from a range of various geographical locations. Nevertheless, the study recommended that all technological features must be understood by the researchers to ensure optimal data collection[55].

A comparative analysis study was conducted by Rupert et al. (2017) to compare two modes of synchronous online FG (i.e., video and live chat) against face-to-face FG on cost, recruitment, and participant logistics in studying Type-2 diabetes patients' use of technology in communicating health care providers [56]. The study argued that there were no considerable differences in cost among the three groups, with minimal cost savings in the live chat, online FGs as compared to the face-to-face group. Similarly, no substantial difference was observed among the three modes with regard to recruitment timing. On the other hand, enrollment rates were quicker in the live chat groups and

nearly identical in the video and face-to-face groups, and that both modes of online FGs enabled the participation of a more diverse and less healthy population as compared to face-to-face groups. However, face-to-face groups revealed higher show rates [56].

However, despite the large body of evidence about the experiences of researchers and participants with online FGs, only a few studies have assessed the quality of data generated through the AV-enabled and web conferencing platforms and their comparability to traditional face-to-face FGs. In addition, there is apparent lack of guidelines for researchers on assurance and assessment of quality for FGs or interviews conducted online. Whether researchers should rely on traditional quality assessment processes and tools or they should incorporate additional criteria is not well-elucidated in the literature.

Merriam (1998) contended that the validity of FG discoveries should be seen in the consistency between information disclosed during the interview meeting and the plan of the subsequent theory [57]. The validity of traditional FGs can be monitored by parameters such as the clarity of research questions and objectives, the appropriateness of participants' recruitment, moderator's role, and data analysis [58]. Since AV-assisted online FGs resemble the traditional face-to-face FGs to a large extent, this review will encourage the utilization these parameters in evaluating the validity of online FGs in health-related researches. On the other hand, Tuttas (2015) suggested some measures to be considered in choosing an online platform that is reasonable for AV-enabled or web conferencing FGs [33]. The investigator accentuated the significance of selecting an application that underpins gatherings went to by up to 10 individuals, has acceptable security measures that only allows the invitees to have access to the FG meeting, and enables audio and video recording which their access should be limited to the study researchers only. Moreover, the platform should be simple for use by FGs participants, does not need to be purchased nor installed on their computers. Therefore, these measures should be taking into account while making quality evaluation guidance for online FGs. The section that follows attempts to provide some guide on quality measures to

researchers intending to use online FGs.

Quality measures in conducting online FGs for health-related researches

Quality of qualitative research and measures to assess this have been widely discussed in the published literature [59-64]. Qualitative research validation involves ensuring the rigor of the data collection, management, and analysis methods. In qualitative health-related research, the use of reliability, validity, and generalizability to ensure quality should be used carefully because of differences in the research paradigm, nature of knowledge produced by conducting qualitative research and utilized tools to produce that knowledge [63-65]. Therefore, it might be best to use qualitative approaches and term to ensure the quality of qualitative research, such as the trustworthiness criteria [66], including credibility, conformability, transferability, and dependability [63, 64].

Existing quality assessment tools are conceptualized and operationalized while taking the context (e.g. the nature of interaction) into consideration [67-69]. Some commonly used tools to assess the quality of qualitative research include the 21-item SRQR (Standards for Reporting Qualitative Research) [68] and the 32-item COREQ (Consolidated criteria for reporting qualitative research) [69]. The ultimate aim of quality assessment is to promote well-designed and properly implemented qualitative research studies [59, 61, 62]. We believe that qualitative research studies conducted using online platforms have unique features with respect to ethical and methodological considerations [33, 51, 70, 71] and as such, should be appraised according to a specified set of quality criteria. Addressing threats to quality in these new approaches can be more challenging than in conventional methods, due to the increasing methodological, logistical, and ethical complexity of these online interviewing platforms.

Addressing quality in the context of web-based qualitative methods such as online FGs or interviews is important because investigators and readers need criteria to ensure that the study under

investigation is rigorous, transparent and trustworthy [51, 59, 60, 62]. This is especially relevant in this evolving approach, as certain fundamental principles are still unfamiliar to many researchers. Furthermore, quality criteria are useful to avoid the shortcomings that may be associated with design and implementation of the new online approaches. Identification of criteria to assess quality and formalizing them in a tool is highly warranted and an advancement in the emerging approach. A search of the literature was conducted in an effort to determine if there are existing set of specific quality criteria that are developed and validated for use in the context of qualitative studies conducted using web conferencing platforms. Unfortunately, the literature is scanty in terms of quality criteria used in this context. Therefore, there is a need to develop and validate a set of specific core quality criteria for appraising online qualitative research studies, as well as to determine if traditional tools used in face-to-face FGs, such as 21-item SRQR and the 32-item COREQ, are suitable in the context of qualitative studies conducted using AV-enabled and web conferencing platforms.

On one hand, the validated quality criteria and tools that are conventionally used to evaluate qualitative studies conducted face-to-face such as SRQR and COREQ are believed to be equally applicable in the context of socially-distant data collection methods. Therefore, a researcher can choose and apply any of the validated tools that are appropriate to their context. On the other hand, quality assessment is incomplete if additional criteria targeting the new features of the online platforms are not taken into account. Challenges for the determination of quality criteria includes the plurality of views among researchers, particularly regarding how quality should be conceptualized and appraised [59, 60, 62, 67], and the perception that qualitative research quality is highly context-dependent. Collins et al. argue that two scholars from different disciplines or intellectual communities may differ in their opinion of what quality is or how it should be measured [72].

Based on the existing quality assessment tools and considering the setting of online platforms, a set of additional core quality criteria that may be used in this context is proposed and

illustrated in Table 1. A consensus group method to reach an agreement on the proposed quality criteria is applied. The consensus was reached by a group of experts from academia (professors in medical and health education, and qualitative researchers), and from the Information Technology Department (ITD) at Qatar University (QU), who met to decide about this set of criteria. Members of this group have the experience in conducting face-to-face and online FGs and individual interviews.

Table 1: Additional quality assessment criteria for conducting online FGs in qualitative research studies

Item/Criterion	Description of criterion
Description of the online meeting platform	Description of the web conferencing platform, including name, whether it is for-free or subscription-based, context of use (e.g. academic vs. business)
Features for recording of video and audio within the software	Presence or absence of features that allows recording of video and audio within the software
Security applications and maintenance of confidentiality	Elaborate if access to the online meeting space and recordings is password-protected to ensure confidential information is safeguarded
Informed consent and adequacy of information provided to participants	Explanation of how informed consent is obtained for the online data collection as well as providing adequate information to participants regarding the software functionality and potential security risk involved (e.g. breach of confidentiality)
Permission to record voice and/or video	Permission to record voice and/or video and an option is provided if participant declines recording
Privacy of participants and confidentiality of data collected	Provide information on the privacy, confidentiality, and data collection policies of the online platform used
Potential selection bias due to technological and logistical	Explain potential selection bias due to the needs to meet certain technological and logistical

requirements	requirements by potential participants (i.e. explain how justice was ensured in selection of subjects such that it is free of bias that may be imposed by the use of online technology)

Despite proposing a set of core quality criteria for appraising qualitative research employing online approaches, future work should focus on consolidating the criteria and undertaking more stringent validation process.

Technical guide for selecting and using AV-enabled and web conferencing platforms in conducting online FGs

A search of the literature was conducted in an effort to determine if there is an existing technical guide for various AV-enabled and web conferencing platforms, which can help qualitative researchers to select the most suitable AV- enabled and web conferencing platforms for their research needs. This search revealed lack of available literature in terms of technical guide to be used in this context. Academic institutions commonly subscribe, Cisco WebEx and Microsoft Teams and Zoom platforms based on technical features of these AV-enabled and web conferencing platforms. Table 2 illustrate the different features for AV-enabled and web conferencing platforms, which helps qualitative researchers to select the most suitable AV-enabled and web conferencing platforms to their research. Zoom platform features are almost similar to Cisco WebEx; however, Zoom users experienced ‘Zoom Boom’ security breach, which caused major disruption in services [51]. In Table 2, a technical guide for selecting and using AV-enabled web conferencing platforms in conducting online FGs is illustrated.

Table 2.

A technical guide representing different features for AV-web conferencing platforms

Features	**QU Cisco WebEx**	**QU Microsoft Teams**	**Zoom**
Cloud / On Premise	Both	Both	Both
Accessibility (Browser, Desktop & Mobile App)	✓	✓	✓
Audio / Video Call	✓	✓	✓
Sharing Content	✓	✓	✓
Sharing HD Motion & Video	✓	✓	✓
Chat (Individual, Everyone, Private)	✓	✓	✓
Notes and Q&A	✓	✓	✓
Raised Hand	✓	✓	✓
Polling	✓	✓	✓
Host Authentication Using QU Credentials	✓	✓	**X**
Personal Room / Fixed URL	✓	**X**	✓
Meeting Lock / Unlock	✓	**X**	✓
Ability to assign alternate hosts	✓	**X**	**X**
Allow Non QU to Host Online Course / Event	✓	**X**	**X**
Video Layout per page (Grid View)	5 x 5	8 x 6	7 x 7
Breakout Sessions	✓	✓	✓
Simultaneous Male & Female Teaching (with Attendees Separation)	✓	**X**	✓
Ability to Draw on Top of Shared Content	✓	**X**	✓
Local Recording to workstation	✓	**X**	✓
Customize URL Site	✓	**X**	✓
Security & End to End Encryption	✓	✓	**X**
Native Live Social Media / External Streaming (Facebook, YouTube Live)	✓	**X**	✓

Attendance Report - During Meeting	**X**	✓	**X**
Attendance Report – After Meeting	✓	**X**	✓
Transcript Subtitle (in English)	✓	✓	✓
Transcript Subtitle (in Arabic)	**X**	✓	**X**
Unlimited Recording - Desktop	✓	**X**	✓
Unlimited Recording - Cloud	✓	✓	✓ (Paid)
Participants	1000	3000	100 (Free)
Recording Transcription	✓	✓	✓
Noise Cancelation Algorithm	✓	✓	✓
Desktop Application Sharing	✓	✓	✓
File Sharing / Transfer	✓	✓	**X**
Remote Desktop Control	✓	✓	✓
Virtual Background	✓	✓	✓
Artificial Intelligence	✓	✓	✓
White Boarding	✓	✓	✓
Financial Cost to QU Faculty & Staff	Free	Free	Paid By User

Conclusions

Qualitative research is a crucial component in the health-related research field and FGs are valuable data collection technique utilized in this research. The COVID-19 pandemic has increased the challenges associated with conducting face-to-face FGs, which is occasions necessitated the transition from the conventional, face-to-face approach to an online setting. The use of AV-enabled and web conferencing platforms to conduct online FGs has been associated with several advantages, such spontaneity in responses through real-time interactions among researchers and participants.

Furthermore, online FGs are more efficient in eliminating travel and transcribing costs. However, online FGs utilizing AV-enabled and web conferencing platforms have several disadvantages, such as the technological challenges associated with the functionality of internet and audio and video (AV) tools, as well as interruptions in the surrounding environment can hinder the successful conduction of online FGs. Qualitative researchers should be able to ensure the quality of their research when utilizing AV-enabled and web conferencing platforms to conduct online FG by using specific quality criteria. Hence, in this article a set of additional core quality criteria were proposed and consensus about them was reached by a group of research and IT experts. The quality criteria include: description of the online meeting platform, features of video and audio recording, security applications and maintenance of confidentiality, informed consent and adequacy of information provided to participants, and potential selection bias. A technical guide about these platforms is provided for helping qualitative researchers to select an AV-enabled and web conferencing platforms to conduct their online FGs based on their research needs.

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