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Data Collection Challenges and Recommendations for Early Career Researchers

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Abstract

Data collection is critical to the social research process. When implemented correctly, data collection enhances the quality of a social research study. However, doctoral students and early career researchers may encounter challenges with data collection. This article reports on the data collection challenges in dissertation research encountered by doctoral students enrolled in a public health program at a southeastern United States urban university. Each doctoral student shared at least one challenge and how it affected the data collection process. Additionally, the doctoral students shared how the identified challenges were addressed or suggested recommendations. Understanding these experiences of doctoral students is helpful for doctoral students and early career researchers conducting social research. The lessons learned may guide faculty in research mentoring and structuring research seminars for doctoral students.

Keywords

Data Collection, Early Career Researchers, Doctoral Students, Qualitative Methods

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Data Collection Challenges and Recommendations for Early Career Researchers

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Data collection is critical to the social research process. When implemented correctly, data collection enhances the quality of a social research study. However, doctoral students and early career researchers may encounter challenges with data collection. This article reports on the data collection challenges in dissertation research encountered by doctoral students enrolled in a public health program at a southeastern United States urban university. Each doctoral student shared at least one challenge and how it affected the data collection process. Additionally, the doctoral students shared how the identified challenges were addressed or suggested recommendations. Understanding these experiences of doctoral students is helpful for doctoral students and early career researchers conducting social research. The lessons learned may guide faculty in research mentoring and structuring research seminars for doctoral students. Keywords: Data Collection, Early Career Researchers, Doctoral Students, Qualitative Methods

The authors of this manuscript completed a doctoral program in public health within the past 5 years. As part of the doctoral program, the authors were required to collect primary data while conducting dissertation research. In this manuscript, the authors share the identified challenges encountered during the data collection process of conducting dissertation research. Data collection is the first stage in the research process. Depending on the data collection method, researchers could encounter challenges with obtaining information from participants in a study. Although knowledgeable about data collection methods, theory, tips, and challenges, the authors encountered unanticipated real time situations that served as challenges. The authors also share recommendations to streamline the data collection process in an effort to inform doctoral students and early career professionals engaged in data collection.

Limited information on the challenges of data collection is available in the public health and social research literature. A search of the literature on the topics of *data collection challenges encountered by early career researchers* yielded few studies (Ashton, 2014;

Dearnley, 2005; Nicholl, 2010). Based on the dearth of studies in the literature, there is a need to share and report the data collection challenges of public health doctoral students. This knowledge can assist doctoral students and early career researchers when facing data collection challenges in the future. This topic is helpful and relevant given that many doctoral students collect data on limited budgets. The primary purpose of this manuscript is to describe data collection challenges encountered by public health doctoral students. The secondary purpose is to provide recommendations to doctoral students and early career researchers on strategies to address these identified data collection challenges.

Data collection is the first stage in the research process. Data collection, usually occurring simultaneously with data analysis in qualitative research, is defined as the systematic gathering of data for a particular purpose from various sources, including, interviews, focus groups, observation, existing records, and electronic devices. Depending on the data collection method, researchers could encounter challenges with obtaining information from participants in a study. Early career researchers including doctoral students may face unanticipated challenges during the data collection phase of their dissertation research for numerous reasons. The challenges encountered during the data collection process can involve research with human subjects related to interviews or focus groups.

Literature Review

Our search of data collection challenges in the literature were organized into the following categories:

- 1) researcher,
- 2) participant,
- 3) data collection environment, and
- 4) interview guide design.

Manuscripts were found in the nursing, public health, social science, and methodology literature (Bonevski et al., 2014; Bournet & Robson, 2015; Dearnley, 2005; Easton, McComish, & Greenberg, 2000; Hebert, Loxton, Bateson, Weisberg, & Locke, 2013; Johnson & Clarke, 2003).

First, the authors identified data collection challenges related to the researcher. Data collection challenges have included:

- 1) participants who were resistant to participate;
- 2) how to dress for an interview, such as wearing formal or informal clothes;
- 3) lack of experience conducting qualitative interviews; and
- 4) feelings of isolation from peers and other researchers during data collection (Dearnley, 2005; Hoskins & White, 2013; Johnson & Clarke, 2003).

Novice researchers may have difficulty establishing rapport with participants unlike them and encounter participants who are resistant to participate in the interview (Hoskins & White, 2013). A researcher may also be unsure to dress formally or casually in the interview depending on the type of clothes worn by participants and site of data collection (Dearnley, 2005). A novice researcher may not feel confident in conducting qualitative interviews with either limited or no experience in qualitative research (Dearnley, 2005; Hoskins & White, 2013). Also, a novice researcher may feel isolated from peers and other qualitative researchers with the length of time of conducting interviews and possible travel during data collection (Dearnley, 2005). Additionally, a researcher faces challenges on how to choose participants,

how to locate possible participants, how to convince them to participate, and then making them comfortable to talk in the interview (Dearnley, 2005; Hoskins & White, 2013). More specific challenges occur with vulnerable populations and dealing with sensitive topics such as sexuality in health research (Ashton, 2013; Tarzia, Bauer, Fetherstonhaugh, & Nay, 2013). These challenges related to the researcher's perceptions about data collection are inclusive of early career researchers.

Second, participants' perceptions during data collection were also identified. Participants reported feeling uncomfortable with the researcher during data collection (Bonevski et al., 2014). Examples of researcher-related discomfort during data collection included:

- 1) concern whether health information would remain confidential (Bonevski et al., 2014);
- 2) being hungry or thirsty prior to data collection (Dearnley, 2005; Easton et al., 2000);
- 3) perceived anxiety (Ashton, 2014; Mansell, Bennett, Northway, Mead, & Moseley, 2004; Smithson, 2000).

Participants may have concern about the confidentiality of their health information if they are revealing personal information to the researcher in the interview (Bonevski et al., 2014). Participants may feel hungry or thirsty if they were sick, could not afford to buy food to eat that day, skipped eating breakfast, or at the clinic before lunchtime (Dearnley, 2005; Easton et al., 2000). Participants may have perceived anxiety due to the location of the interview, uneasiness or lack of rapport with the researcher, or stressors in their daily life (Ashton, 2014; Mansell et al., 2004; Smithson, 2000). Also, participants may have other concerns beyond researcher-related discomfort. Participants with low health literacy reported misunderstanding questions in surveys or interviews (Bonevski et al., 2012).

A third issue prevalent in the literature included challenges related to the data collection environment. One example is the room selection for data collection. Selection of the interview room in a neutral location, was a challenge in research studies (Dearnley, 2005; Easton et al., 2000). However, data collection may not take place in a room, but an open space or public environment. Other environmental issues during the interview included loud background noises from another room and a cold or warm room temperature (Dearnley, 2005; Easton et al., 2000). Also, the presence or nearness of family members or significant others is a potential issue related to the data collection environment (Haahr, Norlyk, & Hall, 2014).

Fourth, data collection challenges related to the interview design and conducting interviews were identified in the literature. Challenges in qualitative data collection are the process of designing an interview guide, how to formulate questions in an interview for the participant, and staying focused on the research topics during the interviews (Ashton, 2014; Hoskins & White, 2013). Previous research reported challenges of preparing for interviews on sensitive topics, writing interview questions on sensitive information such as end of life care, sexual activity, or contraceptive use (Ashton, 2014; Bourne & Robson, 2015; Hebert et al., 2013). Also, doctoral students' challenges related to building on participant responses and maintaining a conversational tone in an interview were reported (Ashton, 2014; Hoskins & White, 2013). During the interview, participants may become distressed or emotional when sharing previous or current personal experiences during an interview (Ashton, 2014).

Methods

This work builds upon a manuscript that describes the shared experiences of eight

doctoral students who conducted dissertation research (Namageyo-Funa et al., 2014) within the past 5 years. To further expand that work, the same doctoral students collaborated to describe our experiences on the data collection aspect of conducting dissertation research.

First, we each summarized our study, giving important factors related to data collection methods, including target population, sample size, method, location, tools/measures (new, existing, modified), number of data collectors, and duration (Namageyo-Funa et al., 2014). Second, we each identified and summarized challenges encountered during the data collection process. Furthermore, we described how each identified challenge impacted data collection and how we addressed or resolved the identified challenge, if applicable. Four co-authors (Brace, Davis, Namageyo-Funa, and Rimando) reviewed and discussed the identified challenges, which included problems with location selection, health literacy and language of data collection instrument, duration of data collection, researcher fatigue, and collecting sensitive information. The authors summarized and reported on the data collection challenges, the solutions implemented to address the data collection challenges, and recommendations for doctoral students and early career researchers.

Results

Summary of Research Studies

The findings presented in this manuscript are from seven doctoral students who conducted dissertation research on various public health topics, including hypertension, diabetes management, physical activity, stealth interventions, teen pregnancy, sexual health, and HIV testing. The studies included diverse populations that varied in age, race and ethnicity, income levels, and location. The researchers collected data in multiple settings, including middle schools, clinics, universities, and various community settings (Namageyo-Funa et al., 2014). Most of the studies used interviews. Only one study used focus groups. All of the studies used newly developed instruments for data collection. Study sample sizes ranged from 24-42 participants, and the data collection duration of the studies ranged between 30-60 minutes.

Data Collection Challenges

The authors identified a number of data collection challenges for dissertation research studies. While the authors of this manuscript conducted mixed methods, quantitative and qualitative studies, the challenges we present focus on what is relevant for qualitative studies. The data collection challenges are reported below under the following themes:

- 1) location,
- 2) health literacy and language of data collection instrument,
- 3) duration of data collection,
- 4) researcher fatigue, and
- 5) sensitive information.

Table 1 provides a summary of these themes, and the recommendations and solutions suggested by the authors. The authors also share the solutions to address their data collection issue when it was feasible and in other cases the authors make recommendations for early career researchers.

Table 1. Summary of Data Collection Barriers and Recommendations

Categories	Data Collection Challenge	Recommendations and Solutions
Participant	Health Literacy	1) Develop questions based on the literacy level of the target population 2) Pilot test the data collection instrument among target population 3) Use audio assistance
Researcher	Researcher Fatigue	1) Limit the number of interviews conducted in one day 2) Take 30-60 minute breaks between interviews 3) Debrief with a colleague or advisor after doing a set of interviews
Environment	Location of data collection site	1) Conduct interviews in neutral location
Data Collection	Duration of data collection instrument	1) For surveys bring chairs, bottled water and snacks for participants 2) Use audio assisted surveys
	Sensitive Information	1) Expand on other interesting topics & include icebreakers before interview 2) Separate the parent from the child while parent completes the questions 3) Complete data collection in a room not accessible to the sexual partner 5) Allow participants to complete the survey using 'Alias' names

Location

Location is a critical component of the of data collection process (Gill, Stewart, Treasure, & Chadwick, 2008; National Science Foundation, 1997). The location influenced data collection in three of the studies, one study in a school setting and two in a clinical setting. In all three cases (Christiana, Namageyo-Funa, & Rimando), the data collection method was interviews.

The purpose of Christiana's study was to examine youths' participation in noncompetitive outdoor physical activity. Christiana conducted group and one-on-one interviews with middle school students in the school's main administration office's copy/fax room. This room was the only interview space provided by the school. The school staff, however, regularly used the administrative office to discuss students' behavioral, conflict resolution, and academic issues. Consequently, several students thought they were in trouble upon entering the room to speak with Christiana. Power issues between school staff (teachers, administrators, principals) and students could have biased the interview responses collected (Freeman, 2008). After learning about students' misconception that they were in the room for a negative issue, Christiana adjusted his protocol to immediately inform participants that they were not trouble and had been invited to talk about the activities they enjoyed doing after school.

Location of the interview also impacted Rimando and Namageyo-Funa's studies. Both studies focused on the experience of having a chronic condition. Rimando's study focused on hypertension and Namageyo-Funa's study focused on type 2 diabetes. Both studies recruited and collected data from a clinical site where participants received care and treatment. Each study had a room that was provided by the clinical staff. In Rimando's study, participants were interviewed in a non-examination room. Rimando made a proactive adjustment to move to another room in the clinic. If the interview occurred in the examination room, the participants may perceive the interview as part of their routine clinical care. To reduce the likelihood the participant's would associate the interview with their routine clinical care, the interview was moved to a non-clinical setting. In Namageyo-Funa's study, she wore a badge to access the clinic. Based on her badge, participants perceived Namageyo-Funa to be a member of the clinic

staff team. As a result, participants may have provided biased responses to the interview questions during data collection in fear that the data would be used as part of routine clinical care. To address the issue, Namageyo-Funa emphasized to the participants that she was a student conducting dissertation research.

Studies with location challenges recommended conducting interviews in a neutral location that is convenient and safe for both the participant and researcher when appropriate (Legard, Keegan, & Ward, 2003; NSF, 1997). The location should also allow participants to freely express themselves and the researcher to collect quality data (NSF, 1997). If the location choice is limited due to study design, the researchers should recognize how the location can influence the study and discuss the impact in the conclusions.

Health Literacy and Language of Data Collection Instrument

Participants' health literacy and language of interview questions and survey instrument can impact data collection. Participants' low health literacy may influence their understanding of questions in a data collection instrument consequently impacting the data collection process (Bonevski et al., 2014; Mayer & Villaire, 2007). Martinez and Rimando both noted that low literacy levels may have impacted data collection.

For both Rimando and Martinez's studies, they encountered data collection challenges because of the wording of the language in the data collection instrument. The interview questions in the initial data collection instrument for Rimando's study contained complex medical language and lengthy sentences. Low literate participants expressed difficulty understanding the wording of the lengthy questions, asked for clarification on medical terminology, and looked away from the researcher. In Martinez' study, parents with low literacy levels experienced difficulty with understanding the wording of the survey response structure in the data collection instrument. For example, participants misunderstood the variations of the survey's response structure such as strongly agree, moderately agree, neither agree nor disagree, moderately disagree, and strongly disagree.

Both Martinez and Rimando addressed their data collection challenges in their respective studies. MR revised the interview questions in the data collection instrument by shortening the sentences and simplifying the complex language to meet the low literacy needs of the participants. Examples of word changes included "high blood pressure" instead of "hypertension" and "taking medicines as prescribed" instead of "medication adherence." Rimando conducted pilot interviews with the revised interview questions. Also, Rimando tested the reading level to be at a 6th grade level on the Flesch-Kincaid scale. The clinic staff recommended that the patients' average reading level was approximately 7th grade. Martinez addressed her data collection issue by revising the survey response structure of the data collection instrument. Martinez also verified the participants' responses to the survey with qualitative interviews, a solution that helped to triangulate the data.

Based on Rimando and Martinez's experience, we recommend that early career researchers consider the following when developing data collection instruments – the literacy level of the target population, the choice of wording in the data collection instrument, pilot testing with data collection instrument with the target population, the use of audio assistance where possible, and use of different data collection instruments to collect information on the same questions (Bonevski et al., 2014; Mayer & Villaire, 2007).

Duration of Data Collection

The data collection process can be impacted by the length of the data collection instrument or by how long a participant will be engaged in the process of providing data. Pilot

testing the data collection instrument can allow the researcher to determine how long participants will be engaged in data collection so they can be informed of the time commitment. This can increase participant comfort in the data collection process, otherwise participants may feel uncomfortable during data collection and not want to complete the survey questions or need assistance completing the survey. In some instances the participants may provide information that is not useful as they try to rush through the data collection process.

Participants' discomfort with the survey length was a challenge in studies by Parr and Davis. The aim of Parr's study was to determine what factors influence Black men's decision to obtain an HIV test; Parr recruited men from various community settings to complete a survey immediately after being recruited. In some instances, the participants reported discomfort with completing the survey at the recruitment locations. For example, some men were at a block party, park, bus stop, standing on the street or coming out of church when Parr asked them to complete the survey. Heat and/or lack of privacy may have negatively impacted data collection. Parr's experience further illustrates the importance of considering the data collection location. To address this issue, Parr brought chairs, bottled water, and snacks for the participants to have prior to completing the survey. These changes improved the participant comfort level during data collection.

Davis' study sought to understand African American young women's lived experiences with sexual concurrency. Like Parr, she recruited participants from various community settings and focused on a sensitive health topic. Women participating in Davis computerized survey were asked to report information on their last 10 sex partners from the past 12 months. The survey length was long for women with multiple sex partners in the past 12 months. The primary concern was participant fatigue for women, with the computer survey taking up to 90 minutes for some women to complete. To address her survey length, Davis created an audio assisted survey to assist participants with completing the survey.

Based on the lessons learned from our data collection experiences, we offer the following recommendations for early career researchers. To address the challenge of survey length, we recommend the researcher create a comfortable environment for the participant prior to and during data collection (Bonevski et al., 2014). For example, the researcher can utilize Parr study techniques by bringing chairs, bottled water and snacks for participants prior to completing the survey (Dearnley, 2005; Easton et al., 2000). The researcher can also create an audio assisted survey to help participants complete a lengthy survey, as done in Davis' study.

Researcher Fatigue

In addition to factors discussed previously that cause participant fatigue, it is important to consider the fatigue that a researcher may experience. Completing a survey may be mentally taxing for the participant, while conducting focus groups and interviews caused fatigue on the researcher collecting the data. Researcher fatigue can influence the information gathered during research. Researcher fatigue is a crucial component to the flow and success of a focus group and interviews (Dickson-Swift, James, Kippen, & Liamputtong, 2007; Fern, 1982). Researchers need to be alert, read people, be an active listener, and manage different personality types (i.e. coaxing responses from quiet participants while managing more controlling and outspoken participants during focus groups so that everyone has an opportunity to participate (Fern, 1982; Kreuger & Casey, 2009). Fatigue can impact the researcher's ability to successfully manage an interview or focus group. If the researcher does not have control of the session, the discussion could deviate into unrelated topics, potentially wasting participant's time (Orvik, Larun, Berland, & Ringsberg, 2013). The Brace and Davis studies experienced researcher fatigue during data collection.

In her study, Brace sought to examine the impact of a stealth nutrition intervention on

promoting healthy eating among undergraduate students. Brace conducted four 1-hour focus groups in one day to collect data for her study. Brace wanted to collect data from as many participants as possible, so she scheduled the focus groups during the class' final exam period when she knew they would have availability. The focus groups progressed smoothly, however, Brace experienced significant researcher fatigue as the sessions progressed. During the last focus group, Brace had difficulty staying attentive and data collection did not run as she planned. The notes Brace took during the last focus group were less detailed than earlier groups. Review of the transcripts indicated that the data was still rich, but Brace's notes and attention were lacking. Fortunately Brace had planned in advance by using guiding questions to stay on topic, recorded the sessions to get the participant detail, and employed two note takers to log group interactions and details. Without proper planning in advance, pertinent details would have been lacking, making the limited notes Brace took during the last group less useful. Researchers should aim to schedule no more than two focus groups in a day to ensure they are alert and engaged with the participants. If scheduling multiple groups in one day is unavoidable, the researcher should ensure that there are backups in place to collect all of the necessary data, including a question guide to keep the session on track, functioning recording devices (if applicable), and a note taker to provide detail that cannot be captured by the recorder (Krueger & Casey, 2009).

Davis also experienced data collection challenges related to timing and researcher fatigue. The researcher fatigue experienced by Davis was during the qualitative data collection where she conducted five qualitative interviews in one day. Conducting back-to-back interviews was overwhelming and made it more difficult to delve deeper into the interviewee's sexual relationships as the day progressed. During the interview, Davis continued to re-engage and re-focus by taking time to review the data collection instrument to keep the series of questions focused on the research question. Recommendations for early career researchers include limiting the number of interviews conducted in one day, have at least 30-60 minutes between interviews to decompress, and debriefing with a colleague or advisor after doing a set of interviews.

Sensitive Information

Another challenge we encountered was the participants comfort level during data collection. For Martinez, Davis, and Parr, all three studies focused on sexual experiences and attitudes towards sex. In Martinez's study, early adolescent participants (aged 12-13 years) expressed embarrassment when probed about sexual health and romantic relationships; she noted participants appearing uncomfortable with the topic, which halted the interview. For different reasons, Davis' study noted participant discomfort when participants' male sex partners came to the interview appointment and were in the vicinity of the interview room. Similarly, participants were also distracted during the interview when their children were with them during data collection. Participants responded differently when uncomfortable, two participants whispered or mumbled when discussing their concurrent sexual partnerships because they worried the partner was listening at the door or the child could comprehend the participant's story. Parr's study participants expressed discomfort and/or fear of judgment when asked about their sexual experience with other men. This feeling of discomfort was common in the qualitative studies. Due to the sensitive topics on the survey, participants were also hesitant to provide their home address on the survey so the researcher could examine if the distance from their home address to the nearest HIV test clinic served as a barrier to receiving an HIV test. To address these challenges, Martinez, Davis, and Parr made adjustments to increase participants' comfort level during data collection. For content-based discomfort, Martinez adjusted the type of data collected; she expanded on other topics with the

younger teen group, such as what good platonic relationships were like rather than romantic relationships and how they cared for their physical health rather than sexual health. For discomfort-based on having an additional person attend data collection with the participant, Davis offered to

- 1) hold the children while the participant completed data collection and
- 2) complete data collection in a room not accessible to the male partner.

Parr overcame these challenges by

- 1) incorporating icebreakers before the interview began to ease the comfort level with the participant and interviewer
- 2) allowing participants to complete surveys using alias names, and
- 3) allowing participants to use the closest cross-street address to their home instead of their exact address.

Recommendations for Student and Early Career Researchers

The solutions by Martinez, Davis, and Parr required flexibility during data collection to amend study protocol (i.e., interview guide, data collection location) to enhance participant comfort during data collection. In addition to face-to-face interviews and electronic interviews, which Martinez and Davis incorporated, Gibson, Mistry, Smith, Yoshida, Abbott, & Lindsay (2013) suggest using other youth-friendly data collection methods, such as photo-elicitation; as well as combining multiple youth-friendly approaches for data collection.

Conclusion

This manuscript describes the data collection challenges of seven doctoral graduates, solutions to address these challenges, and offers recommendations for early career researchers. These findings provide numerous implications for future doctoral candidates and early career professionals. Although doctoral students learn about the data collection process in their research methodology coursework and are supervised by their dissertation committee members, those who collect data for their dissertation research may experience data collection challenges (Dearnley, 2005; Nicholl, 2010) and will continue to need support to address challenges as they arise. One of the goals of this manuscript is to serve as a resource for data collection challenges in the field. This manuscript offers lessons and suggestions for doctoral students, dissertation advisors, committee members, and early career researchers engaging in some form of qualitative research. By sharing the data collection experiences of recent graduates in research seminars and through research mentoring, we can shape the development of doctoral students and improve the future training of early career researchers.

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Author Note

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