Utilizing a Matrix Approach to Analyze Qualitative Longitudinal Research: A Case Example During the COVID-19 Pandemic

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Abstract
Qualitative Longitudinal Research (QLR) is an evolving methodology used in understanding the rich and in-depth experiences of individuals over time. QLR is particularly conducive to pandemic or disaster-related studies, where unique and rapidly changing environments warrant fuller descriptions of the human condition. Despite QLR’s usefulness, there are a limited number of articles that detail the methodology and analysis, especially in the social sciences, and specifically social work literature. As researchers adjust their focus to incorporate the impact of the COVID-19 global pandemic, there is a growing need in understanding the progression and adaptation of the pandemic on individuals’ lives. This article provides a process and strategy for implementing QLR and analyzing data in online diary entries. In the provided case example, we explore a phenomenological QLR conducted with graduate level students during the COVID-19 pandemic (Saltzman et al., 2021), and outline a matrix framework for QLR analysis. This paper provides an innovative way in which to engage in qualitative data collection and analysis for social science research.

Keywords
methodology, phenomenology, disasters, longitudinal research, COVID-19

Introduction
The COVID-19 global pandemic has altered how social science researchers plan, coordinate, and execute their research studies. As individuals are encouraged to practice social distancing to reduce infection and flatten the curve, this has proved particularly challenging for qualitative researchers who often rely on collecting data via face-to-face interviews (Jowett, 2020). Increases in technology and utilization of web-based platforms (e.g., Qualtrics and Zoom) have allowed for these face-to-face interviews and data collection to continue, while also protecting the safety of both the participants and researchers.

Accompanying the changes in data collection techniques as a result of this crisis is the growing need for social science researchers to understand how the pandemic is impacting their population of interest. This includes adapting their research focus to incorporate the impact the global pandemic will have on our “new normal.” As the pandemic continues, it is critical that social science researchers understand the lived experiences of individuals through the phenomenon of the global pandemic, and how their participants’ experiences have changed throughout the course of the crisis. This understanding can be achieved by using qualitative longitudinal research (QLR) with a phenomenological approach and technology for safe data collection. The goal of this paper is to provide the process and strategies for how social science researchers, and specifically social work researchers can conduct QLR using online diary entries and the analysis of data utilizing a matrix approach.

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Qualitative Longitudinal Research

QLR is considered an “evolving methodology” that is rich and helpful in revealing an in-depth understanding of the evolution of people’s lives and changes over time (Neale, 2016). It is unique in that it combines two methodologies, a longitudinal component with a qualitative lens (Neale, 2016). QLR has been especially useful for studies that investigate changes and adaptations to traumatic and historic events, as well as pathways and transitions over time (Holland et al., 2006). Thus, QLR is an appropriate methodology and valuable in investigating adaptation and the impact of the COVID-19 global pandemic. While QLR is considered evolving, it has been used in several disciplines, including anthropology, education, psychology, health studies, sociology, and social policy (Holland et al., 2006). Yates and McLeod (2007) used QLR to follow 26 Australian secondary school students (12-18 years of age) in an investigation of educational inequalities in different schools. Faculty from the Department of Sociology at the University of Vienna conducted a longitudinal mixed-methods study focusing on young people transitioning to adulthood, following students from grades 5 through 8, with the qualitative interview portion being conducted once a year for 5 years (Wöhrer et al., 2020). Stich and Cipollone (2017) utilized QLR in their urban educational ethnographic study, where they followed 54 students at four low-performing, urban public high schools in Buffalo, New York twice per year for 3 years. Other recent examples of where QLR has been used include understanding temporal ordering as it relates to social policy (Patrick et al., 2021), medical and health care education (Balmer, Varpio, Bennet & Teunissen, 2021; Ottrey et al., 2021), gerontology (Nevedal et al., 2019), children and families (Warin, 2011; Tarrant et al., 2021), implementation science (Van Tiem et al., 2021), addictions (Notley et al., 2020), extra care housing (Cameron et al., 2019), and social determinants of HIV (Barrington et al., 2021).

Qualitative Longitudinal Research and Social Work

In social work research specifically, QLR as a methodology is still evolving. To date, only a handful of studies have used QLR. Sansfaçon and Crête (2016) used QLR in exploring professional identity among six social workers who completed semi-structured interviews three times over a 3-year period. The first time point was the social work students’ last year of undergraduate training. The second time point was 6 months after graduation, and the last time point was 18 months into their paid employment as social work professionals (Sansfaçon & Crête, 2016). Social work researchers in England (Ferguson et al., 2020) conducted an ethnographic QLR, where they observed and shadowed two social work departments. They selected a number of cases (n = 15) to examine the role of social workers engaged in long-term casework with children and families over a period of 12 months. Lam et al. (2017) conducted a longitudinal mixed-methods study on social work students’ learning patterns, where the qualitative portion included the use of four focus group interviews over 3 years (time points at 6 months, 12 months, 24 months, and 48 months). Regarding disaster research, social work researchers conducted a longitudinal mixed-methods study on social work students who were in an MSW program in New York City during the 9/11 terrorist attacks (Matthieu et al., 2007). MSW students completed a questionnaire related to the disaster response, their fieldwork, and their personal and professional needs, where students wrote responses to open-ended questions. Data were collected 1 month after the event and again 6 months later using the same measures (Matthieu et al., 2007).

Despite the growing interest in QLR in various disciplines, there is a dearth of literature regarding the process and strategies used with this methodology across disciplines (Calman, et al., 2013). Several researchers have identified gaps in their discipline as it relates to QLR methodology. A methodological review of QLR in nursing was conducted despite the lack of guidance on how to use QLR in nursing research (SmithBattle et al., 2018). Tuthill and colleagues (2020) also recognized a lack of information to guide researchers on QLR techniques, and provided a methodological article specifically for health behavior and nursing researchers based on their own QLR research. Further, it was also reported that QLR was not used frequently or described in medical education literature, prompting researchers to publish guiding principles based on their experiences and reflection of the method (Balmer & Richards, 2017).

In our review of the literature, we found there is limited guidance on conducting QLR for social sciences and social work specifically, thus the motive for this paper. We will be providing a process in QLR analysis and reflection from our own research study utilizing QLR, with special emphasis on data collection during a global pandemic using Zoom technology. Not only does QLR allow an in-depth understanding of a singular event, but it allows for increased utility to understand how findings may change over time. QLR is useful for identifying patterns in rapidly changing environments; thus efforts to increase utilization in social science and social work research are needed.

Rationale for Qualitative Longitudinal Research

As the world grapples with the COVID-19 global pandemic, researchers are increasingly interested in the impact the phenomenon has on clients and populations with whom they work both in the short- and long-term. Quantitative data can provide useful information regarding prevalence, odds ratios, and other important statistical outcomes of the pandemic, but it does not capture the true story, essence, or experience behind the numbers. A methodological approach that helps understand people’s lived experiences during the pandemic could include...
utilizing a qualitative phenomenological approach with a longitudinal design.

Longitudinal research is typically associated with quantitative research methodologies and has advantages over cross-sectional designs (Henwood & Lang, 2003; Rajulton, 2001). One advantage is that longitudinal designs offer the ability to display the growth, patterns, and true depiction of cause and effect over a period of time, whereas cross-sectional designs only focus on data from a single time point (Rajulton, 2001). The temporal ordering component allows the researchers to track stability and/or changes in participants’ behaviors and responses over the course of a specified time period. Longitudinal designs have previously been helpful in understanding behavior and mental health problems, as well as the effects of interventions. Longitudinal studies have been commonly conducted in other disciplines, and despite the advantages, are not frequently used in social work (Jenson, 2007). Several challenges exist that could contribute to the lack of longitudinal designs in social work research, such as cost, sampling, and expertise needed in the complex data analysis (Jenson, 2007).

Qualitative methods are widely used in social science and social work research as they allow for an in-depth understanding of the phenomena under study in greater context (Lietz & Zayas, 2010). There are five types of qualitative inquiry commonly used: ethnography, phenomenological, case study, narrative, and grounded theory (Creswell & Poth, 2016). Researchers typically adopt one of these approaches to guide the study’s framework and data collection and analysis. The philosophical foundations of these methodologies help increase the quality and rigor of the study (Lietz & Zayas, 2010).

To further explore and understand the unique experiences of the COVID-19 global pandemic on peoples’ lives, QLR can be framed by utilizing phenomenological inquiry. Phenomenology can be used as an approach to frame qualitative research, where the “essence of the phenomenon” is derived from the unique perspective of individuals who have experienced the phenomenon (Teherani, et al., 2015). The epistemological and ontological assumptions of phenomenology align with QLR and the objective to understand the lived experience of the impact of the pandemic on one’s life over time (McKoy, 2017). Specifically, Husserl’s transcendental phenomenology is a major school of thought and an approach that places emphasis on describing the “essence” of participants’ experiences (Creswell & Poth, 2016; Newbauer et al., 2019), and can be considered a guiding approach to QLR. The voice of the participants, instead of the bias of the researcher, are key features of the transcendental approach, in ensuring that the experience of the phenomenon is accurately portrayed (Moerer-Urdahl & Cresswell, 2004). Transcendental phenomenology is rigorous and systematic, and requires researchers to engage in epoche (also known as bracketing) to ensure that researchers are putting aside their own bias and subjectivity when collecting and analyzing data (Moustakas, 1994; Moerer-Urdahl & Cresswell, 2004; Newbauer et al., 2019). Bracketing during QLR data collection and analysis is particularly important in the context of the COVID-19 global pandemic, as it is a phenomenon that has impacted everyone around the world.

**Qualitative Research and the Global Pandemic**

A body of qualitative research on the global pandemic has emerged, examining how it has impacted different populations such as health care workers, first responders, and students. In particular, when we reviewed recently published qualitative studies regarding COVID-19, we identified phenomenology as a commonly used approach to understand the lived experiences of certain populations and groups during the global crisis. Karimi et al., (2020) conducted a qualitative phenomenological study on the lived experiences of nurses in Iran caring for patients with COVID-19. Similarly, in Turkey, researchers used a phenomenological approach to explore the experiences and psychosocial problems of nurses caring for COVID-19 patients (Kackin et al., 2020). In China, researchers used a phenomenological approach to interview nurses who provided care to COVID-19 patients (Sun et al., 2020). Collado-Boira et al. (2020) interviewed final-year nursing and medical students in Spain about their perceptions and psychosocial considerations regarding the pandemic using a phenomenological qualitative approach. Researchers in India also used a phenomenological approach to analyze their qualitative data on the lived experiences of Indian youth during the COVID-19 crisis (Suhail et al., 2020).

Specifically to social work research, to date there have been limited publications using qualitative phenomenology to examine the impact of the global pandemic. In one study in Nigeria, researchers used a qualitative phenomenological research design to interview a small number of social workers to understand the role social workers played during the pandemic (Ajibo et al., 2020). Another phenomenological inquiry study in Nigeria was conducted using focus groups for data collection from social workers on their role and the effect of the “war against COVID-19” (Ajibo, 2020, p. 517). Researchers in Spain (Redondo-Sama et al., 2020) conducted a qualitative study of social workers and their responses in the first 15 days of the outbreak in Barcelona using communicative methodology to analyze their data, yet they did not identify one of the five qualitative approaches (such as phenomenology) used to guide their study.

Despite these studies providing important insight on the lived experiences of health care workers, students, and social workers during the global pandemic, the qualitative data appears to have been collected during one single time point measuring the effects and changes related to the pandemic among participants. To address this issue and to gain an in-depth understanding of participants’ experiences of the
pandemic and its progression, social work researchers can use a phenomenological approach to qualitative longitudinal research (QLR) to explore adaptations and changes over time.

**Diaries as a Type of Qualitative Longitudinal Research**

Diary studies are a QLR design methodology that allows for the assessment of change over time (Bolger et al., 2003). This method is often used to assess fluctuating variables. Participants are tasked with reporting everyday life experiences at predetermined time points (e.g., daily, weekly). The determination of time intervals is guided by the frequency or regularity of the phenomena to be studied. Additionally, researchers must consider the burden on participants when scheduling data collection intervals. To mitigate participant burden, it is recommended that researchers employ instruments and collection methods that allow for each diary entry to be completed in just a few minutes (Bolger et al., 2003).

There are several advantages to the use of diary studies over traditional research methods. Diary studies are conducted in a participant’s natural environment (Bolger et al., 2003; Woll, 2013). As the time between participants’ experience and the recording of that experience is minimal, diary studies are less likely to be impacted by retrospection. Another advantage of this design is the ability to capture variations within and between research participants (Bolger et al., 2003).

The historical evolution of diary studies is thoroughly illustrated in the seminal work *Diary Methods: Capturing Life as it is Lived* (Bolger et al., 2003). Diary study technology has become far more advanced than its paper and pencil origins. This methodology was first used in the 1940s. In Bolger et al.’s study, participants were given a questionnaire packet or booklet to fill out and return to the researcher. One downfall of the initial pencil and paper data collection method was that participants often forgot to complete the entry or complete the diary at the predetermined collection interval. To mitigate participants’ forgetfulness, researchers developed an augmented paper diary method. This method involved a signaling device programmed to prompt participant response at the predetermined data collection intervals. Nevertheless, the augmented paper diary method also had drawbacks as it required more resources and could be disruptive to participants (Bolger et al., 2003).

Diary research methodology is frequently employed in nursing studies. The nursing literature has been a thorough source of evidence in a timely manner. A Google search of previous research had only focused on this time of change from adult professionals’ perspective. However, Ganeson and Ehrich (2009) analyzed the transition from the students’ perspectives and lived experience. Participants were provided “free reign” to record their experiences related to the transition (Ganeson & Ehrich, 2009, p. 66). Despite the extensive use of diary methods in the fields of nursing and organizational research, a gap remains in the social work literature. Diary methods can be invaluable in understanding phenomena previously unexplored due to ethical concerns related to interviewing participants (Woll, 2013). Prior research generally confirms writing about lived experiences is easier than talking about them (Bedwell et al., 2012; Corti, 1993). Additionally, an advantage of diary methods methodology is the potential to ascertain more data than in an interview, making it highly effective for capturing participant insight over time (Woll, 2013).

Diary studies have become more frequently cited in the field of organizational research (Ohly et al., 2010). Engagement in diary studies has been found beneficial in increasing participant understanding of daily work practices (Woll, 2013). Ohly et al. (2010) provided an overview of organizational studies and determined the research was used to assess work performance, well-being, and affective processes in the workplace. By using this methodological design, researchers confirmed a positive correlation between workers’ happiness and productivity previously unsubstantiated in studies using between-person meta-analysis (Ohly et al., 2010).

Much research attention has been drawn to studying change in response to the COVID-19 pandemic. In regards to publication and review time during the COVID-19 pandemic, Putnam et al. (2020) conducted an analysis of 2427 journals and found that journals are rapidly reviewing COVID-19 articles at a much faster rate than non-COVID-19 articles (11.3 days vs. 106.3 days, p < .001), in order to present new evidence in a timely manner. A Google search of “COVID diary research studies” yields a vast number of calls for papers, postings for the recruitment of research participants, and timely publications on the topic. Michigan State University is conducting a longitudinal diary study regarding language
changes during the pandemic (MSU Today, 2020). The University of Texas at Austin is actively recruiting students for a weekly diary study regarding social and student experiences over 3 months during the COVID-19 pandemic (Texas Today, 2020). In a diary study of Dutch adolescents, Van de Groep et al. (2020) explored changes in mood, empathy, and prosocial behavior during the pandemic lockdown over the course of 3 weeks. A study of citizens in Poland included an assessment of emotional intelligence traits and emotional experiences during the COVID-19 pandemic using a daily diary over a 1-week period (Moroń and Biolik-Moroń, 2021). Organizations are utilizing diary studies to better understand the needs of their employees during the pandemic. Microsoft conducted a 10-week daily diary study to learn more about the experiences of software engineers following the work from home directive (Butler and Jaffe, 2021).

Danielsson and Berge (2020) conducted a video diary study of 13 Swedish university-level engineering students with the purpose of exploring identity constitution. The participants were prompted by themed, open-ended prompts with the purpose of exploring identity constitution. The study of 13 Swedish university-level engineering students conducted a 10-week daily diary study to learn more about the experiences of software engineers following the work from home directive (Butler and Jaffe, 2021).

Utilizing Technology in Data Collection

Since the early 1990s, electronic data collection has offered numerous benefits to both participants and researchers. Researchers are able to prompt participant responses and determine when entries are made by viewing the time stamp (Bolger et al., 2003). Randomization of questions can be programmed, thereby reducing repetitiveness. Electronic data collection decreases data entry time and the likelihood of missing values, thereby increasing data accuracy and study compliance. In the context of disaster research, data collecting using technology is advantageous because it allows for remote collection (critical during COVID-19), allows for early and rapid deployment of surveys and interviews; and particularly for qualitative research, reduces the need for transcription which is time consuming and expensive.

Qualitative Longitudinal Research Method: A Case Example

Our case example is an exploration of a phenomenological QLR study conducted with masters-level social work students during the COVID-19 pandemic. Saltzman et al. (2021) published a study protocol article that includes the methodology in greater detail. The goals of the study were to understand the lived experience of Masters of Social Work (MSW) students in real time as they lived through the pandemic, explore risk and protective factors in coping with the stress from COVID-19, and chart changes in coping over time among future social work practitioners. Participants were MSW students and enrolled in either the online or on-ground program at Tulane University, located in New Orleans, Louisiana. Saltzman et al. (2021) began the study in May 2020 as it became clear that the COVID-19 pandemic would be protracted. The study spanned the lockdown through the phase 2 reopening of the City of New Orleans. It was requested that participants submit eight weekly video diary entries over the course of 2 months using the Zoom platform. There were 14 participants in our case example, which garnered 58 diary entries over the course the 2 month collection period.

Analysis Using a Matrix

Data analysis posed two important challenges to us. First, data analysis consisted of identifying similarities and differences across participants at each time point. Second, data analysis also included tracking trajectories of change within and across individuals over 8 weeks. Each piece of diary entry was coded by three members of the research team. The team coded the diary entry line by line. We conducted qualitative data analysis using Dedoose, a qualitative data analysis software. We began data analysis by selecting one participant who had completed all eight diary entries. Each diary session was treated as independent data in order to ensure the codebook encompassed experiences over the 8 week period. Findings from participants who completed all eight entries were used to develop the initial codebook. As we coded data from other participants, we revised the codebook in an iterative fashion. If changes to the codebook were made, entries that had previously been coded were recoded to ensure new codes were applied to data that had already been coded. The process of developing the codebook was memoed in detail as we conducted our analyses. Through this approach, we addressed the first goal of the analysis which was to identify similarities and differences across participants at each time point.

In addition to coding with Dedoose, we also utilized a coding matrix adapted from the technique outlined in Grossoehme and Lipstein (2016). We used the coding matrix to graphically represent changes over time, both within a single participant and across participants. Each theme had a row in the matrix that intersected with eight columns representing each time point. Each time a theme was applied coded text, the team member noted the application of the theme within the corresponding cell (e.g., emotional reaction, session 1). This approach differs from the matrix presented in Grossoehme and Lipstein (2016) as it specifically highlights the density of code applications within a cell (i.e., a specific theme at a specific time point). Over the course of 8 weeks, patterns emerged regarding the themes most often applied to data obtained by a participant (e.g., shift from emotional
Table 1. Example Matrix Participant 1 Sessions 1–8.

| Session 1 | Session 2 | Session 3 | Session 4 | Session 5 | Session 6 | Session 7 | Session 8 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Theme 1   | X         | XX        | XXXX      | X         | X         | X         | X         |
| Theme 2   | X         | XXXX      | XXXX      | XXX       | X         | X         | X         |
| Theme 3   | X         | X         | X         | X         | X         | X         | X         |
| Theme 4   | X         | XX        | XXX       | XXX       | XX        | XX        | XX        |
| Theme 5   | X         | XX        | XXX       | XXX       | XX        | X         | X         |

Note. The patterns noted in this table do not reflect actual data or responses from participants. This is intended to demonstrate an example of how a completed matrix may appear after data analysis.

reaction to planning and logistics). Through this graphic representation of change, we were able to highlight the trajectory of experiences as the COVID-19 pandemic unfolded. We could also compare these trajectories across participants. In regard to changes in theme emphasis, some themes become more or less salient for the participant. Moreover, the timing of when these shifts occurred also became more salient. The timing of when shifts occurred was important because it connected the larger societal context to the process of adapting to life during the COVID-19 pandemic.

The example matrix presented here (see Table 1) uses an “X” to represent each time a code was applied within a given time point. For example Theme 1 was applied once in Session 1, twice in Session 2, three times in Session 3, not at all in Session 4, and finally once in Sessions 5 and 6. In our matrix example, this demonstrates that Theme 1 became more salient to the participant over time and then decreased in its relevance as other themes became more salient. The reverse pattern can be seen with Theme 4. Theme 4 was not applied at all in Sessions 1-4 but became relevant to the participant in Session 5–8. A matrix of this kind demonstrates patterns in the endorsement of themes over time (which become more or less important in terms of when they emerge and how long they last). Similarly, the matrix is helpful when looking across themes as it indicated how the experience of the participant changed over time - that is, some themes gave way to others in regard to their salience. The matrix is a helpful visual representation of trajectories within qualitative longitudinal analysis.

Trustworthiness and Rigor

We utilized several different strategies to ensure that we satisfied Lincoln & Guba’s (1985) criteria of trustworthiness in qualitative research. In our QLR case example, we addressed credibility by selecting the diary method as way to reduce research reactivity, as participants were alone during their online diary session. We also engaged in reflexivity and reflection of our own experiences with the global pandemic through journaling and peer debriefing in our regular team meetings (Lietz & Zayas, 2010). Further, observer triangulation was used as at least three research team members were involved in the analysis process (Lietz & Zayas, 2010). To address transferability of the findings, we provided thick descriptions of the phenomenon, so that readers can determine whether the findings apply to similar contexts and populations (Shenton, 2004; Lietz & Zayas, 2010). Lastly, we kept an audit trail of all elements of our QLR process so that the research can be replicated in the future (Shenton, 2004; Lietz & Zayas, 2010).

Discussion

The purpose of this study was to highlight QLR as an evolving method used in social science research to provide rich, in-depth revelations about people’s lives and how they cope over time with the COVID-19 global pandemic (Neale, 2016). As QLR grows in popularity, there is a need to document QLR processes and strategies so that as researchers use this methodology, the research can be evaluated for fidelity regardless of the discipline (Calman et al., 2013).

QLR is unique in a variety of ways. QLR combines a longitudinal approach with a qualitative lens (Neale, 2016). Researchers who use QLR have the ability to explore growth and patterns, and provide a true depiction of lived experiences over time (Rajulton, 2001). QLR allows the researchers to track changes in participants’ behaviors and mental health responses over a specified time period. Finally, QLR can help explore the effects of interventions and other issues that are subject to change and adapt depending on the circumstances.

More recently, qualitative methods have been used to examine the impact COVID-19 has on professionals such as nurses, physicians, and students, as well as young people and adults who had COVID-19. Qualitative methods also position researchers to look at the pandemic from the perspective of professionals whose job it is to interact with and help people exposed to COVID-19 (Ajibo et al., 2020). Despite the usefulness of these studies related to the lived experiences of individuals, students, and professionals impacted by the global pandemic, the data focused on one point in time. Given the nature of COVID-19 and its predicted longevity like the flu or other infectious disease, it is essential researchers understand COVID-19, its progression and adaptations needed to combat this disease over time (Holland et al., 2006).
Limitations and Strengths

Zoom diaries are a particular kind of qualitative longitudinal research method (Bolger et al., 2003). Increasingly, this method is being used to assess fluctuating everyday life experiences as well as how people are coping with and handling the COVID-19 pandemic. Nonetheless, the diary method and QLR is not without its limitations and strengths. While this methodological approach provides new and innovative ways in which to engage in qualitative data collection and analysis, there are three important limitations that we wish to highlight.

First, the approach is time-consuming not only in the typical amount of time needed to collect longitudinal data, but also in regard to the analysis procedure. This approach generates a large number of data entries; each requiring coding from multiple coders. In addition to traditional coding, the matrix table needs to be filled in for each data entry. Second, while the matrix table provides a useful visual to demonstrate the saturation of various codes and subcode across time, it also lacks nuance regarding the specific circumstances in which the code applied. More specifically, the “X” symbol indicates that the code was applied to a given piece of text. However, it does not provide context or detailed information about what was said. Finally, longitudinal data collection generally is subject to a threat of internal validity commonly referred to as “history”, where extraneous events coincide with the research and may confound the results (Rubin & Babbie, 2016). This is also true in the context of qualitative longitudinal data collection as the experience of each participant is influenced by the environment, which changes over time. In the context of COVID-19 this is both a limitation and a strength as the changing environment demonstrates the dynamic process of coping with the pandemic (Table 1).

Three additional strengths to this approach should also be highlighted. First, given that more data is collected from each participant, fewer participants are needed to reach data saturation. This asset can be a significant strength of this approach, as researchers may not require as many participants to enroll in a study in order to capture the lived experience. Second, the matrix table provides a new data visualization tool for qualitative longitudinal analysis. Options for data visualization in qualitative research have been limited, and so the introduction of a new method for data presentation is noteworthy. Lastly, the matrix gives a graphic representation of thematic salience across participants and over time. In other words, it visually represents which areas of adaptation are most important to a participant in a given moment of time and how that shifts over the course of the experience.

Implications

As social science researchers continue to advance qualitative research, QLR addresses the historic need for qualitative perspectives in research (Ruckdeschel, 1985); in that, we can focus the methodological rigor toward longitudinal processes along with the richness of data that qualitative inquiry provides. QLR is particularly conducive to pandemic or disaster-related studies, where unique and rapidly changing environments warrant fuller descriptions of the human condition. Specifically, QLR can improve researchers’ understanding of resilience despite unexpected events and the mechanisms that facilitate growth or perseverance (Hansel et al., 2020; Staller, 2018). The utility of QLR would also be relevant to policy implications and the real time impact on individuals, rather than waiting decades to see results (Sinha & Piedra, 2020). Finally the diary component, as described in the case study, may be useful for us to address reflexivity and emotional responses (Sanders et al., 2017) and personal similarities as expected given the vast reach of the COVID-19 pandemic.

QLR is a useful approach for social science researchers to identify patterns in rapidly changing environments, where time is an important factor in understanding the dynamic human response and recovery.

Lessons Learned and Conclusion

QLR offers a flexible tool to expand qualitative methods with a specific utility for examining changes in trends over time. This approach is uniquely suited to understanding the lived experiences of participants during historic moments in society (in our case example, the COVID-19 pandemic). Three main “lessons learned” include the following. Firstly, implementing rigorous data management systems before data collection – these include systems for safety monitoring, linking participant diary entries over time, and storing and analysing data in multiple formats (audio, text, and video). Secondly, pivoting to address external social/historical influences in real time - our data collection took place during the early phases of the COVID-19 pandemic. During this health crisis, policies and closures were continuously evolving and impacting our participants. In addition, our data collection spanned the period of time immediately after the murder of George Floyd – again deeply impacting our participants. We accounted for these unanticipated external events by including an open question at the end of our diary prompts asking participants “what else would you like us to know about life this week?”. Finally, as in quantitative longitudinal approaches, attrition in participants over time is a potential challenge in QLR. Strategies to promote retention are similar to those seen in quantitative longitudinal studies (e.g. incentives and reminders). However, QLR, specifically diary studies, may offer participants an opportunity to experience catharsis and a forum for processing events in real time, a feature that is less prominent in quantitative approaches.

The COVID-19 global pandemic has altered how many researchers, especially qualitative ones, conduct their research and collect data. Using online diary entries with QLR is a way for researchers to safely gather rich, in-depth experiences about people’s lives and discover how they cope over time with the global pandemic. The case example provides a base...
framework for how to depict and analyze qualitative longitudinal data utilizing a matrix approach. There is increasing interest in understanding how the global pandemic has impacted populations and their lived experiences of the pandemic over time, and QLR is an innovative methodology that enables social science researchers to do so.

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