

SAGE Research Methods Cases Medicine & Health Submission for Consideration

Case Title

Conducting a cross-sectional study examining prevalence of mental health issues in conflict-affected adults attending primary care in Northern Sri Lanka: Challenges and lessons-learned

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If you chose Medicine or Public Health as discipline, pick sub-discipline from the relevant list below. There are no sub-discipline options for Nursing and Dentistry.

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Academic Level of intended readership

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Contributor Biographies

Dr Shannon Doherty is currently a Senior Lecturer in Public Health at Anglia Ruskin University, UK, the Principal Investigator for COMGAP-S, and the head of the Global Public Health, Migration and Ethics research group. Dr Doherty is originally from Canada and moved to the UK to pursue further education and research opportunities. Dr Doherty holds an MSc in Global Mental Health and a PhD in Public Health. Her research interests include global mental health, migration, behaviour change, and research ethics.

Ms Giselle Dass is a Child and Adolescent Psychologist, a Visiting Lecturer at the University of Colombo, and a Co-Investigator for the COMGAP-S study in Sri Lanka. Ms. Dass is currently undertaking her PhD in Population Health Sciences at the University of Bristol and holds an MSc in Child and Adolescent Mental Health from King's College London. Her research interests include child and adolescent mental health, global health, and migration.

Published Articles

Doherty, S., Hulland, E., Lopes-Cardozo, B., Kirupakaran, S., Surenthirakumaran, R., Cookson, S., & Siriwardhana, C. (2019). Prevalence of mental disorders and epidemiological associations in post-conflict primary care attendees: a cross-sectional study in the Northern Province of Sri Lanka. *BMC psychiatry*, 19(1), 83.

Abstract

The country of Sri Lanka underwent a Civil War from 1983-2009 which resulted in approximately half a million people displaced from their homes. The Northern Province of the country was particularly affected by the conflict. Research suggests that the experience of living in a conflict setting can affect people's mental health resulting in depression, anxiety and post-traumatic stress disorder, among other issues. Treatment of these mental health disorders is then made more difficult in low-resource settings where there is a lack of specialised care

available, such as psychiatrists and psychologists. Before this study, the prevalence of mental health disorders in post-conflict Northern Province was unknown and therefore it was unclear how many people required help. As the Northern Province has a strong primary care system, we decided to explore if people went to their GP to seek help for mental health disorders. To accomplish this, we decided to use a cross-sectional survey to take a snapshot of how many people attended primary care facilities with potential mental health disorders. We included both males and females over the age of 18 who were displaced during the conflict. We found high rates of anxiety, depression, post-traumatic stress disorder, somatoform symptoms, and psychosis with hypomania among our participants. These results indicate that there are many people attending primary care facilities who require treatment. Our findings are being used to train GPs in the region to identify and manage mental health disorders to ensure people who need help are able to access it.

Learning Outcomes

1. By the end of this case, students should be able to understand what a cross-sectional study is, and how it was applied in this case study
 2. By the end of this case, students should be able to explain why a cross-sectional study was the most appropriate methodology to use in this case
 3. By the end of this case, students should be able to understand the statistical methods used to determine the sample size
 4. By the end of this case, students should be able to evaluate the strengths and limitations of this case
 5. By the end of this case, students should be able to apply information learned to design their own cross-sectional study
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Case Study

Project Overview and Context

During the Sri Lankan Civil War (1983-2009), approximately 500,000 people were displaced within the country as internally displaced persons (IDPs). Previous studies in the region indicate there is a burden of mental health disorders (MHDs) associated with the experience of conflict, but these were limited to community population samples and only assessed specific MHDs such as depression, psychosis, post-traumatic stress disorder, and anxiety (Siriwardhana & Wickramage, 2014; Senarath, Wickramage, & Peiris, 2014; Siriwardhana et al., 2013a; Husain et al., 2011; Siriwardhana et al., 2013b; Siriwardhana et al., 2015; Keraite et al., 2016).

Within the context of low-resource settings, such as Sri Lanka, the impact of conflict on affected populations can be complicated by low prioritisation of mental health along with lack of access to mental health services. This is then compounded in conflict-settings where MHDs vary in prevalence across countries and contexts (Porter & Hallam, 2005; Steel et al., 2009; Roberts & Browne, 2011). This can then hamper the integration of mental health services into primary care.

Due to lack of specialised psychiatric services in the post-conflict region of Northern Province, Sri Lanka it is vital to understand the prevalence of mental health disorders presenting at primary care level, and to understand the various factors that can increase the risk of developing mental health disorders. Knowledge gained on the unmet mental health needs of the post-conflict population could help reduce the mental health treatment gap in the region.

This cross-sectional survey aimed to estimate the prevalence of MHDs among adults attending primary care services across the five districts of Northern Province: Jaffna, Mannar, Mullaitivu, Vavuniya, and Kilinochchi. This methodology was chosen as it was the most effective and cost-efficient approach to gather a wide cross-section of information on how many adults present with MHDs at primary care services, and what MHDs they present with. This information was then fed forward to Phase 2 of the project where results were used to tailor training for doctors within the region to deliver needed mental health services within their facilities.

Section Summary

- Living in conflict and the experience of being displaced can result in mental health disorders
- The rate of these disorders must be understood to ensure people can access appropriate care

- In low-resource settings, such as Sri Lanka, there is often a lack of specialised care and training general practitioners to identify and manage mental health disorders in primary care can help people access the care they need

Research Design

We chose a cross-sectional study as our research design as we were interested in the prevalence (existing cases) of mental health disorders among adults attending primary care facilities. We chose to recruit those attending primary care as this is often where people first seek care in the region; however this could have led to an overestimation or underestimation of the prevalence of mental health. As people are attending primary care for health-related issues, this could have led to an overestimation of those with mental health issues. Conversely, as people may not be able, or wish to, access health care facilities, this also could have led to an underestimation of mental health prevalence in the region. We could have chosen to conduct a household survey as a method to estimate general mental health prevalence across the region. However, as the aim of the overall COMGAP-S project was to train doctors and health care professionals to identify and manage mental health conditions in primary care settings, we felt it would be more beneficial to understand the prevalence at these health care locations as opposed to the general prevalence rates we would have found in a household survey.

Cross-sectional designs are ideal for this kind of research as they take a snapshot of the prevalence of a condition. They collect data at one time point and enable researchers to look at the association between an exposure (displacement during conflict) and an outcome (mental health disorders) (Coggon, Barker & Rose, 2009). Cross-sectional studies are an effective way to assess the health needs of a population to raise awareness about certain conditions faced by a population, examine association between risk factors and health, and re-allocate resources accordingly to ensure needs are met. To design a cross-sectional study, four steps must be taken: define the base population (who, where, when), define the sampling frame (everybody or only some people?), determine the sample size (needs to be large enough that the results are unlikely to occur by chance), and decide on the data collection method (for example, a survey or an interview?) (Prince, 2003).

For this study, the base population was adults attending primary care facilities, the sampling frame was people over the age of 18 who were displaced during the conflict, and the data collection method was a survey.

The sample size for the cross-sectional study was calculated using 50% prevalence of anxiety or depression (Husain et al., 2011). Prevalence can be defined as the number of people who already have a condition within a population so is a measure of the frequency of an existing disease (Aschengrau and Seage, 2014) (<https://www.nlm.nih.gov/index.shtml>). To estimate prevalence, we randomly selected a smaller group (sample) of people who attended primary care clinics from the entire population of those in the Northern Province who attended primary care clinics. Sample size calculations are used to appropriately plan the size of a study to ensure that any conclusions drawn from the sample represent the overall population (Aschengrau and

Seage, 2014). To calculate sample size a number of factors need to be considered including examination of prior research to understand the probable magnitude of the association expected (Aschengrau and Seage, 2014). The 50% rate we chose was a relatively conservative value and was chosen based on doubling a previous prevalence rate found in a study conducted by Husain et al., 2011 with conflict-affected, internally displaced persons. The sample size was chosen as it was believed to be adequate to detect a higher prevalence of simultaneous disorders with a high level of accuracy. This study involved clusters (primary care facilities), as the population we wanted to examine was spread out geographically and a cluster design allowed us to sample from a large population in a cost-efficient manner. We also wanted to ensure we had strong precision (precision refers to how close the sample approximates what the entire population), and we wanted a 95% confidence interval (the range of values that you can be 95% confident contain the true mean of the population) (Aschengrau & Seage, 2014). Based on a $\pm 5\%$ precision and considering a 95% confidence interval we then used an estimated design effect (DEFF) of 2.2 based on previous literature. A DEFF is a statistical adjustment used to calculate the most effective sample size (Aschengrau & Seage, 2014). As we were particularly interested in people who had experienced displacement, we wanted to ensure we sampled proportionally, so that districts in Northern Province who had more people displaced during the conflict had more primary care facilities (clusters) included in the study. We took a list of primary care facilities across all five districts of Northern Province, randomly selected 25 of those clinics, and then at each clinic we selected 41 people by selecting every third person who registered at the clinic registration desk.

Section Summary

- Cross-sectional surveys are effective ways to assess the health needs of a population and allocate resources to ensure those health needs are met
- This study used proportional sampling to ensure a representative sample of people who had experienced displacement during the conflict were included in the survey
- Calculation of precision, confidence interval, and estimated design effect ensured we sampled the correct number of people in a rigorous way

Research Practicalities

This project was conducted between a UK university (Anglia Ruskin University) and the THEME Institute (a not-for-profit in Sri Lanka). We worked with a team of research assistants, field managers, and project managers in both countries, which meant a number of meetings over Skype and email reports to ensure the survey, ran smoothly.

As we planned to collect data from people through the survey, we had to apply for ethical approval in both the UK (Anglia Ruskin University held the grant and so needed to review the ethical issues), and Sri Lanka (as this was where the research would take place). We applied for UK approval and after a few questions from the ethics panel, we received approval. We applied to a higher education institution in Sri Lanka for ethical approval and this took quite a long time. The Sri Lankan ethics panel had numerous concerns about the kinds of questions we planned to ask around mental health issues, as well as our choice of

methodology. It took almost 12 months of back and forth conversation between the research team and the ethics panel before the project received ethical approval. This is quite normal for a research project that takes place in an overseas country. It is vital that both the host institution (whomever holds the grant) and the host country (where the research is taking place) understand and approve of the project. However, sometimes this can take a long time as local ethics boards may lack experience in the methodology chosen or may have specific concerns to make sure their community is treated fairly and with dignity. We had built time in for the ethics approval process, but had not anticipated quite how long it would take and so this did delay the start of the research project.

The ethical issues we considered were to ensure the translated questions were understood by participants, to be clear that only participants who gave informed consent would be included, and that if any participant showed signs of distress when answering any questions about mental health they would be given immediate help. To achieve this, we checked the questionnaire in the local languages very carefully and made changes where needed, all research assistants were trained on how to take informed consent, and we had a referral pathway within each primary care clinic to ensure people who needed help were able to access it immediately.

Before starting the survey we conducted a 7-day training programme with local research assistants. During the training, we went over the questionnaires in each packet (available in English as well as the two major languages of Sri Lanka: Tamil and Sinhalese). We asked the research assistants to review the questionnaire for any inconsistencies in language translation and soon discovered that some English terms did not translate well. For instance, in Tamil, there is no word for “flashback” (one of the post-traumatic stress disorder symptoms). We had to take some time ensuring that all the questions we planned to ask participants could be understood in their first language.

Once we had the questionnaire packet ready and the team was ready to start collecting data, they started to travel to our randomly selected primary care facilities. Some of the clinics turned out to be closed and we had to select new clinics from our list. Other clinics had a very low flow of patients, which would mean we would have to spend months in some clinics in order to reach the target of 41 patients per clinic. This would have taken far too long so again we had to choose new clinics. During the rainy season, some roads to very rural clinics became washed out or dangerous so we had to postpone some data collection until the weather improved. These are all common occurrences when working in a low-resource, post-conflict country; researchers need to be flexible and creative in their solutions to problems encountered while still maintaining scientific integrity to ensure data collected is valid.

Section summary

- Ethics approvals must be gained from both the host institution (whomever holds the research grant) and the host country (where the research will take place) to ensure the local community is protected

- Research materials must be reviewed carefully to ensure they are culturally appropriate, and research assistants must be trained carefully to ensure the research is conducted to a high standard
- Working in a low-resource, post-conflict setting can be difficult, it is important to problem-solve in a flexible and creative way without compromising the integrity of the research

Method in Action

What went really well in the project was the conduct of the questionnaire packet. Participants freely answered the questions posed and did not appear to have any issues understanding any information which indicates that the time spent reviewing and revising the questionnaire with our local research team was well spent, and that the data collected was valid and reliable. We did face some challenges gaining ethical approval from our local ethics board and this took a longer time than anticipated. The lesson we learned is that in the future we should allocate at least 6 months for local ethics approval to accommodate any delays.

We also encountered some challenges and delays due to selected clinics being unexpectedly closed down or only having small numbers of attending patients. We mitigated this challenge by randomly choosing additional clinics from our list of primary care facilities across the Northern Province.

Our team of research assistants were well trained; however, there were some unexpected personal issues between the team and the field manager responsible for the survey in Sri Lanka. We tried to mitigate this through meetings that allowed everyone to voice their concerns safely, but unfortunately this did not solve the problem and in the middle of the data collection, our team of research assistants quit the project. This presented quite a challenge to the project and we had to move quickly to recruit and train new research assistants and eventually had to replace the field manager as well. Leadership and team management of a research project can be challenging and at times, frustrating. What we learned from this incident is that more frequent team meetings were required to understand and address any potential issues before they become problems. We also learned to be clearer on team member's responsibilities and level of authority to ensure everyone understood their role, and the limitations of that role. Despite this delay, we were able to complete the survey as planned, albeit with a slight time delay.

Working within a post-conflict setting can also be politically tricky. There were times when we were asked to give an opinion on the reasons behind the conflict and we had to be very careful to be politically neutral. It was not up to us as researchers to take a stand on Sri Lankan politics, we were only interested in finding out what people's mental health needs were and finding ways to address them. Related to this, we had to be thoughtful when presenting our results to ensure that we were clear that while the experience of conflict and displacement had caused people to have unmet health needs, we were not placing blame on any ethnic group or political party.

Shortly after the end of data collection, the team also lost our original Principal Investigator, Dr Chesmal Siriwardhana. Dr Siriwardhana was responsible for the project idea, which had come out of his PhD work in the UK. He died unexpectedly in a traffic accident in April 2017, which left the team devastated and without a leader. After discussions with the team and the funder, Dr Doherty, who ran the project with Dr Siriwardhana, agreed to take on the Principal Investigator role and continue the work. However, this was a very difficult time for the team as we struggled to reconcile our grief and continue the project in Dr Siriwardhana's memory.

Overall, despite the numerous challenges involved in this project, it was completed successfully and is the first study to investigate the prevalence of mental health disorders among conflict-affected adults attending primary care in Sri Lanka. The findings from this study will help inform training of primary care practitioners to identify and treat mental health disorders in clinics to ensure that people are able to have their needs met. Our ability to apply our findings to help people ultimately outweighs any challenges faced, and we will feed forward lessons learned to future projects.

Section summary

- During research, the unexpected will happen and researchers need to work together to find appropriate solutions
- Leadership and team management are vital skills to ensure the research can proceed as planned
- Research is not always politically neutral, particularly in a post-conflict setting

Practical Lessons Learned

One of the most important practical lessons learned in this project was to ensure materials used for research are properly translated into the local language. If we had not tested our questionnaire with our research assistants, then our research participants would not have understood our questionnaire. This could have led to us collecting unreliable information from our participant population. The majority of mental health questionnaires were created in Western countries and may use language or idioms not understood by other cultures. While the majority of the questionnaires we used in our survey had been used in Sri Lanka before (thus were considered validated) it is important to review them with local people. It is vital to ensure translations are accurate and revise as necessary to ensure data collected is valid and findings can be appropriately applied to the population in need.

The questionnaire packet we used in the survey was administered using computer tablets. Once the questionnaire was completed, the data was automatically uploaded to our server over the wireless network in Sri Lanka. This worked very well as Sri Lanka has excellent wireless coverage even in rural areas. It also meant we were environmentally friendly, as we did not waste paper printing hundreds of questionnaire packets. Further, as data was uploaded right away we did not have any delays receiving data and we did not face the risk

of mistakes that could occur if team members had to type paper questionnaire answers into a computer spreadsheet.

Another important lesson learned was to ensure sufficient time is allocated for ethics approval as this took much longer than anticipated and resulted in delays to the project. It is best to leave at least 6 months to receive ethics approval to ensure there is enough time to answer any questions or concerns the ethics panel has. We also applied for both host institution approval (where the grant is held) and local approval (where the research will take place). This is not always done in international research projects, but is vital and must be standard practice. It is not only respectful to gain local ethics panel approval, but also incredibly important to the research findings as a local ethics panel understands the culture and community in which the research is taking place. They are in the best position to advise on culturally appropriate and sensitive approaches to research and understand the local history and context of the population.

Section summary

- The choice of research methodology must be based on the question the research seeks to answer
- Seeking input from the local community and local ethics panels is vital to ensure local needs are understood and research is conducted in a culturally appropriate manner

Conclusion

The research methodology chosen for this project was appropriate and allowed us to gather important information on the mental health needs of adults attending primary care who had experienced displacement during the Sri Lankan conflict. Our findings suggest that there are high rates of depression, anxiety, post-traumatic stress disorder, expression of somatoform symptoms, and psychosis with hypomania among respondents in the region. As these were people attending primary care facilities, there is an opportunity to train primary care practitioners to identify and treat these disorders. This is especially important in a setting with a lack of specialised services such as psychiatrists and psychologists. As Prince et al., (2007, p. 859) stated in a Lancet article, “there is no health without mental health”. Mental health needs must be addressed as part of general health within a primary care system to not only take burden off specialised services (if they are even available), but also to increase people’s ability to access needed services.

Our findings do need to be taken in context as our sample of participants was attending primary care facilities. While this is often the first point of contact for people seeking mental health services in Sri Lanka (Senarath et al., 2014; Siriwardhana et al., 2013a), recruiting people at a primary care facility will overestimate the prevalence of disorders (as opposed to the prevalence rate that might be found in the general population). However, our results do indicate there is a great need that is not being met.

The methodology used in this study could be applied in other low-resource, post-conflict settings. The questionnaires we validated in our study, and the methodology of a cross-sectional study utilising computer tablets could be applied efficiently and effectively in

other similar settings. A cross-sectional study such as this one does not take a large amount of time or financial commitment, and does not require extensive training to conduct. This makes it an effective and efficient way to explore the association between an exposure such as conflict and an outcome such as mental health needs.

In the global context, there are many other countries, which have experienced conflict and struggle with low-resource health settings. Our methodology for exploring the mental health needs of a conflict-affected population could easily be applied in other settings to examine unmet needs and find innovative, effective, and cost-efficient solutions to ensure people are able to access the help they need.

Section summary

- Cross-sectional study methodologies are cost-effective and time efficient
 - A cross-sectional study can be effectively applied in other similar settings
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Classroom Discussion Questions

1. What are some of the ethical issues that could occur when asking conflict-affected populations about their mental health?
 2. What other methodologies could have been used to explore the mental health issues faced by people who have been affected by conflict?
 3. Why was it important to ensure sampling in each district of Northern Province was proportional to the number of people displaced within the conflict?
 4. What were some advantages and disadvantages of choosing participants who attended primary care facilities?
 5. What are some of the limitations of this study design?
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Multiple Choice Quiz Questions

1. What is the purpose of a cross-sectional study?
 - A) To understand the cause of a disease
 - B) To compare cases of illness to non-cases of illness
 - C) To examine the association between an exposure and an outcome**
2. What is the definition of prevalence?

- A) New cases of illness in a population
- B) Existing cases of illness in a population**
- C) Illness that have been previously treated

3. When conducting research in another country, when is it important to apply for local ethics approval?

- A) Always**
- B) Never
- C) Only if the research asks participants about mental health issues

4. What is an estimated design effect?

- A) A range of values that contains the true mean of the population
- B) A statistical adjustment to calculate the most effective sample size**
- C) A method to ensure a sample size is representative of the population

5. Which of the following statements is true?

- A) When carrying out research in a post-conflict setting it is always important to align with the political party in power for the safety of project staff and to ensure the efficient running of the project
- B) It is important to ensure questionnaires used in a study are translated regardless if they have already been translated and validated by previous researchers in the same setting**
- C) When conducting research in a variety of settings it is important to be completely inflexible as to change any research plans could affect the integrity of the study

Declaration of Conflicting Interests

Shannon Doherty declares that there is no conflict of interest.

Giselle Dass declares that there is no conflict of interest.

Further Reading

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Web Resources

<http://globalhme.org/>

<http://www.internal-displacement.org/countries/sri-lanka>

<https://reliefweb.int/report/sri-lanka/national-policy-durable-solutions-conflict-affected-displacement>

<https://www.nimh.nih.gov/index.shtml>

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