



STUDY PROTOCOL

Well-being, Interventions and Support during Epidemics (WISE): Protocol for a qualitative longitudinal study of older adults' experiences during COVID-19 [version 1; peer review: 1 approved, 2 approved with reservations]

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Abstract

Background: The coronavirus disease 2019 (COVID-19) pandemic has the potential to trigger multiple stress domains and lead to long-term repercussions in an individual's quality of life, health and well-being. Stressors from the pandemic are likely to be experienced in many ways by older adults with heterogeneous life experiences and supports available. In this context, it is necessary to tease out the underlying mechanisms leading to positive and negative well-being and mental health across interdependent individual, social and environmental factors. The aim of the present study is to explore community-dwelling older adults' experiences during the COVID-19 pandemic, with a particular focus on mental health and psychosocial well-being.

Methods: An exploratory longitudinal qualitative study will be conducted with data collected through written submissions, sitting interviews and walk along interviews with older adults living in Irish community settings. Data collection will take place 3 to 10 weeks apart to enable the exploration of individuals' responses to the evolving social, economic and environmental circumstances derived from the COVID-19 pandemic in Ireland. An iterative thematic analysis will be carried out to identify data themes, linkages, and explanations within a socio-ecological framework.

Ethics and dissemination: Ethical approval has been granted by the Royal College of Surgeons in Ireland, Research Ethics Committee (REC202011028). Findings will be disseminated through peer-reviewed journal publications, oral presentations at relevant conferences, and in consultation with Public and Patient Involvement (PPI) contributors. A lay summary of findings and infographic will be distributed to multiple stakeholders including our PPI panel, older people,

Open Peer Review

Approval Status

	1	2	3
version 2 (revision) 31 Aug 2021	 view		 view
version 1 19 Feb 2021	 view	 view	 view

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2. **Nari Kim** , University of Delaware, Newark, USA

3. **Evangelia Chrysikou** , University College London, London, UK

Any reports and responses or comments on the article can be found at the end of the article.

caregivers, community organisations, charities and media.

Keywords

mental health, psychosocial well-being, support strategies, older adults, COVID-19, qualitative research, socio-ecological framework



This article is included in the [Coronavirus \(COVID-19\)](#) collection.

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Author roles: **Guzman V:** Conceptualization, Investigation, Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; **Foley R:** Conceptualization, Methodology, Supervision, Writing – Review & Editing; **Pertl M:** Conceptualization, Methodology, Supervision, Writing – Review & Editing; **Doyle F:** Conceptualization, Methodology, Supervision, Writing – Review & Editing

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Background

The coronavirus disease 2019 (COVID-19) is having an unprecedented and widespread effect on all aspects of society. The effects of the disease itself and of the public health efforts necessary to contain the spread of the virus represent a broad-scale stressor that could lead to pervasive impacts on individuals' mental health and well-being^{1,2}. Evidence from previous massive infectious outbreaks suggests that possible effects of such stressors include long-term increased rates of anxiety, depression, post-traumatic stress, loneliness, suicidality and substance abuse³⁻⁷. These mental health consequences are likely to build on existing social inequalities and disproportionately affect vulnerable populations².

Older adults have been identified as being at higher risk of developing severe illness if infected with COVID-19, and the highest mortality rate from the pandemic has been observed among this age group^{8,9}. As a result, shelter-in-place orders and recommendations or restrictions of gathering and movement have been more stringent for older people¹⁰⁻¹². Early studies on the psychosocial burden of COVID-19 on older populations have found that factors increasing stress levels include: uncertainty of the course of the pandemic, fear of infection in the face of lack of available treatments, disruption of 'normality' and previous healthcare routines, and deficits in social connections due to containment measures that require physical isolation and highlight the digital divide^{1,13-15}. Findings emerging from the current pandemic indicate increased rates of loneliness, stress, anxiety and depression particularly among older individuals with pre-existing health problems¹⁶, lower levels of education and those who live alone¹⁷. However, older adults are a highly diverse population that is likely to experience stressors from the COVID-19 pandemic in multiple ways, and have heterogeneous access to coping and support strategies¹⁸. In this context, it is necessary to tease out the underlying mechanisms leading to positive and negative well-being and mental health across interdependent individual, social and environmental factors.

Understanding these mechanisms and developing appropriate interventions calls for special consideration of the interdependencies and bidirectional influences across multiple factors in a system, which is characteristic of socioecological frameworks^{19,20}. The Bronfenbrenner socioecological model suggest that individuals are nested into multiple levels of influence²¹. At the core are the *individuals'* socio-demographic characteristics, health history, coping mechanisms and behaviours. The next level, labelled the *microsystem*, comprises the immediate social, built and natural environment²¹. This level includes, for instance, social interactions with family and friends or community organizations (i.e., church and volunteering groups), as well as household characteristics and access to natural environments from home. The *mesosystem* then comprises the interrelationships between an individual's multiple microsystems²¹. The next level, the *exosystem*, includes broader formal and informal structures where the individual may not participate directly but influence their environment, such as mass media, the health care system and welfare services²¹. The highest level,

denominated as the *macrosystem*, refers to cultural influences and ideologies²¹. Additionally, Bronfenbrenner proposes a *chronosystem* to reflect that interrelationships are dynamic and that the individuals' interpretations evolve over time²².

From this ecological perspective, older individuals living through COVID-19 may need diverse resources and support systems to navigate daily activities and maintain stable psychosocial well-being²³. Ultimately, access to social, affective and material resources enables health²⁴; and given the restrictions of movement and shelter-in-place recommendations during the COVID-19 pandemic, proximate community resources and nearby 'living spaces'²⁵, including dwellings, gardens, parks, and the spaces that connect or separate them may play a particularly significant role²⁶⁻²⁸. However, it is relevant to note different users may perceive the same space in diverging ways and attach contrasting attributes to a specific area depending on context, and dynamic interactions within actors and networks²⁹. For some, a neighbourhood park may trigger discrete therapeutic qualities that act as 'stress-buffering' mechanisms or provide opportunities to engage in physical activities that boost endorphins. Conversely, others may perceive the same park as a stressor if they believe that physical distancing is not feasible while they are there, or fear that others sharing the space are not adhering to public health recommendations.

Therefore, using longitudinal qualitative inquiry is critical to contextualize the evolving lived experience of community dwelling older adults during the COVID-19 pandemic, and to ascertain the role of specific social and environmental factors in enabling the conditions necessary to experience psychosocial well-being. Moreover, a qualitative approach provides the opportunity for older people to communicate their experiences with COVID-19 in their own words and to richly describe the relationships between multiple factors and their consequences.

This research protocol corresponds to the qualitative diagnostic component of the Well-being, Interventions and Support during Epidemics (WISE) study, and aims to explore community dwelling older adult's experiences during the COVID-19 pandemic with a particular focus on mental health and psychosocial well-being. Findings from the proposed study will contribute to increased understanding of what/how resources and activities provided joy and respite, or lead to negative emotions and poor well-being, giving consideration to individual, social and environmental factors. It is expected that the exploratory approach of the present study will highlight gaps in current services and opportunities for future interventions, as well as showcase how older adults have successfully adapted to emerging challenges and supported others.

Research questions

- What are the experiences of community dwelling older adults during COVID-19 and how have these experiences influenced their mental health and psychosocial well-being?

- What do community dwelling older adults consider stressful or related to negative emotions during the COVID-19 pandemic, and, conversely, what brings relief or joy?
- What are perceived barriers or enablers for formal and informal support strategies?

Methods

Study design

An exploratory longitudinal qualitative study will be conducted and reported following the Consolidated Criteria for Reporting Qualitative Research (COREQ)³⁰. A longitudinal qualitative approach will allow us to examine detailed information about how and why individuals' mental health and well-being change over the course of the pandemic, and to explore the mechanisms and outcomes of particular environments and support strategies³¹. Moreover, the longitudinal approach is key to capture older adults' response to the evolving circumstances and crisis points related to the COVID-19 pandemic, and consider how these interact with participants' individual and socio-ecological characteristics.

A Public and Patient Involvement (PPI) group and advisory panel, consisting of community dwelling older adults, will provide advice on recruitment strategies, development of the interview guide, analysis of findings and development of dissemination strategies. The Guidance for Reporting Involvement of Patients and the Public [(GRIPP2),³²] will be used to describe PPI activities in reports and publications emerging from the study.

Research team and reflexivity

Interviews will be conducted, transcribed and analysed by VG. Transcription will be assisted by NVivo 12 software. RF, MP and FD will support data analysis by engaging in critical dialogue to identify relevant codes and key themes.

VG is a medical doctor and has received training in qualitative research methods as part of her ongoing PhD programme. She will conduct data collection and analysis supported and supervised by RF, MP and FD. RF is an associate professor of health geography with extensive experience of conducting *in situ* qualitative research, particularly on therapeutic landscapes and the relationships between place, health and well-being. MP is a lecturer in psychology and experienced qualitative researcher. Her previous research has focussed on mental health, psychosocial supports, and older adults. FD is a senior lecturer in psychology and has extensive experience of conducting and supervising research related to mental health, health behaviours, quality of life and complex interventions, including qualitative evaluations.

Participants will not have established any relationship with the research team members prior to study commencement. Participants will be informed about the research purposes during preliminary contact, through the information leaflet and when obtaining informed consent.

Participants selection and recruitment

Participants will be recruited with a purposive sampling approach with reference to age (youngest-old [65–74 years old], middle-old [75–84], and oldest-old [>85 years old]), sex, and household location (urban vs. rural). Participants will be eligible to take part in the research if during the COVID-19 pandemic they are over 65 years' old and are living in Irish community settings irrespective of household composition. The study will be open for individuals who meet the inclusion criteria and have the ability to use and understand the information to make a decision about their participation and communicate any decision made. Sample size will be guided by principles of saturation³³. Due to the expected heterogeneity of the sample, it is anticipated in excess of 30 participants will be recruited³⁴.

Recruitment activities will include public advertisements through social media and newsletters of community and charity organizations, as well as through contact with potential gatekeepers in relevant organisations (i.e., ALONE, Age Friendly Communities, Age Action Ireland, etc). Additionally, information on the study will be circulated via email to other relevant stakeholders involved with providing care and/or support to older adults or involved with mental health initiatives. Phone calls will be arranged with prospective participants to provide an introduction to the study and offer to send further information and consent forms either via email or traditional post. A follow-up phone call will take place around 2–5 days later to allow participants to consider participating.

Data collection

Due to the evolving nature of COVID-19, the heterogeneity of the sample, and the need to capture experiences in detail, a multi-method approach will be utilized to collect data. Similar multi-methods approaches have been used previously in ageing studies to capture complex processes between individuals and their socioecological environments³⁵. Data collection will take place at two time points between 3 to 10 weeks apart dictated by public health restrictions, roll out of vaccines and situation of the COVID-19 pandemic in Ireland. All participants will be invited to 1) submit written responses and images related to their experiences during COVID-19, 2) take part in an in-depth semi-structured interview (lasting approximately 45 minutes), and 3) engage in a go-along interview (lasting approximately 20 minutes, depending on the participant). Participants will be asked to voluntarily engage with the methodology that suits them best and can choose to participate in all components, only one or two.

Researchers will utilise a topic guide rather than a fixed schedule to guide data collection without rigid constraints, ensuring that the data are driven by participants' perceptions and experiences. The topic guide will evolve as categories are discovered through the data collection and analysis. Subsequent activities will build up on emerging information and use maps and photographs to prompt further conversation and clarify ideas. Follow-ups will begin by providing a summary of the

previous exchange and themes identified, and then move on to focus on current feelings and discuss what has changed and why. This selective data collection approach will lead to focused information without producing an overwhelming amount of new information³¹.

For written submissions, researchers will provide a few open-ended questions as prompts for participants to narrate their experiences. No word limit will be placed for responses. For electronic submissions, an embedded map created with [Padlet](#) software [a web 2.0 tool widely used for educational purposes, which allows for virtual walls to be created for multiple types of files³⁶], will be used to gather information regarding places of importance, with the option to attach accompanying audio files and/or images that detail their experiences and/or place characteristics. Analysis of the photographs and identification of important spaces will promote further reflection in complementary data collection, with opportunities to clarify related meaning and interpretations.

Interviews will be conducted at the time and location of participants' choosing, either face-to-face, through a videoconferencing software or over the phone. The narrative interview schedule covers four thematic areas: 1) experiences during the COVID-19 pandemic, 2) perceived stressors and challenges during this time, 3) support strategies and support factors in the social, natural and built environment, and 4) concerns and beliefs about the future in relation to COVID-19. Interview guides will be developed in consultation with the PPI advisory group. Oral exchanges will be recorded, transcribed, and checked for completeness against recorded interviews.

For go-along interviews, participants will make all decisions regarding location, route, speed, and duration. Go-along interviews may take place, for instance, in the immediate space around a participant's home or around their neighbourhood. Go-along interviews are considered *in situ* qualitative methods that provide a layer of depth and context to participants lived experiences^{37,38}. The questions and observations along the go-along interview will allow the researchers to examine participant's interactions and interpretations of their social, natural, and built environment, and explore how these elements have enabled or hindered their mental health and well-being during COVID-19. Photographs from the go-along interview and route will be captured using GPS software (i.e., [Ubipix](#)), and complemented with researcher field-notes taken immediately after each interview. An interactive mapping exercise will be developed where face-to-face meetings are not possible.

Analysis plan

Data analysis within each case and as a comparison between cases will be ongoing throughout the data collection process utilising the Bronfenbrenner socioecological model as a framework to identify relevant factors across multiple levels and stakeholders. Thematic analysis will be conducted to analyse

participant responses according to the steps established by Braun and Clarke³⁹, which include: (1) familiarization with the data; (2) generation of initial codes; (3) search for themes; (4) review themes; (5) define and name themes; and (6) write-up the analysis. It will be an iterative process to continually identify themes, linkages, and explanations. Preliminary analysis of baseline data will allow for emerging themes to be pursued in the second point of data collection, with particular focus on change and transitions³¹. Members of the research team will meet to discuss ongoing analysis and ensure consistency. Data analysis will be conducted utilizing NVivo 12 software.

Ethics

Ethical approval for this study has been granted by the Royal College of Surgeons in Ireland Research Ethics Committee (REC202011028). Individuals interested in taking part on the study will receive an information leaflet detailing research activities and processing of their data. Researchers will allow time for individuals to raise questions and consider their decision to participate in this study before obtaining informed consent. Informed consent will be re-established on a regular basis through data collection activities to verify ongoing participants' agreement.

Data collection activities will take place at a time and place that are mutually agreeable and safe. Researchers will emphasize empathic, person centred approaches and observe for verbal and non-verbal cues that the participants may be experiencing discomfort or distress during data collection. If this situation emerges, the researcher will pause the activity and iterate the option to move onto another topic, resume at another time or withdraw to no disadvantage to themselves. Participants in need of further intervention will be referred to the appropriate instance to continue their care (GP practice, Samaritans, etc.). Additionally, at the end of each data collection session participants will be offered an information sheet with details of mental health and psychological support services open to the general population and older people. Research data and personal information will be managed in accordance with relevant regulatory approvals.

Dissemination

Findings will be disseminated through peer reviewed journal publications and in poster or oral presentations at relevant national and international conferences, as well as in consultation with our PPI advisors. A lay summary of findings and infographic will be distributed to multiple stakeholders including our PPI panel, older people, caregivers, community organisations, charities and mass media.

Study status

At time of publication the research team, including PPI advisors, are working on finalizing the interview guides and commencing recruitment.

Conclusion

This protocol describes the methodological approach for the qualitative diagnostic phase of the WISE study, which seeks to determine socio-ecological mechanisms associated with mental health and psychosocial well-being of older adults during the COVID-19 pandemic. We consider that the findings emerging from this study will advance the understanding of

mental health and psychosocial well-being in times of collective trauma, and inform interventions for older people during public health emergencies and beyond.

Data availability

Underlying data

No underlying data are associated with this study.

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Open Peer Review

Current Peer Review Status: ? ✓ ?

Version 1

Reviewer Report 28 April 2021

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? **Evangelia Chrysikou** 

The Bartlett School of Construction and Project Management, University College London, London, UK

This is a study protocol rather than a research article that has been conducted already so there are no findings at this stage. Having said that the research protocol is interdisciplinary looking at health and the environment in relation to older adults and Covid. This is very timely and important. The study involves older people and is comprehensive using several qualitative methodologies for triangulation. It has included older people from the onset of the research proposal writing which is an excellent practice. The only comment would be that the synthesis of the team does not involve researchers who are familiar with the built environment studies, which could perhaps influence the study sample. For example, where do these people live? It is mentioned dwelling in the community but what types of dwellings and the built environment related affordances? Could the different typologies or locations affect the perception? This has not been sufficiently addressed in the proposal but it could theoretically make a difference.

Is the rationale for, and objectives of, the study clearly described?

Yes

Is the study design appropriate for the research question?

Yes

Are sufficient details of the methods provided to allow replication by others?

Partly

Are the datasets clearly presented in a useable and accessible format?

No

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Health and care and the built environment, ageing, mental health in relation

to the built environment.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 31 Aug 2021

Viveka Guzman, Royal College of Surgeons in Ireland, Dublin, Ireland

Dear Dr Evangelia Chrysikou,

Thank you for reviewing our study protocol and for your constructive feedback and comments. We appreciate your time and consideration. Please see below our detailed point-by-point response (Reviewer's comments in bold).

This is a study protocol rather than a research article that has been conducted already so there are no findings at this stage. Having said that the research protocol is interdisciplinary looking at health and the environment in relation to older adults and Covid. This is very timely and important. The study involves older people and is comprehensive using several qualitative methodologies for triangulation. It has included older people from the onset of the research proposal writing which is an excellent practice.

We appreciate these positive comments.

1- The only comment would be that the synthesis of the team does not involve researchers who are familiar with the built environment studies, which could perhaps influence the study sample. For example, where do these people live? It is mentioned dwelling in the community but what types of dwellings and the built environment related affordances? Could the different typologies or locations affect the perception? This has not been sufficiently addressed in the proposal but it could theoretically make a difference.

Thank you for this thoughtful comment. We agree that people's living circumstances, including built environments and dwelling characteristics, could significantly influence experiences of mental health and well-being during the pandemic. To be able to account for this in our study, during the baseline data collection we have included a background question for participants to specify their household dwelling type ['What type of accommodation do you live in?' Answer options: Private house, bungalow, chalet, flat/apartment, sheltered community, assisted community, other (please specify)]. The background questionnaire also asks participants to specify their household location, and if they consider this to be an urban or rural area (which will be corroborated with a recognized urban-rural classification for small areas in Ireland [1]). Although not specific for each participant, this classification could provide a sense of dwelling affordances and deprivation level. This information will be collated utilizing NVivo software, and intersections between individual experiences and built environment will be given consideration to

explore how they may have shaped mental health and well-being. The background questionnaire has been added to the extended data and is also been detailed in the manuscript data collection section (page 5, paragraph 7).

Competing Interests: No competing interests to disclose.

Author Response 31 Aug 2021

Viveka Guzman, Royal College of Surgeons in Ireland, Dublin, Ireland

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Competing Interests: None

Reviewer Report 27 April 2021

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Nari Kim 

Department of Geography and Spatial Science, University of Delaware, Newark, DE, USA

◦ **Is the rationale for, and objectives of, the study clearly described?**

This protocol study clearly shows an objective and rationale, and it is a very timely needed study. However, two things can be helpful to develop this research. Firstly, it is hard to find a specific research position of 'well-being', 'intervention', and 'support'. Although researchers elucidated mental health and psychosocial well-being and support for the well-being, intervention can be diverse; sociopolitical intervention, clinical intervention, or community intervention, etc. In the same context, it is not clear in what areas the researcher would like research findings to be used or contributed to the future. I think that an attempt to discover various influential systems on the research subjects' mental well-being are absolutely necessary, however, the purpose of the study should be clear whether is to make a step-by-step mechanism of older adults' mental health based on the Bronfenbrenner socioecological model or is to make the mechanism based on the specificity of the older adults in the Irish community. Even something else.

◦ **Is the study design appropriate for the research question?**

All research questions look good enough to listen to older adults' dynamic mental health status during COVID-19. A little concern that I found is a connection between research questions and the framework in this study. Based on the purpose of this study, researchers mentioned that they want to make a mechanism of older adults' positive and negative well-being, and mental health

within socio-environmental systems. However, three research questions barely mentioned phased systems which reflect the Bronfenbrenner socioecological model, so it is difficult to distinguish which research questions are for well-being, intervention and support for the older adults at which level of the system. More than one research question needs to indicate the systematic level if the researcher wants to explore researcher participants' psychological well-being in terms of the socioecological model.

- **Are sufficient details of the methods provided to allow replication by others?**

Research steps and methods are well explained and future researchers who interested in similar research topics or groups can easily adapt to the process. I confused between a choice of methodology and a thematic analysis of the study under the Bronfenbrenner socioecological model and worry the way of approach to older Irish people. According to the section of study design, researchers wrote that they are planning to adopt a longitudinal qualitative approach because of consideration of the uniqueness of mental health research that is variable and difficult to generalized. This means that the method aims to explore research subjects' deep mental well-being targeting limited research participants in a specific community. However, in the analysis section, researchers said that they are planning to define and sort themes and show the linkage without mentioning how the analysis can interact with the Bronfenbrenner socioecological model. I could not find themes, meanings, or patterns that researchers want to focus on by using this analysis and how this analysis will efficiently emphasize either the participants' psychological well-being or systematic levels that interact with their mental health. Additionally, I wonder how researchers anticipate results of electronic submissions of open-ended questions via Padlet software and videoconferencing software, although they mentioned a phone call interview. The researcher can provide several ways how they are going to invite potential participants when they want to participate in the electronic questions or video interviewing, such as sending an email, QR code, or link. Lastly, regardless of the research question, I want to raise on curiosity about research subject criteria because 'the ability to use and understand the information to make a decision' looks too broad to participants in the age group presented for the study and too highly fancy methods work process for the research group.

- **Are the datasets clearly presented in a useable and accessible format?**

Not applicable. However, if researchers can make datasets the useable format its' contribution will be tremendous because psychological well-being and mental health can be different depending on socio-culture backgrounds differ from physical disease diagnosed by clinical symptoms. Thus, allowing the dataset to other researchers enriches discussions via comparison studies with other ethnicities, planning specific spatial systems for Irish older adults, or contributing to emotional well-being academic fields, etc.

General Comments:

Overall, this study protocol is very timely and well explains how they are going to explore Irish older adults' psychological well-being and mental health during COVID-19, and they will provide Well-being, Interventions, and Support (WISE) based on the Bronfenbrenner socioecological model. However, I made several recommendations here.

First of all, making WISE looks like a major contribution of this study, and research results from WISE can be developed as a valuable framework for the older population facing future epidemics or natural disasters. Thus, emphasizing WISE more academic ways and showing fields where it makes contributions. For suggesting WISE based on discovered mechanism, researchers need to

define what is the definition and role in this research and how it used in similar cases.

Next, the study protocol is framed by using the Bronfenbrenner socioecological model. While the Bronfenbrenner socioecological model is developed based on psychology, this project could contribute to making policies for later-life care environments, community planning, or public practices for welfare during the great social chaos era in the future. However, readers need to know why the Bronfenbrenner socioecological model is an influential framework rather than the concept of spatiality or spatial scale to explore the psychological well-being or mental health of older adults. So many geographers have been studying the scale of spaces and health, and geography scholarship has emotional geography as sub-disciplinary (see examples, Bondi^{1,2}; Bondi and Fewell³; Price⁴; Pile⁵), and those geographers have studies how human being's body and emotions interact to socio-political structures in diverse ways. In this context, the researchers need to mention how this project contributes or enriched current earlier works relating to older adults' mental health well-being by using the Bronfenbrenner model.

Lastly, researchers put three research questions to explore research subjects' mental health; I could not find what researchers want to hear from research participants because research questions are too similar to each other. It means that participants also could not find a hint of the system for giving their answer while this project aims to cover different systems that look like different spatial scales from individuals' body to neighborhoods, society, and culture. At this moment, I want to know how the 'system' that researchers used in this protocol is different from a concept of scale because researcher are actively planning to use geo-referencing data with GPS. I put several geographers' earlier works, which provided visualization of emotion based on geo-dataset. I hope those are helpful to develop your work.

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Is the rationale for, and objectives of, the study clearly described?

Yes

Is the study design appropriate for the research question?

Yes

Are sufficient details of the methods provided to allow replication by others?

Yes

Are the datasets clearly presented in a useable and accessible format?

Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Health Geography, Social Gerontology, Emotional Geography.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Author Response 31 Aug 2021

Viveka Guzman, Royal College of Surgeons in Ireland, Dublin, Ireland

Dear Nari Kim,

Thank you for reviewing our submission and for your thoughtful and constructive feedback. Revisions have been made and are individually detailed below. We believe the revisions, informed by your comments, enhance the protocol greatly. Please see below for a detailed point-by-point response (Reviewer's comments in bold).

This protocol study clearly shows an objective and rationale, and it is a very timely needed study. However, two things can be helpful to develop this research. Firstly, it is hard to find a specific research position of 'well-being', 'intervention', and 'support'. Although researchers elucidated mental health and psychosocial well-being and support for the well-being, intervention can be diverse; sociopolitical intervention, clinical intervention, or community intervention, etc. In the same context, it is not clear in what areas the researcher would like research findings to be used or contributed to the future. I think that an attempt to discover various influential systems on the research subjects' mental well-being are absolutely necessary, however, the purpose of the study should be clear whether is to make a step-by-step mechanism of older adults' mental health based on the Bronfenbrenner socioecological model or is to make the mechanism based on the specificity of the older adults in the Irish community. Even something else.

Thank you for your positive comments and these very relevant observations. We have included in the background section (page 3, paragraph 5; page 4, paragraph 1-2) further

details about the overall WISE project, and how we expect the study detailed in this protocol serves as an exploration to deepen the understanding of the experiences of older people during COVID-19 and to create multiple hypotheses about the mechanisms (factors and interactions between them) that hinder/enable mental health from a multi-level socio-ecological perspective. We anticipate that building a quantitative analysis based on the findings from this study will allow to consider factors that are significant from the point of view of the population of interest while also accounting for a systems approach. We believe such a model will reflect the Irish-pandemic context but could also provide a blue-print framework for older people's well-being in diverse contexts. For instance, other geographical locations, future pandemics or other public health challenges related to emergencies (i.e., natural disasters, displacement) or ageing (i.e., loneliness, social isolation, Age-Friendly environments).

Is the study design appropriate for the research question?

All research questions look good enough to listen to older adults' dynamic mental health status during COVID-19. A little concern that I found is a connection between research questions and the framework in this study. Based on the purpose of this study, researchers mentioned that they want to make a mechanism of older adults' positive and negative well-being, and mental health within socio-environmental systems. However, three research questions barely mentioned phased systems which reflect the Bronfenbrenner socioecological model, so it is difficult to distinguish which research questions are for well-being, intervention and support for the older adults at which level of the system. More than one research question needs to indicate the systematic level if the researcher wants to explore researcher participants' psychological well-being in terms of the socioecological model.

Thank you for bringing these points to our attention. In relation to the overall research questions, we have revised them to clarify our broad perspective on the multiple levels of the socio-ecological model (Table 1). Additionally, we have added our interview guide as a supplementary file, so that it can be observed how we operationalize these in our data collection with focused prompts that were designed to tease out potential key factors in relation to well-being, interventions, and support at specific levels.

Are sufficient details of the methods provided to allow replication by others?

Research steps and methods are well explained and future researchers who are interested in similar research topics or groups can easily adapt to the process. I confused between a choice of methodology and a thematic analysis of the study under the Bronfenbrenner socioecological model and worry the way of approach to older Irish people. According to the section of study design, researchers wrote that they are planning to adopt a longitudinal qualitative approach because of consideration of the uniqueness of mental health research that is variable and difficult to generalized. This means that the method aims to explore research subjects' deep mental wellbeing targeting limited research participants in a specific community. However, in the analysis section, researchers said that they are planning to define and sort themes and show the linkage without mentioning how the analysis can interact with the Bronfenbrenner socioecological model. I could not find themes, meanings, or patterns

that researchers want to focus on by using this analysis and how this analysis will efficiently emphasize either the participants' psychological wellbeing or systematic levels that interact with their mental health.

Many thanks for bringing these points to our attention. We have revised our rationale for conducting a longitudinal qualitative approach (page 4, paragraph 2). Research questions have been revised to detail our broad perspective on the socio-ecological factors influencing older people's mental health during the pandemic (Table 1). We have also revised our analysis section with additional details about how the socio-ecological model will be utilized at this stage (page 6, paragraph 3).

Additionally, I wonder how researchers anticipate results of electronic submissions of open-ended questions via Padlet software and videoconferencing software, although they mentioned a phone call interview. The researcher can provide several ways how they are going to invite potential participants when they want to participate in the electronic questions or video interviewing, such as sending an email, QR code, or link.

Many thanks for requesting this clarification and your suggestions. In addition to the promotion and recruitment strategies previously proposed, we have developed a project website (www.wisestudy.ie) that includes links to an online form where those interested can submit their responses or print out materials to send by traditional post once completed. Advertisements in social media and physical spaces contain the website information, as well as researcher contact information in case they prefer to receive and/or share information through a phone call, text, or email. We have removed the data collection with Padlet, instead opting for a mapping exercise completed by the participant with the researcher's assistance. This will be available online or face-to-face if public health restrictions allow. The manuscript has been revised accordingly in the participants' selection and recruitment section (page 5, paragraph 4) and the data collection section.

Lastly, regardless of the research question, I want to raise on curiosity about research subject criteria because 'the ability to use and understand the information to make a decision' looks too broad to participants in the age group presented for the study and too highly fancy methods work process for the research group.

Many thanks for requesting this clarification. Our research subject criteria is based on the ability of potential research subjects to understand and logically process the information that is necessary to make an informed decision regarding study participation. This is recognized as 'capacity' and encompasses being able to understand what the research is about, understand the potential benefits and risks of participation, and being able to communicate their wishes (1). Capacity will be assessed intuitively by the researcher at every encounter. A more formal capacity evaluation will be considered if there is reason to question an individual's decision-making ability in line with the Irish Health Service Executive guidelines (2,3). We have revised the participants' selection and recruitment section to clarify this information (page 5, paragraph 3).

Are the datasets clearly presented in a useable and accessible format?

Not applicable. However, if researchers can make datasets the useable format its'

contribution will be tremendous because psychological well-being and mental health can be different depending on socio-culture backgrounds differ from physical disease diagnosed by clinical symptoms. Thus, allowing the dataset to other researchers enriches discussions via comparison studies with other ethnicities, planning specific spatial systems for Irish older adults, or contributing to emotional well-being academic fields, etc.

Thank you for making this suggestion. As established by our Research Ethics Committee approval the data collected can only be utilized for the research purposes indicated in the consent form. This consideration will limit the opportunities to share data with other researchers. However, comparisons with data from other contexts remain possible, and we agree it could provide relevant insights about socio-ecological mechanisms for mental health and wellbeing so we will consider it.

General Comments:

Overall, this study protocol is very timely and well explains how they are going to explore Irish older adults' psychological well-being and mental health during COVID-19, and they will provide Well-being, Interventions, and Support (WISE) based on the Bronfenbrenner socioecological model. However, I made several recommendations here.

Thank you for your positive comments. We have made revisions to our manuscript as detailed in our other responses.

First of all, making WISE looks like a major contribution of this study, and research results from WISE can be developed as a valuable framework for the older population facing future epidemics or natural disasters. Thus, emphasizing WISE more academic ways and showing fields where it makes contributions. For suggesting WISE based on discovered mechanism, researchers need to define what is the definition and role in this research and how it used in similar cases.

Many thanks for raising this important consideration. We have revised our manuscript with the definitions underpinning WISE (background section: Table 1), and potential implications of the findings emerging from the study (background section: page 4, paragraph 1-2). The implications remain broad as the exploratory nature of the study will provide insights into what specific types of interventions could be developed for older people's support in future public health emergencies.

Next, the study protocol is framed by using the Bronfenbrenner socioecological model. While the Bronfenbrenner socioecological model is developed based on psychology, this project could contribute to making policies for later-life care environments, community planning, or public practices for welfare during the great social chaos era in the future. However, readers need to know why the Bronfenbrenner socioecological model is an influential framework rather than the concept of spatiality or spatial scale to explore the psychological well-being or mental health of older adults. So many geographers have been studying the scale of spaces and health, and geography scholarship has emotional geography as sub-disciplinary

(see examples, Bondi1,2; Bondi and Fewell3; Price4; Pile5), and those geographers have studies how human being's body and emotions interact to socio-political structures in diverse ways. In this context, the researchers need to mention how this project contributes or enriched current earlier works relating to older adults' mental health well-being by using the Bronfenbrenner model.

We appreciate your recommendations. We agree that theories and practices emerging from emotional geography are relevant for this study. However, we consider there is no contradiction with borrowing understandings from emotional geography and utilizing the Bronfenbrenner socio-ecological model as an overall framework for the study. Exploring the emotional and lived geographies of older people on the Bronfenbrenner model will allow us to connect empirical, theoretical, and policy while highlighting the relevance of place in shaping the experiences and behaviors of older people during the pandemic. Moreover, as pointed out by the Reviewer, Bronfenbrenner's model was developed in the field of psychology and has since been widely utilized in many other fields. Thus, we consider it speaks to the interdisciplinary nature of our research team and where findings emerging from the study could be useful, providing us with a common language to discuss the relationships between the socio-ecological determinants and health.

Lastly, researchers put three research questions to explore research subjects' mental health; I could not find what researchers want to hear from research participants because research questions are too similar to each other. It means that participants also could not find a hint of the system for giving their answer while this project aims to cover different systems that look like different spatial scales from individuals' body to neighborhoods, society, and culture.

Thank you for bringing this to our attention. Although our research questions maintain a broad perspective on the multiple levels of the socio-ecological model, prompts are provided during data collection to explore factors at each level. We have added our interview guide as a supplementary file so that readers can observe this approach.

At this moment, I want to know how the 'system' that researchers used in this protocol is different from a concept of scale because researcher are actively planning to use geo-referencing data with GPS.

Thank you for requesting this clarification. We acknowledge the overlap between the concepts covered by Bronfenbrenner's socio-ecological model and geographical scales. The geo-referencing of data will be utilized in conjunction with the activities mapping exercise and further information provided by participants to contextualize their experiences during the pandemic. For instance, we expect changes may be apparent in participants' activity spaces, so that characteristics of the local scale/microsystem may be more relevant. Moreover, routes to reach significant places may have been altered to avoid infection risk or reach therapeutic landscapes and GPS data will enrich our understandings of how place(s) can shape older people's behaviors, health, and well-being.

I put several geographers' earlier works, which provided visualization of emotion based on geodataset. I hope those are helpful to develop your work.

Many thanks for sharing these citations to previous literature. We will give careful consideration to these as we advance our project.

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Competing Interests: None to declare

Reviewer Report 25 February 2021

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Marica Cassarino 

School of Applied Psychology, North Mall Enterprise Centre, University College Cork, Cork, Ireland

The manuscript presents a protocol for a longitudinal qualitative study (with two waves of data collection) which will investigate Irish older people's psychological experiences during the COVID-19 Pandemic. The study will use interviews as well visual/interactive methods of data collection to elicit information on the perceived enablers and barriers for wellbeing. The study will be guided by an advisory panel including members of the population of interest.

This is an interesting study which will help to shed a light on the pandemic experiences of a demographic group that is considered highly vulnerable. Overall, the study has a clear rationale and the design is appropriate. There however a number of aspects, particularly methodological, which in my opinion require clarification. I have listed these below:

1. In the Background section, the authors provide a rationale for the study, but I would encourage to expand on two aspects: Firstly, the impact and implications of the study, clarifying what kind of actions or interventions might derive from this study; secondly, clarifying where the study is taking a focused or broad perspective on "resources and activities". While it is commendable that the authors are using a socioecological approach, it would be useful to clarify whether the data collection will focus on any of the systems or all of them.

2. In the Background, p.2 paragraph 5, the authors state: "Therefore, using longitudinal qualitative inquiry is critical to contextualize the evolving lived experience of community dwelling older adults during the COVID-19 pandemic". This does not appear to be well-linked with the previous paragraph, which is focused on heterogeneity of experiences. It would be useful to provide a clearer justification for the longitudinal approach here.
3. In the Background, p.2 paragraph 6, the authors state that the study is a qualitative "diagnostic" component of a larger study. Could the authors clarify what they mean with "diagnostic" here?
4. Background, p.2 paragraph 6: It would be useful to have either a reference to the WISE study, or a brief explanation of the objective of the overall project, so to give better context to this study.
5. Research questions 1 and 2 appear to repeat each other. Perhaps they could be merged into one. Otherwise, I would encourage the authors to specify what they mean with "experiences", is this related to health, social aspects, environmental inequalities?
6. Participant selection and recruitment should note any potential difficulties related to COVID-19 restrictions with regards to approaching prospective participants (e.g., how to deal with signing of consent form) and contingencies to deal with such difficulties.
7. In the Data collection section, I wonder on whether the authors could better justify the time period 3-10 weeks for repeat interviews. One would expect that 3 weeks is quite a short period to see any changes in socioecological circumstances, or indeed in subjective wellbeing. Is there a risk here that the second interview may not hold any new piece of information? My personal recommendation would be to use a longer period, particularly if restrictions are ongoing for a long period, such as 6 weeks or longer, to capture potential changes. However, there might be a specific reason for this timeframe, and it would be important to make that explicit in the protocol
8. In the Data collection, are there any restrictions or T&Cs in place with regards to collecting images (e.g., not including people's faces)?
9. In Data Collection: Will the go-along interviews or face-to-face interviews be feasible if there is a level-5 lockdown? Are there any restrictions put in place by the Higher education Institution where the authors are affiliated that may prevent these? These aspects should be clearly planned given the Covid-19-related vulnerability of the population of interest. The authors mention the possibility to use interactive mapping exercise as an alternative, and it would be good to expand a bit on these.
10. With regards to online submissions on Padlet mentioned at page 5, could there be any issues related to participants' digital literacy? How will these be dealt with? Will the participants need training? Is there a contingency plan to have images or audios collected not on Padlet?
11. Will any quantitative sociodemographic or health information be collected via a questionnaire or survey to profile the sample of respondents? I would very much encourage

this, but if this is not planned, please clarify why.

12. The data analysis section does not appear to indicate the approach to the analysis of images. This appears to be a photovoice exercise, thus, it would be useful to clarify the approach to image analysis. The same applies to the audios mentioned at page 5.

13. In the Ethics section, please clarify whether informed consent will be written.

I wish the authors all the best with their project.

Is the rationale for, and objectives of, the study clearly described?

Yes

Is the study design appropriate for the research question?

Yes

Are sufficient details of the methods provided to allow replication by others?

Partly

Are the datasets clearly presented in a useable and accessible format?

Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Environmental Psychology, Gerontology, Cognitive Sciences.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 31 Aug 2021

Viveka Guzman, Royal College of Surgeons in Ireland, Dublin, Ireland

Dear Dr Marica Cassarino,

Thank you for reviewing our submission and for your thoughtful and constructive feedback. Revisions have been made and are individually detailed below (Reviewer's comments in bold). We believe the revisions informed by your comments enhance the protocol greatly and appreciate your time and consideration.

The manuscript presents a protocol for a longitudinal qualitative study (with two waves of data collection) which will investigate Irish older people's psychological experiences during the COVID-19 Pandemic. The study will use interviews as well visual/interactive methods of data collection to elicit information on the perceived enablers and barriers for wellbeing. The study will be guided by an advisory panel including members of the population of interest. This is an interesting study which will help to shed a light on the pandemic experiences of a demographic group that is

considered highly vulnerable. Overall, the study has a clear rationale and the design is appropriate. There however a number of aspects, particularly methodological, which in my opinion require clarification.

Thank you for your positive comments. Please see below a detailed response to each of your requests for clarifications.

1. In the Background section, the authors provide a rationale for the study, but I would encourage to expand on two aspects: Firstly, the impact and implications of the study, clarifying what kind of actions or interventions might derive from this study; secondly, clarifying where the study is taking a focused or broad perspective on "resources and activities". While it is commendable that the authors are using a socioecological approach, it would be useful to clarify whether the data collection will focus on any of the systems or all of them.

Many thanks for making this very important observation. We have clarified in the manuscript background section (page 3, paragraph 5) that our objective is to gain a broad perspective of the experiences of older people living in Irish communities during the COVID-19 pandemic. We have also included in Table 1 the key definitions underpinning the study with information about the breadth considered. Additionally, we have added our interview guide as a supplementary file so that readers can observe how we have operationalized these concepts (including an overview of the questions used to collect participants' information across multiple levels of the socio-ecological model). Due to the exploratory nature of the study proposed, we consider at this moment it is not possible to provide specific characteristics of the actions and interventions that will derive from the study although we expect these may sharpen the understanding of older people's needs during emergencies. We also expect that the socio-ecological perspective applied may provide valuable information about how diverse factors interact towards certain mental health and well-being outcomes, which could provide guidance for further testing in epidemiological studies and insights for the development of multi-level interventions.

2. In the Background, p.2 paragraph 5, the authors state: "Therefore, using longitudinal qualitative inquiry is critical to contextualize the evolving lived experience of community dwelling older adults during the COVID-19 pandemic". This does not appear to be well linked with the previous paragraph, which is focused on heterogeneity of experiences. It would be useful to provide a clearer justification for the longitudinal approach here

This is a very important observation, thank you for bringing it to our attention. We have added our rationale for the longitudinal approach (page 4, paragraph 2).

3. In the Background, p.2 paragraph. 6, the authors state that the study is a qualitative "diagnostic" component of a larger study. Could the authors clarify what they mean with "diagnostic" here?

Many thanks for drawing our attention to the fact that the term 'diagnostic' is unclear in this context. We have removed the term and amended this section to better describe the overall

WISE project and how the proposed qualitative study fits with the other components (page 3, paragraph 5).

4. Background, p.2 paragraph 6: It would be useful to have either a reference to the WISE study, or a brief explanation of the objective of the overall project, so to give better context to this study.

Thank you for this helpful observation. We have revised this section to detail the overall aim of the WISE study to gain an in-depth understanding of older people's experiences during the pandemic, and how the findings emerging from this study will contribute to define possible enabling/hindering mechanisms to be tested quantitatively in the next study component (page 4, paragraphs 1-2).

5. Research questions 1 and 2 appear to repeat each other. Perhaps they could be merged into one. Otherwise, I would encourage the authors to specify what they mean with "experiences", is this related to health, social aspects, environmental inequalities?

Many thanks for this relevant comment. We have revised the questions according to your suggestion (Table 1).

6. Participant selection and recruitment should note any potential difficulties related to COVID-19 restrictions with regards to approaching prospective participants (e.g., how to deal with signing of consent form) and contingencies to deal with such difficulties.

Thank you for requesting this clarification. In terms of recruitment, we acknowledge that COVID-19 restrictions act as a barrier to carry on face-to-face recruitment. However, to overcome this barrier we have considered multiple recruitment strategies including physical and social media advertisements, as well as contact with relevant stakeholders. We have amended the 'participants selection and recruitment' section to reflect this. Regarding consent, we have provided further details about our process in the ethics section. This includes: 1) sending all interested individuals a copy of the information leaflet and consent form, either electronically or by post (according to their preferences), 2) providing interested individuals 2-5 days to consider their participation and answer any outstanding queries about the research, and 3) those keen to participate can submit their written informed consent electronically or by post (page 6, paragraph 6).

7. In the Data collection section, I wonder on whether the authors could better justify the time period 3-10 weeks for repeat interviews. One would expect that 3 weeks is quite a short period to see any changes in socioecological circumstances, or indeed in subjective wellbeing. Is there a risk here that the second interview may not hold any new piece of information? My personal recommendation would be to use a longer period, particularly if restrictions are ongoing for a long period, such as 6 weeks or longer, to capture potential changes. However, there might be a specific reason for this timeframe, and it would be important to make that explicit in the protocol

Many thanks for this suggestion. We have revised our timeline to collect baseline data during the implementation of level 5 restrictions (March-April-early May 2021) and follow-up data collection during the easing of restrictions in the summer (August-September 2021), particularly in relation to the re-opening of third spaces, travel, and opportunities for social interactions, which may have a significant influence on well-being. Moreover, this timeline also provides the opportunity to capture experiences with the vaccination roll-out, and if/how it has influenced previous concerns, perceptions, and behaviors. Information has been revised in the manuscript data collection section (page 5, paragraph 5).

8. In the Data collection, are there any restrictions or T&Cs in place with regards to collecting images (e.g., not including people's faces)?

Thank you for raising this important question. Regarding the collection of images, there are two distinct instances when this takes place in the study. The first one is during the written submission, where participants are given the opportunity to attach images. In this instance, we have not mentioned any limitations about the types of images that people can attach. Images collected at this stage will be used to complement and bring depth to participants' experiences. Moreover, for those who chose to also take part in an interview, these images will be used for elicitation. The second instance where images will be collected is in go-along interviews. These photographs will be used to capture elements that are highlighted by the participant across the route and to verbally clarify their meanings with the participants. Only a small number of images will be used for explicit analysis and these will be edited if necessary (i.e., blurring will be used to maintain anonymity). These details have been added to the manuscript analysis plan section (page 6, paragraph 4).

9. In Data Collection: Will the go-along interviews or face-to-face interviews be feasible if there is a level-5 lockdown? Are there any restrictions put in place by the Higher education Institution where the authors are affiliated that may prevent these? These aspects should be clearly planned given the Covid-19-related vulnerability of the population of interest. The authors mention the possibility to use interactive mapping exercise as an alternative, and it would be good to expand a bit on these.

Thank you for requesting this important clarification. Go-along interviews will be carried out in compliance with the public health recommendations in place at the time of data collection. This means no face-to-face interactions will take place while level-5 restrictions are in place. Researchers will offer the opportunity to carry on all activities online if participants do not feel comfortable meeting face-to-face even as restrictions are eased. We have expanded these details in the manuscript data collection section (page 6, paragraph 2).

10. With regards to online submissions on Padlet mentioned at page 5, could there be any issues related to participants' digital literacy? How will these be dealt with? Will the participants need training? Is there a contingency plan to have images or audios collected not on Padlet?

This is a very relevant observation. Further discussion with the Patient and Public Involvement contributors highlighted that the Padlet option could be confusing among the

multiple options to take part in the study and potentially too overwhelming for new users. Accordingly, we decided to remove this tool and give the opportunity for participants to submit images through a form on the project website or by emailing the research team. We have added these details in the manuscript data collection section (page 5, paragraph 7).

11. Will any quantitative sociodemographic or health information be collected via a questionnaire or survey to profile the sample of respondents? I would very much encourage this, but if this is not planned, please clarify why.

Many thanks for highlighting this important omission. Participants are asked to complete a brief background questionnaire at the first point of data collection (either written submission, narrative interview, or go-along interview). The corresponding description of this background questionnaire has been added to the data collection section (page 5, paragraph 7) and a copy can be found in the extended data.

12. The data analysis section does not appear to indicate the approach to the analysis of images. This appears to be a photovoice exercise, thus, it would be useful to clarify the approach to image analysis. The same applies to the audios mentioned at page 5.

Thank you for bringing this omission to our attention. We have revised our analysis section to detail how images will be analyzed (page 6, paragraph 4). As we have removed Padlet from our data collection methodology, self-submitted audios will not be available for analysis.

13. In the Ethics section, please clarify whether informed consent will be written.

Thank you for highlighting this omission. Written informed consent will be sought from all participants. We have included this information in the Ethics section (page 6, paragraph 6).

Competing Interests: None to declare