

Reducing Social Isolation and Maintaining Quality of Life during the SARS-CoV-2 (COVID-19) Pandemic via Assistive and Interactive Technology IRB#838-20-EP

Proposal for 2021 FUSE

Undergraduate Student: Akankshya Chataut; Faculty Mentor: Dr. Julie Blaskewicz Boron
College of Arts and Sciences in Collaboration with the College of Public Affairs and Community Service;
Department of Gerontology

PROJECT DESCRIPTION

The purpose of this study is to assess the impact of assistive and interactive technologies (AITs) on quality of life (QOL) in the lives of older adults amidst the SARS-CoV-2 (COVID-19) pandemic. AITs can be classified as platforms, mediums, or devices that may assist individuals who have specialized needs or require assistance. This study specifically focuses on how these AITs may reduce social isolation while also helping aging individuals maintain their QOL. This is important as populations continue to age; it is projected that by 2034, the number of older adults will outnumber young children for the first time in the history of the United States (Nasser, 2019). With such a major demographic shift underway, it is essential for researchers to examine the individual characteristics that affect AIT needs, preferences, and adoption, and how these may facilitate reductions in loneliness and isolation. Greater understanding of AITs may create avenues for intervention to improve older adults' interpersonal relationships, reduce the feelings of loneliness and isolation, and increase QOL.

COVID-19 has exacerbated everyday stressors for some older adults by hastening and highlighting losses in independence, health declines, and financial concerns (Ortiz & Ortiz, 2020). Specific to COVID-19 yet generalizable to other isolating events (i.e., influenza outbreaks, functional decline, etc.), meeting with friends and family, accessing resources, and receiving care has become increasingly difficult. By result older adults are at a greater risk for experiencing loneliness and may be more vulnerable to the negative downstream consequences (Harrington & Sliwinski, 2020). With recent social isolation and stay-at-home mandates, loneliness may result in sharp QOL reductions in older adult populations; however, technology use may be a meaningful intervention to buffer this effect. As a mitigator for isolation and loneliness, increased AIT use has been associated with fewer health concerns, higher overall well-being, and lower rates of depression (Smith, et al., 2020). In response to the changes imposed by COVID-19 and the potential for technology to keep people connected, an increasing number of older adults are experimenting with AITs (Ortiz & Ortiz, 2020).

In the context of the COVID-19 pandemic, many adults have overcome AIT obstacles in an effort to remain connected despite social distancing and stay-at-home orders. Technology has facilitated long-distance connections; however, with rapid advancements occurring daily, there are continued challenges for aging adults to readily adapt. Younger populations may be more able and/or willing to acclimate advancing AITs compared to aging populations; their active presence online, regular use of AITs, and general access to technology for school and personal use may facilitate easy adaptation (Olson, O'Brien, Rogers, & Charness, 2011). Research indicates that in older adult populations, complex and regularly shifting AITs pose barriers for use and adoption (Miller et al., 2018). Perceived barriers due to unfamiliarity to technology can hinder exploration and adoption of new AITs. Further, a lack of knowledge and having limited support systems to guide individuals in using AITs may increase technology-associated stress for isolated individuals (Andrews, Brown, Hawley, & Astell, 2019).

RESEARCH QUESTIONS AND CONTRIBUTIONS

As social isolation is a major factor in limiting assistance and connectedness for adults during the COVID-19 pandemic, this study focuses on how adults across age cohorts may differentially rely on and/or utilize AITs to improve QOL and connection. A primary focus of this study is to further investigate how personalized technology can assist adults in bettering QOL through improving social connection and increasing autonomy. This study will utilize data collected between December 2020 and February 2021 as part of a larger study (IRB# 838-20-EP). This study will aim to inform on how home-based AITs can assist aging adults with the objective of improving and maintaining their independence. To better understand the relationship between QOL, AITs, and individual characteristics (gender, age, etc.), the research questions for this project are as follows:

- 1.) What is the relationship between individual characteristics, AIT use, and QOL?
- 2.) What is the extent to which individual characteristics impact AIT needs and preferences?
- 3.) What is the extent to which loneliness/social isolation affect QOL and functional ability?

The proposed research questions for this study add value as they contribute to understanding of AIT use in mitigating consequences during isolation. This is crucial as the knowledge to practice gap among aging adults is high (Miller et al., 2018). Some older adults might be familiar with new and advanced technology; however, they may be hesitant to incorporate AITs into their daily lives. Barriers driven by knowledge gaps, lack of AIT assistance, and limited access may inhibit older adults from connecting to beneficial AIT resources. This study may serve to enhance understanding of AIT use in older adult populations, contributing to future developments focused on reducing social isolation.

Additional Data Collection. The final sample demographics of the currently collected data is 77% white/caucasian. It is therefore beneficial to diversify the sample by specifically targeting non-white respondents; we will collect additional surveys from a non-white sample via Amazon Mechanical Turk (MTurk). MTurk provides access to a large, heterogeneous and diverse population (Amazon Mechanical Turk Inc., 2018). Amazon oversees all transactions and there is anonymity for all compensation (Amazon Mechanical Turk Inc., 2018). Approximately 70 additional surveys will be collected.

PROJECT TIMELINE

Month (in 2021)	Project Phase	Research Activities
May	Statistical Preparation and Data Cleaning	R Software Familiarization and Data Cleaning, Introduction Development and Drafting
May-July	Additional Data Collection	Conducting Additional Surveys via Amazon MTurk
June	Data Preparation and Analysis	Dataset Preparation, Data Exploration, Methods Development
July	Data Analysis and Interpretation	Data Analysis, Results Interpretation, Methods, Results and Discussion Drafting
July-August	Deliverables	Final Drafting and Editing of Manuscript (to be continued in Fall semester with volunteerism or independent study)

STUDENT/FACULTY MENTOR ROLES

Undergraduate Student: Akankshya Chataut, College of Arts and Sciences. As the student researcher for this project, I will be responsible for **1) cleaning the raw data and developing a usable dataset, 2) analyzing all data and developing data visualizations, and 3) producing deliverables for eventual conference and journal submission.**

Faculty Member: Dr. Julie Blaskewicz Boron, College of Public Affairs and Community Service, Department of Gerontology. Dr. Boron is the Principal Investigator for the study. Dr. Boron will provide advice and guidance in the aforementioned student responsibilities. Dr. Boron will monitor/moderate data analysis and provide feedback on deliverables.

Associated Sources of Income

I am a full-time student majoring in Molecular and Biomedical Biology (minors in Chemistry, Medical Humanities, and Spanish). I am currently part of an internship with the Department of Gerontology (9-month academic year appointment), under the current guidance of Dr. Julie Blaskewicz Boron. I engage in a variety of tasks; however, I am only able to devote 10 hours/week to research. This internship terminates in Spring 2021. The proposed data analysis and collection is labor and time-intensive, requiring extensive planning, recruitment, and time. As I do not have any funding over the summer, this FUSE grant would allow me to devote time to developing the project, implementing it, and analyzing the outcomes. The outcomes of this project will benefit the larger project and is to my academic benefit. This will also provide significant data for an independent study in the fall semester. *I have not received any previous internal funding for this project.*

BUDGET JUSTIFICATION

The total amount requested for this grant is \$2500. The proposed budget reflects the time allotment at a standard pay rate of \$10 per hour.

Project Phase	Details and Justification	Time Allotment	Budget
Statistical Preparation and Data Cleaning (May 2021)	R Software Familiarization and Data Cleaning, Introduction Development and Drafting	25 hours	\$250
Data Preparation, Collection, and Analysis (June 2021)	Dataset Preparation, Additional Data Collection, Data Exploration, Methods Development	75 hours	\$750
Data Analysis and Interpretation (July 2021)	Data Analysis, Results Interpretation, Methods, Results and Discussion Drafting	50 hours	\$500
Deliverables (July-August 2021)	Final Drafting and Editing of Manuscript (to be continued in Fall semester with volunteerism or independent study)	50 hours	\$500
Stipend Subtotal			\$2,000
Additional Data Collection (May-July 2021)	Conducting additional surveys targeted at non-white populations and white males (via Amazon MTurk)	Approximately \$6-7.50/survey, 70 surveys goal with maximum budget of \$500	\$500
Direct Cost Subtotal			\$500
TOTAL DIRECT COST FOR PROJECT			\$2500

Additional Expenses

Access to journals is available through the University of Nebraska Omaha's library at no additional cost. Additionally, the College of Public Affairs and Community Service has a variety of statistical software programs available for data analysis. R Linux, a free statistical software, is also available for data analysis.

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February 18, 2021

TO: FUSE Award Committee
FR: Julie Blaskewicz Boron
RE: Letter of Mentor Support, Akankshya Chataut

I write this letter in strong support of Akankshya Chataut's FUSE application. Akankshya is currently a full time (junior-standing) student pursuing a major in Molecular and Biomedical Biology, with a minor in Chemistry, Medical Humanities, and Spanish. Ms. Chataut is completing an internship through Home Instead Senior Care with my CAPACITY LAB within the Department of Gerontology (9-month academic year appointment). Akankshya was interested in the work my lab is conducting that is related to the impact of technology on quality of life in aging adults and caregivers of aging adults. She has been with our team since August 2020, and has been a tremendous asset. Her current research responsibilities include focus group assistance, data cleaning, survey edits, and IRB work. Ms. Chataut dedicates ten hours each week to these research efforts. We are ensuring that she has a wide variety of experiences with research to assist her long-term career goals of pursuing professional school (PA, MD, and/or PhD).

In her Home Instead internship with my lab, Akankshya has learned how to analyze qualitative data, conduct focus groups, and develop surveys. She has gained experience and confidence in communication, data cleaning and analysis, and preparing IRB applications. Akankshya is currently working to analyze qualitative focus group data in conjunction with complimentary quantitative data. Ms. Chataut has been diligent in consuming both technology and aging literature and COVID-specific research. She is in the process of conducting a technology and health meta-analysis, aimed at publication. Akankshya has devoted extensive time to project development, literature review, data management, and accruing additional participants from underrepresented populations. My experience with Akankshya as a novice researcher shows that she is a motivated achiever who is organized, willing to learn, and capable of managing a variety of high-level tasks effectively.

Akankshya's FUSE application, *Reducing Social Isolation and Maintaining Quality of Life during the SARS-CoV-2 (COVID-19) Pandemic via Assistive and Interactive Technology*, has the goal of analyzing the data from a project she helped to develop, specifically focusing on the relationship between COVID-19, technology use, communication, and loneliness/isolation of older adults. Further, she aims to accrue additional underrepresented participants, which is essential to diversifying the dataset and understanding the needs of a wide range of aging individuals.

I believe Akankshya's experiences to date make her well prepared to achieve her goals in her proposed FUSE project. IRB approval has already been obtained. The requested money will help support Akankshya by providing dedicated time for her to focus on research, and compensation for additional participants.

In closing, I strongly recommend that Akankshya Chataut be a FUSE recipient. I am enthusiastic regarding this recommendation, and look forward to helping Akankshya continue to develop as a researcher. I hope that she will earn this award to help support her professional development. If I can provide you and your colleagues with any additional information, please do not hesitate to contact me.

Sincerely,


Julie Blaskewicz Boron, Ph.D.

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