

Running head: INITIATIVE TO IMPROVE QOL

Utilizing Palliative Care Principles to Improve Mood and Quality of Life in a Nursing

Home: An APRN Initiative

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Abstract

Purpose: The purpose of this DNP project was to implement nurse practitioner (NP) led palliative care (PC) services and to evaluate the practice change by measuring nursing home (NH) residents' mood and quality of life (QOL).

Methods: 20 patients residing in one NH in a single Midwestern state in the United States that met PC criteria (any chronic, serious illness) were included in the project. Patients received visits from a palliative/hospice trained NP once a week in addition to other facility services. Self-report measures of depression and QOL were administered at baseline and one month later. Repeated measures ANOVAs were performed to examine the change in mood and QOL over time.

Results: 20 participants aged 44-88 years (average = 74.7 years, SD = 9.8 years) were enrolled, and 19 successfully completed four weeks of PC visits and questionnaires at baseline and four weeks. The average overall QOL z-score at the initial visit was -0.59 (SE=0.21) and average QOL z-score at the final visit remained -0.59 (SE=0.17). Results of repeated measures ANOVA showed no significant change in QOL score, $F(1,18)=0.00$, $p=0.997$, $\eta^2_p=0.00$. Average PHQ-9 score at the initial visit was 9.90 (SE=1.11). At the final visit, average PHQ-9 score was 8.21 (SE=1.39). Repeated measures ANOVA showed no significant change in PHQ-9 score over time when examining the entire sample, $F(1,18)=2.03$, $p=0.171$, and the effect size was small, $\eta^2_p=0.101$. However, when selecting for clinically significant depression symptoms (PHQ-9 score ≥ 10) at baseline, there was a trend towards a decline in depression symptoms, $F(1,10)=3.38$, $p=0.096$, with a large effect size, $\eta^2_p=0.253$. Though not statistically significant, the decline in depressive symptoms in this subset may be clinically meaningful.

Conclusion: This project implemented PC focused visits with a NP in a single NH, with the goal of improving symptom burden, and focused on mood (PHQ-9) and QOL (MQOL-expanded). Despite limitations, results provide preliminary support for improvement in depressive symptoms among a subset of patients receiving PC services. Additional studies with a larger population are needed to determine if mood and QOL can be improved using PC services in the NH setting.

Keywords: Palliative care, palliative medicine, long term care, nursing home, quality of life, depression, geriatrics, chronic disease

Utilizing Palliative Care Principles to Improve Mood and Quality of Life in a Nursing Home:

An APRN Initiative

Introduction

Palliative Care Background

Palliative care (PC) is specialized medical care focused on decreasing symptoms and improving quality of life for those with a serious illness. As a discipline, PC is relatively young; the term “palliative care” was first used by Balfour Mount in the early 1970s (Dahlin & Lunch, 2013, p. 3). PC developed out of hospice care, with the first formal hospice started in 1948 by Dame Cicely Saunders (UPMC, 2014). Unlike hospice however, PC does not require a six-month prognosis and can be provided as early as the onset of an illness. In 1990, the World Health Organization (WHO) officially recognized PC as a specialty. The WHO defines PC as:

An approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual (WHO, 2020).

PC developed traction in the hospital settings in the early 2000s, and today over 1800 hospitals have a PC program (Pullen, 2018). Ninety percent of hospitals with more than 200 beds and all of the National Cancer Institute’s Comprehensive Cancer Centers have PC programs (Cassel et al., 2018). All major hospitals in the Midwestern states metropolitan area have inpatient PC programs currently in place. Contrarily, PC in the NH setting is not as accessible (Miller et al., 2016).

Long-term Care Background

Long-term care (LTC) includes a variety of services, including assistance with activities of daily living (ADLs), meals, transportation, etc. LTC can be provided in various settings including the home, adult day care center, assisted living facility, or nursing home (NH). The most common location of LTC is in the home with the assistance of unpaid family or friends. However, individuals that require more in-depth care and/or lack home assistance reside in an assisted living facility or a NH. The NH setting is an increasingly common setting for LTC as individuals age and become cognitively impaired or ill. Residents of NHs are typically older with multiple chronic medical conditions. Over half of residents of NHs are totally dependent or need extensive assistance with ADLs (Ersek & Carpenter, 2013). However, NHs rarely have integrated PC programs and access to community PC support is not always available (Miller et al., 2016). Stephens & Hunt (2017) assessed 228 residents in three California NHs for PC eligibility. It was determined that 69% of residents were eligible, however none were receiving PC. The population of residents in NHs is expected to double to more than three million by 2030 (Meier, 2015). In addition, more than 25% of the geriatric population die in the long-term care (LTC) setting (Kelley & Morrison, 2015). It is estimated that by the year 2030, 40% of Americans will die in a NH and 70% of patients with dementia will die in the NH setting (Jones, 2016). With people living longer, serious and complex illnesses are increasingly common. PC in the NH setting is needed now more than ever.

What is Palliative Care?

PC services are designed to alleviate symptom burden by expertly managing complex physical, psychosocial, and spiritual distress. Primary care providers in the LTC setting are

increasingly strained for time, with more complex patients being admitted. PC visits can be lengthy and time consuming, this heavy time commitment can be a barrier to providing PC in the NH (Brazil et al., 2006). In addition, inadequate staffing in NHs as well as lack of education on PC have been cited as barriers to providing PC in the NH (Brazil et al., 2006; Hawley, 2017). A PC specialist is typically a NP or medical doctor (MD) that has training in geriatrics, PC, and end of life care. The PC specialist takes the time to conduct serious and potentially lengthy conversations with the patient and their family or loved ones aimed at providing education and ensuring that patients priorities are a focus of their care. PC has been shown to improve quality of care, increase patient satisfaction, and prolong survival (Comart et al., 2012; Giuffrida, 2015; Meier, 2017; Miller et al., 2016; Sidebottom, et al. 2015).

The WHO website states, “PC involves a range of services delivered by a range of professionals...including physicians, nursing, support workers, paramedics, pharmacists, physiotherapists and volunteers” (WHO, 2020). The literature shows that PC may be best conducted by an interdisciplinary team (IDT), including an MD/NP, registered nurse (RN), social worker, chaplain, etc. (Meier & Beresford, 2008; Noreika & Coyne, 2015; O’Connor, Fisher, Guilfoyle, 2006). Unfortunately, due to budget constraints governed by CMS and the fee for service payment model, outpatient PC in Indiana is conducted solely by an NP. There is access to the hospice IDT if needed, which includes an MD, RN, social worker, chaplain, and volunteers. In addition, all nursing homes have a social worker on staff that can assist if needed.

Problem Statement

The DNP project aimed to integrate NP led PC services into the NH setting. PC program outcomes were measured by assessing self-reported mood and QOL in NH residents. A NP saw the participants weekly and the participant's mood and QOL scores were assessed using the PHQ-9 and the MQOL-expanded.

Evidence-based Practice: Verification of Chosen Option

Depression is a common co-morbidity in the LTC setting. According to Thakur & Blazer (2008), up to 35% of LTC residents met the criteria for major depressive disorder (MDD) based on the Diagnostic and Statistical Manual of Mental disorder, fourth edition (DSM-IV) criteria or had clinically significant depressive symptoms. Of these studies, less than 50% of patients with depressive symptoms were recognized by nursing or social work staff (Thakur & Blazer, 2008). According to the CDC, 50% of residents in LTC have a diagnosis of depression (Harris-Kojetin, Sengupta, Park-Lee, & Valverde, 2013). The PHQ-9 is used by all NHs as part of their quarterly patient assessment as mandated by the Center for Medicare and Medicaid Services (CMS). This depression screening tool has been validated in the primary care setting as well as with older individuals (American Psychological Association, 2020).

Many studies assessing effectiveness of PC programs include a measure for QOL. Sidebottom et al. (2015) found improvement in QOL in hospitalized Congestive Heart Failure (CHF) patients experiencing an exacerbation. In a meta-analysis of 24 studies conducted by Kavalieratos et al. (2016), PC interventions were associated with statistically significant improvement in QOL. All of these studies however were done in a hospital or ambulatory

setting. More research is needed in LTC. Currently in the NH setting there are no questionnaires regarding QOL included in the quarterly assessment mandated by CMS.

In addition, depression has been shown to adversely affect QOL. In a cross-sectional analysis conducted by Voros, et al. (2020), a close correlation was found between depression and cognitive impairment as well as QOL. Sixty participants over the age of 65 were enrolled; those that were depressed had a significantly poorer QOL than the non-depressed subjects (Voros, et al., 2020).

PICOT statement: In a NH, does the addition of a program focused on PC principles led by a single NP improve PHQ-9 scores and QOL in chronically and seriously ill patients from August 2020 through November 2020?

Organizational “Gap” Analysis of Project Site

This project was conducted in a NH in a single Midwestern state in the United States. Retrospective chart reviews were conducted, as well as discussions with several staff members including the director of nursing (DON), nurses, and the clinical consultant. The minimum data set (MDS) staff were also included in discussions. This two-person team, including the head of MDS and her assistant, were responsible for administering quarterly assessments with all residents including PHQ-9 scores.

PHQ-9 scores were pulled for all patients from the last recorded MDS interview. Of the 58 LTC residents 50 reported PHQ-9 scores >10. This represents moderate, moderate severe, and severe depression. Comart et al. (2013) noted in their study looking at the impact of PC on LTC residents that the average depression score was 2.8 on the MDS depression scale prior to initiation of the study.

QOL is not currently measured in the NH where the project was conducted. This project included the MQOL-expanded questionnaire in order to obtain an overall assessment of residents QOL in this setting.

Review of the Literature

Palliative Care in the NH setting

A literature search was conducted using CINAHL, PubMed and Google Scholar. All searches were limited to full text, the years 2014-2020, and English language.

The first search terms included the keywords ‘palliative care’ and ‘nursing home or long-term care facility.’ A total of 117 articles were located and three articles were retrieved that had application in the proposed project based on several criteria primarily including study population and type of study. The search terms were narrowed to ‘palliative care’ and ‘long term care’ and 53 articles were retrieved, of which no additional articles were located. Finally, the time frame was expanded to 2005-2020 and four additional articles were located.

Tan (2019), as part of the requirements in a PhD nursing program, conducted a literature search aimed at summarizing the available models of PC services in LTC facilities. Ten total articles were included in the review, most of which were in the United States. However, the author notes a poor geographical representation as most studies were on the east coast as well as racial disparity as most participants were white. The majority of participants in this project were also primarily white due to the geographical area. The articles were largely conducted in a NH setting. The most common diagnoses for those enrolled in PC were cancer, dementia, chronic obstructive pulmonary disease (COPD), and heart failure. The author notes a lack of data available for how PC services impact quality of life, hospital transfers and cost.

Most of the studies indicated a positive change in symptom management, patient satisfaction, decreased hospitalization and cost, and improved quality of life. One study indicated no significant difference in terms of adherence with PC recommendations. The author concludes that the “dearth of studies, poor reporting of negative results, inadequate analysis, and lack of generalizability” contributed to the difficulty in realizing the most effective PC model in the LTC arena (Tan, 2019).

An article by Giuffrida (2015) noted that most PC studies are conducted in the acute care setting, and “very little has been written about PC services in the nursing home setting.” Giuffrida (2015) stated that in the NH setting, a strong PC program should include discussion of advance directives, psychosocial support, symptom control, spiritual support, and bereavement services. The author goes on to say that “having access to a functional PC program allows NH residents to have QOL and to have their symptoms managed in their home (Giuffrida, 2015). Giuffrida, a licensed social worker, conducted a study aimed at starting a PC program in a 364 bed NH in the Bronx, New York. One year after the PC program was initiated, the number of residents enrolled in PC increased from five to 25% (Giuffrida, 2015). Re-hospitalization rates decreased from 17.4 to 15.2% and residents with DNR orders increased from 64 to 73% (Giuffrida, 2015).

The Role of NPs in PC

Kaasalainen et al. (2013) conducted a qualitative descriptive design study aimed at exploring the role of NPs in providing PC in LTC. Data were collected from five LTC facilities across Canada which included 143 LTC staff participating in 35 focus groups and 25 individual interviews. The participants included physicians, nurses, NPs, managers, residents,

and family members. The participants were asked questions about caring for residents with complex medical issues, working with other health care providers, and working within their organization. This project highlighted that the relationship between the NP and family members is a key component in providing a positive experience. Overwhelmingly during the focus groups and interviews, staff in the facilities mentioned the extra help an NP provides for ill patients. A social worker that was interviewed stated “we need an NP to deal with end-stage problems. Everybody that walks through that door is at the end stage of their life” (Kaasalainen et al., 2013).

Palliative and End of Life Care in the NH Setting

Ersek and Carpenter (2013) define LTC as encompassing the “health and supportive services provided to people unable to practice self-care” with NHs increasingly the primary setting. Currently, 1.4 million people live in nursing homes (Nursing Home Abuse Center, 2020), and over half are totally dependent or need extensive assistance with activities of daily living (ADLs). Ersek and Carpenter (2013) aimed at describing knowledge of PC needs, outcomes for NH residents, and gaps in knowledge in their paper titled “Geriatric Palliative Care in Long-Term Care Settings with a Focus on Nursing Homes.” The authors note that there is “substantial evidence that palliative and EOL care in NHs is often inadequate” (Ersek & Carpenter, 2013). When PC services are provided, the majority of patients and families choose to limit aggressive medical treatments, however, many NH residents are hospitalized in the final weeks of life (Ersek & Carpenter, 2013). The authors identified gaps in the literature, as most PC research was descriptive in nature. Also, they located no published randomized control trials in the NH setting at improving symptoms, other than pain.

PC Consult Service in the NH

Comart et al. (2012) undertook the task of determining if a PC consult service in a Massachusetts LTC facility would result in more favorable outcomes. A historical design was used comparing deceased residents who received PC services between 2007-2009 to those who died in 2006, the year prior to the PC program initiation. Residents included in the analysis were matched by age, impairment in ADLs, presence of delirium symptoms, pain scales, depression rating, and level of cognitive impairment. In total, 250 residents were included, 125 in the PC arm and 125 non-PC historical controls. Their hypothesis was that those residents receiving PC would have fewer physician orders, less medication use, fewer acute care transfers and hospital stays, decreased falls, fewer wounds, and less symptom burden including improvement in depression symptoms. In the end, only depression and acute care transfers had a statistically significant improvement, however, all other assessed items showed a positive trend but not significantly.

Community Based Palliative Care

Due to a limited number of recent articles located in the initial literature review, a second literature search was conducted using CINAHL, PubMed, and Google Scholar. All searches were limited to full text, the years 2014-2020, and English language. The first search terms included 'palliative care' and 'depression' as well as 'palliative care' and 'quality of life' which yielded 472 articles, many of which involved cancer patients. Other searches included: 'palliative care and improving depression', 'palliative care and improving depression and dementia', 'palliative care and improving quality of life', 'palliative care and improving

quality of life and dementia,' 'palliative care and improving quality of life and heart failure,' and 'palliative care and improving quality of life and COPD.' Several articles were reviewed.

Feldstain et al. (2017) conducted a study analyzing improvement in depression scores among patient that received an eight-week palliative rehabilitation program (PRP) consisting of interdisciplinary rehabilitation, post cancer treatment. Participants were mailed one of several depression scales 3 months post PRP. A statistically significant decrease was noted in depressive symptoms.

The ENABLE (Educate, nurture, advise, before life ends) trials were designed to improve QOL among patients newly diagnosed with cancer. An analysis conducted utilizing data from both trials evaluated the association between baseline depression scores and subsequent survival time. The hypothesis was that a PC program would improve QOL and therefore depression which would impact survival. Their findings supported the hypothesis, with higher depression scores at baseline equating to shorter survival and depression scores decreasing by half for those patients in the intervention group (Prescott et al., 2017).

QOL in Cancer Patients Receiving PC

A randomized controlled trial conducted by Temel et al. (2017) aimed at analyzing the benefit of PC for patients with lung and gastrointestinal cancers. The primary endpoints focused on QOL utilizing the Functional Assessment of Cancer Therapy-General (FACT-G) scale and depression measured by the PHQ-9. A total of 350 patients were enrolled, 175 in each arm. Results showed that patients receiving PC had greater improvement in QOL from baseline to week 24, but not week 12 (Temel et al., 2017). Lower depression scores were also seen at week 24 for the intervention group vs those patients not receiving PC. In addition,

those patients not receiving PC showed worsening depression scores from baseline to week 24 (Temel et al., 2017). Also, those patients receiving PC were more likely to discuss their wishes with their oncologist, versus the control group (Temel et al., 2017).

Early PC Consults

Another study conducted at a cancer center aimed to determine how patients perceived early palliative care consults. Hannon, Swami, Rodin, Pope, and Zimmermann (2017) enrolled 26 patients and 14 caregivers and conducted qualitative interviews focused on QOL, f care, and their experiences with the PC team. Participants reported feeling supported and appreciated the guidance from the PC team regarding their illness and navigating the healthcare system. Specifically, participants valued the holistic support, guidance in decision making, and assistance in preparing for the future. In addition, patients experiencing symptoms valued the “prompt attention to their physical concerns” (Hannon, Swami, Rodin, Pope, & Zimmermann, 2017).

Studies on other chronic diseases utilizing PC have also been undertaken. A systematic literature review conducted by Diop, Rudolph, Zimmerman, Richter, and Skarf (2017) analyzed studies on patients with heart failure (HF). Fifteen studies were included, a majority of which showed improvement in patient centered outcomes including QOL and patient satisfaction (Diop, Rudolph, Zimmerman, Richter, and Skarf, 2017). In addition, three meta-analysis studies showed a 42% reduction in rehospitalization rates (Diop, Rudolph, Zimmerman, Richter, and Skarf, 2017).

PC in Parkinson's Disease

A study focused on the second most frequent neurological disease in the elderly, Parkinson's disease (PD), was conducted in Germany investigating QOL and access to PC (Klietz et al., 2018). Seventy-six geriatric patients were included and evaluated using several neurological tests as well as a structured interview regarding PC implementation. The authors determined that QOL was severely reduced in their patient population, including impairment of ADLs, cognitive decline, and depression. In addition, only 2.6% of patients reported receiving PC and 72% of patients reported the need for PC (Klietz et al., 2018).

Theoretical Framework

The Theory of Planned Behavior (TPB) is a mid-range theory that can be applied to the proposed project (Appendix A). The TPB states that to achieve a behavior depends on both motivation and ability. The TPB can design interventions for items that are important for the health of the patient, but that may have a stigma associated with them. PC is a young discipline and therefore many patients may be unfamiliar with the purpose and goals of PC. The TPB is comprised of six constructs that collectively represent the patients control over their behavior: attitudes, behavioral intention, subjective norms, social norms, perceived power, and perceived behavioral control.

The TPB is focused on the relationship between behavior and beliefs, attitudes, subjective norms, and intention. Perceived behavioral control is also incorporated into TPB. When patients feel that they can control their performance of a behavior, they feel more motivated. Healthcare decisions are often based on how patients think their family members or close friends would react or feel. By engaging patients and their families in PC visits and

discussions, the patient will feel more comfortable with making decisions regarding their medical care and speaking up about how they are feeling. This is done by having frequent visits and establishing trust with the patients and their loved ones.

The primary outcomes to assess for effectiveness of the addition of PC type visits was improvement in mood as evidenced by PHQ-9 scores and improved QOL as evidenced by MQOL-expanded scores. The six constructs of the TPB can provide a framework with which to develop this program. Utilizing the TPB, this program was created to improve patients' QOL. The goal of this project was to empower patients with knowledge and support to make informed decisions about their healthcare.

Goals, Objectives and Expected Outcomes

The goals of this project were focused on integrating PC services, albeit limited to a single provider, to improve NH residents' outcomes assessed short-term through mood and QOL measures. Presently, NH residents are not routinely provided PC services, while there is a plethora of evidence supporting improved patient outcomes when PC services are provided. One of the limiting factors for PC services widely accessible in community settings, includes the lack of trained workforce and access to interdisciplinary PC teams. NPs are well positioned to provide PC services, by holistic assessment and managing not only the physical aspects of pain, but the psycho-social domains as well (Kaasalainen et al., 2013). They also work with other providers in the community to coordinate care needs outside of their scopes of practice, such as social work and chaplaincy, to make up for the interdisciplinary PC team. The goals were evaluated by using questionnaires. In order to assess mood, the PHQ-9 (Appendix B) was utilized to assess for depression symptoms. To assess overall QOL, the

MQOL-expanded was used (Appendix C). Each questionnaire was administered at the first visit and the final visit. Scores were compared and assessed for improvement.

Methods (Plan)

Patients residing in a nursing facility in the Midwest were screened for eligibility. 20 patients were included in the project. Patients with any chronic, serious illness were included. This included, but was not be limited to cancers, CHF, COPD, End-Stage Renal Disease (ESRD), and Amyotrophic Lateral Sclerosis (ALS). The residents of the NH that met screening criteria and consented to participate received a weekly visit from a palliative/hospice trained nurse practitioner for four weeks.

Project Design

The project was a practice intervention in a NH setting. Data from participants were collected using questionnaires. This DNP project aimed to demonstrate that the addition of NP led visits utilizing PC principles in the LTC setting improved patient's mood and QOL.

Project Site and Population

The project was conducted in a NH in single Midwestern state in the United States. This facility had a maximum capacity of 112 beds. The census at initiation of the project was 72 residents. Patient were admitted and discharged daily, so the census was a fluid number. This facility had short-term rehab patients (currently 12) as well as long term residents (currently 60). This project only focused on the long-term residents per the request of the facility administration. The population was primarily over the age of 65 and demographics included 58 white residents, 12 African American residents, and two Hispanic residents (Table 1). There was one primary care group that managed the medical needs of the patients which

included a full- time nurse practitioner and the medical director, who typically saw patients once a week. MDS evaluated all patients on a rolling quarterly cycle based on admission date as mandated by CMS.

Table 1

Race of NH Residents

Race	Number of Residents
White	58
African American	12
Hispanic	2

Measurement Instruments

To measure the outcomes of this project, two questionnaires were utilized: the PHQ-9 (Appendix B) to assess for depression and the MQOL-expanded (Appendix C) to assess for patient reported quality of life. Each questionnaire was administered when the patient was enrolled and at the last visit. If the patient was unable to read or write, the questions were read out to them.

PHQ-9

The PHQ-9 is a nine-item questionnaire developed to assist screening for depression, as well as to quantify depression symptoms and their severity. It is useful as a concise and self-administered tool that incorporates DSM-IV criteria along with symptoms of depression. It has been validated by many studies and is recommended by the American Psychological Association (Gilbody et al., 2007; American Psychological Association, 2020). The PHQ-9 is scored from zero to 27. A score of four or less indicates minimal depression, five to nine

indicates mild depression, 10-14 indicates moderate depression, 15-19 indicates moderate-severe depression, and a score from 20-27 indicates severe depression. The total PHQ-9 score served as the primary mood outcome measure.

MQOL-expanded

The MQOL-expanded was conducted as part of this project to measure patient's general quality of life. This questionnaire was originally developed as the McGill QOL questionnaire (MQOL) and was later revised (MQOL-revised). All versions have been validated. The MQOL-revised has a 96% reliability and includes the domains of physical, emotional, social and spiritual (Cohen et al., 2019). The MQOL-expanded builds on the revised to "more comprehensively measure the QOL of people with life-threatening illness" (Cohen et al., 2019). The MQOL-expanded adds the domains of cognition, healthcare, environment, and feelings of being a burden. Each question is scored by the participant from zero to 10 and the total score is then calculated. Using published normative data (Cohen et al., 2019), MQOL-expanded total scores were converted to z-scores, which served as the primary QOL outcome measure.

Al Bulushi & Critchley (2015) conducted a retrospective literature review and located 13 different QOL questionnaires used in the PC setting. The MQOL-expanded was included, and four studies were located that confirmed its reliability and validity (Al Bulushi & Critchley, 2015). Permission was obtained from Dr. Robin Cohen to utilize the MQOL-expanded questionnaire as part of this project.

Data Collection Procedures

Enrollment

All current residents of the NH were screened for appropriateness. Patients that met PC criteria were included. The nursing staff provided a list of patients with a serious illness including, but not limited to, ESRD, cancer, COPD, diabetes, CHF were enrolled. 20 patients total were included. All patients signed a consent form prior to the first visit.

Project Intervention- First Visit

The first visit was conducted within 7 days of enrollment. A detailed medical history was obtained from the patient. In addition, a full review of the patient's medical record was conducted including review of provider notes, laboratory and radiology findings, and records from prior hospital admissions. The PHQ-9 and MQOL-expanded were administered at this visit as well. The participant was provided ample time to discuss any topics that were of concern, including but not limited to pain, mood, diet, mental health, and family stress. The NP provided suggestions during this visit for ways to improve these concerns, as well as overall QOL. Following the initial visit, a formal visit note was completed and filed in the patient's chart. Recommendations for changes to patient's medications or treatment regimen were presented to the primary care provider (PCP) at the facility for approval. This was done primarily via email based on the providers preference. The PCP was responsible for writing any orders or prescriptions needed.

Subsequent Project Visits

All participants had a visit by the NP weekly including a physical exam as needed, discussion of patients stay, review of any changes and positive or negative effects, and time

for the patient to ask questions. Other topics covered (which varied patient to patient) included religious and spiritual, psychosocial, nutrition, and activity. PC visits conducted by the NP outside of the project are consistent with this, however the visits did not have a time frame as the NP did not have scheduled patients. Visits typically lasted 15-60 minutes and the NPs scheduled was flexible to allow for longer visits if needed. The focus of each visit was to spend one on one time with each participant and focus on topics that were relevant to them. Discussion was focused on their particular disease process, bothersome symptoms, life events, and ways in which to improve their QOL. There was no specified format, instead focusing the visit time on what the participant chose. Participants were given time to discuss any topics of concern with the NP and suggestions were provided for ways to improve these concerns as well as overall QOL. Following the visit, recommendations (if any) were emailed to the PCP for approval.

Final Visit

The last visit consisted of a similar format to the initial visit. Again, the PHQ-9 and MQOL-expanded questionnaires were conducted. Again, participants were given time to discuss any topics of concern with the NP and suggestions were provided for ways to improve these concerns as well as QOL. Final recommendations were presented to the PCP, and the group was made aware that the patient has completed their final visit.

Data Analysis

Statistical analyses were performed in Microsoft Excel and SPSS Statistics Version 26 (IBM Corp, 2019), and power analysis was performed in G*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007). Repeated measures analyses of variance (ANOVA) were performed to

examine the change in depressive symptoms and in QOL over time. The within-subjects effect of time was the effect of interest. These analyses were first performed in the whole group, then exploratory analyses were performed among participants with and without clinically significant depressive symptoms at baseline. Line graphs were created for all statistical analyses.

Cost-Benefit Analysis/Budget

Costs for this APRN initiative included paper and ink needed to print questionnaires. This cost was minimal and included one ream of paper and one box of ink for the printer located in my home office. My time was also factored into cost. I spent over 40 hours on enrollment of all 20 participants, and then spent 12-24 hours a week on follow-up visits with participants. This is typical for a new patient enrolled in PC. My hourly charge would be \$50 per hour. The statistician consultant agreed to assist with statistical analysis for \$500 total. All statistical analyses were performed by the PI and all data were coded and de-identified by the PI. Appendix E details project costs. There was no cost to the facility or subjects for this project.

Timeline

The timeline of this project (Appendix D) started in September 2020 when the proposal was approved. Data collection was performed by the PI in September 2020. Visits were conducted from September 2020 through the end of October 2020. Data analysis and interpretation of outcomes was conducted through January 2021. Finally, dissemination of findings was submitted in March 2021.

Ethical Considerations/Protection of Human Subjects

The University of Alabama (UA) Institutional Review Board (IRB) approval was obtained prior to the initiation of the project. All participants were protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) which, among other guarantees, protects the privacy of patients' health information (Modifications to the HIPAA Privacy, Security, Enforcement, and Breach Notification Rules, 2013). The name of the NH was not included. All information collected as part of evaluating the impact of this project was aggregated data from the project participants and did not include any potential patient identifiers.

The risk to patients participating in this project is no different from the risks of patients receiving PC in the community. Participant confidentiality was assured by coding the participants using unique identification numbers. Paper questionnaires were stored in a locked filing cabinet in the principal investigator's office. All electronic files containing identifiable information were stored on the HIPPA secure UA Box.

Results

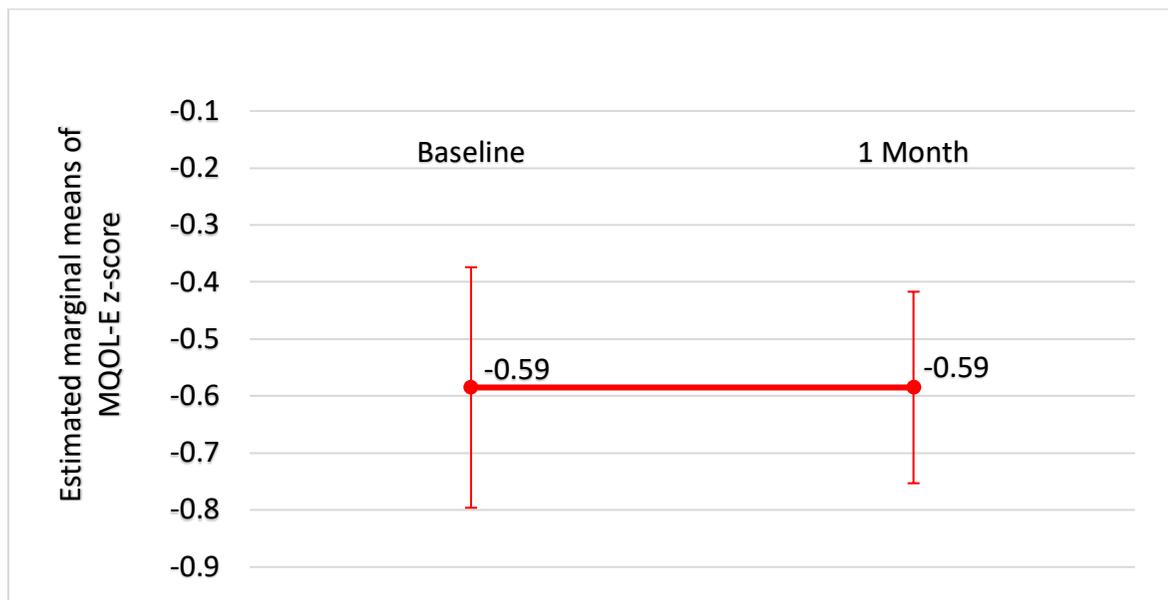
A total of 20 participants were enrolled at baseline. One relocated to a neighboring state and was lost to follow-up. The other 19 successfully completed four weeks of PC visits and questionnaires at baseline and week four. Participants were primarily Caucasian (n=18, 95%) and female (n=16, 84%). One of the participants (5%) was African American. No other ethnic groups were represented. These demographics are similar to the area that the NH is located. The age range of participants was 44-88 years (average = 74.7 years, SD = 9.8 years). All participants had multiple co-morbidities, the most common being heart disease (n=12),

neurological diseases (n=8), chronic pain (n=9), and mental health diagnoses primarily depression (n=16).

The average overall QOL z-score at the initial visit was -0.59 (SE=0.21), indicating that patients' QOL was slightly below average but within normal limits. At the final visit in four weeks, average QOL z-score remained -0.59 (SE=0.17), indicating stability of QOL over time. Results of repeated measures ANOVA showed no significant change in QOL score, $F(1,18)=0.00$, $p=0.997$, $\eta^2_p=0.00$.

Figure 1

Change in QOL Over Time

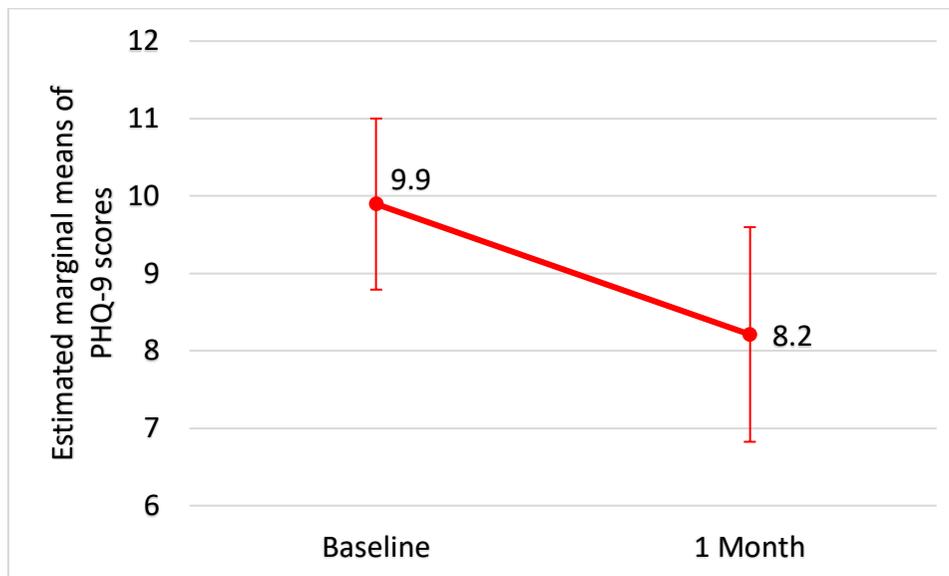


Average PHQ-9 score at the initial visit was 9.90 (SE=1.11), at the cusp between the mild and moderate depressive symptom ranges. At the final visit in four weeks, average PHQ-9 score was 8.21 (SE=1.39), in the mild range. Repeated measures ANOVA showed no

significant change in PHQ-9 score over time when examining the entire sample, $F(1,18)=2.03$, $p=0.171$, and the effect size was small, $\eta^2_p=0.101$.

Figure 2

Change in PHQ-9 Over Time



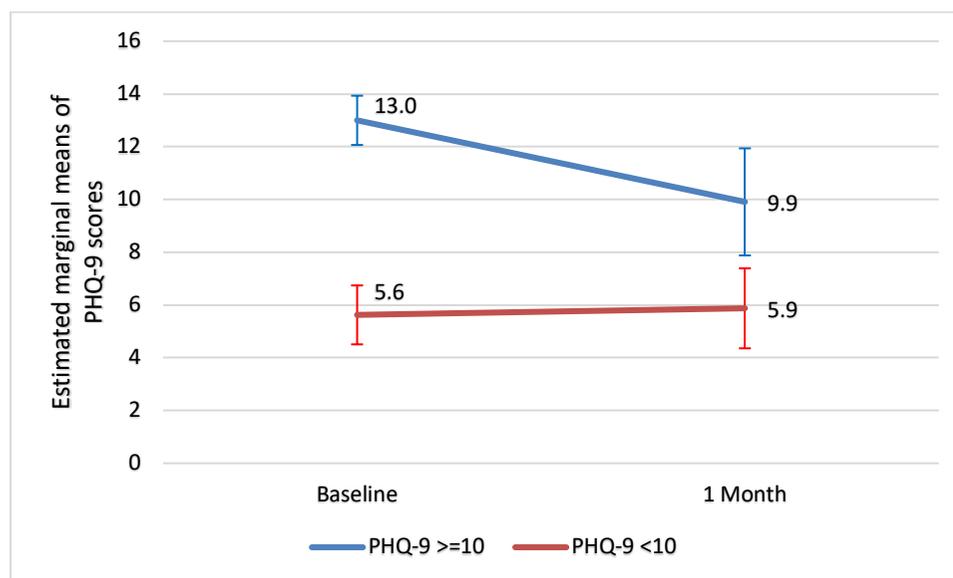
However, when selecting for clinically significant depression symptoms (PHQ-9 score ≥ 10) at baseline, there was a trend towards a decline in depression symptoms, $F(1,10)=3.38$, $p=0.096$, with a large effect size, $\eta^2_p=0.253$. PHQ-9 scores declined an average of three points (from a score of 13 to 10) for these 11 participants. Eight of the participants had a PHQ-9 score of less than 10 at the start of the project, which represents mild depression, and their PHQ-9 scores remained stable over time, $F(1,7)=0.03$, $p=0.867$, $\eta^2_p=.004$.

Power analyses indicated that a sample size of 34 is required for sufficient power ($1-\beta \geq 0.8$) to detect a large effect ($\eta^2_p \geq .25$) in a repeated measures ANOVA. In the present project, the achieved power to detect a large effect was well below the acceptable level (0.53

in the whole sample; 0.32 among participants with clinically significant depression at baseline). Thus, given the small sample size, sufficient power was not available to detect a significant effect. Though not statistically significant, the large decline in depressive symptoms in this subset may be clinically meaningful.

Figure 3

Change in PHQ-9 Over Time, Grouped By Baseline PHQ-9 Score



Interpretation/Discussion

The goal of this DNP project was to determine if a program focused on PC principles led by a single NP in the NH setting would improve resident short-term measures of mood and QOL, ultimately improving overall outcomes such as re-hospitalization rates. The initiative was initially to run for eight weeks, however, was shortened to four weeks, thereby eliminating a third set of data collection. This decrease from four to eight weeks was changed two days after the four-week follow-ups were conducted due to the COVID-19 pandemic per

The University of Alabama research division. The data was therefore limited by small sample size (n=19) as well as shortened time frame resulting in fewer data points. Despite these barriers, a notable improvement was seen in depression symptoms in those patients with moderate depression at baseline.

COVID-19 Impact

The residents of this facility have been struggling with seclusion, loneliness, and boredom for many months. Visitation was limited due to COVID-19, and residents were not permitted to leave their rooms for meals or activities any longer. Many participants commented that they so looked forward to their PC visits as it gave them someone to talk to and something to do. The staff also commented on the extra help the NP provided by sitting with the residents. Clinically significant PHQ-9 scores prior to this program can perhaps be linked to social isolation secondary to quarantine, and subsequent improvement may be associated with regularly scheduled visits from the NP. Several patients were prescribed anti-depressant medication prior to the start of the project; however, only one participant was willing to have their dose increased. None of the participants that were not currently taking an anti-depressant and had a PHQ-9 score greater than 10 were willing to initiate pharmacological treatment. Reasons for this included pill burden and some stated they didn't feel their symptoms warranted medication. Others also felt that a pill would not help until the quarantine was lifted.

Visits with the NP provided the participants with social interaction, as well as a medical provider that was able to spend as much time as needed listening to their symptoms, issues, and concerns. Participants verbalized that they appreciated not feeling rushed and

enjoyed the relaxed format of the visits, as opposed to primary care visits which had been done via telehealth for several months due to the COVID-19 pandemic.

Implications for Future Research

This project was limited by several factors, mainly size and time. The relatively small number of participants and small project window of four weeks resulted in limitations in statistically significant data, and therefore generalizability cannot be made. Despite this, a clinically significant improvement was seen in participants with moderate to severe depression. This project highlighted the need for further evaluation of the utility of PC in the NH setting. Giuffrida (2015) noted that “having access to a functional PC program allows NH residents to have QOL and to have their symptoms managed in their home”. There was a decrease noted in re-hospitalization rates in this study (Giuffrida, 2015). Future research with a larger population for a longer duration would provide more insight into the possible role of incorporating PC visits into the NH setting. This would also allow for tracking re-hospitalization rates in a larger population over a longer period of time. The majority of the staff at the NH were unfamiliar with general aspects of PC. Further staff education would be beneficial in ensuring a PC program succeed in the NH setting. In addition, future research focused on improving criteria including falls and wounds would be beneficial.

Ideally, PC services are best provided by an IDT. In Indiana this is not the current standard of practice, with PC services being conducted solely by an NP. Future research including an IDT may be beneficial in determining if outcomes are improved, however cost must be considered as PC is a fee for service industry.

The costs of this APRN initiative were approximately \$6000 for four weeks. The average cost of a common hospital admission in 2016 was \$11,700 (Consumer Health Ratings, 2021). It is unclear how many acute care transfers were prevented following this study. The Comart et al. (2012) study showed a statistically significant decrease in depression and acute care transfer rates. Preventing one acute care transfer a month may justify the NPs salary, which on average in the US is \$115,800 (Bureau of Labor Statistics, 2020). Long-term this project may be sustainable; one NP would be sufficient in a nursing home this size full time. Future research in larger studies of acute care transfer rates and subsequent cost-savings would be needed to determine sustainability.

Finally, the population in this project was primarily white and female, consistent with other nursing homes in this area. Future research with a more diverse population would be beneficial.

Conclusion

PC is a newer discipline that is increasingly prevalent in acute care hospitals; however, PC presence in the LTC arena remains inadequate to meet the needs of an aging population. With the LTC population estimated to double in the next decade, developing and implementing PC in the LTC setting is urgently needed. Literature in the area of PC in LTC is increasing; however, research on improving symptom burden, specifically depression and QOL is not as prevalent. This project implemented a NP led PC program in a NH, with the goal of improving symptom burden, and focused on depression measured by the PHQ-9 and QOL measured by the MQOL-expanded. Although improvement was not noted in QOL, there

was improvement noted in those participants that suffered from clinically significant depression.

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Appendix A

Figure 4: Theory of Planned Behavior

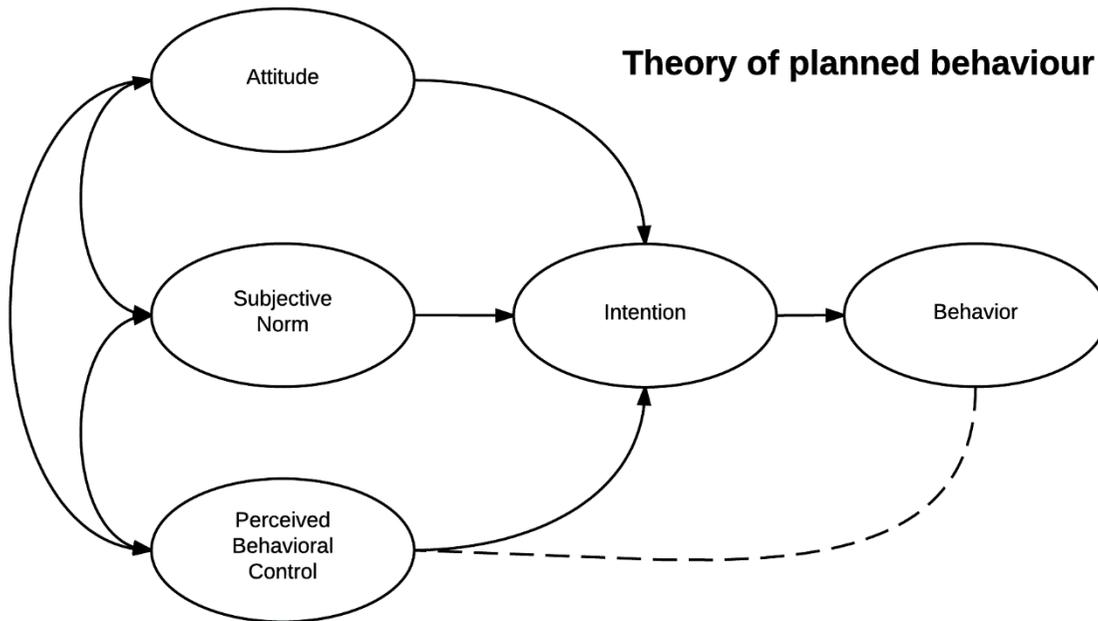


Figure 4: The Theory of Planned Behavior described by the main variables. Adapted from “Application of the theories of reasoned action and planned behavior to exercise behavior: A meta-analysis,” by H. Hausenblas, A. Carron, and D. Mack, 1997, *Journal of Sport & Exercise Psychology*, 19(1), p. 37.

Appendix B

Patient Health Questionnaire (PHQ-9)

Patient Name: _____ Date: _____

	Not at all	Several days	More than half the days	Nearly every day
1. Over the <i>last 2 weeks</i> , how often have you been bothered by any of the following problems?				
a. Little interest or pleasure in doing things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Feeling down, depressed, or hopeless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Trouble falling/staying asleep, sleeping too much	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Feeling tired or having little energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Poor appetite or overeating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Feeling bad about yourself or that you are a failure or have let yourself or your family down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Trouble concentrating on things, such as reading the newspaper or watching television.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Moving or speaking so slowly that other people could have noticed. Or the opposite; being so fidgety or restless that you have been moving around a lot more than usual.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Thoughts that you would be better off dead or of hurting yourself in some way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. If you checked off any problem on this questionnaire so far, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult

PHQ-9 Questionnaire for Depression Scoring and Interpretation Guide- For physician use only**Scoring:**

Count the number (#) of boxes checked in a column. Multiply that number by the value indicated below, then add the subtotal to produce a total score. The possible range is 0-27. Use the table below to interpret the PHQ-9 score.

Not at all (#) _____ x 0 = _____

Several days (#) _____ x 1 = _____

More than half the days (#) _____ x 2 = _____

Nearly every day (#) _____ x 3 = _____

Total score: _____

Interpreting PHQ-9 Scores		Score	Actions Based on PH9 Score
		Score	Action
Minimal depression	0-4	< 4	The score suggests the patient may not need depression treatment
Mild depression	5-9		
Moderate depression	10-14	> 5 - 14	Physician uses clinical judgment about treatment, based on patient's duration of symptoms and functional impairment
Moderately severe depression	15-19		
Severe depression	20-27	> 15	Warrants treatment for depression, using antidepressant, psychotherapy and/or a combination of treatment.

Retrieved from: <https://www.med.umich.edu/1info/FHP/practiceguides/depress/phq-9.pdf>

Appendix C

McGILL QUALITY OF LIFE QUESTIONNAIRE Expanded[©]

Instructions

This questionnaire contains statements that are each followed by two opposite answers. Numbers extend from one extreme answer to its opposite.

Please circle the number between 0 and 10 which is most true for you. There are no right or wrong answers.

Completely honest answers will be most helpful.

EXAMPLE:

I am hungry:

not at all	0	1	2	3	4	5	6	7	8	9	10	extremely
-------------------	---	---	---	---	---	---	---	---	---	---	----	------------------

- If you are not even a little bit hungry, you would circle 0.
- If you are a little hungry (you just finished a meal but still have room for dessert), you might circle a 1, 2, or 3.
- If you are feeling moderately hungry (because mealtime is approaching), you might circle a 4, 5, or 6.
- If you are very hungry (because you haven't eaten all day), you might circle a 7, 8, or 9.
- If you are extremely hungry, you would circle 10.

START

Please answer for how you have been feeling ***JUST IN THE PAST TWO (2) DAYS***.

PARTA Overall Quality of Life

A. Considering all parts of my life (for example, physical, emotional, social, spiritual, and financial) over the past two days (48 hours) the quality of my life was:

very bad	0	1	2	3	4	5	6	7	8	9	10	excellent
-----------------	---	---	---	---	---	---	---	---	---	---	----	------------------

Please continue on the next page...

PART B Physical

1. Over the past two days (48 hours), my physical symptoms (such as pain, nausea, tiredness and others) were: *

not problem	a 0	1	2	3	4	5	6	7	8	9	10	a tremendous problem
------------------------	---------------	---	---	---	---	---	---	---	---	---	----	-------------------------------------

**If, over the past two days, you had no physical symptoms or problems, please circle '0 – not a problem' and go to statement # 2.*

Please list the physical symptoms that were a problem (please write clearly).

List:

2. Over the past two days (48 hours), I felt:

physically terrible	0	1	2	3	4	5	6	7	8	9	10	physically well
--------------------------------	---	---	---	---	---	---	---	---	---	---	----	----------------------------

3. Over the past two days (48 hours), being physically unable to do the things I wanted was:

not problem	a 0	1	2	3	4	5	6	7	8	9	10	a huge problem
------------------------	---------------	---	---	---	---	---	---	---	---	---	----	------------------------------

Please continue on the next page...

PART C Feelings and thoughts

4. Over the past two days (48 hours), I was depressed:

not at all	0	1	2	3	4	5	6	7	8	9	10	extremely
-------------------	---	---	---	---	---	---	---	---	---	---	----	------------------

5. Over the past two days (48 hours), I was nervous or worried:

not at all	0	1	2	3	4	5	6	7	8	9	10	extremely
-------------------	---	---	---	---	---	---	---	---	---	---	----	------------------

6. Over the past two days (48 hours), I felt sad:

never	0	1	2	3	4	5	6	7	8	9	10	always
--------------	---	---	---	---	---	---	---	---	---	---	----	---------------

7. Over the past two days (48 hours), when I thought of the future, I was:

not afraid	0	1	2	3	4	5	6	7	8	9	10	terrified
-------------------	---	---	---	---	---	---	---	---	---	---	----	------------------

8. Over the past two days (48 hours), my life was:

utterly meaningless and without purpose	0	1	2	3	4	5	6	7	8	9	10	very purposeful and meaningful
--	---	---	---	---	---	---	---	---	---	---	----	---

9. When I think about my whole life, I feel that in achieving life goals I have:

made no progress whatsoever	0	1	2	3	4	5	6	7	8	9	10	progressed to complete fulfillment
--	---	---	---	---	---	---	---	---	---	---	----	---

Please continue on the next page...

10. Over the past two days (48 hours), I felt that the amount of control I had over my life was:

not a problem	0	1	2	3	4	5	6	7	8	9	10	a huge problem
----------------------	---	---	---	---	---	---	---	---	---	---	----	-----------------------

11. Over the past two days (48 hours), I felt good about myself as a person.

completely disagree	0	1	2	3	4	5	6	7	8	9	10	completely agree
----------------------------	---	---	---	---	---	---	---	---	---	---	----	-------------------------

PARTD Social

12. Over the past two days (48 hours) communication with the people I care about was:

difficult	0	1	2	3	4	5	6	7	8	9	10	very easy
------------------	---	---	---	---	---	---	---	---	---	---	----	------------------

13. Over the past two days (48 hours) I felt my relationships with the people I care about were:

more distant than I would like	0	1	2	3	4	5	6	7	8	9	10	very close
---------------------------------------	---	---	---	---	---	---	---	---	---	---	----	-------------------

14. Over the past two days (48 hours), I felt supported:

not at all	0	1	2	3	4	5	6	7	8	9	10	completely
-------------------	---	---	---	---	---	---	---	---	---	---	----	-------------------

Please continue on the next page...

15. Over the past two days (48 hours), I felt badly about how my situation affected the people I care about:

not at all	0	1	2	3	4	5	6	7	8	9	10	completely
-------------------	---	---	---	---	---	---	---	---	---	---	----	-------------------

PART E Surroundings

16. Over the past two days (48 hours), my physical surroundings met my needs:

not at all	0	1	2	3	4	5	6	7	8	9	10	completely
-------------------	---	---	---	---	---	---	---	---	---	---	----	-------------------

PART F Thinking

17. Over the past two days (48 hours), I was able to think clearly:

not often	0	1	2	3	4	5	6	7	8	9	10	always
------------------	---	---	---	---	---	---	---	---	---	---	----	---------------

18. Over the past two days (48 hours), my memory worked:

very poorly	0	1	2	3	4	5	6	7	8	9	10	very well
--------------------	---	---	---	---	---	---	---	---	---	---	----	------------------

Please continue on the next page...

PARTG Health Care

For questions 19 and 20, if you did not need health care over the past two days, please answer for the last few times you needed health care.

19. Over the past two days (48 hours), getting the information I needed from the health care team was:

difficult	0	1	2	3	4	5	6	7	8	9	10	very easy
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20. Over the past two days (48 hours), the quality of health care I received was:

unsatisfactory	0	1	2	3	4	5	6	7	8	9	10	extremely good
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Appendix D**Timeline of Proposed Project Events**

September 2020	Approval of proposal
September-October 2020	Collection of data
November 2020- January 2021	Data analysis and interpretation of outcomes
March 2021	Dissemination of findings

Appendix E
Project Budget Table

<i>Item</i>	<i>Quantity</i>	<i>Cost</i>
Paper	One ream	\$5
Ink	One box of HP 952 black	\$50
My time	120 hours (\$50/hr)	\$6000
Statistician		\$500
<i>Total cost</i>		<i>\$6555</i>