COMMUNITY-BASED HEALTH INITIATIVES THROUGH A HOLISTIC LENS: PERCEPTIONS AND IMPACTS OF SENIOR GROUP EXERCISE AT A LOCAL FAITH COMMUNITY AND BEYOND

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A THESIS

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Holistic health involves understanding health and wellbeing as an interplay between physical, mental, spiritual, and environmental factors. Applying the holistic health lens to senior health and wellbeing creates a more complete picture of what it means for seniors to be fully healthy. Using this model, this thesis explores health perceptions of senior citizens participating in a community wellness program at a faith community in Papillion, Nebraska, involving Tai Chi, senior exercise, and Yoga. Researchers representing the fields of medical anthropology, nursing, and physical therapy used both qualitative and quantitative methods to study participant perceptions of these wellness programs’ health outcomes and provide a commentary beyond the case study, informed by their diverse academic and professional backgrounds. The findings of this study underscore the value of the holistic health model, particularly the significant role the social environment plays in understanding participants’ health outcomes.

Keywords: Holistic health, senior health, medical anthropology, community-based health initiative, social ecological theory, social environment, multidisciplinary research
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Chapter 1: Introduction and Key Concepts

Introduction

“All people want to feel well” (Tomljenović 2014:787). This statement, published in an article from Collegium Anthropologicum, the journal of the Croatian Anthropological Society, may appear as merely common sense at first glance. When its true meaning is unpacked, however, the statement lends itself toward more complex discussions on what health, or feeling well, means to individuals. The field of Medical Anthropology, namely its commitment to the concept of holistic health, carries the potential to serve as one of the leaders in these discussions. The World Health Organization (WHO) helps us begin to understand what is meant by the term “holistic health.” As WHO states, health “…is not merely the absence of disease and infirmity, but complete physical, mental and social wellbeing” (WHO 1978). Considering health as a dynamic interaction between individual mind, body and spirit, as well as the broader impact of social reality and environmental constraint is imperative if the end goal is a rich and detailed understanding of overall wellbeing. Such an effort, however, is admittedly complex, with the abundance of variables sometimes leading to confusion rather than clarification. To better avoid these pitfalls, multidisciplinary cooperation, or the consideration of viewpoints from multiple fields of thought, is a necessary component of holistic health research and thus will resurface several times in the pages ahead. Though the complexity of health will never cease to amaze and often confound, application of the holistic health model can aid in efforts to embrace that complexity. This, in turn, can better enable one’s understanding of what it means to be healthy. The broad scope of holistic health also allows for application across many disciplines and
levels of society. Topics in global health, national health, regional health, community health, and even individual health can be made clearer through the lens of holistic health. Thus, even small-scale studies can yield insight into the larger topics introduced above. One such study, highlighting the perceptions of a group of individuals working to improve overall health and wellbeing while building and maintaining an environment conducive to health improvement, is detailed in this paper.

This study seeks to gain insight into the perceptions and impacts on a group of seniors participating in a faith community wellness program in Papillion, NE. Researchers utilized both qualitative and quantitative methods to shed light on topics in senior health. The research utilizes the holistic health model and social ecological theory to help frame data collection, analysis, and findings. The WHO definition of health will serve as this study’s definition of holistic health. Though other definitions explicitly consider broader impacts on health, such as social context, health infrastructure, or human rights, the WHO definition fits this study’s population and data, where the primary aim is to gather individual participant perceptions on overall wellbeing (Berg and Sarvimaki 2003:390). Multidisciplinary cooperation among study investigators also allowed for rich data collection backed by the insights of medical anthropology, nursing, and physical therapy. Subsequent data analysis reveals positive perceptions on the relationship between social environment and the pillars of physical, mental, and spiritual wellbeing, effectively enhancing understanding of the dynamics of holistic health as defined above (see Ch. 10).
Paper Layout

The paper is broken into 11 chapters, with the first chapters (Ch.1-Ch.4) meant to serve as a foundation for the later data analysis chapters (Ch.5-Ch.9). Following the above paper introduction, key concepts including (1) the individual elements of holistic health, (2) community-based health initiative, and (3) the social environment, are defined within the context of the study. These concepts will resurface throughout the paper. Chapter 2 provides a study overview including a brief introduction of each fitness class of interest in the study, as well as an introduction of the study investigators. This chapter concludes with an overview of the theoretical framework used in the study. Chapter 3 focuses on site selection and participant selection, providing information on the study’s physical environment as well as the study population. Research methodology is introduced in Chapter 4, with particular emphasis on the value of participant observation, as well as the insights gained from open-ended, or “person-centered,” interviewing (Bernard 1998:334-338). Chapters 5-9 address data analysis. These chapters are organized in light of the holistic health model central to this paper, with Chapters 6, 7, and 8 focusing on the three pillars of physical, mental, and spiritual health, respectively. Chapter 9 is dedicated to the impact of the social environment on research participants and effectively serves as the conclusion of data analysis. Chapter 10 reaches beyond this study, applying themes and trends to the broader topic of senior community health with further commentary on the benefits of multidisciplinary action. Chapter 11 includes study limitations as well as the paper’s conclusion. Again, before the study can be effectively introduced, the three pillars of holistic health, community-based health initiative, and social environment must be defined.
Defining Key Concepts

The WHO definition of health places emphasis on three distinct subcategories, or pillars, of health. These three elements interact to form the broader concept of holistic health. Figure 1 was created as a simple visual representation of the holistic health model. Though these interactions are reciprocal and suggest understanding each pillar in light of the others, defining the individual elements of physical health, mental health, and spiritual health remains important, especially when considering the layout of this paper.

Physical health has historically been thought of as simply the absence of bodily disease or infirmity (WHO Online 2015). However, such a definition arguably oversimplifies the reality of achieving and maintaining proper physical health. Considering the context of the study, older individuals are more likely to begin an exercise class with some sort of pre-existing condition or physical limitation (Batt et al. 2013:525). Therefore, a broader definition of physical health, one that considers physical health as an ongoing process rather than simply being free from infirmity, is
more appropriate. According to Mosby’s Medical Dictionary, physical health consists of three main features: regular physical activity, good nutrition, and adequate rest (Mosby 2012). Though this study does not address nutritional intake nor sleep habits, seeing physical health as interplay between these factors, and therefore something more than just physical ability, is beneficial. Such a definition reinforces the concept of holistic health, where multiple variables continually interact to form overall wellbeing.

Mental health is often more difficult to define than physical health. Though physical health, as defined above, involves interaction between multiple variables, these individual variables are easily quantifiable. For example, fitness programs, dietary logs, and sleep studies can be used to gather data on the respective components of physical health, as defined above. Mental health is highly subjective, with unique life experiences, as well as environmental and social factors often playing a significant role in one’s mental wellbeing (Parkar 2015:91). Available definitions of mental health reflect this added complexity. WHO defines mental health as “a state of wellbeing in which an individual realizes his or her own potential, can cope with the normal stresses of life, can work productively, and is able to contribute to her or his community” (WHO 2015). Similarly, Mosby’s definition reads “[a] relative state of mind in which a person who is healthy is able to cope with and adjust to the recurrent stresses of everyday living in an acceptable way” (Mosby 2012). Both of these definitions see mental health as a positive state of mind that must be achieved. With many variables impacting one’s ability to enter this positive state, the holistic health model is again useful in furthering understanding of mental health as a component of overall wellbeing. For example, if someone is physically
unhealthy, his or her ability to cope with life stresses and therefore enter a positive mental state is likely compromised.

The final pillar of holistic health is spiritual wellbeing. Like mental health, spiritual health is highly dependent on a variety of subjective factors. Followers of various faith systems, as well as atheist and agnostic individuals, are all likely to bring different variables to their own definitions of spiritual health (Vader 2006:457). In this study all participants identified as Christian, suggesting a degree of spiritual common ground. This said, among participants, 1 identified as Mormon, with many others belonging to various Christian denominations. To clarify, there is some debate on whether the Church of Latter Day Saints (Mormon) falls within the realm of Christianity. This individual identified as both Mormon and Christian, a tendency that is common due to consistencies in language between Mormon and Christian texts relating to the God, Jesus, and the Holy Spirit (Jackson 2000:52). These differences in faith background, though sometimes subtle, likely affect how individuals personally define or explain spirituality and spiritual health. Mosby defines spiritual health as “[t]he connectedness with self, others, higher power, all life, nature, and the universe that transcends and empowers the self” (Mosby 2012). As Vader argues, “[j]ust as the physical, mental, and social dimensions are interrelated and interact, we can also assume there will be interactions between spirituality, spiritual health, and the other dimensions of health” (Vader 2006:457). In fact, the author goes as far as to argue, “…ignoring the spiritual dimension of health may deprive us of the leverage we need to help empower individuals and populations to achieve improved physical, social, and mental health” (Vader
Spiritual health is thus an important facet of the holistic health model that should not be overlooked or underappreciated.

Mosby’s definition of spiritual health cites the importance of connectedness with others. Participation in a community-based health initiative is one way to build these connections. This said, what is a community-based health initiative? Is it connected to the field of community health? If so, how does one define “community health”? Adequate answers to these questions are necessary to understand not only the participants and setting of the study, but also the study’s broader implications. Once these answers are discussed, a more focused overview of the study and its theoretical framework can commence.

According to Goodman and colleagues, defining community health, considered a subfield of public health, has been an issue for some time (Goodman et al. 2014:S58). In their words, “…the meaning and strategic significance of community health remain challenging to fully define and to clearly distinguish from related areas of public health practice, community engagement, or other related community development activities” (Goodman et al. 2014:S58). After considering the concepts of “community,” “health,” “intervention,” and “science of community health” separately, the researchers constructed a comprehensive definition of the field of community health. This definition is provided below:

“Community health is a multi-sector and multi-disciplinary collaborative enterprise that uses public health science, evidence-based strategies, and other approaches to engage and work with communities, in a culturally appropriate manner, to optimize the health and quality of life of all persons who live, work, or
are otherwise active in a defined community or communities” (Goodman et al. 2014:S60).

As these researchers highlight, an entire paper could be devoted to unpacking and clarifying this definition. This said, though its elements are undoubtedly related to our study, the definition is too broad to be applied directly. Instead, as the title of our study implies, focus shifts directly to the concept of community-based health initiatives. Such initiatives are related to community health, but ultimately shift focus more toward a small-scale group of individuals, rather than the myriad variables affecting “…health and quality of life of all persons…” in a given geographical area (Goodman et al. 2014:S60).

Collins and Benedict (2006) help clarify what is meant by community-based health initiatives. Their definition will be applied to our study, with the understanding that it fits within the above definition of community health.

Researchers Collins and Benedict define community-based health initiatives as “[o]rganized efforts to recruit community members to engage in group activities designed to promote health by enhancing mastery while decreasing loneliness and stress” (Collins and Benedict 2006:45). After studying the effects of one such initiative, their findings positively support such efforts, suggesting, “[c]ommunity-based health initiatives can be effective in reducing risk and promoting the health and independence of older adults” (Collins and Benedict 2006:48). Our study, formally introduced below, can be considered similar to the community-based health initiative described by these researchers. Therefore, this paper will use the above definition as a way to understand the efforts undertaken by our participants. Additionally, the promising results relayed by
Collins and Benedict provide support for our own findings, as well as suggest the need for additional insight into senior health far beyond this study’s boundaries.

Community-based health initiatives rely on members of the community to come together in an attempt to improve wellbeing. In doing so, these individuals effectively create an environment of shared experience, where individuals work together to reach health-related goals (Collins and Benedict 2006:48). For the purposes of this paper, such an environment will be referred to as the social environment. The importance of building this environment of mutual support and inclusion cannot be understated. The benefits of a supportive social environment address the common issues of social isolation and loneliness in senior populations, both of which have been linked directly to decreased wellbeing (Dury 2014:125). The importance of the social environment in this study will surface throughout the paper and serve as a key component of the study’s significance at the local level and beyond (see Ch. 10).
Chapter 2: Study Overview and Theoretical Framework

Introduction

Holistic health involves understanding one’s wellbeing as a complex series of individual, environmental, and social interactions. The next step is attempting to use this understanding as a tool to adopt and maintain healthy lifestyles. Though this is difficult for any individual, advanced age can create health hurdles that may seem insurmountable (Dury 2014:126). The realities of aging include, among other issues, a decline in physical capacity and compounding costs of clinical intervention. These issues naturally tend more toward advancement of health problems and subsequent reduction in quality of life than toward improvement in wellbeing (Hand et al. 2012:29-32). Given this reality, efforts to proactively improve senior wellbeing beyond the clinic are critical. For over seven years, Reid, a registered nurse, and Norman, a licensed physical therapist, have sought to provide a free of charge, community-based outlet for increased activity and wellness at St. Columbkille Parish in Papillion, Nebraska. This program consists of Tai Chi, senior exercise, and more recently, yoga. Reid serves as the primary Tai Chi instructor, while also performing blood pressure readings for willing class participants. Norman utilizes her experience as a physical therapist by serving as the lead instructor for senior exercise. Three years ago, Mandolfo, an advanced practice registered nurse, joined Reid and Norman and began teaching a community-based yoga class to complement the existing classes.

The three classes, held in and near St. Columbkille Parish in Papillion, NE, primarily serve individuals aged 60 and older. Yoga, being somewhat more difficult for individuals with more severe physical limitations, tended to serve somewhat younger
individuals than the other two classes. This is based on personal observation and is not reflected in the interview data, due in part to the lower number of yoga participants as compared to Tai Chi and senior exercise (see Chapter 5). Participation for all classes was intentionally kept open to include community members in the surrounding area, including those not affiliated with the congregation of St. Columbkille. In other words, though the classes took place at St. Columbkille, it was not necessary to be a member of the church to attend class. In fact, when the study concluded, participants represented over 20 area congregations. All participants were Christian, with the exception of one individual affiliated with the Church of Latter Day Saints, as mentioned above. Though the population was primarily Christian, the notion that Christian faith was a prerequisite for participation was never apparent. Interestingly, however, faith remained an important point of emphasis among many interview respondents. The ability to strike a balance between emphasizing the power of faith community and remaining open to all who wish to participate in the classes speaks once again to the positive class environment. The impact of this policy of inclusiveness will be expanded on later in the paper, particularly as it relates to the social environment of St. Columbkille (see Ch. 9). As mentioned above, the three classes of interest to this study are Tai Chi, senior exercise, and yoga. Though more detailed discussion of the content and aim of the courses will come later in the paper, it is important to begin with at least a general sense of what each class entails in the context of this study.
Tai Chi

Tai Chi, or Tai Chi Chuan (TCC), is described as an ancient form of wisdom, combining “slow, supple movement” with an appreciation of mind tranquility central to Taoism (Lan, Lai, and Chen 2002:217). True TCC is complex, involving “108 forms” and taking an average of “about 3 months to learn” (Lan, Lai, and Chen 2002:217). As Lan, Lai and Chen note, “[t]o shorten the learning curve, many simplified TCC techniques have been developed” (2002:217). The Tai Chi routine featured in our study fell into this category of simplified Tai Chi. Reid’s class consisted of four sections including warm-up, conditioning, continuous, or “form” Tai Chi, and cool-down. A total of 24 movements were used, with some overlap in each of the sections. Movements were low to zero impact, allowing individuals with pre-existing injuries or physical limitations to fully participate. Conditioning involved 12 movements and exercises, as well as a period of discussion, allowing new and existing members the chance to bring to light anything that may be of interest to the group. Continuous form Tai Chi included emphasis on deep breathing and concentration focused on being at peace with one’s body and movement. This section was perhaps the closest to the original practice of TCC discussed by Lan, Lai, and Chen (2002). Finally, the cool down section involved five movements coupled with several statements centered on peace and acceptance. Tai Chi closed with the statement, “[t]he God in me recognizes the God in you.” The significance of this closing will also be revisited later in the paper (see Ch. 9).

Of particular interest to this study is Tai Chi’s well-documented impact on balance. It is important to note all Tai Chi movements chosen by Reid were tailored to the population of participants, with balance being the most vital point of emphasis. In
other words, Reid modified existing routines gathered over many years to create a routine that she felt was applicable to the participants in her class. She was well aware of the dangers of elderly falls, and thus hoped to teach strategies to improve balance and body awareness. Elderly falls are considered “…a serious public health problem leading to a widespread loss of independence, increases in the chronic disease mortality rate, and the need for costly long-term care” (Li et al. 2005:187). Participant insight into perceived efficacy of Tai Chi as it relates to balance can work to further awareness of the importance of fall reduction strategies in older adults in this study and beyond (Li et al 2005:187).

**Senior Exercise**

Senior exercise, in the context of this study, involved low-impact, low-speed stretching and resistance band training. These exercises provided a strength-training opportunity for elderly individuals who may otherwise have avoided such training due to fear of failure or a lack of confidence in their own abilities (Allen and Morelli 2011). This brushes on the concept of self-efficacy, which can be understood as one’s perceived ability to take health matters into their own hands (Bandura 1989:1175). This concept will resurface during subsequent discussion (see Ch. 6). The senior exercise class offered at St. Columbkille is lead by Norman, a certified physical therapist and, like all classes at the parish, was free of charge. This encouraged individuals of all experience and comfort levels to participate, a point that will be further solidified later in the paper (see Ch. 9). Like Tai Chi, the routine remained intentionally low-impact, with alternative movements for individuals with physical limitations. The routine itself was an hour long
and consisted of stretching, balance, and resistance band training. Physical progress, for those who wished to be tested, was mapped using five distinct tests. These included (1) functional reach, (2) 4 stage balance test, (3) timed up and go, (4) four square step test, and (5) 30-second chair rise. Descriptions of these tests were provided in the informed consent signed by each participant (see Appendix A) and will be introduced in Chapter 6. Though senior exercise was similar to Tai Chi in its use of low impact movements, the former placed far greater emphasis on physical strength improvement and flexibility.

Yoga

Yoga, like Tai Chi, is an ancient form of exercise believed to be anywhere from 4000 to 8000 years old (Amin and Goodman 2013). Generally speaking, yoga involves “…meditation, physical postures, and breathing exercises designed to promote mental, physical, and spiritual wellbeing” (Alexander et al. 2012:15). As another author states, “[y]oga is believed to bring balance and health to the body, mind, and spirit” (Ross et al. 2013:314). Similar to Tai Chi, the number and difficulty of postures can vary depending on the instructor as well as the physical capabilities of the participants. In this study, Mandolfo’s class was an hour long and involved a full range of exercises that included all of the elements mentioned by Alexander and colleagues. Though the number of study participants in yoga was lower than Tai Chi or senior exercise (see Ch. 3), its relevance to the concept of holistic health, as well as its “…rapidly increasing popularity in western industrialized countries” as a healthy non-clinical approach to a healthy lifestyle, make it an interesting and noteworthy topic to include in our subsequent pages of discussion (Alexander et al. 2012:14).
Introduction of Study Investigators

All three instructors acted as Co-Principal Investigators (Co-PIs) on this project, with myself serving as the Principal Investigator (PI). While the PI “has overall responsibility for study conduct,” as laid out by the Mayo Clinic, the Co-PI, “…plays a key role in scientific development and conduct of the study” (Mayo Clinic 2015). To serve as Co-PIs, the three instructors had to be trained and certified through Creighton University’s IRB. As a Creighton graduate student in medical anthropology, I had already completed these requirements. The certification process included training on proper treatment of human subjects in social and behavioral science research, as well as completion of requirements set forth by the University of Miami’s Collaborative Institutional Training Initiative (CITI). All of these requirements were completed online by all investigators prior to the beginning of data collection, as required for IRB approval.¹ The co-PIs vast knowledge in their respective fields, as well as their commitment to creating and growing the classes at St. Columbkille were invaluable in this study. Specifically, their deep connection to the parish and surrounding community paved the way for this study’s approval and continue to play an undeniable role in the growth of the program as this paper is being written. The importance of their impact, especially in relation to the social environment, requires further discussion and thus will be returned to later in the paper (see Ch. 9). My own undergraduate and graduate background in medical anthropology aided communication between the disciplines represented by the researchers, effectively enhancing the perspectives of nursing and physical therapy as they relate to qualitative inquiry into health improvement of seniors.

¹ Project approved by Creighton IRB June 14th, 2014: IRB#14-17104.
Theoretical Framework

At the heart of this study exists the notion that health should be examined through a holistic lens, taking into account mental, physical, and spiritual components. These three components are each affected by a variety of factors related to the individual, as well as important environmental and social conditions. The connection between holistic health and these environmental and social conditions is of particular interest to this study. For ease of explanation, these environmental and social conditions will be referred to simply as the social environment, as defined in the previous chapter. To better understand the nature of the relationship between this environment and the pillars of holistic health, a theoretical framework, specifically social ecological theory, is applied. With the help of this theory, the interconnections between the overarching theme of holistic health, the social environment of St. Columbkile, and the field of medical anthropology become more explicit.

Social ecological theory consists of five core principles that work to guide its application. These principles are neatly laid out in Grzywacz and Fuqua’s (2000) work on the usefulness of social ecological theory in health promotion practice. First, the theory posits, “different dimensions of wellbeing are reciprocally related and linked to diverse conditions in the sociophysical environment.” The second principle follows this notion, arguing, “…health is an outcome of the quality of the person-environment fit.” Third, the theory is flexible in its recognition that “certain individual or environmental conditions exert a disproportionate amount of influence on health and wellbeing.” Fourth, “…the physical and social environment are interdependent,” with each influencing individual health practices and beliefs in various ways. Finally, the theory
supports the conclusion that “a comprehensive understanding of health results from multidisciplinary approaches” (Grzywacz and Fuqua 2010:101-102). This theory fits well within the parameters of this study, as well as the general aims of medical anthropology practice. All three classes in focus seek to improve health holistically, intentionally targeting mental and spiritual wellbeing, in addition to physical improvement. The researchers involved represent the distinct fields of medical anthropology, physical therapy, and nursing, with the end goal of a multidisciplinary voice that makes the most of the unique angles offered by each respective field. The field most pertinent to this paper, medical anthropology, is in fact uniquely suited to accommodate the insights of the others (Inhorn 2007). This redirects us to discussion of holistic health and its subsequent connection to social ecological theory.

The study and application of the holistic health model imply a willingness to reach beyond one’s own discipline to explain the complexities of human wellbeing. Marcia Inhorn, renowned anthropologist and past-president of the Society for Medical Anthropology (SMA), elucidates this point in her 2009 Presidential statement. In her words, “…medical anthropology is now expanding outward and interacting in many productive ways across disciplinary boundaries” (Inhorn 2007:249). The breadth of potential application of medical anthropology’s insights enhance the field’s ability to link seemingly disparate, or at least notably diverse, disciplines together in ways that contribute positively to the understanding of what being healthy means. As Inhorn suggests, “In this millennium, interdisciplinarity is certainly one of the key tropes in the academy” (Inhorn 2007:250). As introduced above, this study intentionally draws on the insights of a registered nurse and physical therapist, whose respective efforts in providing
blood pressure readings and physical testing of class participants worked to complement my background as a medical anthropology graduate student. The specifics of these disciplinary interactions are important, and thereby addressed later in the paper (see Ch. 6 and Ch. 10). Though the scale and sample size of the study are small, analysis of this interdisciplinary effort embraces Inhorn’s call to “…express multiple positionalities within practice settings” (Inhorn 2007:250).
Chapter 3: Site and Participant Selection

Introduction

Having already defined community-based health initiative and social environment, it is clear that the physical space in which classes took place is of great interest to this study. With its connection to St. Columbkille, this space provided a level of familiarity to many class participants. With most class participants living within a few miles of the church, the setting also worked to geographically define the study population and provide a starting point for the growth of the three classes and faith community as a whole.

Site Selection

Yoga and Tai Chi classes were held on Wednesday and Saturday mornings at 6:00 am and 9:30am, respectively. The Steinhausen Center, a recreation room near St. Columbkille Church, housed these classes. This location provided an excellent “home base,” where class organizers, research participants, and myself could easily and comfortably interact. This site also served as the location for all personal and focus group interviews. Norman’s senior exercise class was held on Monday mornings at 9:30 am in the lower level of St. Columbkille Church. This site was also used occasionally for Tai Chi if the Steinhausen Center was unavailable. Though classes are not formally associated with St. Columbkille Parish, the parish pastor Fr. Damian Zuerlein kindly granted permission to carry out the study in the social level of the church and nearby Steinhausen Center, both of which are regularly used by the parish for other purposes (see Appendix E).
Participant Selection

Due to the relatively small population of potential participants, random sampling was not feasible. Instead, convenience sampling was used, meaning all who wished to participate were walked through the informed consent form and asked to sign as a prerequisite to study participation. The issues associated with convenience sampling will be discussed later (see Ch. 11). The only other pre-requisite for participation was semi-regular attendance at 1 or more of the classes of interest. I considered attending class 3 times per month or more as fulfilling this requirement. The study population included a total of 54 participants from yoga, Tai Chi, and senior exercise. A total of 50 women and 4 men, ages 59 to 89, agreed to participate. These numbers are based solely on those signing consent forms. Roughly 70 individuals participated in the classes at various times during data collection, meaning most of those present were willing to participate in the study. Yoga participation was found to be much lower than either Tai Chi or senior exercise (see Ch. 5). Though no direct conclusions can be made as to why this occurred, the timing of yoga (6am), as well as the nature of the routine (more physically demanding than Tai Chi or senior exercise) could have played a role. Having participated personally in all three classes, this judgment of difficulty is merely my own opinion. Also, of the 54 participants, 6 individuals specifically mentioned attending other yoga classes or performing yoga on their own time in their own home. These factors, or quite possibly others beyond the scope of this study’s aim, could have played a role in shaping class attendance.
Chapter 4: Research Methodology

Introduction

The primary aim of this study was to shed light on the overall impact of yoga, Tai Chi, and senior exercise on the health of participants. Again, health is defined holistically and meant to involve physical, mental, and spiritual wellbeing. Specific research questions included: (1) What promotes interest in yoga, Tai Chi, and exercise programs? (2) How does participation in yoga, Tai Chi, exercise complement existing efforts toward a healthy life? (3) Have you fallen since you’ve been participating in yoga, Tai Chi, or senior exercise? (4) Does participation in yoga, Tai Chi, and/or senior exercise affect understanding of what “being healthy” means to an individual? These questions were not answered directly. Rather, they were used as a foundation for the 14 interview questions, which were then used in data collection. These interview questions are provided in Appendix B.

As introduced above, Tai Chi and senior exercise have been ongoing for over seven years. In light of this, the study utilized previously collected secondary data with any sensitive personal information removed. Secondary data consisted of previously collected physical tests, performed by co-PI Norman, as well as blood pressure readings collected by Reid. The intention to use this secondary data for research purposes was made explicit in the informed consent sheet signed by each participant. This secondary data, along with additional blood pressure and physical test data collected during Phase 1 and Phase 2 (below) served as the quantitative data for the study. The remaining data, gathered from personal and focus group interviews, is qualitative in nature. The tool of participant observation, namely its ability to enhance this study’s qualitative data
analysis, was also used to some extent and subsequently deserves introduction and brief discussion.

**The Value of Participant Observation**

Participant Observation (PO) is a method of data collection used widely by anthropologists and sociologists (Berg and Lune 2011). The distinctiveness of PO separates it from other research methodologies and places it at the heart of anthropological inquiry. The primary goal of PO is “…to investigate the perspectives of a group in a given community” (Zhao and Ji 2014:1). Its uniqueness stems from its effort to emphasize “…the role of the researcher as a participant in the community,” where the researcher goes beyond simple observation and “actively participates” in the group’s daily activities. This active participation grants the researcher a more intimate look into group dynamics, allowing the researcher access to an “insider” perspective not typically gained through less intensive methods (Zhao and Ji 2014:1-3). Given PO’s emphasis on researcher exploration, such a method is said to be “…particularly appropriate for any community health research,” and thereby directly applicable to this study (Zhao and Ji 2014:1). Unfortunately, “true” PO was not undertaken throughout the entire course of data collection at St. Columbkille. By “true” PO, I mean continuous participation in all classes involved in the study, as well as further participation in daily activities of study participants. Such an undertaking would have required additional hours of participation that were not available to me as the Principal Investigator.

The required depth of PO is acknowledged by one researcher as a hurdle to its application in all research settings. As medical anthropologist Helen Lambert and colleague argue, “[p]articipant observation may not always be feasible or appropriate
given constraints on time, funding, and expertise, but the methodological lessons from anthropology are transferrable” (Lambert and McKeivitt 2002:211). Applying this statement to the study aids the argument that even some participant observation can be useful when analyzing qualitative data. In the case of St. Columbkille, I was able to be an active participant in all three classes at some point during data collection. I participated in Tai Chi most regularly (a total of approximately 15 times throughout the four months of data collection), senior exercise occasionally (a total of approximately 10 times throughout the same period) and yoga a total of 3 times. I then took notes on the experiences immediately following class participation. These notes aided in refining interview questions, as well as painting a more detailed picture of the respective class environments. Though, again, “true” participant observation was not accomplished, the effort to use multiple anthropological tools, as well as both qualitative and quantitative data, was important at the onset of this study. Anthropologists typically refer to these multiple efforts as triangulation. Triangulation, as explained by Farmer and colleagues, “…contributes to the validity of research results when multiple methods, sources, theories, and/or investigators are employed” (Farmer et al. 2006:377). Attempting to integrate triangulation is particularly important when looking at health holistically. This is because interconnections between health variables are often better understood when multiple viewpoints are considered. Again, the use of multiple methods was a priority during data collection. In this study, data collection occurred in two phases, spanning four months from June 2014 through September 2014, as detailed below.
Phase 1: Physical Pre-tests and Personal Interviews

Phase 1 ran from June 2014 through July 2014. Norman conducted physical pre-tests on participants who had not already been tested or who wished to update their test results. Because Norman had used the same physical tests for several years, participants with existing test results from within the last year were given the option of re-testing or using existing data. These tests included (1) functional reach, (2) 4 stage balance test, (3) timed up and go, (4) four square step test, and (5) 30-second chair rise. These tests were intentionally low-impact, designed to test flexibility, balance and strength while limiting the risk of injury. The sheet used to record these tests is attached (see Appendix 4).

Concurrently, Reid and myself conducted personal interviews with participants from Reid’s Tai Chi class, as well as Norman’s exercise class. The semi-structured nature of the interviews allowed respondents to elaborate on questions that were of particular interest or importance to their unique experience in the program. This ability to gather information beyond that associated with a fully structured interview is important in qualitative inquiry in anthropology and thus deserves a brief explanation.

Cultural anthropologist Russell Bernard argues that this open-ended, “person-centered” approach to interviewing “…enables one to investigate, in a fine grained way, the complex interrelationships between individuals and their social contexts” (Bernard 1998:333-334). Bernard further clarifies this method by labeling the interviewee as both an “informant” and a “respondent” (Bernard 1998:336). Such roles are akin to the earlier discussion of how tendencies drawn from participant observation, namely creation of an “insider” perspective, can aid in creation of richer, more explanatory data. The role of “informant” is described as the typical role an individual plays when being interviewed.
Here, the interviewee acts as an “expert witness,” directly answering specific questions supplied by the interviewer with little elaboration on how this answer might affect the interviewee personally. Contrary to the “limited perspective” of the informant role, the role of “respondent” allows the interviewee to more fully elaborate on how an answer to a question is impacted by his or her personal context (Bernard 1998:336). Lambert and McKevitt suggest support for this respondent role, stating, “[n]aturally arising informal situations involving talk and action are often more useful than formal interviews...” (2002:211). Though the informal person-centered interviews described by Bernard are not “naturally occurring” in the literal sense, they lend themselves toward more naturally flowing conversation than do formal interviews. The most useful person-centered interviews, according to Bernard, involve “…a balanced combination of informant and respondent modes of interviewing…” (Bernard 1998:338). Such a technique allows a researcher to gather both concrete information likely to transcend individual context (informant role), while also gaining specific knowledge on individual perception (respondent role) by treating the interviewee “…as an object of study in him- or herself” (Bernard 1998:338). Utilizing the “person-centered” approach in this study resulted in a large amount of data for several of the interview questions, which greatly aided the quality and depth of subsequent data analysis.

All personal interviews were audio recorded with consent from each participant. Notes were also taken during the interview in an attempt to capture key phrases or points of emphasis. The personal interview responses were later transcribed and coded using OpenCode (ICT Services 2013). These codes were then used to refine focus group interview questions (see Appendix C) used in Phase 2. Reid also continued to take
blood pressure readings regularly for willing research participants through August 2014. Additionally, I conducted personal interviews for willing participants in Mandolfo’s morning yoga classes. With yoga attendance being lower than other classes and varying more significantly from class to class, take-home interview questions were made available to those who wished to answer questions on their own time. Of the 5 yoga participants in the study, 2 chose the option of the take-home questions. These questions were consistent with those asked in the other personal interviews.

**Phase 2: Physical Post-tests and Focus Group Interviews**

Phase 2 ran from August 2014 to September 2014. Norman performed a physical post-test on willing study participants in an effort to capture any potential individual progress. She utilized the same exercises identified in Phase 1. In addition, I conducted focus group interviews using the questions shown in Appendix C. Focus group interviews involved groups of 5-7 research participants. Participants were intentionally given the opportunity to discuss opinions with other members of the group. As one author states, the key characteristic of a successful focus group is “the explicit use of the group interaction to produce data and insights that would be less accessible without the interaction found in a group” (Morgan 1988 cited in Agar and Mcdonald 1995:78). To further aid this group interaction, focus group questions remained semi-structured, leaving room for naturally flowing discussion. Again, all interviews (individual and focus group) were audio recorded with the permission of participants. In addition, handwritten notes were taken to accompany recordings. All participants consented to audio recordings. Recordings and handwritten notes were both used in the coding process.
Chapter 5: Data Analysis Overview

Introduction

Just as holistic health can be described as physical, mental, and spiritual wellbeing, the analysis of individual and group interview data will be broken into three chapters mirroring these pillars of health. For ease of understanding, analysis and discussion will begin with physical health. There are two reasons for this. First, when many think of health and illness, physical symptoms come to mind immediately. These symptoms, which typically include pain and discomfort, often affect one’s ability to perform basic tasks and thus may require a more immediate response than issues involving mind or spirit. Second, though all three pillars of health interact continuously as discussed above, these latter topics of mental and spiritual health seem to interact most profoundly, with each playing a subsequent role in one’s perception of their physical health. Before such analysis can begin however, this brief chapter discusses how data were coded and breaks down class participation. This information will help improve understanding of the analysis in chapters 6 through 8. It is also important to note that although personal interviews provided a large amount of data for certain questions, others were discussed in much less detail. This is likely due to the previously introduced use of “person-centered” interviewing, where participants are encouraged to expand their responses to certain questions of particular interest. Because of this, coding analysis for Chapters 6 through 8 will focus on responses to question 6 of the personal interview sheet. For the same reasons, coding analysis in Chapter 9 will focus on responses to question 7 (see Appendix B). Prior to this analysis, it is important to understand how coding was undertaken.
Following data collection, personal and focus group interview transcripts were transcribed. Transcriptions were then coded to reveal overlaps between participant responses. Figure 2 lists the codes for each pillar of health. These codes helped determine which topics were seen as most important to class participants. Initial codes were broad, involving only physical, mental, and spiritual health. Use of grounded theory (GT) aided in creation and subsequent examination of codes. As Barney Glaser writes, “GT helps us see things as they are, not as we preconceive them to be” (Glaser 2014:48). GT aided in identifying relationships between codes, effectively breaking down broad ideas into more specific concepts. The theoretical model suggested through application of GT is best explained with the help of Social Ecological Theory, defined earlier in the paper (see Ch.2). Application of codes to participant responses resulted from (1) the participant openly mentioning the respective topic during the interview session and/or (2) when asked specifically about the topic in question, the participant confirmed its personal importance through elaboration or example. These individual codes will be introduced and explained in their respective analysis chapters following a breakdown of class participation.
Class Participation Breakdown

As shown in Figure 3, many individuals participated in both Tai Chi and senior exercise. None of the individuals participated in all three courses. Of the 54 study participants, 21 participated only in Tai Chi (39%), 7 participated only in senior exercise (13%), 5 participated in Yoga (9%), and 21 participated in both Tai Chi and Senior Exercise (39%).

Again, exact reasoning as to why yoga participation was lower than the other classes is not known. Personal experience with Mandolfo’s yoga class led me to hypothesize that the physical demand was simply too much for many of the seniors participating in Tai Chi and senior exercise. In addition, the early morning class times for yoga could have limited the number of participants interested in attending class regularly.
Chapter 6: Analysis of Physical Health Perception

Introduction

Maintaining physical health can be difficult at any age. As individuals grow older, this challenge only continues to increase. As Batt and colleagues state, “Aging is a continuous process associated with a progressive decline in many physiological systems…which ultimately limit physical capacity and threaten independence” (Batt, Tanji, and Börjesson 2013:525). The classes at St. Columbkille Parish provide participants with a cost-free outlet for combating these trends.

Coding Analysis

As introduced in Chapter 5, coding analysis of interview responses revealed four topics of primary interest to class participants. These include (1) balance, (2) physical strength, (3) blood pressure, and (4) flexibility. As Figure 2 illustrates, participant responses citing fall reduction as a key physical health benefit stemming from class participation were coded under balance. A total of 54 individuals participated in personal interviews. Again, question 6 was of particular interest when analyzing perceptions of physical health improvement among research participants. Question 6 asked, “What overall health benefits have you experienced as a result of class participation?” This question was then broken into three sub-questions related specifically to (a) physical health, (b) mental/emotional health, and (c) spiritual health. Thus, responses to question 6a were most pertinent to analysis of participant perceptions of physical health improvement. Figure 4 below provides a visual breakdown of participant responses. Of the 54 participant responses to question 6b, 11 (20%) cited balance/fall reduction
improvement as most important, 10 (19%) cited physical strength, 7 (13%) blood pressure, and 5 (9%) cited flexibility. Of the remaining participants, 19 (35%) cited a combination of two or more of the above benefits, while 2 (4%) individuals cited no physical improvement. Though senior exercise was most frequently mentioned in relation to physical health, Tai Chi, as well as yoga participants also cited physical health benefits from participation in their respective classes. These details are discussed below.

With balance improvement being the most common single response, it will be the first point of focus in the analysis. This will be followed by perceptions of physical strength improvement, blood pressure, and flexibility, respectively. This chapter will conclude by revealing the outcomes and underlying importance of Norman’s physical tests.

**Balance**

As introduced earlier in the paper, elderly falls are a serious public health issue. As one study states, “[a]pproximately 35% to 40% of generally healthy, community-dwelling persons aged 65 or older fall annually” (AGS 2001:665). This said, efforts to reduce the risk of falls become increasingly important as individuals age. One study
participant cited “fear of falling” as a reason for beginning senior exercise. As she stated, “Falling at my age is scary. I figured I better try something new because I know my balance isn’t good.” Again, 11 class participants cited balance as the main physical health benefit associated with class participation. In addition, of the 19 participants to cite multiple health benefits as important, 12 included balance/fall reduction in their list. Thus, a total of 23 participants, or 43% of all participants, found balance to be at least one of the main benefits of class participation. Of these 23 participants, 4 (17%) participated in only senior exercise, 8 (34%) in only Tai Chi, 10 (43%) in both senior exercise and Tai Chi, and 1 (4%) in yoga. Given the lack of a control group, it is difficult to draw conclusions as to which classes most impacted balance improvement (see Ch. 11).

However, with each class having at least 1 representative mention balance improvement as an outcome, data suggest certain elements of Tai Chi, senior exercise, and yoga all have a positive impact on participant perception of balance. Literature supports each class’ tendency to improve balance with Tai Chi being most commonly linked to balance improvement and fall reduction.

Tai Chi is uniquely suited for senior balance improvement for a couple of reasons. First, it is low to zero impact; meaning pre-existing injuries, flexibility issues, general inactivity, and other issues that would typically limit one’s ability to exercise are more easily accommodated. In addition, Tai Chi is easily accessible. In other words, programs such as the class at St. Columbkille, are routinely geared toward beginners with little to no previous Tai Chi exposure (Li et al. 2001:229). With the main focus of Tai Chi being on “…control over one’s displacement of body mass, postural alignment, and range of motion of joints and muscles of the lower body,” even those with significant physical
limitations can often participate, at least partially in Tai Chi movements (Li et al. 2005:192). After conducting a meticulous randomized controlled trial (RCT) of 236 participants, Li and colleagues found consistent Tai Chi participation resulted in a 55% decrease in falls among participants (2005:192). Though this significant finding cannot be confirmed by our case study, our data indicate highly positive perceptions of Tai Chi as it relates to balance improvement. These data provide further support for the argument that the slow, controlled nature of Tai Chi movement, coupled with its emphasis on relaxation and inward focus, make it a viable option for improving balance, limiting falls, and reducing fear of falling among seniors.

Yoga, like Tai Chi, is often tied to balance improvement. One yoga participant cited balance as a key benefit of yoga practice. She stated, “I feel sturdier since I began yoga. My balance has improved and I find myself reflecting on how different poses relate to my daily activities.” Comparing yoga to Tai Chi at St. Columbkille, however, one theme surfaced several times. As one participant noted, “Yoga is too hard for me. I like Tai Chi because I know I can do a little and still feel like I’m doing well.” Another Tai Chi participant noted, “I’ve tried yoga with a chair, but I still can’t do it…” As mentioned above, I was able to participate fully in several yoga classes. Though I have limited experience with yoga, having participated in previous classes at different locations only a handful of times, I am younger than the research participants and in good physical health. Even so, I found yoga to be significantly challenging. Generally speaking, those participating in yoga at St. Columbkille were younger and less physically restricted than many Tai Chi participants. Tai Chi was more directly geared toward seniors, whereas yoga involved a more traditional class consisting of a full range of poses. One study
suggests “lyengar yoga” which is said to be “…easily tailored to individuals who are elderly, physically unfit, or suffer from chronic illness” (Alexander et al. 2012:15). This study’s very small number of yoga participants leads to insufficient data and therefore limited ability to convey reliable findings. Additional research would be necessary to shed additional light on this relationship between yoga and balance improvement in seniors. This said, despite this study’s limited insight into the positive impact of yoga on balance, the ability to alter yoga routines to fit participant needs helps make it a useful exercise form for seniors at St. Columbkille and beyond.

Senior exercise, though more consistently linked to physical strength and flexibility improvement, can also help improve balance. Hand and colleagues see balance as one of several key components of physical health, all of which are ultimately “…necessary to carry out normal activities of daily living…” (Hand et al. 2012:31). Importantly, as the researchers argue, balance improvement rarely occurs in a vacuum (Hand et al. 2012:29-33). In other words, other physical outcomes are likely to impact balance, with the reciprocal relationship taking place as well. This tendency toward understanding physical health as a series of interconnections rather than distinct variables, though complicated in quantitative analysis, is useful in qualitative inquiry. Later focus on the benefits and aims of Norman’s physical tests will further address the significance of these interconnections. First, however, discussion moves from balance to the second most common participant response, physical strength improvement.
Physical Strength

A total of 10 participants cited physical strength improvement as the main benefit of class participation. An additional 8 of the 19 participants citing multiple health benefits included physical strength improvement as one of the main outcomes of class participation. Thus, a total of 18 out of 54 responses to question 6b, or 33% of all responses to the question, noted physical health improvement as the main benefit of class participation. Unlike balance improvement where each class was represented, those who saw physical strength improvement as most beneficial tied these benefits to senior exercise. Given the class’ focus on resistance band training, this is ultimately not all that surprising. Literature generally supports this trend, though researchers do suggest a significant link between yoga practice and increased physical strength (Ross et al. 2013).

Again, given this study’s limited data on perceptions of yoga participants, it is not possible to provide further insight into this relationship.

The relationship between physical strength and senior exercise is mentioned both in literature, as well as personal interview responses. As one participant states, “[Senior] Exercise has made me stronger. I started with the weakest bands and have worked my way up.” Another woman suggested similar improvements, stating, “I can do so much more than I could when I started. [Senior exercise] has made me stronger physically. Sometimes I don’t want to do it, but I know I should because it has helped me.” Yet another participant added, “I think physical benefits are what give me the motivation to keep going. If I didn’t go to exercise I worry what life would be like. It makes me aware that I gotta do this.” Similar to balance, Hand and colleagues see physical strength as a key health component ultimately needed to carry out daily activities. In addition, their
study, focusing on 38 seniors participating in a 12-week group exercise program, found that “…older adults who regularly exercise at senior centers may significantly improve muscular strength, aerobic fitness, and flexibility while reducing bodily pain…” all in a relatively short period of time (Hand et al. 2012:49). Though the group fitness community at St. Columbkille is not a senior center, the concept of carrying out senior exercise in a group setting remains consistent and connects well to the key concept of social environment. Again, though we are treating physical strength improvement as an independent variable for ease of analysis, research stresses the existence of the many concurrent benefits of increased activity for seniors. This important point will follow discussion of the final two physical health responses, blood pressure and flexibility.

**Blood Pressure**

Blood pressure is a common topic of health conversation for many individuals in today’s world. Hypertension, defined as “…elevated blood pressure above 140 mmHg and 90mmHg diastolic when measured under standardized conditions,” is increasingly common and said to affect approximately “a quarter of the world’s adult population” (Wagner et al. 2012:1). In lieu of this reality, Reid instigated voluntary blood pressure checks as part of St. Columbkille’s activity classes. Readings were taken following Tai Chi and senior exercise classes on anyone who wished to receive them. Data were handwritten on a number of tally forms and kept as a tool to casually track improvement or regression over time. A copy of the tally form used can be found attached to this paper (see Appendix F). To highlight some of the general trends in blood pressure among class participants, data were inputted into Microsoft Excel and then organized by
participant. To show this general trend over time more accurately, only blood pressure readings from individuals who had participated in one or more of the classes for 30 months, along with having blood pressure monitored regularly, were included in Figure 5 below. The 30 months of participation was not necessarily continuous, as many class individuals tended to go one to several weeks without participating due to a variety of reasons. Twenty-three out of 54, or 43% of participants fit these criteria and thus had their blood pressure levels considered in the graphic.

![Figure 5: Trends in Blood Pressure Categories for 30-Month Participants](image)

As shown, Figure 5 does not highlight individual values; rather it shows the general categories of normal and pre-hypertension. The systolic and diastolic cutoffs are consistent the American Heart Associations accepted levels (AHA 2015). The purpose of Figure 5 is not to prove that class participation lowers blood pressure, despite it highlighting that trend. Blood pressure is affected by myriad factors including diet, exercise, stress level and genetic factors among others, making suggesting such causation difficult at best (Wagner et al. 2012). Nevertheless, the clear decrease in individuals
considered to fall into prehypertension, as well as the clear increase in individuals falling into the normal range is, if anything, a positive sign. Most importantly, interview responses and literature on the concept of self-efficacy support the notion that the value of taking blood pressures consistently involves more than just the numbers.

As introduced earlier in the paper, the backgrounds of the co-PIs are important in this study’s context. Reid, an experienced nurse, utilized her time with participants in ways beyond simply recording their blood pressure. Each blood pressure (BP) screening sheet included 6 interconnected steps to help Reid connect to participants on a more personal level (see Appendix F). They include (1) Explain why taking BP is important, (2) Explain the importance of healthy eating, (3) Explain the importance of physical activity, (4) Listen to concerns, (5) Accept and love people where they are, and (6) Create an environment conducive to healing of body, mind, and spirit. These steps, in addition to enhancing the participants’ experience, help make the connections between holistic health, nursing, and medical anthropology more explicit. Given the applicability of these connections to the central theme of the paper, step 6 will be revisited in further detail later in the paper (see Ch. 9). For now, steps 1-5 give a glimpse of the insights gained from considering the viewpoints of both anthropology and nursing.

The above steps 1-5 reveal a clear desire to increase depth of understanding of an individual’s health and shift focus beyond current health issues toward a more preventative approach. As Dougherty and Tripp-Reimer argue, both medical anthropology and nursing share this general desire to look beyond the primarily reactive measures taken in biomedical practice. Drawing on insights from anthropologist Arthur Kleinman, the authors state, “The central concern of biomedicine is not general
wellbeing, nor individual persons, nor simply their bodies, but their bodies in disease.” Conversely, the authors define nursing as “the diagnosis and treatment of human responses to actual or potential health problems” (Dougherty and Tripp-Reimer:219-220). The fact that these responses to health problems are “…often multiple or continuous” and “…less discrete than medical diagnostic categories” paves the way for what the authors term a “natural alliance” between nursing and medical anthropology (Dougherty and Tripp-Reimer 1985:220). This alliance is made possible by each discipline’s willingness to define illness as distinct from disease. Whereas disease is defined biomedically in ways “thought to be objective and quantifiable,” illness is seen as a “personal phenomenon concerning an individual’s altered perception of self” (Dougherty and Tripp-Reimer 1985:226-227). It is important to realize how the above definition of illness can impact health intervention, and in terms of this paper’s aim, how an individual perceives his or her health. By taking the above steps, Reid opened a door between her own background and that of anthropology. This arguably allowed participants an opportunity to see their health as something that can be altered in the short term as well as understood and controlled in the long term through thoughtful action. This increase in self-confidence as it relates to health was highlighted through interview responses, effectively re-introducing self-efficacy as a concept of interest in this study.

Self-efficacy refers to one’s perceived ability to take matters of health and wellness into their own hands (Bandura 1989). For seniors, the importance of a positive outlook on self-efficacy should not be understated. As one group of researchers argues, “Aging-related loss, such as decline in physical functioning, can lead to a lower sense of control.” They continue, “For older individuals, a weak sense of efficacy has been
implicated in slower gait speeds, fear of falling, and general declines in physical and social function” (Li et al. 2001:229-30). Personal interviews revealed an interesting trend for several of the individuals who noted blood pressure improvement as the primary perceived physical health benefit of class participation. Of the 7 individuals who cited blood pressure improvement as most important, 3 touched on the topic of self-efficacy, likely without even realizing it. As one woman stated, “I know my blood pressure has gotten better since I’ve been coming to [Tai Chi]. I was embarrassed about [high blood pressure] but after talking with [Reid], I feel better about it. It really just gives me a little more confidence that I can do better.” Another participant compared Reid’s blood pressure readings to going to the doctor, stating, “I feel like I’m doing something good for myself when I have the blood pressures taken, like I’m taking things into my own hands a little more. It’s like going to the doctor, I don’t really like it, but I know it keeps me aware.” A third participant added, “My blood pressure has gotten better. I am off of my blood pressure medications. I’m glad [Reid] takes blood pressure, I feel more in control now than I did.” These multiple mentions of “control” and taking health into one’s own hands reflect a sort of pride in monitoring one’s health over time. Returning to the researchers’ perspective, “Self-efficacy has been shown to influence not only perceptions of wellbeing and physical function, but actual improvements in physical function (Li et al. 2001:130). Though these subjective accounts allow for only so much generalizability, it would seem that consistent efforts at monitoring health status, such as taking blood pressures and discussing their significance, has a notable effect on developing and sustaining a positive and proactive outlook on continued wellbeing. Such an effect is likely to increase when health benefits extend beyond blood pressure readings alone.
This point will be solidified further following an overview of the final response category, flexibility.

**Flexibility**

The final independent response category receiving multiple mentions was flexibility. Of the 5 responses, 3 were yoga participants. The remaining two individuals participated in both Tai Chi and senior exercise and were unclear about which class led most to their improvement in flexibility. Before discussing the responses of these two individuals, the relationship between yoga practice and improved flexibility deserves some attention.

As one yoga participant stated, “*Yoga has helped me become so much more flexible. I notice it in everything I do.*” The connection between yoga and flexibility improvement is well documented. As one study on iyengar yoga concludes, “flexibility significantly improved after 6 weeks of yoga practice…” (Amin and Goodman 2013:401). Interestingly, this study also accounted for limited attendance patterns, meaning doing yoga as infrequently as once a week for 6 weeks carries the potential to significantly improve flexibility (Amin and Goodman 2013:399-402). Though yoga at St. Columbkille has already been described as somewhat more challenging than the other two classes, especially for those with physical limitations, the knowledge that even limited participation can lead to progress is useful. Whereas Tai Chi researchers concluded “…no tangible results in fall reduction should be expected from short term exposure to Tai Chi (i.e. less than 3 months)”, even intermittent yoga practice over a period as short as 6 months can yield substantial progress in flexibility (Li *et al.*
2005:192). This potential for significant short-term gain suggests substantial opportunity for yoga application, especially for those with limited time availability. Yoga participants in this study did not undergo physical pre- or post-testing, therefore it is difficult to draw conclusions about the effect yoga participation had on flexibility in this setting. However, the few positive remarks, coupled with yoga’s application to the study of holistic health make give its practice tremendous potential moving forward at St. Columbkille and elsewhere.

As introduced above, the two remaining individuals citing flexibility as a main benefit of class participation belonged to both the Tai Chi and senior exercise groups. When asked question 6b, the first individual stated, “I have better movement in my shoulders. I could hardly lift my arm before. I’ve had a really bad shoulder for a long time and Tai Chi and exercise have helped.” When asked which, if either helps more with the shoulder movement, the woman responded, “I like going to both. Exercise is harder but I think I feel better from classes.” Similarly, when asked to clarify which class most benefits flexibility, the second participant stated, “Both classes help me. Tai Chi helps with being able to rotate my arms more easily. I also like exercise. I am not the type of person to go home and stretch everyday so it’s good that we do it in class.”

Both of these responses touch on the idea that multiple classes can aid progress. Though these two individuals focused primarily on flexibility when asked about physical health improvement, others shared similar opinions about how multiple classes benefit multiple areas of physical health. As seen in Figure 4 above, significantly more participants cited multiple benefits than any other individual response variable. This being the case, physical health discussion concludes with a look at the significance of achieving multiple
health benefits through class participation. This is made clearer by first discussing the aim of Norman’s physical testing. Though post-test numbers fell short of what was expected, the positive outcomes from the few individuals completing post-tests, as well as the impact of testing in general are worth consideration and elaboration.

The Importance of Physical Testing

Along with Reid’s blood pressure readings, this study attempted to make use of physical tests carried out by co-PI Norman. Though only 7 individuals participated in post-testing during the data collection period, their results are generally positive. To better understand these results, highlighted in Figure 6 below, as well as the importance of physical testing on a broader scale, it is necessary to first understand what the tests themselves are designed to reveal. Norman chose these tests based on experience. Therefore exact references to all 5 tests below are not found in available literature. This said, Hand and colleagues (2012) discuss utilization of a series of 6 tests defined as “senior fitness tests,” or SFTs. Also, a separate study by Muehlbauer and colleagues (2012) utilizes tests similar to those selected by Norman. Though most of these tests do not exactly mirror Normans tests, similarities between them suggest support for Norman’s methods.
Norman’s physical tests consisted of 5 exercises, each with a specific purpose. First, functional reach was tested to give a sense of lower body flexibility and balance. This test involved having the participant stand next to a wall with one arm extended perpendicular to the wall at shoulder height. The participant was then asked to lean forward and reach as far as possible without losing their balance. Norman was present at all times to ensure any loss of balance did not result in a fall. A yardstick attached to the wall was used to determine the length of the functional reach. Hand and colleagues employed the “chair sit and reach,” a test comparable to Norman’s functional reach. This test also addresses lower body flexibility “…which is important for good posture and for mobility tasks such as walking and stair climbing.” Lower body flexibility is also said to “…help prevent lower back pain and musculoskeletal injuries, and reduce the risk of falling (Hand et al. 2012:34). As Figure 6 indicates, some improvement was seen for those who performed both a pre- and post-test, with the average reach increasing by 0.7...

**Figure 6: Physical Test Averages**
inches over the course of the three months separating the two tests. The data included in Figure 6 represent an average of total pre- and post-test reaches, meaning individual gains may have been higher or lower than indicated below. All individuals improved their functional reach in their post-test, with the greatest improvement being 3.1 inches. The smallest improvement measured was 0.2 inches.

The second test performed was the 4-Stage Balance Test. This test asked participants to stand in 4 different positions for 10 seconds each to assess standing balance. Any wobble or loss of balance was counted as an error. The individual was first asked to stand with both feet together for 10 seconds. Next, the person stood with one foot in front of the other (as though taking a step) for 10 seconds. Third, the individual stood heel to toe for 10 seconds. Finally, the individual stood on one foot and was again timed for ten seconds. None of the six SFTs described by Hand and colleagues are comparable to this test. However, Muehlbauer and colleagues utilize a test of “unperturbed standing” said to evaluate static balance (Muehlbauer et al. 2012:504). The study was highly quantitative in nature with little elaboration on the perceived benefits of the tests used. Its findings suggest balance testing is important and should be carried out alongside other tests of physical strength and flexibility (Muehlbauer et al. 2012:510). Of the 7 individuals performing both pre- and post-tests 4 individuals did not lose balance at any point in either test, and thus did not commit any errors. Of the remaining 3 individuals, 2 lost their balance twice in the pre-test and 1 lost their balance once. 2 of these individuals fared better in the post-test, with each decreasing their number of errors from 2 to 1 and 1 to 0, respectively. The final individual recorded 2 errors in both the pre- and post-test. Importantly, however, this individual was
scheduled for knee surgery shortly after the post-test. The limitations and subsequent lack of progress are thus understandable.

Norman’s third test was the Timed Up and Go. In this test, the participant began by sitting in a 19” tall armchair. A cone was placed 10 feet in front of the chair. The individual then stood without using their arms (if possible), walked around the cone, and returned to a seated position in the chair. The person was timed from when they began to stand until they were seated back in the chair. The test focused primarily on balance and lower body strength. Muehlbauer and colleagues also utilized the timed up and go with nearly identical test requirements. Again, however, their study focused more on the correlation between various fitness tests, rather than the perceived or potential benefits associated with each individual test (Muehlbauer et al. 2012:508). Hand and colleagues performed the very similar “8-foot up and go.” This test was said to assess agility and balance each of which “…are needed for a number of functions such as getting up and maneuvering quickly enough to attend to something in the kitchen, go to the bathroom, or answer the phone or door in a timely manner” (Hand et al. 2012:35). In our study, a total of 4 trials were timed, 2 for the pre-test and 2 for the post-test. The best time from the pre-test for each of the 7 participants was then averaged. The same was done for the post-test. These data were then used to create the graph in Figure 6. As the figure shows, the average time to complete the test decreased by 0.8 seconds between the pre-test and post-test. This signifies a slight improvement over time. Again, however, individual variations in time are not shown. The largest improvement between pre- and post-tests was 3.3 seconds, highlighting more substantial improvement for that individual. Of the 7 participants, 6 improved their times by at least 1.1 seconds. The final
individual recorded a slower time by 2.4 seconds during the post-test. Again, this individual was nearing a procedure, meaning progressive physical limitation likely contributed to the slower trial.

Next, the 4-Square Step Test was administered. Here, a large “X” was made using plastic pipes, creating 4 quadrants. The participant was first asked to stand in one quadrant and step to the left (into quadrant 2), back (into quadrant 3), right (into quadrant 4), and forward into the starting quadrant. This was repeated in the opposite direction (1 to 4 to 3 to 2 to 1). The participant was given a “practice trial” in each direction. This practice trial was followed by 2 timed trials. Here, again, the main focus was balance with additional emphasis on coordination. The “reactive balance test,” performed by Muehlbauer and colleagues, was the only test found to be similar to the 4-Square Step Test. Though more sophisticated in its use of “…attached springs which allow a platform to move slightly and subsequently test participant balance,” this test addresses balance and coordination. Again, however, researchers do not provide commentary on the effectiveness or desired outcomes of the individual test. In our study, the best times from the pre-test and post-test for each of the 7 participants were taken and averaged. Figure 6 shows an overall improvement of 1.6 seconds from pre-test to post-test. As was the case with the previous test, 6 individuals improved, while 1 regressed slightly. The greatest improvement was 2.8 seconds.

Norman’s final test was the 30-Second Chair Rise. This test primarily challenged lower body and core strength. Participants were asked to again sit in a 19” tall armchair. They were then asked to go from sitting to standing as many times as possible in 30 seconds. The participants were asked to not use their arms if possible. A repetition
consisted of going from sitting to standing. Hand and colleagues conducted the nearly identical “Chair Stand.” This test also addresses lower body strength, said to be “…an important aspect of fitness in older adults because of the role it plays in activities such as stair climbing, walking, maintaining balance, and getting out of a chair, bathtub, or car” (Hand et al. 2012:33). The average number of repetitions from the pre- and post-tests for each of the 7 participants in our study are shown in Figure 6. Again, overall improvement from pre-testing to post-testing is shown. Similar to the previous two tests, 6 of the 7 individuals increased their repetitions over time.

Importantly, the above tests focused on multiple areas of physical health including flexibility, physical strength, and balance. When discussing avenues for improving senior health through exercise, Batt and colleagues suggest prescribing “individually tailored physical activity to the older patient according to the goal of the exercise and the individual risk profile” (Batt et al. 2013:528). Accomplishing this requires seeing physical health as multi-faceted and avoiding a one-size-fits-all mentality when it comes to senior physical wellbeing. Norman’s physical tests are a good starting point for this effort. Though only 7 individuals performed pre- and post-tests, all 54 study participants performed one round of tests. This willing participation reveals a desire amongst participants to more accurately gauge their physical health. If analyzed on an individual basis, results could enable individuals to tailor exercise strategies to their own health contexts. Furthermore, consistent participation in senior exercise and subsequent desire to track progress is arguably impactful beyond what simple test results can portray.

Just as Reid’s blood pressure readings were valuable for reasons beyond the readings themselves, Norman’s tests were about more than trying to improve one’s
performance. During the tests, Norman would work closely with each participant, ensuring they were comfortable with each exercise. For those with more pronounced physical limitations, Norman would alter the tests in whatever way necessary to accommodate varying levels of physical capacity. If an individual was unable to complete a test, Norman would give suggestions on how to improve, while offering encouragement and support specific to that individual’s condition and capabilities. These actions were seen both during physical testing and in the Monday exercise class as a whole. As one participant stated, “[Senior] exercise is so much different than going to the gym. I always feel comfortable and no one judges me if I can’t do everything.” Another individual added, “[Norman] does such a good job. She wants us to get better but she doesn’t yell or pressure anyone. It makes me want to keep coming back even though I’m not really an exercise person.” These points and the instructor’s intentional focus on acceptance, understanding, and patience are more than just kind gestures. Such effort speaks to her focus on maximizing the benefits of her field and highlights the potential of considering physical therapy practice in light of medical anthropological insight.

Dougherty and Tripp-Reimer (1985) draw parallels between medical anthropology and nursing in theory and practice. Similarly, Norman’s efforts reveal a documented connection between anthropological insight and physical therapy practice. As one researcher suggests, “…patient treatment should follow a model of mutual participation in which physical therapists conceive of their role as helping the patients help themselves to achieve the therapists’ goals” (Perry 1984:930). This shift from a typical biomedical interaction involving a “one-way flow of information from
practitioner to client” to a more mutual relationship is evident in Norman’s everyday efforts. These efforts also solidify earlier comments on the benefits of multidisciplinary interaction. Chapter 10, dedicated to discussion of study significance, takes a closer look at how utilization of diverse insights from multiple fields is ultimately necessary at St. Columbkille and beyond. The following analysis chapters will continue to build up to this discussion, with focus now shifting from physical health to mental health perception.
Chapter 7: Analysis of Mental Health Perception

Introduction

Chapter 1 defined mental health in general terms. This definition, painting mental health as a positive state of mind effectively allowing individual to cope with daily life events, reveals the complexity of the concept and subsequent difficulty of analyzing mental health outcomes (Mosby 2012). Though psychology and related fields break down mental health into more definitive categories, such analysis is not the purpose of this paper. Rather, mental and emotional health analysis will utilize personal interviews and literature support to draw out individual perceptions about mental and emotional health as it relates to class participation. In an attempt to remain organized, the codes shown in Figure 2 will be used to guide discussion. These codes, identified through analysis of personal interview transcripts, include relaxation, self-awareness, mental focus, and happiness. The focus in this section is not only the codes themselves. Rather, the codes are used as discussion points that can begin to uncover trends on how perceived mental status affect the other pillars of holistic health.

Coding Analysis

Just as question 6a asked participants to clarify which physical health impact or impacts were most important, question 6b asks about mental/emotional health benefits. Again, a total of 54 individuals answered question 6b. The results are shown in Figure 7 below. As the chart highlights, relaxation and self-awareness were mentioned most often with 16 (30%) and 15 (28%) responses, respectively. Of the 29 individuals citing either relaxation or self-awareness, 28 (97%) participated in Tai Chi only or Tai Chi and senior
One yoga participant cited relaxation as the main benefit of participation. Mental focus received 11 responses, or 20% of the total. Finally, happiness received 8 responses (15%). It is important to note that these categories are defined relatively loosely. A response was coded as relaxation if the participant used the words “calming,” “relaxing,” or “at peace.” Self-awareness was applied to responses containing the words “self-aware,” “introspective,” “in-tune” and “in-touch.” Mental focus required mentioning “focus,” “concentration,” “awake,” and “locked-in.” Happiness was used only when the participant mentioned being “happy,” “joyful,” or “positive.” Though psychological studies standardizing and operationally defining these topics exist, this study did not create any such operational definitions. Future studies could make better use of data gathered on mental health perception by using operational definitions of important themes (see Chapter 10). This said, a lack of quantitative analysis due to a lack of clearly defined variables does not negate the value of interview responses. Rather, these responses are a testament to the positive impact class participation had on participant’s mental state. No class highlighted this more than Tai Chi.
Tai Chi was overwhelmingly tied to relaxation, self-awareness, and happiness. As one participant stated, “Tai Chi helps me relax. I think it’s the breathing. I am able to reflect on my self and take time with my own thoughts.” Another individual added, “I feel so relaxed and happy after Tai Chi. No matter what mood I’m in when I get to class, I always leave more at peace.” This perceived relationship between Tai Chi and a calmer mind is central to the aim of the exercise. As Lan and colleagues state, “During [tai chi] practice, diaphragmatic breathing is coordinated with graceful motions to achieve mind tranquility” (Lan et al. 2002:217). This focus on deep breathing and its subsequent effects arguably support and enhance one’s ability to relax. One participant supports this, stating, “I never focused on breathing before. It helps me so much. I feel relaxed and I’m able to really be in touch with my own body. I always feel better when I leave Tai Chi than I do when I start.” This connection between relaxation, self-awareness, and happiness speaks not only to the perceived benefits of class attendance, but also to the complexity of mental health. Each participant brings a unique background of experience that ultimately shapes their mental state as well as the class’ impact on that mental state. Some individuals suffer from pain. Others suffer from grief due to a loss or depression due to myriad factors. Still others are shy and less comfortable in a group setting. Many experience a combination of all or more of these factors, each of which plays some role in mental and emotional health, which in turn impacts other areas of health (Vader 2014:457). Though this complex reality makes drawing conclusions about mental health difficult, it also emphasizes the importance of context as it relates to one’s mental state and overall wellbeing. As will be shown, context extends far beyond the individual into the realms of social and cultural environment. Appreciating this context’s impact on
health is central to medical anthropology and carries implications for improving health initiatives. Before this broader discussion and its implications can take place however, the final pillar of holistic health must be addressed.
Chapter 8: Analysis of Spiritual Health Perception

Introduction

Spiritual health, like mental and emotional health, is highly subjective. In addition, while some individuals look to share their feelings about spirituality openly, others see it as highly personal and are thus less likely to discuss their feelings openly (Chidarkire 2012:299). This said, simply ignoring the impact of spiritual health on overall health is not the answer. As one researcher states, “[a]lthough spirituality and religion are potentially divisive and controversial, we cannot avoid discussing them” (Chidarkire 2012:298). Other researchers also recognize the general lack of focus on spiritual health in research, pointing out two assumptions that have historically hindered inquiry into spirituality’s impact on health. First, “…the assumption that spirituality cannot be studied scientifically,” and second, “the assumption that spirituality should not be studied scientifically” (Miller and Thoresen 2003:24). The authors go on to strongly disagree with these assumptions and suggest more meticulous efforts to study mechanisms behind spirituality’s impact on health. As they note, “substantial empirical evidence points to links between spiritual/religious factors and health in U.S. populations” (Miller and Thoresen 2003:33). Considering this, though spirituality is difficult to measure, it nevertheless impacts overall wellbeing, albeit in varying and complex ways. This study, understanding spiritual health as “connectedness” to others and one’s surroundings, again uses personal interviews and subsequent coding analysis to gain insight into participant perceptions of spiritual health and its impact on overall wellbeing (Mosby 2012).
Coding Analysis

The research population at St. Columbkille, a Catholic parish, certainly valued spirituality as a key component of overall health. Interview responses, however, were less clear in terms of how much class participation affected spiritual health. As with the previous two sections, 4 codes were identified based on interview responses to question 6, part c. These included focus on faith, faith community, importance of setting, and references to the Tai Chi closing. As shown in Figure 8, 16 individuals either did not immediately think of how spiritual health was impacted or suggested there was not much spiritual impact. I would argue that this tendency to discuss spiritual health in less detail is due in large part to the nature of spirituality, as discussed briefly above. Spiritual health is undoubtedly highly personal and it is therefore not all that surprising that fewer individuals shared their perceptions (Chidarikire 2012:299). Also, as one participant stated “I haven’t really thought about that.” This may suggest a tendency to separate spirituality and exercise rather than considering the interplay between them. Those that did share more about their spiritual health tended to focus either on the benefits of a calmer mental state (focus on faith) or on the group as a whole (faith community, importance of setting). Also, inclusion was connected to spiritual health several times,
with 6 individuals using the Tai Chi Closing as an example of this. These tendencies reinforce the importance of “connectedness” when discussing spiritual health, providing additional insight into the power of group activity and strength of community at St. Columbkille, while also demonstrating the importance of spiritual health on a more personal or individual level.

The ability to focus more completely on one’s faith was a recurring point of emphasis in interview responses. Akin to self-awareness, those participating in Tai Chi most often cited this ability, effectively reinforcing the notion that Tai Chi aids mind tranquility (Lan, Lai, and Chen 2002:217). As one participant states, “Tai Chi helps me stop and think about what’s important. It’s like when I pray.” Comparing Tai Chi to prayer in terms of spiritual impact is interesting in that the Tai Chi closing, cited by 6 individuals as important in relation to spiritual health, is itself a sort of prayer. At the end of every Tai Chi class, Reid recited, “Every teacher is a student and every student is a teacher. Go gently in your Tai Chi circles. The God in me recognizes the God in you.” The impact of this closing was clearly felt by class participants. Though a number of class participants were St. Columbkille parish members, many were not, as introduced in the study overview (see Ch. 2). Creating an environment conducive to tranquility is a testament both to the nature of Tai Chi, as well as the social environment of St. Columbkille. As one woman states, “The people make me feel closer to God. Something about this place is really special. I think the best part is the people.” These sorts of comments abound in interview transcripts. The remaining codes, “faith community” and “importance of setting” thus work to further discussion about the relationship between spiritual health and social environment, effectively introducing the topic of our next
Having looked into perceptions of physical, mental, and spiritual health, it is now time to bring the importance of these comments fully into focus. This is accomplished through analysis of the social environment at St. Columbkille.
Chapter 9: Social Environment

Introduction

The previous pages contain no fewer than five direct references to this section. This is not without reason. The impact of the social environment at St. Columbkille was apparent the first time I walked into Tai Chi class. Its impact was further solidified with every additional Tai Chi, senior exercise, and yoga class I attended. In terms of participant perception, the social environment was overwhelmingly the most common topic of conversation. Why, arguably, was this the case? What does this mean for this study as well as future projects? These questions will drive discussion in the final chapters of the paper. Before suggesting answers, however, it is beneficial to briefly revisit the theoretical foundation of this paper. This will more fully introduce the importance of a positive social environment, as well as reestablish how this environment supports efforts to see and subsequently improve health through a holistic lens.

All of the core principles making up social ecological theory are applicable to this paper. Two principles, however, are especially pertinent to this section. The second principle of social ecological theory states, “...health is an outcome of the quality of the person-environment fit” (Grzywacz and Fuqua 2010:101). The third principle argues, “certain individual or environmental conditions exert a disproportionate amount of influence on health and wellbeing” (Grzywacz and Fuqua 2010:101). For the purposes of this study, the environment and environmental conditions can be seen as combining to form the social environment at St. Columbkille. Environmental conditions, for our purposes, include the physical space where classes take place. Social conditions include the people participating in the classes, the instructors of the classes, and the interactions
between and among these groups. With this clarified, principle two of social ecological theory shifts back into focus.

It may seem inappropriate to paint health, a topic already described as immeasurably complex, as merely an “outcome” of a person’s fit to their environment. Clearly factors far beyond those addressed in this paper impact health in various ways. The purpose of utilizing this principle within social ecological theory is therefore not to prove the argument is infallible. Rather, as the data gathered from personal and group interviews strongly suggest, acknowledging the impact of a positive environment is worthwhile and useful as another piece to the puzzle of overall health.

**Coding Analysis**

Question 7 of the personal interview asked participants, “What has been the most beneficial aspect of class participation?” Prior to transcribing and coding the interview responses, I fully expected physical benefits to dominate this question. Again, when many people think of health, they first think of physical wellbeing (Batt et al. 2013:525). As Figure 9 below reveals, this expectation was not met. Of the 54 responses, 32, or 59% of the total population, stated that some aspect of the social environment was the most beneficial outcome of class participation. To qualify as a social environment response, participations had to mention the people involved in class or the instructors. The concepts of community, group setting, fellowship, and socialization or socializing were also considered under the banner of social environment. The coding analysis was used to sort responses into the other three categories. Though the overwhelming number of individuals citing social environment was surprising, certain elements of St.
Columbkille help explain the results. These elements become clearer when looking at participant responses.

Returning again to principle two of social ecological theory, the person-environment fit was undoubtedly favorable at St. Columbkille. As one participant noted, “I always walk in and see smiling faces. There is something about this place. It keeps me motivated.”

One of the few gentlemen in the class offered additional insight, stating, “At first my wife made me come. But I actually enjoy it and it helps me. Everyone is nice. I choose to come.”

Words such as “nice,” “welcoming,” “kind,” “warm,” “inviting,” and “caring” are seen repeatedly in personal interviews describing the feelings associated with class attendance. The importance of this type of positive environment cannot be understated, especially as individuals get older. As one researcher states, “older people are particularly vulnerable to social isolation and the resultant loneliness, which, in later life, has been viewed as a potential health risk in itself” (Dury 2014). The class participants of St. Columbkille address this reality through friendship and inclusiveness. One participant, a non-member of St. Columbkille parish, noted, “I feel so welcome here. I’ve only been coming to class for a little while and already I feel like I’ve met good

**Figure 9: Most Beneficial Aspects of Participation**

![Bar chart showing the most beneficial aspects of participation: Social Environment, Physical Health, Mental/Emotional Health, Spiritual Health](image)
friends.” These benefits are experienced between parish members as well. As one woman states, “This class has made me more active at church. I recognize more people now. I used to see them around but we never talked. Now we’re friends.” The interviews strongly suggest that the benefits associated with the formation of these relationships far outweighed any other perceived health benefits. This does not diminish gains in other areas of health, rather, it complements these gains by reinforcing and strengthening them. As Dury argues, “The positive effects of participation and social interaction have been recognized as important components of mental health and overall wellbeing…” (Dury 2014:127). These social benefits, stemming from a positive fit with the social environment, are likely to keep many participants involved in classes at St. Columbkille for years to come.

**Focus Group Findings**

A total of four focus groups were carried out once all of the personal interviews had been completed and coding had begun. This gave me an opportunity to tailor focus group questions to include the most common themes from the personal interviews. Despite this effort to include all of the common themes, question 2, related to social benefits of class participation, easily inspired the most conversation among group members. Again, this does not diminish the impact of other perceived health benefits. Rather, it speaks to the impact of the social environment on class participants and its role in improving participant wellbeing. When asked about the social benefits of class attendance, one woman mentioned initially coming with a neighboring and quickly noticing how she was welcomed as part of the group. In her words, “This group is more
welcoming than a lot of groups I’ve been a part of. I noticed it right away. I was nervous so I brought a neighbor along and we both ended up loving it.” A separate focus group member, having recently undergone the loss of a young family member, sought out Tai Chi as a method to reduce stress and seek emotional solace. Her emotional response brings additional light to the power of group support.

“Tai Chi allowed me to be joyful again. It lifted my spirit and my emotions. I feel connected to everyone in class. [Reid] is so wonderful. I felt so welcomed here. There’s no pretense, we are who we are. They just embraced me. The second class I attended, [Reid] had roses in her hand. She gave one to a dear friend. She came over, gave me a hug, and gave me the second rose. I was blown away.”

This testimony provides a glimpse of the power of a truly welcoming social environment. Such an environment does not simply spring up, however. It requires strong leadership, something that the class participants and I immediately recognized and appreciated.

**Instructor Impact**

The social environment at St. Columbkille is clearly defined by the participants. This said, three individuals, the instructors, deserve special mention for their tireless contributions to the atmosphere of St. Columbkille. To tie the instructors back to the foundation of this paper, the third principle of social ecological theory can be applied. Again, it reads, “certain individual or environmental conditions exert a disproportionate amount of influence on health and wellbeing” (Grzywacz and Fuqua 2010:101). Though interpretation of this principle may vary, I would posit that these “individual or
environmental conditions” can either positively or negatively influence health and wellbeing. For example, an unsafe environment or an environment containing boundaries to health improvement such as cost, lack of transportation, or lack of health services would fall into negative conditions. Similarly, a socially isolated individual would be considered a negative individual condition as it relates to influencing health. On the other hand, a safe, open environment focused on acceptance and inclusion, such as the one at St. Columbkille, can be considered a positive environmental condition. Such an environment requires cultivation and maintenance to thrive. Here, social ecological theory points toward the class instructors as the ultimate example of positive individual conditions. I would argue that their collective efforts do in fact “exert a disproportionate amount of influence on health and well-being” and enable continued growth and appreciation of their respective classes (Grzywacz and Fuqua 2010:101). This is especially clear in senior exercise when the instructor made a point to ask participants to pray for another’s sick loved one. It is seen again in Tai Chi when the instructor introduces new participants to the class or recaps community events, all while distracting participants simultaneously performing seated leg extensions. The number of extensions grew from 50 to 100 or more in my time observing, though no one complained. This emphasis on improvement while building relationships and allowing laughter to be a part of the class experience speaks to the instructor’s impact and methods. All of the instructors’ ability to meld passionate desire toward improvement with unwavering support for all individuals and levels of ability is remarkable and deserving of praise. Unfortunately, revealing all 32 specific statements of appreciation for these instructors from class participants is not possible. This said, as discussion
moves beyond St. Columbkille, it is vital to recognize the example set by these class leaders and acknowledge that passion, kindness, and dedication toward a goal carries potential to improve health far beyond the walls of the Nebraska parish.
Chapter 10: Study Significance: St. Columbkille and Beyond

Introduction

This paper’s introduction contained several seemingly straightforward questions. What causes us to feel well? What causes us not to feel well? What barriers exist preventing us from feeling well? Is it possible to overcome these barriers? How do these barriers differ from place to place or person to person? What strategies do we employ to improve our health? How much of our health is in our own hands? Though this study and subsequent paper have not provided clear answers to these questions, application of the holistic health model, as well as insight into the importance of one’s social environment offers insight on how approach such answers. This study’s strength lies not in quantifiable data, but rather in the enriching words of interview participants as well as the cooperation between researchers from the distinct backgrounds of medical anthropology, nursing, and physical therapy. These insights help highlight how this study’s finding ultimately reinforce the notion of looking at health through a holistic lens while always seeking interdisciplinary input.

The Value of Cooperation

Throughout this paper, many variables are said to impact overall wellbeing. Such complexity simply cannot be studied from a single viewpoint. For this reason, multidisciplinary cooperation is necessary when working to improve senior health. This paper, embracing this reality, is a product of efforts of individuals with backgrounds in medical anthropology, nursing, and physical therapy. The diversity of researcher expertise and power of collective effort was evident throughout the study, enabling rich
data collection enhanced by insight from each researcher and their respective field. An example of this mutual enrichment is seen in data collection. Reid, a registered nurse, structured Tai Chi movements to address balance concerns based on her previous knowledge of falls among seniors. Similarly, as introduced earlier, Reid’s blood pressure readings went well beyond the numbers. Her experience as a nurse enabled her to provide participants with a level of care and health education beyond what an anthropologist could contribute. For physical testing, Norman, integrating her expertise in physical therapy, also provided participants with health education and motivational methods to encourage progress. In addition, her selection of physical tests was a direct result of her training, with each test targeting key areas such as balance, coordination, flexibility, and strength. These areas correlate to participants’ ability to perform everyday tasks, a point made clear through Norman’s one on one interaction. Again, my own background in medical anthropology could not have provided participants with this level of education.

Just as the insights of nursing and physical therapy improved participant experience and filled gaps in my knowledge as a medical anthropology student, anthropology’s ability to soften barriers between disciplines and encourage communication and cooperation was vital to this study. From the beginning of data collection, researchers worked together closely, hoping to take advantage of unique viewpoints offered across disciplinary boundaries. Such effort is valuable and should be undertaken in future research on senior health. The connections between medical anthropology, nursing, and physical therapy extend beyond the experiences at St. Columbkille. The very foundations of nursing and physical therapy are built on
managing the illness experience and handling often long-term care with thoughtful action. These realities suggest a “natural alliance” between nursing, physical therapy, and medical anthropology, especially when seeing health through a holistic lens, as detailed below (Dougherty and Tripp-Reimer 1985:220). It is the duty of these disciplines to embrace this alliance in an effort to continually advance knowledge and improve care.

Nursing, said to focus on “…self care limitations, pain, emotions related to disease and treatment, and changes related to life processes” (such as aging), will continue to stand on the front lines of senior health intervention (Dougherty and Tripp-Reimer 1985:220). Similarly, physical therapy often involves treating patients “…for chronic, long-term conditions that necessitate change or modification in lifestyle” (Parry 1984:930). Such efforts require a patient-caretaker relationship built on mutual understanding and respect for the many factors influencing wellbeing over time (Parry 1984:931). These connections, chronicled 30 years ago, call for greater effort on behalf of nurses and physical therapists to consider integration of anthropological method and insight. Likewise, medical anthropologists must embrace the potential of the field as a bridge between disciplines, actively seeking to undertake research endeavors that focus on the benefits of letting multiple voices be heard (Inhorn 2007:255). One particular avenue for connecting the fields addressed in this paper is through defining disease and illness separately. Parry summarizes the importance of this concept below:

“The medical model by itself, focusing on disease rather than on the illness experience, does not prepare its practitioners to deal with the cultural, social, and
psychological construction of the problem by the patient and his or her family” (Parry 1984:932).

Though the author is referring to issues that reach beyond senior health toward cross-cultural examination of illness, his message remains applicable to this paper’s content. Medical anthropology sees the illness experience as containing critical information not only about a patient’s perception of illness, but also about potential avenues to improve the patient’s health. Given that the illness experience of elderly individuals often involves chronic issues, a great deal of patient insight can be gained through medical anthropological inquiry and subsequently shared with other disciplines. Though the relationship between nursing and anthropology has grown, primarily via the field of transcultural nursing (Easterby et al. 2012), evidence of anthropology and physical therapy growing closer is scarce. As Western countries continue to age rapidly, senior health care will further stress available resources and likely overwhelm biomedical systems (Dury 2014:125). In addition to the sheer population of older individuals, concerns about lifestyle and a tendency toward social isolation rather than health promotion make improvement difficult for those advancing in age (Dury 2014:125-127). As researchers estimate, “Approximately 60% of older adults do not exercise regularly and approximately 30% are completely sedentary…” with “…activity levels tending to decrease with age” (Allen and Morelli 2011:667). To counter these trends, conscious effort toward intuitive, multidisciplinary action must continue to be undertaken. Though the three fields included in this paper are by no means the only potential contributors to these efforts, their overlaps and potential for mutual enhancement have long been documented, suggesting future cooperation can be achieved if all sides are willing.
Impact of Social Environment on Senior Health

The need for multidisciplinary insight into senior health is not the only significant implication of this paper. Participant focus on the importance of the social environment as it relates to wellbeing is significant to this study and subsequent research efforts. Exercise is not always easy, with many individuals lacking the motivation to either initiate an exercise regimen or continue exercise for an extended period of time (Allen and Morelli 2011:671). The notion that a group dynamic reinforces efforts to improve health is central to understanding the aim of community-based health initiatives (Collins and Benedict 2006:45). Chapter 1 ties this understanding to the growth of a positive social environment. This study’s findings suggest that the creation of this social environment, built on inclusion, acceptance, and mutual support between participants and instructors carries the potential to serve as much needed motivation, pushing seniors to adopt and continue health promoting activities for an extended period of time. In addition, seeing the social environment as critical to health promotion provides further insight into the holistic health model. While physical, mental, and spiritual components and their interactions are certainly important, this study suggests the social environment reinforces and enhances individuals’ abilities to improve these areas of health. Thus, thinking of the social environment as a foundation for health promotion is a topic worthy of additional inquiry and application beyond this case study.
Chapter 11: Study Limitations and Conclusion

Study Limitations

This study’s findings were limited by a few factors. First, the relatively small population of St. Columbkille resulted in the necessity of using convenience sampling. This is defined as a “nonprobability” sample and is therefore not representative of the general population (UC Davis 2014). Given that primarily qualitative data were gathered, the accuracy and subsequent impact of statistical data analysis was less of a concern to this study. Nevertheless, future studies could benefit from using random sampling of larger, more diverse populations. In addition to convenience sampling, this study’s analysis was hindered by a lack of control groups, loosely defined variables relating to physical, mental, and spiritual health, as well as inconsistent gathering of descriptive statistics on the study population. The lack of control group was again largely unavoidable given the nature of the population and subsequently decision to use convenience sampling. Similarly the necessity of using operational definitions when discussing health variables was diminished by the fact that little statistical analysis was carried out. This said, use of operational definitions for variables related to physical, mental and spiritual health could have provided further clarification to the results. Future studies should consider operationalizing these variables. The population was nearly homogenous in terms of gender with 93% of participants being female. Therefore, meaningful insight into gender difference as it relates to perception of class participation was not possible. Future studies would benefit from a more heterogeneous population, enabling greater comparison among study participants.
Conclusion

This study highlighted perceptions of 54 individuals aged 58-89 participating in Tai Chi, senior exercise, and yoga at a parish in Papillion, Nebraska. Personal interview and focus group responses, enriched through multidisciplinary cooperation, revealed perceived improvement in physical health, mental health, and spiritual health, with the most substantial gains related to the social benefits of class participation, particularly in terms of the impact of the social environment on participant wellbeing. These findings advance knowledge of senior health and suggest the individual components addressed in the WHO definition of health be expanded to include the impact of the social environment. This environment was shown to motivate individual participants, effectively increasing class participation while reducing issues common in senior populations such as loneliness and social isolation. The paper utilized grounded theory, explained through a social ecological framework, emphasizing the role the physical and social environment play in one’s health. Study findings suggest further research is needed to continue to address the relationship between a holistic perspective, multidisciplinary action, and senior health as a whole. Potential avenues for this research include cost reduction and policy improvement at the grassroots level and beyond. With senior health continuing to require more attention and resources from health systems and professionals, fields such as medical anthropology must continue to push cooperation and consideration of the many potential avenues for increasing awareness and striving to keep seniors healthy.
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Appendix A

CREIGHTON UNIVERSITY RESEARCH INFORMED CONSENT

The Impact of Yoga, Tai Chi, and Senior Exercise Classes on Overall Health
IRB# 14-17104
Principal Investigator: Peter Thomas B.A.
Masters Program in Medical Anthropology
Creighton University
2500 California Plaza
Omaha, NE 68178
Cell: (402)999-2577

Co-PI: Gretchen Reid RN Tai Chi Instructor
Co-PI: Joan Norman PT Senior Exercise Instructor
Co-PI: Natalie Mandolfo APRN Yoga Instructor
Study Consultant: Alexander Roedlach Ph.D. Creighton Sociology/Anthropology

INTRODUCTION
You are invited to take part in a research study because you participate in one of
the following classes at St. Columbkille; Yoga, Tai Chi or senior exercise. The
main purpose of the study will be to gain knowledge of the overall health impact
of these classes on class participants. The investigators will be available to
answer questions in person at select class sessions, as well as by phone listed
above.

Study Purpose and Procedures
This study will involve research intended to enhance understanding of the overall
impact of yoga, Tai Chi, and senior exercise. We plan to focus on key areas of
health including physical health, mental health, and spiritual health.

Procedures:
1. Physical pre- and post- tests: The investigator will record the un to include
   blood pressure readings and other physical tests done as part of the class.
The physical tests if not already done will include the following:
   a. Functional Reach: The person stands with one arm next to the wall
      and puts their arm at shoulder height. They lean forward reaching as
      far as possible with the outstretched arm without losing their
      balance. A yard stick is on the wall to visually see how far the
      person reaches.
   b. Four stage balance test: The person stands with both feet together
      and is timed for 10 seconds. The person stands with one foot ahead
      of the other and is timed for 10 seconds. The person stands in
      tandem (heel to toe) and is times for 10 seconds. The person stands
      on one foot and is timed for 10 seconds.
   c. Timed up and go: The person sits in a 19" high chair with
      arms. They stand without using their arms if possible, walk 10'
forward around a cone on the floor and back to the chair then turn and sit back down in the chair. They are timed and do two trials.

d. **Four Square step test:** There is an X made by plastic pipe and the person being tested stands next to it. The person steps forward over one pipe, to the right over the next pipe, backward over the next pipe and to the left over the last pipe with both feet. Then the person reverses directions and goes to the right, forward, to the left and then backward to the starting position. They are timed while doing this. They have a practice try without being timed, then two trials while they are timed.

e. **30 section chair rise:** The person sits in a 19" high chair with arms. They go from sitting to standing (without using their hands if possible) as many times as they can while being timed for 30 seconds.

2. Personal Interviews done by one of the investigators listed on page 1 of this consent. Interview questions will relate directly to these main points of physical, mental and spiritual health. The interview will take about 20 minutes.

3. Group interviews (focus groups) are meant to enhance data from individual interviews. The group interviews will consist of 5-7 participants and take about 30 minutes.

The study will run from June 2014-September 2014. Beyond participation in data collection, no further effort is required on your behalf. All data collection will take place at times of convenience for you, likely before or after class sessions. Participation in this study is **entirely voluntary and you may withdraw from the study for any reason, and at any time.**

**Benefits of Participating in the Study**

This study hopes to shed light on the potential impact of community activities that provide a no-cost outlet for building and sustaining physical, mental, and spiritual health. At the individual level, this study may benefit participants by revealing otherwise unknown or unclear improvements in overall health as a result of class and study participation. Looking beyond St. Columbkille, this study will add to the growing awareness of community health needs and provide support for similar programs looking to address these needs.

**Risks of Participating in the Study**

The primary risk associated with this study will be seen in the physical pre- and post- tests. These tests will involve five (5) total exercises including: (1) Functional reach, (2) 4 Stage Balance Test, (3) Timed Up and Go, (4) Four Square Step Test, (5) 30-Second Chair Rise. These exercises are intentionally low impact. Participants retain the right to withdraw from participation for any reason, and at any time if not comfortable performing these tests.
Another possible risk involved in this study involves the potential social and psychological risks associated with accidental disclosure of confidential information from the data collected throughout the study. Several procedures will be in place to prevent such an occurrence. These include the use of identifiers, rather than personal information, to link participants to their interview responses, physical test results, and blood pressure readings.

Confidentiality
We will do everything we can to keep your records confidential, however if you decide to participate in this study you agree to be group interviews and other participants will be aware of the information that is discussed. We may need to report certain information to agencies as required by law.

Both records that identify you and this consent form signed by you may be looked at by others. The list of people who may look at your research records are:

- The investigator and my research staff including research consultant, all listed above.
- The Creighton University Institutional Review Board (IRB) and other internal departments that provide support and oversight at Creighton University

We may present the research findings at professional meetings or publish the results of this research study in relevant journals. However, we will always keep your name, address, or other identifying information private.

Recorded interviews will be kept on my personal laptop, password protected. Recordings will be permanently deleted following completion of data analysis. If a participant withdraws from the study prior to completion, any audio recording will be permanently removed from investigator’s computer.

Disclosure of Appropriate Alternatives
This study will not include any alternatives to the procedure described above.

Compensation for Participation
You will not be monetarily compensated for taking part in this study.

Additional Costs to the Participant
There are no costs to participate in these classes. These classes are offered free whether you participate in this research study or not.

Contact Information
Peter Thomas will be available to answer general questions in person at select classes, or any time via phone at (402) 999-2577. I will also be available via email at pvt30634@creighton.edu.
Research-Related Injury
The investigators will make every effort to prevent study-related injuries and illnesses. If you are injured or become ill while you are in the study and the illness or injury is due to your participation in this study, you will receive necessary medical care at the usual charge. The costs of this care will be charged to you or to your health insurer. No funds are available from Creighton University or St. Columbkille to repay you or compensate you for a study-related injury or illness. There is also no compensation available for payment of your lost wages or other losses.

By signing this consent form, you will not be waiving any of your legal rights that you otherwise would have as a subject in a research study.

Consequences of Subject’s Decision to Withdraw
Participants retain the right to withdraw from this study for any reason, and at any time. There will be no foreseeable consequences to those who decide to withdraw from the study.

SIGNATURE CLAUSE

You are free to refuse to participate in this research project or to withdraw your consent and discontinue participation in the project at any time without penalty or loss of benefits to which you are otherwise entitled.

My signature below indicates that all my questions have been answered. I agree to participate in the project as described above.

__________________________________  __________________
Printed Name of Subject Date Signed

The Creighton University Institutional Review Board (IRB) offers you an opportunity (anonymously if you so choose) to discuss problems, concerns, and questions; obtain information; or offer input about this project with an IRB administrator who is not associated with this particular research project. You may call or write to the Institutional Review Board at (402) 280-2126; address the letter to the Institutional Review Board, Creighton University, 2500 California Plaza, Omaha, NE 68178 or by email at irb@creighton.edu.

A copy of this form has been given to me.  __________ Subject’s Initials
For the Research Investigator—I have discussed with this subject (and, if required, the subject’s guardian) the procedure(s) described above and the risks involved; I believe he/she understands the contents of the consent document and is competent to give legally effective and informed consent.

__________________________________  __________________
Signature of Responsible Investigator Date Signed

We would appreciate your feedback on your experience as a research participant at Creighton University; please fill out our survey at [http://www.creighton.edu/participantsurvey](http://www.creighton.edu/participantsurvey)

**Bill of Rights for Research Participants**

As a participant in a research study, you have the right:

1. To have enough time to decide whether or not to be in the research study, and to make that decision without any pressure from the people who are conducting the research.

2. To refuse to be in the study at all, or to stop participating at any time after you begin the study.

3. To be told what the study is trying to find out, what will happen to you, and what you will be asked to do if you are in the study.

4. To be told about the reasonably foreseeable risks of being in the study.

5. To be told about the possible benefits of being in the study.

6. To be told whether there are any costs associated with being in the study and whether you will be compensated for participating in the study.

7. To be told who will have access to information collected about you and how your confidentiality will be protected.

8. To be told whom to contact with questions about the research, about research-related injury, and about your rights as a research subject.

9. If the study involves treatment or therapy:
   a. To be told about the other non-research treatment choices you have.
   b. To be told where treatment is available should you have a research-related injury, and who will pay for research-related treatment.
Appendix B

Interview Questions

1. Why did you decide to join the program?

2. Do you participate in any other health promoting activities outside of those offered here?

3. Which class(es) do you participate in?

4. Why have you chosen that class/ those classes?

5. How often do you attend?

6. What overall health benefits have you experienced as a result of class participation?
   
   a. Physical?
   
   b. Mental/Emotional?
   
   c. Spiritual?

7. What has been the most beneficial aspect of class participation?

8. What were your expectations of the class(es)?

9. Has anything surprised you after participating in the class(es)?

10. Is your physician aware of your participation in the class(es)?

11. What, if any, are the social benefits of the class(es)?

12. Have you fallen since you began classes?

13. Have you had a significant physical or personal event since you began participating in class?

14. Is there anything you would change or improve about the classes you attend?
Appendix C

Focus Group Interview Questions

1) Does class participation address health concerns from multiple angles? (i.e. mental vs. physical health) Does participation in multiple classes (i.e. exercise and tai chi) enhance this in any way? Does anyone have examples of physical versus mental and/or spiritual health benefits that can be linked to class participation?

2) Social cohesion has come up repeatedly in interview responses. Do you believe the social atmosphere created at St. Columbkille enhances outcomes in a significant way? Does the atmosphere differ in any way from other classes/programs you’ve participated in at different locations?

3) Are there any stories or experiences you would like to share that capture your feelings about class participation? Is there anything you wish to share that I have not asked about during the interview process?
### Appendix D

Copy of Balance Testing Form, Completed by Joan Norman PT

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional Reach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reach 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reach 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reach 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Stage Balance Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timed Up and Go</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trial 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trial 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four Square Step Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trial 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trial 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 Second Chair Rise</td>
<td>________</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix E

Pastor/ Site Permission for Research

permission

Zuerlein, Damian <DZuerlein@saintcolumbkille.org>
Wed 2/26/2014 11:47 AM

To: ☑ Thomas, Peter V.;
CC: ☑ Barryreid@aol.com;

Mr. Thomas,

Gretchen Reid, the coordinator of our parish nurses group, asked that I send you an email letting you know that you have my permission to conduct the study. If you need something on our letterhead in a hard format, then I will need your address so that I can send it. Gretchen brought up the idea of the study with our Pastoral Council and they were excited about offering our experience for the study with the different activity programs offered for our older members and the health impact on those participants. Hopefully your study will help move it from anecdotal evidence to something that has a harder science behind it. We wish you well in the project.

Fr. Damian Zuerlein
Pastor, St. Columbkille Parish
Appendix F

Copy of Blood Pressure Tally Form

**BLOOD PRESSURE SCREENING TALLY FORM FOR ADULTS**

<table>
<thead>
<tr>
<th>Systolic</th>
<th>Diastolic</th>
<th>Category</th>
<th>Number of BP taken</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 120</td>
<td>And/Or</td>
<td>&lt; 80</td>
<td>A. Normal</td>
<td></td>
</tr>
<tr>
<td>120-139</td>
<td>And/Or</td>
<td>80-89</td>
<td>B. Prehypertension</td>
<td></td>
</tr>
<tr>
<td>140-159</td>
<td>And/Or</td>
<td>90-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 and above</td>
<td>And/Or</td>
<td>100 and above</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If the systolic and diastolic pressure fall into different categories, use the higher number to determine appropriate category.

# of Dr. Referrals: 51

**BLOOD PRESSURE SCREENING TALLY FORM FOR CHILDREN**

<table>
<thead>
<tr>
<th>Systolic</th>
<th>Diastolic</th>
<th>Category</th>
<th>Number of BP taken</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 90th percentile</td>
<td>And/Or</td>
<td>&lt; 90th percentile</td>
<td>A. Normal</td>
<td></td>
</tr>
<tr>
<td>90th to 94th percentile</td>
<td>And/Or</td>
<td>90th to 94th percentile</td>
<td>B. Prehypertension</td>
<td></td>
</tr>
<tr>
<td>95th percentile or above</td>
<td>And/Or</td>
<td>95th percentile or above</td>
<td>C. Hypertension</td>
<td></td>
</tr>
</tbody>
</table>

If the systolic and diastolic pressure fall into different categories, use the higher number to determine appropriate category.

# of Dr. Referrals

During the screening:
- Explain why taking BP is important
- Explain the importance of healthy eating
- Explain the importance of physical activity
- Listen to concerns
- Accept and love people where they are
- Create an environment conducive to healing of body, mind, and spirit

Each RN taking blood pressures should have one of these forms, and place a "tick mark" in the appropriate category after each BP check. At the end of your shift, please turn this sheet in to person in charge of screening. Thank you!!!