

THE SIGNIFICANCE OF MEALS ON WHEELS OF PITT COUNTY ON THE
WELL-BEING OF HOMEBOUND OLDER ADULTS

By

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Abstract

The purpose of the current study is to understand the significance of the Meals on Wheels (MOW) home-delivered meals program on the well-being and quality of life of older adults in Pitt County, North Carolina. Qualitative and quantitative data was collected from 50 MOW recipients through telephone surveys about how MOW contributes to their well-being. Three themes emerged from the analysis: clients' needs and limitations, a desire to stay independent, and appreciation for MOW and its volunteers. Participants had a range of needs and limitations that involved health conditions, nutrition, low-income, lack of access to transportation, and isolation. Recipients also indicated the desire to stay independent and age in place rather than living in a nursing home or assisted living facility. Appreciation and gratitude was also expressed by participants toward the MOW program because of the convenient aid that the service provides in addition to the social interaction with volunteers. The findings of the study support that of previous research that claims MOW plays a vital role in the well-being of its recipients regarding nutrition, socialization, and aging in place. The recent knowledge from the study can help to inform service providers, raise awareness, and increase support for interventions that target food insecurity in the older population.

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Introduction

According to Gualtieri (2014), food insecurity is defined as, “the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways” (p. 1). Inversely, food security is defined as, “access by all people at all times to enough food for an active, healthy life” (Lloyd, 2017, p. 3). Recent medical advancements have allowed people to live decades longer than previous generations, partially resulting in a growing U.S. aging population. Food insecurity affects a variety of populations in the U.S. however, older adults are becoming increasingly more at risk of being food insecure as the baby boomer generation ages, and the situation is projected to become worse in forthcoming years (Gualtieri, Donley, Wright, & Vega, 2018). The issue of food insecurity facing this exponentially growing demographic creates both challenges and opportunities that await the federal aging services network.

The aging services network is funded under the Older Americans Act (OAA) and provides a range of community-based services such as home-delivered and congregate nutrition services, case management, transportation, and homemaker/caregiver support to individuals ages 60 and over (Kowlessar, Robinson, & Schur, 2015). For decades, the OAA has been the keystone federal legislation to support the social and nutritional needs of at-risk seniors in America (Meals on Wheels America, 2018d). These services are designed to reach the most vulnerable older adults in greatest social/economic need and are intended to enhance both quality of life and social interaction while minimizing the impact of disability. This review of the literature will focus on the importance of one of these services for the elderly, namely home-delivered meals provided via Meals on Wheels (MOW) programs.

Through 5,000 community-based organizations, the Meals on Wheels America program delivers over 1 million meals every day in suburban, urban, and rural environments with the help

of over 2 million staff, members, and volunteers (Meals on Wheels America, 2018a). The purpose of home-delivered meals is to assist the homebound elderly that are food insecure and may not be able to prepare their own meals. The goal of this literature review is to examine how MOW affects the well-being and quality of life of older adults and to evaluate the effectiveness of this service to meet its intended purpose. According to the Centers for Disease Control and Protection (2018), “There is no consensus around a single definition of well-being [but], in simple terms, well-being can be described as judging life positively and feeling good” (para. 6). To meet the objectives of this research, the terms “well-being” and “quality of life” will be used interchangeably and measured through the aspects of physical, mental, and social health.

Thematic Synthesis of Articles

This synthesis of literature, about the significance of home-delivered meal programs on the well-being of older adults, will discuss the overlapping themes from existing research: (a) waitlists and program funding are closely related, (b) MOW clients have multiple vulnerabilities and face barriers to obtain food, (c) recipients are enabled to *age in place*, and (d) recipients continue to receive *more than a meal* from the home-delivered meals services.

Waitlist and Funding Issues

A correlation between waitlists and amount of funding for the MOW program was found in the literature. While donations are welcome and accepted, MOW does not require its recipients to pay for meals and therefore requires funding to maintain its services (Council on Aging, 2014). It is important to note that Meals on Wheels itself is a network of 5,000 groups that together help serve older adults. For this reason, Meals on Wheels gets its support from various sources including federal, state, and local funding in addition to grants and donations. The federal OAA funds almost 38% of the total cost to provide nutritious meals, and the

remaining expenses are covered through other state and local sources, private donations, and federal block grants (Meals on Wheels America, 2018d). Despite these multiple sources of financing, the current level of funding for MOW programs is insufficient for the expanding older population (Lloyd & Wellman, 2015). Under these circumstances, MOW providers operate efficiently with respect to costs utilizing an army of volunteers to make deliveries, which dramatically lowers expenses (Polzner, 2017). Studies show that the annual cost to provide meals to one senior is about \$2,400, the same cost as spending one day in a hospital (Fottrell, 2017). A major portion of funding is used to provide meals to MOW clients and therefore can only serve a fixed number of people. While the costs of food and transportation have increased, funding has remained stagnant, so MOW serves a smaller portion of the total senior population each year (Meals on Wheels America, 2018d). Once a MOW program reaches its serving capacity, individuals that request the service, and are eligible, must be waitlisted for estimated ranges of time. In fact, 70% of MOW programs across the U.S. report they have a wait list within the range of somewhere between several months to a year (Gualtieri et al., 2018). In the meantime, seniors that do not know where their next meal will come from are left with no choice but to wait in order to receive services. A study by Gualtieri (2014) interviewed people from Central Florida waiting for MOW benefits and found that, “The time spent on the waiting list for the individuals ranged from two months to 27 months, with an average waiting time of 1 year” (p. 16). In the South Florida program, with 815 seniors on the wait list, executive director Mark Adler said, “We’re already facing a situation where almost all of the seniors on our waitlist aren’t going to live to see their first meal delivered” (Godoy, 2017, para. 13).

These waitlisted homebound seniors make up a vulnerable group at high risk of malnutrition and early mortality. A study that compared the characteristics of those waiting for

MOW to the general population aged 60 and over found that the waitlisted individuals had significantly worse self-reported health and mental health, as well as higher rates of falls and reported inability to go grocery shopping or prepare food (Thomas & Dosa, 2015). Their demographic information shows that they are also less educated, show more signs of depression and anxiety than the national senior population, and more likely to be widowed, Black and Hispanic, and receive Medicaid (Thomas, Smego, Akobundu, & Dosa, 2017). When asked about the cause of their food insecurity, waitlisted participants in the Gualtieri (2014) study reported that finances were the main explanation. For these reasons, nutrition interventions should be more readily available to food insecure older adults because nutrition is key to leading a healthy, functional life and mitigating chronic health conditions (Lloyd et al., 2015).

While it is clear that MOW is serving a demographic in need, both of the 2018 and 2019 White House budget proposals have called for the elimination of the Community Development Block Grant (CDBG) which helps fund the program (Fottrell, 2017). The Department of Health and Human Services (HHS) provides the largest source of federal funding for MOW programs across the country through the OAA Nutrition Program, covering about 35% of funding (Korte, 2017). In addition to eliminating the CDBG, it was also proposed to make an 18% cut to the HHS budget, which could potentially be a threat to this MOW funding stream (Godoy, 2017). It seems the reason behind the cuts is that the Trump administration is zeroing in on programs that are viewed as ineffective. In reference to the block grants, Mick Mulvaney, director of the Office of Management and Budget within the Executive Office, said, “The president said he was going to go after wasteful programs, duplicative programs, programs that simply don’t work” (Fottrell, 2017, para. 4). Although it is unclear exactly how these cuts in funding will affect the 5,000 different MOW programs in America, any cuts will probably make it more

difficult for the programs to continue at their current level, increasing the wait time for eligible seniors with low food security.

The fact that there are waiting lists for this crucial service has several implications. The need for wait lists confirms that the demand for home-delivered meals exceeds the supply and will only become worse as the baby boomer generation ages into retirement (Gualtieri et. al, 2018). Budget cuts on federal, state, and local levels have recently been a threat to the MOW program and older adults in need by forcing the program to downsize its client numbers (Thomas Akobundu, & Dosa, 2016). It is clear that this growing population will also lead to a growing demand of services. In response, adequate funding should be provided to eliminate long waiting lists and to sufficiently address the food insecurity problems of older adults in communities. Campbell, Godfryd, Buys, and Locher (2015) propose a potential solution for increased funding and recommended that more rigorous research be done about MOW that reports on outcomes rather than descriptive data:

[T]he sparseness of outcomes research on the OAA Nutrition program is one of the reasons why federal funding has grown only 6-fold since its inception in the 1970s, whereas the plethora of research on the Supplemental Food Program for Women, Infants, and Children (WIC) has helped WIC grow its federal funding 332-fold in the same time period. (p. 8)

Campbell et al. (2015) show that not only is there a need to protect the funding of MOW, but also a need for more thorough research on home-delivered meals that focuses on outcomes to evaluate the effectiveness of the service. These issues in funding must be addressed in order to lower the waitlists of MOW programs. For many seniors, receiving home-delivered meals is not for convenience but rather, for survival (Gualtieri, 2014).

Vulnerability of Clients and Barriers

There are several characteristics of aging that put seniors in a place of vulnerability and that can also act as barriers preventing homebound older adults from obtaining food. As the U.S. population is increasingly growing older, food insecurity for the elderly is becoming an unprecedented and life-threatening matter of concern. According to Meals on Wheels America (2016), “1 in 6 seniors struggles with hunger” (p. 1). The reason behind food insecurity in the elderly is most closely tied with income (Gualtieri, 2014). Almost 7 million seniors live in poverty with an income of \$228 per week or less (Meals on Wheels America, 2018c). This income may be used toward housing, utilities, and medical expenses, leaving very little room in the budget for purchasing food. Additionally, poor physical health, mobility limitations, lack of adequate transportation, and cognitive/physical limitations all serve as barriers that limit access to food for older adults (Lloyd, 2017). These obstacles may prevent older adults from grocery shopping, preparing, and/or cooking food. Although hunger can affect anyone with limited mobility and declining health, financial strain is the primary barrier faced by the elderly to obtain food.

Seniors also face barriers when seeking services and other resources that could help mitigate food insecurity. In addition to home-delivered meals, there are other resources that help feed older adults: the Older Americans Act (OAA) that provides congregate meals and the United States Department of Agriculture (USDA) that provides the Senior Farmer’s Market Nutrition Program and the Child and Adult Care Food Program (Gergerich, Shobe, & Christy, 2015). The USDA also operates the Supplemental Nutrition Assistance Program (SNAP), informally known as food stamps (Lloyd, 2017).

Although these federal programs are available, older adults might have trouble accessing and utilizing these resources. It is important to consider that receiving benefits from many food supplementation programs typically requires mobility, which can prove to be difficult with seniors that have either a physical disability or no driver's license (Gualtieri, 2014). Along with the requirement to be present to receive the food, the individual is usually required to go to a location to do paperwork before they can receive benefits. Once the individual receives the food, they still might have a hard time preparing it if they have less mobility. Also, for several programs that are means-tested, such as SNAP, the criteria for eligibility involves falling below the poverty line (Lloyd, 2017). However, research done on a national level has indicated that there is a significant proportion of seniors facing hunger that live above the poverty line (Gualtieri, 2014). This limits the ability for many seniors that live close to, but above, the poverty line to acquire food because they do not meet the eligibility requirements. The programs under the OAA, however, are considered discretionary and have different qualifications for eligibility, so congregate and home-delivered meals services are not means-tested or based on income (Lloyd, 2017). Another barrier for obtaining services is the cumbersome amounts of paperwork that may be difficult for seniors to complete if they have trouble with reading small font or with writing, assuming they are literate. Just the tedious and lengthy process of applying for services could deter families and individuals. These barriers to receiving services for older adults are largely centered around mobility, showing the value and demand of homebased services like MOW where food can be delivered directly to clients.

These challenges that older adults face to obtain food is making malnutrition in seniors a prevalent issue. According to a report by Lloyd (2017), half of older adults are at risk of malnourishment. This increased risk for malnutrition not only leads to other health problems for

seniors, but also creates a costly problem for our healthcare system. Malnourished older adults experience 50% higher rates of hospital readmissions and have increased risks of complications and mortality during the hospital stay, which can lead to increased length of stay, poor recovery, and repeated healthcare related visits (Polzner, 2017). This research reinforces the idea that adequate nutrition is essential for maintaining health, especially in older adults. For homebound older adults that rarely leave the home due to illness or injury however, food is less accessible in comparison to the general population of this age group. The food insecurity problem facing this demographic of homebound seniors at risk and is only expected to get worse as the baby boomer generation ages into retirement (Gualtieri, 2014). Fortunately, home-based services like MOW try to mitigate these issues regarding food insecurity through providing home-delivered meals.

Seniors who are homebound are able to receive meals they may not have had access to previously because of MOW. This is important because this population is often overlooked, hungry, and isolated. Research reports several health, demographic, personal care needs, and socioeconomic disparities between homebound older adults and the general elderly population. The homebound clients of MOW are mostly poorer, older, part of minority groups, have multiple chronic health conditions, and have difficulty performing activities of daily living (ADL), leaving these individuals in a particularly vulnerable position in comparison to the rest of seniors (Gualtieri et al., 2018). A significant portion of MOW clients are also female and widowed, perhaps because women have a higher average life expectancy than men (Lee & Raiz, 2015). Additionally, those that live in rural areas tend to be highly dependent on family members for general help compared to those in urban areas (Lee et al., 2015). This evidence suggests that geographic location may play a role in determining the level of support and care needed for these homebound older adults.

Disparities also exist that separate homebound older adults from other seniors in terms of physical, mental, and social health. Volunteer drivers that routinely interacted with MOW clients were recruited for a study and described MOW recipients as homebound with a lack of social support, physically disabled or with limited functional capabilities, have low income, are single, live alone, and are lonely or isolated (Thomas, Gadbois, Shield, Akobundu, Morris, & Dosa, 2018). Data from a sample of homebound adults also demonstrated that this population faces nutritional risk and personal care needs such as difficulty with eating and dressing (Thomas et al., 2015). Medical disorders like cardiac disease, generalized weakness, chronic pulmonary disease, hypertension, diabetes, heart disease, and osteoarthritis are also found in high rates among this population. Psychiatric disorders are also common among the homebound elderly, with dementia and depression being the most prevalent (Qiu, Dean, Liu, George, Gann, Cohen, & Bruce, 2010). Homebound seniors that live alone are also in a significantly higher position of vulnerability than those that live with others. Lee and Raiz (2015) reported that these homebound seniors that live alone are in greater need for transportation options, financial security, regular safety checks, and basic support. These challenges regarding health conditions, personal care needs, lack of social support, and financial insecurity make homebound seniors a special population that requires services to address these unique vulnerabilities and overcome barriers.

The literature on this topic iterates that in addition to existing health conditions, food insecurity can potentially lead to more medical problems. Evidence suggests that food insecurity is a strong predictor of poor mental and physical health. The study by Lloyd (2017) found the following statistical data:

Food insecure older adults are 50% more likely to have diabetes; three times more likely to suffer from depression; 60% more likely to have congestive heart failure or a heart

attack; 30% more likely to have at least one ADL impairment; and twice as likely to report gum disease and asthma. (p. 4)

Researchers of another study found a correlation between food insecurity, frailty, and mental health, and encouraged the use of targeted food programs for older adults at high risk of these variables to improve health (Perez-Zepeda, Castrejon-Perez, Wynne-Bannister, & Garcia-Pena, 2016). As the population of seniors continues to grow rapidly, the needs regarding food insecurity among older adults must be addressed. Although MOW does give aid to those that are unable to feed themselves for various reasons, their services are usually only offered on Mondays through Fridays and can only provide one meal per day. This shows that further steps need to be taken to sufficiently address the food insecurity and health issues that homebound older adults face to ease their suffering while also delaying institutionalization in a nursing home or hospital.

Aging in Place

Another adversity facing the aging population, resulting from the vulnerabilities and barriers previously discussed, is the loss of independence. Services like the MOW program under the Older Americans Act (OAA) help maintain the independence of seniors by enabling them to *age in place*, which means to remain in their own homes for as long as possible instead of relocating to an institutional setting, such as nursing homes or assisted living facilities (Lee et al., 2015). There are notable difficulties to aging in place however, such as rising housing costs and threats to in-home safety (e.g. falls) due to limited mobility. Despite these challenges, it is generally understood that staying comfortable in your own home with autonomy and remaining close to familiar surroundings is the most desirable option as we age (Lee et al., 2015). This is supported by the fact that more than 75% of people over the age of 80 live in their own homes

and most reported a preference for aging in place (Meals on Wheels America, 2017). Since most of the clients of MOW happen to live alone, and are unable to prepare their own meals, these home-delivered meals help them to continue to live independently. For example, results from a survey showed that 93% of home-delivered meals recipients reported that the meals allowed them to continue living in their own homes (Gualtieri et al., 2018). This implies that delivering warm meals to people's homes relieves some of the existing stress of having caregivers, and other outside help, like nursing homes, maintain their dietary needs.

Enabling these clients to age in place also has financial impacts on a larger scale. According to Meals on Wheels America (2018c), the threats of aging not only affect the health and well-being of the elderly, but also places strain on the U.S. healthcare system and economy. Services like MOW help older adults live independently in the community but can also deliver net Medicaid savings to states by reducing the costs of long-term care services. A study by Thomas & Mor (2013a) showed that if all states increased the number of Meals on Wheels recipients by just 1%, Medicaid spending would be reduced annually by \$109 million in terms of Title III-C2 expenditures. Another study by Thomas & Mor (2013b) demonstrated that an increase of spending in home-delivered meals is associated with less residents in nursing homes with low-care needs. By preserving the independence and autonomy of their clients and delaying the process of institutionalization, MOW allows older adults to age in place and saves insurance companies and taxpayers money. This contributes to improvements in several dimensions of quality of life while also having reaching effects on larger scale economic systems. Health, nutrition, and social service professionals should therefore coordinate their community-based services to help older adults remain in their homes (Lloyd et al., 2015).

More Than a Meal

The mission statement of MOW America (2018a) is “to empower local community programs to improve the health and quality of life of the seniors they serve so that no one is left hungry or isolated” (para. 3). Although the main purpose of the program is to meet seniors’ nutritional needs, MOW claims that their home-delivered meal services provide *more than a meal*. As the older population experiences longer life spans from recent medical advancements, the higher incidence of chronic conditions also occurs, which may negatively affect several dimensions of quality of life such as health and functionality, the ability to remain at home, caregiver burden, and increased hospitalizations and health care costs. To remedy these problems, food and nutrition services act as a prevention, risk reduction, and treatment modality for many of the most common chronic conditions, such as hypertension, heart disease, diabetes, osteoporosis, and obesity (Kowlessar et al., 2015).

MOW incorporates these roles in their intervention plan through their three-part service delivery model: volunteers provide a nutritious meal, a friendly visit, and a safety check to clients (Meals on Wheels America, 2018b). These frequent in-home visits provide the opportunity to meet seniors’ nutritional needs, combat social isolation, address safety hazards, and deliver holistic care (Meals on Wheels America, 2018e). A study in Central Florida found several improvements in MOW clients after receiving services regarding nutritional status, dietary intake, food security, loneliness, and wellbeing (Wright, Vance, Sudduth, & Epps, 2015). Other research supports these findings and suggests that recipients of MOW experience improvements in physical, mental, and social health in addition to nutritional well-being as a result from this service methodology, therefore contributing to improved quality of life (Zhu & An, 2013).

Good nutrition is a key component in maintaining the health of vulnerable older adults (Kowlessar et al., 2015). “For older adults, the health-promoting, restorative nature of food and nutrition complement psychological aspects of eating such that nutritional status is related to quality of life” (Gollub & Weddle, 2004, p. 1227). Primarily, the meals have been proven to provide a large portion of daily nutrients for MOW clients. Research has found that the daily lunch oftentimes represents at least half of a recipient’s total nutritional intake for the day (Gualtieri et al., 2018). To ensure the quality and nutritional value of their menu selection, MOW programs are required to adhere to the strict guidelines established by the Older Americans Act (OAA). For example, each meal must meet one-third of the Dietary Reference Intakes (DRIs) reported in the 2015-2020 Dietary Guidelines for Americans and be approved by a registered dietitian (Polzner, 2017). Diabetic options are also made available to clients (Council on Aging, 2014). These meals are suited specifically to aging seniors and have guaranteed quality and professional approval to help insure that MOW meets its purpose and that home-delivered meals can reduce food insecurity and nutritional risk among its clients (Gualtieri et al., 2018).

Social relationships are a fundamental component of human life and have an important role in maintaining health. This idea that MOW provides *more than just a meal* is supported by the literature. In addition to a warm meal, the socialization, and ‘safety check’ that is provided by the meal-delivery person (either a staff member or volunteer) is believed to be a contributor to these beneficial effects of well-being (Thomas et al., 2016). Oftentimes, the person delivering the meal is the only person a MOW recipient will see that day (Meals on Wheels America, 2018e). For homebound older adults that live alone, this regular social contact is very important as a means toward quality of life. For example, results from a randomized controlled trial indicated that the experimental group, clients receiving MOW services, had lower loneliness levels in

comparison to the control group that did not receive meals (Thomas et al., 2016). This ability to reduce feelings of loneliness is important because social isolation is a strong risk factor for mortality, comparable to that of obesity and smoking cigarettes, and is often overlooked as a leading cause of death for seniors (Holt-Lunstad, Smith, & Layton, 2010). Additionally, the coexistence of both homebound status and social isolation is said to increase the risk of mortality even more (Sakurai, Yasunaga, Nishi, Fukaya, Hasebe, Murayama, ... & Fujiwara, 2019). This relationship between mortality and social isolation is perhaps related to its effects on mental health. Social isolation is said to be a strong predictor of emotional depression which can result in the deterioration of health, and may be accelerated by decreased interest in food, eventually resulting in the loss of ability to manage self-care (Kronl, Coleman, & Lau, 2008). The research indicates that social isolation acts as a threat to health and well-being, posing even greater risks for older adults that are vulnerable and homebound. In this sense, adequate social health may be just as fundamentally important as a nutritional diet.

There are several other social benefits resulting from MOW services that also affect others outside of the clientele. For example, home-delivered meals have been proven to help relieve caregiver burden, a major risk factor for morbidity and mortality, as well as serving as a source of personal validation and benefit for the volunteer drivers (Thomas et al., 2018). Informal caregiving is the most prevalent source of care for the elderly and can unfortunately become a burden to family and friends, causing depression for caregivers when relief is not provided (Kronl et al., 2008). Receiving home-delivered meals regularly helps to lessen this burden put on those responsible for the client's care. Research has also demonstrated that volunteers sometimes find benefit in helping clients. Occasionally, these volunteers go beyond their standard duties during their friendly visits to do simple favors for clients like getting mail,

light housekeeping, taking out trash, or fixing things around the house and in some cases, social bonds with drivers and clients are formed over time (Thomas et al., 2018). These studies demonstrate that MOW can affect several parties beneficially in social aspects; clients receive socialization, caregivers of clients' experience relief of burden to some degree, and volunteers may find the process of helping personally rewarding.

Measuring the effectiveness of programs like MOW, and determining whether the benefits justify the costs, is very meaningful because programs can be better targeted or improved upon to serve those most in need (Campbell et al., 2015). To test the effectiveness of this service, a study by Thomas et al. (2015) investigated the differences between the impacts of receiving frozen meals by delivery once a week and the traditional service model of MOW, which is the regular delivery of food. The clients that received the normal MOW home-delivered meals, in contrast to the other group receiving meals only once weekly, reported improved mental health, self-reported health, feelings of safety, an ability to remain in the home, and client satisfaction, along with decreased isolation, healthcare visits, and rates of falls (Thomas et al., 2015). This evidence has several implications regarding the efficacy of the standard service delivery method of the program and reinforces the idea that by giving its clients nutritional and social benefits to improve their overall quality of life, MOW is in fact *more than just a meal*. Regarding the dimensions of quality of life, the home-delivered nutrition programs effectively target those older adults at high risk and help them remain as healthy as possible, socially connected, and living independently at home in their communities (Lloyd et al., 2015).

Although this service model is proven to be effective, it is important to note that most MOW programs only offer one meal for five out of seven days in a week, and meals are most likely not delivered over the holidays. This only provides 25% (5 out of 21) of meals compared

to what is considered a typical eating pattern over a week's time. A 1989 pilot study found that over the weekends, home-delivered meal recipients were more likely to have an insufficient dietary intake of protein, thiamin, riboflavin, calcium, iron, and phosphorus in comparison to weekdays (Walden, Hayes, Lee, & Montgomery). Although heatable frozen meals might be provided to clients over periods when meals are not delivered, this option is not consistently available across the 5,000 different MOW programs in the U.S. (Thomas et al., 2015). Certain programs may serve more than one meal per day, or deliver breakfast or evening meals, or even on weekends, but these are decisions that are made on state and local levels, so there is wide variation of service delivery across the country (Lloyd et al., 2015). Another study found that the addition of a breakfast service to the traditional home-delivered lunch can improve the lives of frail and homebound older adults by increasing nutrient intake and food security while reducing depressive symptoms (Gollub et al., 2004). The evidence implies that agencies should be encouraged to expand their meal programs to possibly include a breakfast and/or weekend service to this population. More recent research also needs to be done to assess how many meals are necessary for MOW clients to maintain adequate diets and successfully combat food insecurity in this population. The implications of this collective research mainly indicate that MOW is indeed effective and contributes to the well-being of its clients, but improvements are still necessary.

Discussion of Literature Review

This review of literature studied the impact of MOW on the well-being and quality of life of older adults, highlighting both the effectiveness and relevance of this service to its targeted population. The vulnerabilities of homebound seniors and related barriers were discussed to gain understanding about the true scope of the problem. There was also overwhelming evidence from

the research claiming that MOW continues to have beneficial effects on quality of life such as improving nutritional intake, socialization, aging in place, lowering anxiety and depression levels, as well as mitigating caregiver burden and the impacts of disabilities. The research also supported the idea that home-delivered meals delay institutionalization by helping older adults to stay in their homes longer, which can save federal and local government money. It was also uncovered that cuts in funding lead to longer waitlists for MOW programs and the demand for this service outweighs the supply. America's population is growing, especially in the demographic over the age of 65. With this rising number of seniors, we as a country need to analyze our priorities and ensure that funding is given to the necessary programs. The MOW program not only has positive health results but also creates savings in other areas. As more and more seniors turn to the program, or similar ones, there needs to be an increase in federal funding support, not budget cut proposals. The implications of past research suggest that support is needed to (a) work towards better identification of which home-delivered meal models, alone and in combination with other services, work best and for whom, and (b) expand home-delivered meals to all eligible older adults.

Significance

Meals on Wheels (MOW), a service in which volunteers provide home-delivered meals, safety checks, and friendly visits to homebound older adults, is comprised of 5,000 separate community-based groups, each varying in its ability to service clients depending on location and available resources (Meals on Wheels America, 2018a, para. 1). At a local level, this study will examine how the MOW program in Pitt County, North Carolina, administered by the Pitt County Council on Aging, is relevant to the lives of their clients contributing to overall well-being. The investigation will be important to the field of social work as it brings attention to the level of

significance of these services designed to meet the needs of the senior population. This research is timely because recently proposed budget cuts have highlighted existing doubt of government officials regarding the effectiveness and worth of these programs (Fottrell, 2017; Godoy, 2017).

A literature review that examined the recent research demonstrated that there is sufficient evidence that MOW promotes the well-being of its recipients (Gualtieri et al., 2018). Other studies that thoroughly investigated the relationship between home-delivered meals and well-being/quality of life in older adults also supported this claim (Thomas et al., 2015; Zhu et al., 2013). Despite the positive outcomes demonstrated through research of MOW over the years, recent cuts in funding pose a threat to MOW programs, leading to longer waitlists and indicating that the demand for this service outweighs the supply (Gualtieri et al., 2018). America's population is growing, especially in the demographic over the age of 65. With this rising number of seniors, analyzing priorities and ensuring that funding is given to the necessary programs that can help save lives is crucial.

This study will offer value to the field of social work by examining the level of importance of services like MOW to seniors in the local community and by comparing results to research done on a national level. The relevance of the program will be evaluated through an investigation of the effects of MOW on the dimensions of physical, mental, and social health. Anticipated outcomes of this research are expected to also benefit the Pitt County Council on Aging (COA) nonprofit organization by (a) supplying data that can be utilized in grant applications to secure additional funding for MOW, (b) providing information to local and state political representatives who may control discretionary monies, and (c) contributing information for marketing materials to raise awareness about the program. This has the potential to benefit

society because, with increased funding and awareness, the COA can serve more eligible older adults that are in need, delivering a resource that promotes overall wellbeing.

This research had several ethical implications. Foremost, the participants of the study may answer survey questions dishonestly because they are worried their responses could possibly affect their current services. Also, the primary investigator worked as an intern at the Pitt County Council on Aging during the summer of 2018, so there may have been previous interactions between Meals on Wheels clients and the researcher through phone or in person. It is also possible that the respondents could become uncomfortable, upset, or angry by answering the survey questions. These considerations are important to keep in mind during the data collection and analysis processes.

Purpose

The overall purpose of this research was to demonstrate the significance of MOW to the well-being of seniors in the local community. For the purposes of this research, well-being was measured and defined through the self-reported aspects of physical, mental, and social health of MOW recipients. Gathering information about the well-being of clients was also expected to highlight the vulnerabilities and unmet needs of the population. In addition, client satisfaction was explored to gain insight into how clients perceive the effectiveness and value of the service. Another goal of this project was to provide both qualitative and quantitative data that clearly exhibits the importance of MOW in Pitt County and compare the results to previous research done at the national level. It was also intended that the research be used to assist the COA in applications for grants to support their program. If achieved, the organization could potentially secure more funding and serve a greater number of homebound older adults in need.

Methodology

This research began with my experience as an intern at the Pitt County Council on Aging during the summer of 2018. Much was learned about both the vulnerabilities and strengths of the seniors in Greenville and in the rural areas of Pitt County by making site visits. As a Marketing & Design Intern, the barriers and common problems elders face, as well as how these needs are addressed by available services and resources in the community, was made apparent. There was also a growing awareness of how important MOW is to both the organization and its recipients. Firsthand evidence of the care and effort that the COA takes to feed 300 county resident seniors daily presented itself through interactions with staff and service recipients. Even though the COA does a great job with a small but dedicated staff and a base of volunteers, the amount of people the program can serve is dependent on the funding they receive, and budget cuts have become a threat in past years. Although the aging services specialists on staff at the COA try to prioritize and accommodate those in greatest need first, budgetary constraints may dictate that many individuals be waitlisted. In fact, many seniors are at risk of starvation from malnutrition while waiting to receive services (Ungar & Lieberman, 2019). It is the aim of this research to assist in demonstrating the great importance of the MOW program and consequentially reduce the number of seniors waitlisted for services.

This project is possible because of the feedback from the COA's director of aging services Lori Cortright and executive director Rick Zeck. I obtained a letter of permission from Rich Zeck to use the MOW recipients' contact information and the office phones at the COA (Appendix D). Additionally, the study was certified as exempt by the University & Medical Center Institutional Review Board (UMCIRB) on March 15, 2019 (Appendix C). A literature review was also completed to find gaps and themes in the current research.

Population and Sampling

According to census data from American FactFinder (2017), seniors ages 60 and over make up about 17% of the population in Pitt County, North Carolina, and 31% of these seniors are African American. Approximately one out of five Pitt County seniors are widowed, and 40% of the older adults are living alone (American FactFinder, 2017). In addition, 36% of Pitt County seniors have a disability (American FactFinder, 2017).

This research was conducted using survey methodology collecting both qualitative and quantitative data to examine the relevance of the Meals on Wheels program regarding the overall wellbeing of homebound seniors across Pitt County, North Carolina. The study was conducted in the summer of 2019 and targeted 50 participants.

The sample for this study was selected using convenience sampling from the population of Pitt County Council on Aging's Meals on Wheels recipients. Many of this population of Meals on Wheels recipients are homebound, live alone, are above the age of 65, and face problems affording food and/or preparing food. With assistance from an employee of the COA, we were able to narrow the population, from which the sample would be chosen, by applying inclusion and exclusion criteria. The only inclusion criterion was that the prospective participants be a Pitt County COA Meals on Wheels recipient. Exclusion criteria included recipients that had severe dementia, hearing impairments, or the need of a language translator. After narrowing the sample, 50 Meals on Wheels recipients, out of close to 300, were then randomly selected to participate in the study. Participants were randomly selected from the Pitt County Council on Aging's Meals on Wheels client list stored in ServTracker software. The list was sorted by order of phone numbers, and each individual was assigned a number (1-109) based on their order in the list. A random number generator website (www.random.org) was used to produce 50 random integers between the range of 1-109, and the individuals with the corresponding numbers on the

list were contacted to form the sample for the study. There was no prior contact nor follow-up with participants outside of the surveying protocol.

Survey Method Protocol

When a phone number was called and there was no answer, the researcher would leave a voicemail message inviting the subject to participate in the study. If the client did answer, the researcher would introduce themselves and give a brief summary of the research purpose as a part of the survey script (Appendix A). Next, the researcher would ask if they were currently receiving MOW in Pitt County, North Carolina. If the respondent answered no, the survey process would stop and the call was terminated. There were two exceptions to this protocol in the sample, however, when a family member (ID #8 and #88) answered on behalf of the recipient. If they confirmed that they were a MOW recipient, the researcher would continue reading the consent script, address any questions or concerns, and ask for their consent to participate. With the respondent's informed consent, the researcher then would begin to read the survey questionnaire (Appendix B) and record the individual's responses. If the respondent declined, the contact information of the primary investigator or the Office of Research Integrity & Compliance under the UMCIRB offered to them and the call would be terminated. At the end of every call or voicemail, the phone number that was contacted would be crossed off the list to ensure that they would not be accidentally called again. Their assigned ID# was also marked on the survey responses sheet to maintain anonymity. The primary investigator also took field notes after every call as another source of data.

Measures and Instruments

The original version of the survey was comprised of 51 items that addressed several dimensions of quality of life including social health, physical health, falls, and mental health. Most of the participants contacted refused to participate. With approval of the university IRB, the

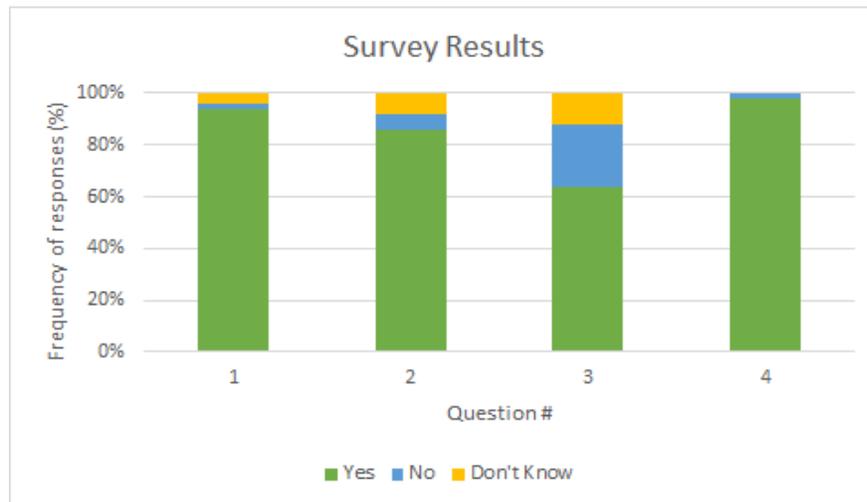
survey was later shortened to only four questions to foster higher participation among respondents. Questions on the new survey (Appendix B) included:

- In your opinion, does the Meals on Wheels program add to your quality of life or well-being?
- Do services received from the home-delivered meals program help you continue to live at home?
- Do services received from the home-delivered meals program help you feel less lonely?
- Do you want to continue receiving services from Meals on Wheels?

Respondents could answer these questions in yes or no format and were then probed by the researcher to explain their answer. The purpose of the survey was to investigate any self-reported changes in quality of life from receiving home-delivered meals, social contact with volunteers, and/or wellness checks on a daily basis. Variables addressed in the updated survey included clients' perceived well-being, their ability to age in place, loneliness, and the desire to continue receiving services. The questions that addressed loneliness and aging in place were selected from the existing questionnaire used in the national Meals on Wheels America (MOWA) *More Than a Meal* pilot study (2015), whereas the remaining questions were designed to fit the specific research question at hand (Thomas et al.). The data, prepared through basic statistical analysis, will be used to evaluate the importance of MOW in Pitt County and results will be compared to previous research done at the national level. The qualitative data will be interpreted through a content analysis coding procedure to review the participant's responses to open-ended questions and find overarching themes and subcategories within these responses.

Results

Before changes were made to the previous survey there were only two participants, whereas the current survey had 50 respondents. Two of the participants were family members that answered the survey questions on behalf of the MOW recipient. Out of the 50 participants in the sample, 47 respondents (94%) answered yes to the question: “Does MOW add to your quality of life or wellbeing?” In response to the second question, 43 respondents (86%) said that MOW helps them continue to live at home. For the third question in the survey, 32 participants (64%) said that MOW helped them feel less lonely. Regarding the last question, 49 recipients (98%) indicated that they wanted to continue receiving services from MOW. The majority of the sample (62%) answered “yes” to all four questions in the survey. Below is a graph that visually represents these results.



In addition, three major themes emerged as a result of analyzing qualitative data through a descriptive coding procedure: clients’ needs and limitations, desire to stay independent, and appreciation for MOW.

Theme 1: Needs and Limitations

Participants shared some limitations, or barriers, that they face that might inhibit their ability to have food. The data confirmed the existence of several limitations faced by the population such as income, isolation, mobility, access to transportation, disabilities, and other health problems. These limitations may also act as barriers that can prevent older adults from accessing food, contributing to food insecurity. These limitations are related to the specific needs of older adults in the areas of nutrition, personal care, and socialization which affect their state of well-being.

Health conditions and nutrition.

A majority of the people receiving MOW have a disability or health problem that leads to challenges regarding activities of daily living such as cooking or grocery shopping. Some of the health conditions and disabilities of participants included dementia, diabetes, arthritis, chronic pain, kidney disease, and more. Due to these circumstances, older adults may not be able to prepare their own meals and might not have someone to do it for them, making them prone to nutritional risk.

Recipients reported that MOW helps to meet these nutritional needs in older adults. Participant #99 explained, “[MOW] helps me when I am not able to cook. I have a bone condition which makes it hard staying on my feet to prepare a meal.” This statement indicates that having prepared meals delivered helps to feed individuals that have a disability or handicap. Another participant, #36, shared, “I am on dialysis so I can’t prepare meals or go out to buy some food. It helps me a lot that they bring me food.” Participant #45 said, “MOW is a life-saving service. On some days like today when I am in pain, I don’t even want to get up to go to the kitchen, so a hot meal is nice to have.” Health conditions such as arthritis, for example, can affect the mobility of the individual which influences their personal care needs. The people

receiving MOW are homebound and often live alone, so they might not have anyone to prepare meals for them.

Recipients indicated that they rely on MOW to meet their nutritional needs. Participant #57 explained, “Right now I’m alone and can’t fix my meals for myself. I wouldn’t eat lunch if she [the volunteer] didn’t bring it.” Recipients also implied that they are getting better nutrition than they would usually have without the program. Participant #93 claimed, “They provide a well-balanced meal which I usually don’t get unless I have MOW that day.” Other responses such as, “Sometimes I don’t have enough food” (ID # 95), or “Without the program, I wouldn’t eat sometimes” (ID # 15), indicate that the population is at risk for food insecurity and relies on MOW to eat consistently healthy meals. In some cases, MOW recipients can still be at risk for malnutrition and food insecurity despite receiving a meal five days a week. For example, one woman (Participant #96) shared that she had lost almost 60 lbs. since her husband passed away and cannot afford nutritional supplements to help her maintain a healthy weight because it isn’t covered by Medicare. While MOW certainly helps to meet these nutritional needs, it provides only one-third of the Recommended Dietary Allowance on a daily basis, therefore reducing the risk of malnutrition and food insecurity but not eliminating it (Pitt County Council on Aging, 2018).

Low-income.

Previous research has discussed the association between homebound older adults with low-income and higher incidences of medical problems, falls, and hospitalizations (Choi, Sullivan, & Marti, 2019). These individuals are typically met with rising costs of health-care related expenses such as medical bills and prescription drugs, which may inhibit their ability to purchase food. According to Participant #54, “[without MOW]I wouldn’t eat otherwise. I spend my money on medications and there isn’t anything left for food.” Another respondent, # 78,

explained, “I am on a fixed budget so I can’t always have food, but they bring a hot meal every day.” Not having enough money to afford food is another barrier that this population faces in reaching a state of food security. Fortunately, MOW is able to provide this home-delivered meal service to its recipients for free. This is meaningful because “There is a lot of people that MOW helps feed because not everyone can afford food” (ID #27).

Access to transportation.

Many older adults can no longer drive and have no access to transportation to buy food, especially if they live in rural communities. Participant #92 explained, “[MOW] helps me with meal planning and preparation. I can’t drive so I don’t have access to transportation and I can’t go grocery shopping so it helps.” If older adults do not have access to transportation, they are forced to walk to places, which can be dangerous in very hot or cold weather. One participant shared, “I have to walk everywhere all day so MOW saves me from walking more” (ID #93). The delivery model of the service helps overcome barriers of accessing transportation within the population because older adults don’t have to leave their house to have food.

Isolation.

Most of the older adults receiving MOW are homebound and living alone with a lack of social support. Many of these recipients tend to be widows or widowers who have lost a spouse and are likely to experience loneliness. Participant #86 shared about his experience and said, “I am a widower and I will sometimes stay in the house 24/7 so I get lonely around the night-time.” It is common for some homebound older adults to stay isolated from others. In response to survey question #3, Participant #93 said, “I don’t have company. The volunteers are the only people I see Mondays through Fridays.” This regular isolation for some homebound older adults calls for a need for socialization, which plays a critical role in well-being and quality of life. Regular visits from MOW volunteers provide opportunities for recipients to have conversations

and build meaningful social relationships, which helps to address this need for socialization in the population.

Theme 2: Desire To Stay Independent

Participants' responses also showed the desire to stay independent for as long as possible and age in place. A pattern emerged in the data showing that participants expressed that they preferred living at home rather than a nursing home or assisted living facility. This is exemplified in Participant #28's response, "I don't want to go to a nursing home or assisted living facility. I like where I'm at and I've been here for 20 years." A similar response was given by Participant #86, "I don't need to be anywhere else but home. I can still dress and take care of myself." These statements show the desire for older adults to age in place at home independently.

According to other recipient responses, the home-delivered meal service provided by MOW helps older adults to age in place in their homes. Some examples of responses that support this claim are the following: "[MOW] keeps me out of a nursing home" (ID #19), "[MOW] helps me stay out of a facility because I have a disability" (ID #3), "They provide me with a meal every day so I can stay independent" (ID #44), and "I don't have to depend on somebody else for meals, so it helps." (ID #92). One respondent, #90, claimed that MOW helps her live alone: "I don't have somebody to cook for me so it lets me live by myself." Some recipients expressed that if they did not have MOW, they might not be able to continue living at home. For example, Participant #55 shared, "I don't know where I'd live without MOW." In addition, Participant #99 explained, "If I didn't have it, I would probably be in a nursing home because I'm unable to provide for myself." Several recipients expressed gratitude for MOW because it helps them fulfill their desire to maintain independence. For example, Participant #72's response was, "If I didn't receive the meals, I would have to live somewhere else where I would receive meals."

MOW keeps me where I want to be.” From this statement, it is clear that MOW helps older adults age in place.

Theme 3: Appreciation For MOW and Volunteers

Most of the survey participants expressed gratitude for the service that MOW provides. Patterns that emerged in the data were an appreciation for MOW as a service as well as an appreciation for the MOW volunteers.

Appreciation for MOW.

Recipients appreciate MOW because it provides convenient aid, comfort, and relief. Several participants described MOW as being convenient. Examples from the data include, “It’s just convenient” (ID #85), “It’s very convenient to have a meal brought to you” (ID #62), and “It’s convenient for me” (ID #40). This speaks to the effectiveness of service delivery utilized by MOW. Other respondents also talked about how MOW benefits their life. Participant #15 said “I stay here [at home] and MOW makes sure I stay fed and the food is good too. I don’t have to worry about much because of it.” This statement implies that the services provided by MOW are helpful to older adults and may give them a sense of relief by not having to worry about food. Other participants expressed similar sentiments, including Participant #5 who said, “I know that I have a meal coming which is comforting” (ID #5). As a service, it provides assurance for recipients that rely on it: “On days it comes I’m sure I have something to eat” (#46). For these reasons, people have articulated their gratitude for the program. For example, Participant #28 said, “I am satisfied, grateful, and thankful for MOW.” Even family members of the recipients seem to appreciate MOW for taking care of their loved ones. A son of a recipient with dementia said, “We don’t have to worry about her [ID #8] going hungry,” indicating that MOW also provides reassurance to family members. MOW also helps caregivers. Participant #43 mentioned, “I have a caretaker with me so MOW makes it easier for the both of us,” and

according to Participant #85, “As a caregiver, MOW provides some relief.” The way family members and caregivers are affected by MOW show that MOW is appreciated beyond just the scope of its recipients.

Appreciation for volunteers.

Recipients appreciate MOW volunteers because of the connections and relationships that they have with each other. Several participants mentioned that they found enjoyment from the volunteers’ visits. For example, Participant #32 stated, “I will stop and chat with the volunteers and I really enjoy it when they visit.” In addition, participants mostly described the volunteers as being friendly, helpful, and cheerful. Many respondents also expressed that they value the interactions that they have with volunteers. Participant #104 claimed, “The drivers are friendly and pleasant. They are brief visits, but it brightens your day.” Similar responses included, “Meeting the delivery people is nice, sometimes they offer me help with things” (ID#46) and “The volunteers are very nice and helpful and make you feel good” (ID #40).

Some recipients indicated that they have meaningful relationships with volunteers that they cherish. An example of this is seen in Participant #67’s response: “I look forward to the meals and volunteers. Yesterday the volunteers came to visit me just to check on me after my surgery and prayed with me. I love everyone that comes, and they love me.” This participant has a deeper relationship with volunteers, which further indicates that the volunteers are valued and appreciated to MOW recipients. Participants seem to appreciate the socialization that they have with volunteers; “It makes you have contact with a person when you usually wouldn’t otherwise. When you live alone it gets quiet but being able to talk to the volunteers brightens you up” (ID #72). These responses show that MOW is not just valued for the meals it provides but also for the opportunities to socialize with volunteers.

Discussion

This research supports what is found in the current literature that examines the impact of home-delivered meal programs on the well-being of older adults. Results from the participant surveys in this study supported previous research that claimed MOW provides more than just a meal to its recipients (Wright et al., 2015), helps older adults age in place (Lee et al., 2015), and that recipients need the services MOW provides because of the barriers they face (Kowlessar et al., 2015). The survey responses also indicated that MOW plays a significant role in the quality of life of recipients in several aspects. While recipients receive adequate nutrition, they also benefit from the regular socialization with volunteers and from being able to stay independent in their homes. Responses from caregivers and family members also showed that MOW impacts more than just its recipients. This supports existing research that claims MOW and other home-delivered meal programs provide a degree of relief for caregivers (Thomas et al., 2018). In addition, family members are provided with reassurance that their loved ones are being checked on regularly. The appreciation that recipients have for MOW and its volunteers is also insightful because it speaks to the impact of the program on quality of life and the capacity of the service to meet the needs of its recipients. The survey responses also highlighted the crucial role of the volunteers in regard to service provision and client satisfaction which makes MOW a unique program. This is exemplified in the gratitude recipients showed for volunteers and the meaningful social connections with volunteers that were reported by recipients. The data collected from the study can potentially be utilized by the Pitt County Council on Aging by (a) supplying data that can be utilized in grant applications to secure additional funding for MOW, (b) providing information to local and state political representatives who may control

discretionary monies, and (c) contributing information for marketing materials to raise awareness about the program.

There were several limitations to the research project. The survey was only a four-item questionnaire, so limited information was gathered from participants. For example, the survey did not collect any demographic information of the respondents. In addition, the sample size included only 50 participants, which is statistically insufficient in order to generalize the findings to the entire population of around 300 MOW recipients. There was also no follow-up contact with participants to confirm their responses after the data collection process was completed. While there are flaws in the study, it does provide a worthy contribution by examining the impact of a local organization within the Pitt County area.

Based on the findings of the research, it is recommended that MOW should be readily available to older adults that need the type of service it supplies. Individuals that are eligible for the program usually have to wait several months to receive services (Gualtieri, 2014). There is an existing waitlist in most MOW programs because the demand for the service exceeds the resources that are designated to the specific program, for example volunteer drivers or funding. To reduce the wait time of home-delivered meals programs, it is recommended that adequate funding be allocated to MOW programs to meet the needs of the growing aging population in the country. Additional research on home-delivered meals programs are necessary to ensure that programs are constantly evaluated to optimize service effectiveness and innovation (Winterton, Warburton, & Oppenheimer, 2013). This is necessary because every MOW program is different in terms of funding and other resource availability, as well as being tailored to meet the needs of that program's recipients however, quality of service should be consistent. Programs are also

changing based on new available technology, such as recipient health condition tracking applications (Morris, Engelberg, Schmitthemmer, Dosa, Gadbois, Shield, ... & Thomas, 2019) and fluctuations in funding (Godoy, 2017). While MOW has been widely supported in research for some time, current research is still needed to address improvements in the service as they change. Overall, the study concluded that the MOW program of Pitt County, North Carolina, does play a vital role in the quality of life of its recipients in the areas of nutrition, socialization, and aging in place. It is recommended that other local programs across the nation continue to be evaluated to justify funding allocations and ensure the best provision of services possible.

References

- American FactFinder (2017). Population 60 years and over in the United States: 2013-2017 American Community Survey 5-year estimates (S0102). *U.S. Census Bureau*. Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_S0102&prodType=table
- Campbell, A. D., Godfryd, A., Buys, D. R., & Locher, J. L. (2015). Does participation in home-delivered meals programs improve outcomes for older adults? Results of a systematic review. *Journal of Nutrition in Gerontology and Geriatrics*, 34(2), 124-67. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4480596/>
- Centers for Disease Control and Prevention. (2018). Well-being concepts. Retrieved from <https://www.cdc.gov/hrqol/wellbeing.htm#three>
- Choi, N., Sullivan, J., & Marti, C. (2019). Low-income homebound older adults receiving home-delivered meals: Physical and mental health conditions, incidence of falls and hospitalizations. *Health & Social Care in the Community*, 27(4), 406-416. Doi: 10.1111/hsc.12741
- Council on Aging. (2014). Meals on wheels FAQs. Retrieved from <http://www.councilonaging.com/meals-on-wheels/meals-on-wheels-faqs/>
- Fottrell, Q. (2017). This is how much it costs 'Meals on Wheels' to feed one elderly person for a year. *MarketWatch*. Retrieved from <https://www.marketwatch.com/story/this-is-how-much-it-costs-meals-on-wheels-to-feed-one-elderly-person-for-a-year-2017-03-16>

- Gergerich, E., Shobe, M., & Christy, K. (2015). Sustaining our nation's seniors through federal food and nutrition programs. *Journal of Nutrition in Gerontology and Geriatrics*, 34(3), 273-291. Doi: 10.1080/21551197.2015.1054572
- Godoy, M. (2017). Could Meals on Wheels really lose funding? Yes, but it's hard to say how much. *National Public Radio*. Retrieved from <https://www.npr.org/sections/thesalt/2017/03/20/520848721/could-meals-on-wheels-really-lose-funding-yes-but-its-hard-to-say-how-much>
- Gollub, E., & Weddle, D. (2004). Improvements in nutritional intake and quality of life among frail homebound older adults receiving home-delivered breakfast and lunch. *Journal of the American Dietetic Association*, 104(8), 1227-1235. Retrieved from <https://doi.org/10.1016/j.jada.2004.05.204>
- Gualtieri, M., Donley, A., Wright, J., & Vega, S. (2018). Home delivered meals to older adults: A critical review of the literature. *Home Healthcare Now*, 36(3), 159-168. Retrieved from <https://oce.ovid.com/article/01845097-201805000-00005/HTML>
- Gualtieri, M. (2014). *'Til death do I wait: Experiences of food insecurity among elders on the Meals on Wheels waiting list*. (Unpublished Master's Thesis). University of Central Florida, Orlando, FL. Retrieved from <http://stars.library.ucf.edu/etd/4700>
- Holt-Lunstad, J., Smith T. B., & Layton J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLoS Med*, 7(7), 1-20. doi:10.1371/ journal.pmed.1000316
- Korte, G. (2017, March 18). Here's the truth about Meals on Wheels in Trump's budget. *USA Today*. Retrieved from <https://www.usatoday.com/story/news/politics/2017/03/18/meal-on-wheels-trump-budget-proposal-cuts/99308928/>

Kowlessar, N., Robinson, K., & Schur, C. (2015). Older Americans benefit from Older Americans Act nutrition programs. *Administration on Aging*. Retrieved from

https://nutritionandaging.org/wp-content/uploads/2015/10/2015_0928_AoA_Brief_September.pdf

Kronld, M., Coleman, P., Lau, D. (2008). Helping older adults meet nutritional challenges.

Journal of Nutrition for the Elderly, 27(3), 205-220. Doi: 10.1080/01639360802261755

Lee, K., & Raiz, L. (2015). The home-delivered meals program: A promising intervention for suburban older adults living alone. *Care Management Journals*, 16(4), 195-202.

Retrieved from <http://dx.doi.org/10.1891/1521-0987.16.4.195>

Lloyd, J. (2017). Hunger in older adults: Challenges and opportunities for the aging services network. *Meals on Wheels America*. Retrieved from

<https://www.mealsonwheelsamerica.org/docs/default-source/research/hungerinolderadults-fullreport-feb2017.pdf?sfvrsn=2>

Lloyd, J., & Wellman, N. (2015). Older Americans Act nutrition programs: A community-based nutrition program helping older adults remain at home. *Journal of Nutrition in*

Gerontology and Geriatrics, 34(2), 90-109. Doi: 10.1080/21551197.2015.1031592

Meals on Wheels America. (2018a). National office. Retrieved from

<https://www.mealsonwheelsamerica.org/learn-more/national>

Meals on Wheels America. (2018b). Find meals. Retrieved from

<https://www.mealsonwheelsamerica.org/signup/aboutmealsonwheels>

Meals on Wheels America. (2018c). The escalating problem of senior hunger and isolation.

Retrieved from <https://www.mealsonwheelsamerica.org/docs/default-source/fact->

sheets/2018/2018-national/the-issue_2018-fact-sheet_forpublication.pdf?sfvrsn=410bc3b_2

Meals on Wheels America. (2018d). How Meals on Wheels is funded. Retrieved from https://www.mealsonwheelsamerica.org/docs/default-source/fact-sheets/2018/2018-national/funding_2018-fact-sheets_forpublication.pdf?sfvrsn=10bc3b_2

Meals on Wheels America. (2018e). Delivering so much more than just a meal. Retrieved from https://www.mealsonwheelsamerica.org/docs/default-source/fact-sheets/2018/2018-national/what-we-deliver_2018-fact-sheets_forpublication.pdf?sfvrsn=1410bc3b_2

Meals on Wheels America. (2017). Older adults and in-home safety. Retrieved from https://www.mealsonwheelsamerica.org/docs/default-source/misc/olderadultsandinhomesafetyreport_final.pdf?sfvrsn=2

Meals on Wheels America. (2016). MOW fact sheet: National. Retrieved from <https://www.mealsonwheelsamerica.org/docs/default-source/fact-sheets/2012/mow-factsheet-national2016.pdf?sfvrsn=2>

Morris, A., Engelberg, J., Schmitthener, B., Dosa, D., Gadbois, E., Shield, R., ... & Thomas, K. (2019). Leveraging home-delivered meal programs to address unmet needs for at-risk older adults: Preliminary data. *Journal of the American Geriatrics Society*, 67(9), 1946-1952. Doi: 10.1111/jgs.16013

Pérez-Zepeda, M. U., Castrejón-Pérez, R. C., Wynne-Bannister, E., & García-Peña, C. (2016). Frailty and food insecurity in older adults. *Public Health Nutrition*, 19(15), 2844-2849. Doi: <http://dx.doi.org/10.1017/S1368980016000987>

Pitt County Council on Aging. (2018). Nutritional services. Retrieved from <http://www.pittcoa.com/senior-services/nutritional-services/>

- Polzner, B. (2017). The powerful impact of Meals on Wheels. *Today's Geriatric Medicine*, 10(4), 28. Retrieved from <http://www.todaysgeriatricmedicine.com/archive/JA17p28.shtml>
- Qiu, W. Q., Dean, M., Liu, T., George, L., Gann, M., Cohen, J., & Bruce, M. L. (2010). Physical and mental health of homebound older adults: an overlooked population. *Journal of the American Geriatrics Society*, 58(12), 2423-2428. Doi: 10.1111/j.1532-5415.2010.03161.x
- Sakurai, R., Yasunaga, M., Nishi, M., Fukaya, T., Hasebe, M., Murayama, Y., . . . & Fujiwara, Y. (2019). Co-existence of social isolation and homebound status increase the risk of all-cause mortality. *International Psychogeriatrics*, 31(5), 703-711. doi:10.1017/S1041610218001047
- Thomas, K., Gadbois, E., Shield, R., Akobundu, U., Morris, A., & Dosa, D. (2018) 'It's not just a simple meal. It's so much more': Interactions between Meals on Wheels clients and drivers. *Journal of Applied Gerontology*, 1-16. Retrieved from <https://doi.org/10.1177/0733464818820226>
- Thomas, K., Smego, R., Akobundu, U., Dosa, D. (2017). Characteristics of older adults on waiting lists for Meals on Wheels: Identifying areas for intervention. *Journal of Applied Gerontology*, 36(10), 1228-1242. Retrieved from <https://doi.org/10.1177/0733464815614918>
- Thomas, K., Akobundu, U., & Dosa, D. (2016) More than a meal? A randomized controlled trial comparing the effects of home-delivered meals programs on participants' feelings of loneliness. *The Journals of Gerontology: Series B*, 71(6), 1049-1058. Retrieved from <https://doi.org/10.1093/geronb/gbv111>

- Thomas, K., & Dosa, D. (2015). Results from a pilot randomized control trial of home-delivered meal programs. *Meals on Wheels America*. Retrieved from <https://www.mealsonwheelsamerica.org/docs/default-source/News-Assets/mtam-full-report---march-2-2015.pdf?sfvrsn=6>.
- Thomas, K., & Mor, V. (2013a). The care span: Providing more home-delivered meals is one way to keep older adults with low care needs out of nursing homes. *Health Affairs*, 32(10), 1796-1802. Doi: 10.1377/hlthaff.2013.0390
- Thomas, K. S., & Mor, V. (2013b). The relationship between Older Americans Act Title III state expenditures and prevalence of low-care nursing home residents. *Health Services Research*, 48(3), 1215-1226. Retrieved from <http://link.galegroup.com.jproxy.lib.ecu.edu/apps/doc/A332789631/HWRC?u=ncliveecu&sid=HWRC&xid=bbbf908f>
- Ungar, L., & Lieberman, T. (2019, September 3). Starving seniors: How America fails to feed its aging. *Kaiser Health News*. Retrieved from <https://khn.org/news/starving-seniors-how-america-fails-to-feed-its-aging/>
- Walden, O., Hayes, P., Lee, D., & Montgomery, D. (1989). The provision of weekend home delivered meals by state and a pilot study indicating the need for weekend home delivered meals. *Journal of Nutrition for the Elderly*, 8(1), 31-43. Doi: 10.1300/J052v08n01_04
- Winterton, R., Warburton, J., & Oppenheimer, M. (2013). The future for Meals on Wheels? Reviewing innovative approaches to meal provision for ageing populations. *International Journal of Social Welfare*, 22(2), 141-151. Retrieved from <https://doi-org.jproxy.lib.ecu.edu/10.1111/j.1468-2397.2012.00889.x>

Wright, L., Vance, L., Sudduth, C., & Epps, J. (2015) The impact of a home-delivered meal program on nutritional risk, dietary intake, food security, loneliness, and social well-being. *Journal of Nutrition in Gerontology and Geriatrics*, 34(2), 218-227. Doi: 10.1080/21551197.2015.1022681

Zhu, H., & An, R. (2013). Impact of home-delivered meal programs on diet and nutrition among older adults: A review. *Nutrition and Health*, 22(2), 89–103. Retrieved from <https://doi.org/10.1177/0260106014537146>

Appendix A

Survey Script

Hello, this is Jessica Schulte calling from the Pitt County Council on Aging in Greenville. I am a student at ECU doing a research study to assist the Council on Aging with evaluating the Meals on Wheels program and how it is linked to the wellbeing of seniors in Pitt County. Your participation can help support the continuation of funding for these services to you and others who depend on them. If you are a current recipient of Pitt County Meals on Wheels I would like to ask you four short questions to which you can respond “yes,” “no,” or “I do not know” and your responses will be kept confidential and anonymous. If you choose not to participate, it will not have any effect on the current services that you receive. Would it be ok if I ask you the questions now? Before we begin, know that your participation is also voluntary, so you can stop at any time or refuse to answer any of the questions just by saying, “refuse.” Do you have any questions or concerns for me? If you have any questions about your rights as a research participant please call the Office of Research Integrity & Compliance at ECU (252- 744-2914). You can also contact me at my personal cell number 919-741-1502 or by email at schultej16@students.ecu.edu.

Appendix B
Survey Questionnaire

1) In your opinion, does the Meals on Wheels program add to your quality of life or well-being?

[1] Yes

If yes: Would you like to provide an example?

[2] No

[99] REFUSED

[88] I DO NOT KNOW

2) Do services received from the home delivered meals program help you continue to live at home?

[1] Yes

If yes: Would you like to explain how?

[2] No

[99] REFUSED

[88] I DO NOT KNOW

3) Do services received from the home delivered meals program help you feel less lonely?

[1] Yes

If yes: Would you like to share something specific about how it helps?

[2] No

[99] REFUSED

[88] I DO NOT KNOW

4) Do you want to continue receiving services from Meals on Wheels?

[1] Yes

[2] No

[99] REFUSED

[88] I DO NOT KNOW

Appendix C

EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284**
www.ecu.edu/ORIC/irb

Notification of Exempt Certification

From: Social/Behavioral IRB
To: [Jessica Schulte](#)
CC: [Kelley Reinsmith-Jones](#)
Date: 3/15/2019
Re: [UMCIRB 19-000234](#)
Meals on Wheels and the Well-being of Seniors

I am pleased to inform you that your research submission has been certified as exempt on 3/15/2019. This study is eligible for Exempt Certification under category #2ab.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

Appendix D



Pitt County
Council on Aging

4551 County Home Road
Greenville, NC 27858
Telephone: 252.752.1717
Fax: 252.752.9365

Rich Zeck
Executive Director

Charlotte-Anne Alexander
Chair, Board of Directors

February 1, 2019

To whom it may concern;

The Council on Aging grants the following permissions to Jessica Schulte as she works on her research project:

1. Permission to collect research at the office and use the phones during the data collection process.
2. Permission to access the MOW client database to contact clients via telephone during the data collection process.

If there are any further questions or concerns, do not hesitate to contact me directly at (252) 752-1717 ext. 3.

Regards,

A handwritten signature in blue ink that reads 'Rich'.

Richard Zeck
Executive Director



Area Agency on Aging

SENIOR CENTER OF EXCELLENCE

