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Health Benefits of Group Based Cooking in a Skilled Nursing Facility

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Abstract

This study evaluated the health benefits of a group-based cooking intervention in a skilled nursing facility. Pre- and post-test measures of depression and autonomy were administered to measure the effectiveness of the intervention. Interview questions were administered to capture the participants' lived experience. Data analysis using the Wilcoxon Signed Rank Test revealed no statistical significance. Social participation and quality of life were overarching themes that emerged as a result of qualitative data analysis. Clinical results indicate group-based cooking interventions may have potential to improve autonomy, quality of life, social participation, and depression in older adults living in skilled nursing facilities.

Keywords

Geriatrics; Autonomy; Social participation; Occupation-based interventions; Cooking

Introduction

Health benefits that were measured included depression and autonomy levels.

Depression

70% of people older than age 65 will, at some point, require time in long-term care, and 40% will need skilled nursing care [1]. Transitioning from one's home environment to a long-term care facility can adversely affect global health and well-being. Skinner [2] noted that forced relocation is most concerning and can have negative effects, including the loss of both social and community connections and lead to depression in older adults. Magnil et al. [3], stated that depression in the older adult population is the most common psychiatric disorder and often leads to increased physical disability. In a study by Hoover et al. [4], it was found that 54.4% of residents who lived in a nursing home for a year were diagnosed with depression compared to 32.8% diagnosed with depression at admission. Depression has health consequences that can be detrimental to an individual including functional decline, longer length of stay in a rehabilitation setting, lower likelihood of returning home, malnutrition, poor quality of life, and even death [5-8].

Autonomy

Personal autonomy has been found to be a protective factor against the onset of depression symptoms in older adults [9]. Hertz [10] defined autonomy as being able to freely choose behaviors and courses of action for oneself in order to meet one's needs and goals. Perceived enactment of autonomy was defined as "a state of sensing and recognizing the ability to freely choose behaviors and courses of action on one's own behalf and in accordance with one's own needs and goals [10]." Perceived enactment of autonomy is the subjective perception of the ability to act autonomously. Most long-term care residents must follow the established routines of the facility such as; self-care, meal and medication distribution, food choices and options for outdoor access [11]. In a study by Duncan-Myers and Huebner [12], results from the Duncan Choice Index revealed 'when I eat, whom I eat with, and what I eat' were ranked as activities with the lowest degree of choice, second only to medication management, by participants in a long term care facility. Relinquishing control over one's life to include social and leisure choices often leads to depression and a decline in physical health [13]. As such, empowering LTC residents through engagement in meaningful occupations can facilitate an increase in health, well-being and quality of life.

Duncan-Myers and Huebner [12] studied the effects of increasing choices in everyday tasks such as eating and toilet hygiene among residents in a long-term care facility. They found that increasing choices was related to having a positive perception of quality of life [12]. These results support the positive relationship between choice making and increased internal locus and sense of control, feelings of empowerment, and improved quality of life [12].

Cooking and mealtimes

Occupational therapy interventions are based on occupations that are purposeful and meaningful to the client. In a study by Bigelius et al. [14] residents in a long term care facility perceived cooking to be a meaningful and highly valued occupation. Food associated with family background, provides a source of comfort and can facilitate adaptation to a nursing home for older individuals [15,16]. Evans et al. conducted semi-structured interviews with nursing home residents to determine the meaning of a meal for them [15]. Themes from their study included: remembering their roots, relating to others, and giving life. Residents reported that cooking and eating special homemade food helped them to remember their roots/family history. Relating to others involved developing and maintaining relationships as well as sharing memories. Eating with friends and looking forward to special meals, were two ways residents reported relating to others. A study by Bundgaard [17] focused on individuals who participated in the occupation of cooking in a facility. The following four themes emerged: the meals helped shape the facility to be more home-like, facilitated a more viable community feeling, reestablished participant self-identity, and it provided a place for valued occupation [17]. Preparing, cooking and serving meals helped to shape the environment as a home-like place, provided an area for socialization, and helped them feel alive by being present throughout the food process. While cooking, residents learned how cooking and mealtimes shaped other resident's past history and through newly

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acquired friendships, how cooking could be incorporated into facility activities in the future. Residents felt empowered by being involved with the planning, cooking and serving process.

Occupational adaptation theory

This research study was conducted through an Occupational Adaptation lens [18]. The three main elements of the Occupational Adaptation theory are the person, the occupational environment, and the interaction between the two. Occupational adaptation is a state of occupational functioning in which all human beings aspire to achieve competency or relative mastery over a specific occupation [18]. For many older adults, cooking is an occupation in which they feel a desire for mastery that connects them to past roles. However, in the SNF setting, they often do not have the opportunity to perform this valued occupation [16].

Occupational deprivation

Occupational deprivation has been defined as a state in which a person is not able to engage in life occupations that are meaningful to them because of factors outside of their control [19]. Older adults transitioning from their home to a skilled nursing facility may experience occupational deprivation due to the lack of choices in these types of facilities. Occupational deprivation can lead to devastating effects such as depression, isolation, difficulties with social interaction, boredom and inactivity, and a decreased sense of self [20]. It is the role of occupational therapists to strive to create opportunities for occupational engagement for their clients, which will ultimately decrease the negative effects of occupational deprivation [20].

Significance

Older adults transitioning to skilled nursing facilities may experience the occupational deprivation due to limited opportunities to make their own choices in facilities that have established routines and structure. In addition, minimal research has been conducted to explore the health benefits of group-based cooking interventions in skilled-nursing facilities, which is known to be a valued occupation for many older adults.

The purpose of this study was to understand the effects of a group-based cooking intervention on depression and autonomy in older adults. This study aimed to answer the following research question: Does the implementation of a group-based cooking intervention decrease depression and increase autonomy in older adults living in a skilled nursing facility?

Methods

Design

This study used a mixed methods approach to evaluate the effectiveness of a cooking intervention in promoting health and well-being of older adults within a skilled nursing facility. A single group pre-test, post-test research design was used to obtain a baseline and post-intervention measure of depression and autonomy. A post intervention qualitative interview was implemented to capture the participants' lived experiences regarding the cooking intervention.

Participants

Institution Review Board (IRB) approval was obtained from the university prior to participant recruitment. The original participant sample consisted of six females and one male, however two participants were excluded due to lack of attendance (zero of six sessions) and incomplete data on the post-tests. The final sample consisted of five female participants who resided in one long-term care facility in Virginia. The participants ranged in age from age 59 to 96, with a mean age of 76.8 years old. Purposeful sampling was used to obtain participants with inclusion criteria of: a score of 5 or greater out of 10 on the Short Portable Mental Status Questionnaire. Additional inclusion criteria include the following: the participants resided in the designated skilled nursing facility, were at least 50 years of age, and had the ability to communicate in English.

Data collection

The Short Portable Mental Status Questionnaire (SPMSQ) is a 10 item cognitive screen used to assess cognitive deficits in elderly patients. The SPMSQ was found to be valid and reliable in its ability to identify the cognitive status in older adults [21]. A total number of 5-7 errors indicate moderate cognitive deficits, 3-4 errors indicate mild cognitive deficits, and 0-2 errors indicate normal cognitive functioning.

The Geriatric Depression Scale-Short Form (GDS-SF) is a 15-item dichotomous assessment tool used to determine the level of depression in older adults. The GDS-SF was found to be valid and reliable for self-report of depression in older adults with mild to moderate cognitive deficits [22]. It was also found to have satisfactory sensitivity, specificity, and internal consistency. A score of 5 or greater is suggestive of depression and a score of 10 or greater is almost always indicative of depression.

The Hertz Perceived Autonomy Scale (HPEAS) is a 31-item 4-point likert-type scale used to determine individual's level of perceived autonomy. There are 3 subscales which includes: Voluntariness (9-items), Individuality (13 items), and Self-Direction (9 items). It was found to have content and construct validity [23,24]. The range for total scores is 31-124, and higher scores indicate higher level of perceived enactment of autonomy. Permission was obtained from Judith Hertz, the creator of the HPEAS, prior to administering the scale.

Participants were interviewed at the conclusion of the group sessions to facilitate understanding of the participants' lived experiences in relation to the cooking intervention. Questions included the following: 1.) Did this cooking experience change how connected you feel to this facility? How? 2.) What did you like about this cooking experience? 3.) What did you not like about this cooking experience? 4.) What do you feel you have taken away from this cooking experience?

Intervention

The intervention consisted of six, one hour to one and a half hour group-sessions, one session per week, for six weeks. The intervention was held in the activities room at the skilled nursing facility. A group-based, protocol-driven intervention was used to ensure consistency of approach. The intervention protocol for this study was a direct result of the work of Kirchen and Hersch [16], who created the Occupation-based Cultural Heritage Intervention-Military Version (OBCHI-MV). The OBCHI-MV was noted to improve occupational engagement; quality of life; and social participation of veterans residing in long-term care settings. The OBCHI-MV is based on the premises that an individual's culture empowers the person with meaningful rituals and beliefs, which, given the opportunity, can be expressed and shared with others in a supportive social system.

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The Occupational Adaptation Theory was the over-arching framework that guided the development of both this intervention and the OBCHI-MV. In the context of the Occupational Adaptation (OA) Theory, Schultz and Schkade [25] states that maladaptation occurs when patients experience an inability to engage in meaningful roles due to environmental challenges and/or deficits in persons systems. The participants in this study identified cooking as a valued occupation, but were unable to cook because they lived in a long-term care facility.

The OA Theory [25] is built on the premise that the patient is the change agent and the occupational therapist is the facilitator of the patient-identified occupation, meaning the patient is empowered to guide the therapeutic process and the therapist structures the activity and environment to allow for an optimal success on the part of the patient. The participants in this study were empowered to guide the intervention process. For example, Each week participants brainstormed recipe ideas and then voted on which recipes to make for the following week's session. The researchers ensured each participant was able to contribute at least one recipe by the end of the six week intervention. The researchers provided an in-person reminder one day prior to each cooking session and left each participant with a recipe card that stated the foods that would be prepared during the session, the date and time of the session, and the location of the session. While reminding the participants about the cooking session, the researchers communicated with the participant who selected the meals for the week to verify the ingredients needed for the planned meal. After verifying the ingredients, the researchers bought the ingredients and provided some preparation to foods that required by using sharp utensils before the session began.

The day of the session, the participant who selected the recipe was encouraged to lead the session with the other participants. Large-print copies of the recipes and all cooking supplies were set out on the table. Ingredients were spaced around the table to encourage all participants to help prepare the food. The food was typically transferred to individual dishes before it was cooked. This allowed participants the opportunity to adjust the recipe to fit their individual taste preferences. The researchers provided assistance and facilitated the session as needed to successfully complete the recipe. When the food was ready to be cooked, the researchers took it into the kitchen to complete the cooking process. While the food was cooking, the participants discussed what recipes they wanted to prepare the following week. Once the meal was cooled, the researchers brought it out for the participants to eat together as a group. Refer to Table 1 for intervention overview.

The participants most often chose to cook meals that were related to family celebrations or foods that brought them comfort. For example, one resident chose to prepare pecan pie because that was the desert she consistently made for her children and they were growing up. Other meals consisted of meatloaf, mashed potatoes, baked macaroni and cheese, potato soup and a very elaborate watermelon cooler. The participants were quite specific about the type and quality of the ingredients used and the researchers supported each request because it was important to the participants to make the dish in the manner that truly reflected their individual recipe.

Data Analysis

Quantitative analysis

The statistical tests used to analyze the pre- and post-scores were the Wilcoxon Sign Rank Test and the Dependent T-Test [26]. The Dependent T-Test is used to compare the means of two related groups to determine if a statistical difference exists. Due to the small participant sample size, the Wilcoxon Sign Rank Test was also used to increase the reliability of the analysis of the data. The Wilcoxon Sign Rank Test is the non-parametric equivalent of a dependent samples t-test. This type of statistical test is used when analyzing differences between two related samples. Pre- and post-intervention changes were considered meaningful if they were statistically significant ($p<0.05$). Spearman Rank Correlation test was used measure the strength of association between two ranked variables, the GDS-SF and the HPEAS.

Qualitative analysis

The qualitative data was analyzed using a phenomenological approach [27], meaning that the researchers sought to understand the lived-experience of the participants in relation to the cooking intervention. The following questions were asked:

(1) Did this cooking experience change how connected you feel to

Table 1: Intervention overview.

Week	Activities	Rationale
1	-Collage activity using food magazines -Explained structure of the intervention -Planned and voted meals to cook for the following week	-Generate and share ideas for recipes to prepare in the following weeks -Educate participants on the structure of intervention and begin to empower them by giving them control of the group
2	-Participants led cooking session -Participants ate completed recipes as a group -Planned and voted on meals to cook for the following week	-Facilitators gave control of the cooking group to the participants -Materials and ingredients were dispersed around the table to facilitate working as a group and social interaction among participants -Certain ingredients were prepped before the intervention by the facilitators in order to create the 'just right challenge' to ensure success -Completed recipes were eaten as a group to increase social participation, build relationships among the participants, and to provide them the opportunity to reflect on the experience
3	-Participants led cooking session -Participants ate completed recipes as a group -Planned and voted on meals to cook for the following week	
4	-Participants led cooking session -Participants ate completed recipes as a group -Planned and voted on meals to cook for the following week	
5	-Participants led cooking session -Participants ate completed recipes as a group -Planned meals to cook for the final celebration -Participants chose paper design for the recipe they contributed	-Paper design options were brought in for participants to provide them with choices and increase their control over the style of their final recipe printout
6	-Celebration of the last cooking group -Participants invited friends and family -Participants led cooking session -Participants and family ate completed recipes as a group -Participants received a framed and signed copy of their recipe	-Invited family and/or friends to share recipe and increase social participation -Create opportunities to cook meals with family and friends together -Gave participants an opportunity to choose to keep their recipe card or give it to someone of their choice

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this facility? If so, how?

(2) What did you like about this cooking experience?

(3) What did you not like about this cooking experience?

(4) What do you feel you have taken away from this cooking experience?

The participant responses were recorded verbatim and distributed to the three researchers who separately coded and analyzed the data. The researchers then came to consensus on codes in order to ensure accountability. Key phrases that addressed similar topics were identified and then organized into meaningful clusters. These clusters were then collapsed into themes providing a textural portrayal of the experience.

Results

Data are mean ± standard deviation, unless otherwise stated. Participants reported improved GDS-SF scores at posttest (3.60 ± 3.21) compared to pretest (3.80 ± 3.70). Participants experienced an average improvement of 0.20 (95% CI, -1.61 to 2.04) in GDS-SF score; however, the change was not statistically significant, t(4)=0.302, p=0.78 [AAP1]. Two participants reported an improvement in GDS-SF scores, the GDS-SF score of two participants remained constant, and one participant reported an increase in GDS-SF score. Results were confirmed with the Wilcoxon sign rank test (z=0.272, p=0.79).

Participants reported improved HPEAS scores at posttest (102.6 ± 11.30) compared to pretest (99.40 ± 9.76). Participants experienced an average improvement of 3.20 (95% CI, -10.19 to 3.79); however, the change was not statistically significant, t(4)=-1.271, p=0.27). Four of five participants reported an improvement in HPEAS scores. Results were confirmed with the Wilcoxon sign rank test (z=-1.084, p=0.79). Within HPEAS sub scores, participants reported an improvement in HPEAS voluntariness, 45.40 ± 3.51 to 45.60 ± 3.51, and HPEAS self-direction, 28.60 ± 3.58 to 29.80 ± 4.49. However, neither change was statistically significant, 0.20 (95% CI, -5.71 to 5.31), t(4)=-0.101, p=0.925, and 1.20 (95% CI, -3.59 to 1.19, t(4)=-1.395, p=0.235, respectively. Participants reported decreased HPEAS individuality at posttest (27.20 ± 3.70) compared to pretest (27.40 ± 6.50); however the decrease of 0.20 (95% CI, -6.09 to 4.49) was not statistically significant, t(4)=0.088, p=0.934. Refer to Table 2 for means and standard deviations of outcome variables at pre- and post-test.

Pre-test data indicated a negative correlation approaching statistical significance was observed between GDS and HPEAS (rs=-0.872, p=0.054) using the Spearman correlation. The post intervention interview questions were coded by the three researchers, separately and then they collectively compared codes and reached consensus on overarching themes. The preliminary codes used are as follows (Table 3).

Social participation and an improvement in quality of life were the overarching themes that are emerged as a result of the qualitative data analysis. When asked what they liked about the cooking experience, 80% of the participants expressed social participation as being most relevant in response to the question "what did you like about this cooking experience?". All five participants mentioned social participation as a positive benefit of the intervention (Table 4). Comments included ".... spend time with other residents, us all being

Table 2: Means and standard deviations of outcome variables at pre- and post-test.

	Pretest Mean ± SD	Posttest Mean ± SD	Mean Difference (95% CI)	P-Value
GDS-SF	3.80 ± 3.70	3.60 ± 3.21	-0.20 (-1.61, 2.04)	0.78
HPEAS	99.40 ± 9.76	102.60 ± 11.30	3.20 (-10.19, 3.79)	0.27
HPEAS voluntariness	45.40 ± 3.51	45.60 ± 3.51	0.20 (-5.71, 5.31)	0.93
HPEAS self-direction	28.60 ± 3.58	29.80 ± 4.49	1.20 (-3.59, 1.19)	0.24
HPEAS individuality	27.40 ± 6.50	27.20 ± 3.70	-0.20 (-6.09, 4.49)	0.93

GDS-SF: Geriatric Depression Scale- Short Form

HPEAS: Hertz Perceived Enactment of Autonomy Scale

HPEAS Voluntariness: Hertz Perceived Enactment Autonomy Scale-Voluntariness subscale

HPEAS Self-direction: Hertz Perceived Enactment Autonomy Scale-Self-direction subscale

HPEAS Individuality: Hertz Perceived Enactment Autonomy Scale-Individuality subscale

Significance for Dependent t-test = $p<0.05$

Table 3: Themes derived from post-intervention interview.

Code	Definition	Frequency
S-Social Participation	Social participation with other residents	16
QOL-Quality of Life	Mention of experiencing happiness or joy as a result of the intervention	8
NS-New Skill	Identified learning a new skill	4
E-Empowered	Noting a sense of control over one's environment	1

Table 4: Selected quotes related to social participation.

Social Participation	
Participant	**Response**
Participant 1	"...met new residents and talked to others"
Participant 2	"I gained new friends… I reconnected with people"
Participant 3	"I liked us all being there and us all helping"
Participant 4	"New friends"
Participant 5	"Formed closer relationship with residents"

there, us all helping, I got to meet people I hadn't met before, being with other people, I gained new friends, I reconnected with people, formed closer relationships with other residents, and being with other people." In addition, quality of life was also a salient theme. All five participants noted enjoyment or having fun as a positive result of the intervention. Comments included "... we had a lot of fun, I want it every week, it was nice the way it worked out, I liked all of it, it was just fun, and I enjoyed it very much." 60% of participants expressed learning new skills as a positive benefit of the intervention. Comments included "... learned how to measure, introduced recipes never used before, learning different skills, and making things differently."

Discussion

The research question for this study sought to answer the following: Does the implementation of a group-based cooking intervention decrease depression and increase autonomy in older adults living in a skilled nursing facility? Findings gathered from the data analysis using the Wilcoxon Sign Rank test indicated no statistical significance for the GDS-SF and HPEAS ($p<0.05$). However, both statistical and clinical findings were considered when evaluating the significance of the intervention. The clinical results from the post-interview questions, GDS-SF, and HPEAS indicate that the group-based cooking intervention may have potential to improve autonomy, quality of life, social participation, and depression in older adults living in a skilled nursing facility. These results support findings from a previous study that found increasing choices in everyday tasks, such as eating, is related to a positive perception of quality of life for residents in a long term care facility [12]. A study by Lee and Carr [28] also found that psychological well-being was improved when opportunities for autonomy were presented, such as choices regarding participation in and sequence of everyday activities.

The researchers used the Occupational Adaptation (OA) Theory [18] to scaffold the group-based cooking intervention and promote autonomy for the participants. Scaffolding is defined as an instructional support that allows an individual to perform a skill [29]. Task analysis was utilized to break down the steps and of each recipe, selected by the participants, in order to ensure they would be able to successfully complete the task with minimal assistance from the facilitators. If recipe steps were too complex, they were adapted or items were prepared by the researchers prior to the session. Ingredients were placed around the table to ensure all group members had the opportunity to participate in the meal preparation as well as to socially engage with other group members. Through use of the OA approach, researchers ensured optimal participant occupational performance by facilitating environmental and task-based adaptations and modifications. Likewise, the participants were empowered to be the agents of change or teachers during each session. This process resulted in participant-reported increase in social participation and improved quality of life.

Limitations

The limitations of this study included: a small sample size, lack of a control group, participant health status, and homogeneity of gender among the participants. The small sample size creates the possibility of a Type 2 error, meaning the lack of a control group made it difficult to determine whether the positive effects received on the post-intervention survey were a result of the intervention of increased attention from the researchers. Outcomes would have greater validity if the sample consisted of a more heterogeneous sample of genders among participants. Our study consisted of an entirely female sample. The youngest participant was 59 years old and the oldest participant was 96 years old. All participants were housed in the facility. One participant had significant health complications during the intervention resulting in a hospitalization. This participant's depression and autonomy level may have been affected as a result of the illness. The results would have stronger validity if participants were recruited from a variety of skilled nursing facilities across the United States.

The results may have been more significant if the intervention occurred over a longer duration of time. Six weeks may not have been a long enough time period for the effectiveness of the intervention to be measured. The conclusion of the intervention caused some discomfort and sadness among the participants. Unfortunately, the facility was unable to continue the cooking sessions on a regular basis at that time. Therefore, the final session consisted of a party in order to facilitate closure among the participants.

Conclusion

Occupational therapy practitioners ask, "What matters to you?" not, "What's the matter with you?" [30]. This study provided evidence for the effectiveness of using an occupation based intervention. Quantitative data analysis depicted a trend towards significance indicating that additional research is warranted to support the effectiveness of using a group cooking intervention to promote health and well-being of residents in long-term care facilities. Data analysis of the qualitative portion of this study strongly supports the use of a group-based cooking intervention to promote autonomy and social connectedness amongst LTC residents. Participating in meaningful, client-centered occupations is a cornerstone in the profession of occupational therapy in promoting health and well-being for patients. Occupational therapists can use group-based cooking interventions to increase quality of life, social participation, autonomy, and to decrease depression of patients who reside in LTC.

Implications for Future Research and Clinical Practice

The findings of this study have implications for practice and research. Occupational therapists promote the health and well-being of patients through the use of meaningful, occupation-based interventions; however the research supporting the benefits of such approaches is limited. This study depicted a trend towards clinical significance, but the findings were limited due to the small sample size. Conducting research to evaluate the health benefits of occupation-based interventions over time, with larger sample sizes and in a variety of settings and geographical locations would build the evidence within the medical community to further validate occupation-based treatment. In addition, this study discusses how to embed occupation-based cooking approaches into practice as well as describes social participation and autonomy benefits for participants, which may be beneficial for clinicians who want to implement cooking-based interventions in their practice setting.

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