

Barriers to Nutrition Interventions in Army Dining Facilities: A Qualitative Study

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ABSTRACT

Introduction:

Interventions that encourage good nutrition-related behaviors in the dining environment can potentially influence the health of large numbers of military personnel. Thus, the Army has studied the effectiveness of implementing nutrition education and dining facility (DFAC) changes that included healthier recipes, revised menus, and population-specific point-of-choice labeling, but successful intervention implementation largely depends on the foodservice employees' understanding, knowledge, and desire to sustain changes. This phenomenological, qualitative study aimed to better understand common barriers to the implementation and sustainment of DFAC-based nutrition interventions at two U.S. Army DFACs.

Materials and Methods:

Focus group sessions ($n = 168$ participants) ranging from 60 to 90 minutes in length were conducted at two large DFACs on three separate occasions every 4 months from May 2015 to January 2016 among the foodservice staff during intervention implementation. Focus group transcripts were analyzed using NVivo 11 software. Researchers conducted multiple rounds of coding following an iterative process until four principal themes emerged.

Results:

Principal themes related to the foodservice employees' experience during the nutrition intervention revealed barriers to a successful implementation related to (1) nutrition knowledge deficits, (2) inadequate culinary training, (3) poor management practices, and (4) low staff morale.

Conclusion:

A lack of foodservice staff training and education is a significant contributor to implementation barriers. Future interventions should increase engagement with foodservice employees during intervention planning and implementation phases with a structured and tailored nutrition education and culinary skill training program. Addressing these barriers may enhance staff morale and promote intervention adherence.

INTRODUCTION

National disease prevention strategies, such as the U.S. Dietary Guidelines for Americans, aim to reduce the risk of chronic disease by informing policy and health promotion efforts.¹ Based on the U.S. Dietary Guidelines for Americans, national programs such as Healthy People² have focused on improving the health of Americans through evidenced-based goals for health promotion and disease prevention, with a number of the goals focused on nutrition. In the U.S. Army, the link between nutrition-related behaviors and health is

well recognized with many Army-sponsored health promotion programs focused on improving the nutritional health of soldiers.^{3,4} Soldiers are often perceived as young and fit; however, the prevalence of undesirable nutrition-related health outcomes among soldiers is an ongoing concern. In 2017, 17% of soldiers were estimated to be obese and over 7% had a diagnosis of cardiovascular disease.⁵

One modifiable factor in the nutritional health of soldiers is their degree of adherence to Healthy People dietary recommendations. Even with Army-wide health promotion campaigns aimed at increasing fruit and vegetable intake, only 22% and 38% of soldiers met recommendations for vegetable and fruit intake, respectively.⁴ Other studies have reported that <3% of military members met Healthy People 2010 goals for fruit, vegetable, and whole grain intake.⁶

One recommendation from the Healthy People framework is to use an ecological approach to interventions that leverage multiple levels of influence in nutrition-related behaviors.² Workplace-based nutrition interventions that influence an employee's food choice by changing the environment have grown in popularity.⁷ Workplace nutrition interventions are

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of particular interest to the Army because of the relationship between nutrition, health, and the physical performance of soldiers.⁴ Approximately 74% of nondeployed military personnel consume at least one meal per day in a military dining facility (DFAC),⁸ and as such, interventions that encourage good nutrition-related behaviors in this dining environment can potentially influence the health of large numbers of military personnel. Thus, the Army has studied the effectiveness of implementing nutrition education and DFAC changes that included healthier recipes, revised menus, and population-specific point-of-choice labeling.^{9,10}

Multiple studies on workplace nutrition interventions have identified barriers to implementation that include institutional support,¹¹ workplace culture,¹² leadership support,¹³ and employee engagement.¹⁴ Foodservice workplace-based interventions involve a complex interaction between customers, employees, and employers.¹² An often overlooked but vital facilitator in the successful implementation of foodservice interventions is the engagement of foodservice workers.^{12,15} Successful intervention implementation largely depends on the employees' understanding, knowledge, and desire to sustain changes.¹⁶ Therefore, the aim of this phenomenological, qualitative study was to gain a better understanding of foodservice staff experience with the implementation and sustainment of DFAC-based nutrition interventions at two Army DFACs.

METHODS

Recruitment and Sample

Foodservice staff working at two DFACs located at Fort Bragg, NC, both of which had implemented a DFAC-based nutrition intervention, participated in this study.⁹ The first DFAC was operated by civilian contract staff, whereas the other was operated by Army foodservice-trained soldiers. Foodservice staff from the DFACs were recruited for focus groups using flyers distributed to all DFAC employees and posted on employee message boards by the DFAC management. Interested DFAC staff at least 18 years of age received a short verbal recruitment with four time periods to participate during a 2- or 3-day data collection period. Focus groups purposively included nonsupervisory foodservice workers in a variety of positions (e.g., logistics foodservice advisors/logistics, cooks, food preparation, food servers, and sanitation). *A priori* sample size estimation identified the need for 60 participants from each DFAC to reach thematic saturation based on other published studies using focus groups for health-related outcomes that ranged from 10 to 60 participants.^{17,18}

The study was reviewed and approved by the Institution Review Board of the Medical Research and Development Command. A waiver of written informed consent was approved for the DFAC staff focus group session arm of the study. Data were collected anonymously, and the topics were not sensitive in nature and were designed to capture

barriers and challenges to implementing nutrition interventions to guide future programs.

Data Collection

Focus group data were generated using a semi-structured interview guide developed collaboratively with study staff, the dietitian assigned to the installation, and the DFAC foodservice advisors (Table I). Feedback on the interview guide was obtained from multiple registered dietitians and active duty military personnel with experience in foodservice operations. The approved final interview guide stemmed from an ecological approach and asked foodservice employees about their duty position and years of experience, their opinions related to the current meal service with suggestions for change, the impact of DFAC service on soldiers' well-being and morale, opinions related to the DFAC interventions, beliefs related to staff empowerment and training satisfaction, and barriers encountered and actions taken. Focus group sessions ranging from 60 to 90 minutes in length were conducted at each DFAC on three separate occasions with different staff members, occurring 4 months apart over a 9-month period from May 2015 to January 2016 for a total of 24 sessions that included 168 foodservice staff members (Table II). Focus group sessions were held in a small closed-door conference room within each of the DFACs with no more than 10 participants at each session. Once potential participants were assembled, they were provided a study information sheet and received an oral brief covering the essential elements of informed consent. Each session was led by a registered dietitian trained in qualitative research methods with a second experienced researcher taking notes. All sessions were

TABLE I. Questions Used for Focus Group Sessions

Interview questions	Probes (follow-up questions)
What is your background?	What is your duty position? How long have been working in a dining facility?
What do you think the impact of the dining facility is on a soldier's well-being and morale?	
What opinions do you have related to current meal service; for example, portion sizes, food types, or recipes?	What suggestions do you have for changes?
What are your experiences or opinions of the changes made to the menus at your dining facility?	
What is opinion of the training and equipment you have been given?	How satisfied are you?
What problems or challenges you've encountered related to the menu changes at your dining facility?	How have you or others tried to fix them?

TABLE II. Timeline, Location, and Sample Size of Focus Groups

	Iteration	Participants (n)
DFAC 1 (military)	May 2015	33
	Sep 2015	26
	Jan 2016	33
Total		92
DFAC 2 (civilian contractors)	May 2015	22
	Sep 2015	30
	Jan 2016	24
Total		76

DFAC refers to a military dining facility.

audio-recorded following participants’ consent. Participants were given a unique ID code that was not linked to their name, solely for the purpose of addressing each other during the audio-recorded sessions to protect staff identity. Following completion of the focus group, participants received 30 dollars cash regardless of their level of participation. Interviews were transcribed verbatim using trained study staff and reviewed twice for accuracy. Transcripts did not include information that could be used to identify study volunteers.

Data Analysis

All focus group sessions were coded using NVivo 11 qualitative data analysis software (QSR International Pty, Ltd, Burlington, MA) by experienced researchers. Data analysis was performed through the following steps. (1) Initial codes were established *post hoc* based on emergent themes from coding the interviews with careful review to ensure themes were representative of employee feedback from both types of DFACs. (2) After emergent coding, an initial code book was created and agreed upon by the research team. (3) All sessions were double-coded by separate trained staff members to ensure agreement in coding techniques. (4) Coding discrepancies were discussed and resolved before coding continued. (5) Thematic content analysis was used to determine the main themes identified through focus group during coding. (6) In an iterative process, the main themes and subthemes were decided upon by the study team. (7) Themes and supporting quotes from focus group sessions were consolidated with feedback from the study team. Exemplary quotes by military DFAC foodservice staff are noted by an “M,” whereas quotes from civilians are noted by a “C” before the focus group (FG) number.

RESULTS

Four main themes emerged as barriers that impeded foodservice staff’s compliance with DFAC interventions: (1) lack of nutrition knowledge, (2) insufficient culinary training, (3) poor management practices, and (4) low staff morale.

Lack of Nutrition Knowledge

When asked about challenges they have encountered with implementing the intervention menus, nutrition knowledge

came up 78 times in 74% of sessions. Participants cited a lack of nutrition knowledge related to food item and recipe changes as an issue. As one staff member stated:

Nutrition is based on a lot of science stuff, formulas, and I don’t really understand that unless I go to school for it. (MFG6; Jan 16)

Another employee reported the desire for additional training to support the intervention.

I could use some more training to get additional ways or procedures to make an item taste good without increasing or decreasing the nutritional value, but we’re trying to make it healthier. (MFG2, Sep 15)

Another staff member expressed confusion about the programmed menu changes:

I eat ribs. What’s wrong with fried chicken? That’s all I want to know. (CFG10, Jan 16)

Insufficient Culinary Training

When asked about the training and equipment provided, in 89% of sessions, foodservice workers identified a lack of culinary training as a barrier to successful implementation 124 times. One foodservice worker expressed,

I’m like, I barely know what I’m doing. There’s no real training. (MFG1, Jan 16)

Other employees stated:

There is absolutely no training going on at all. I learn stuff off my peers. I learn off of them, they learn off of me, we learn off of each other. (MFG3, Jan 16)

They don’t want to give you the training because they don’t want to give you that extra time because you’re on the clock, so if you’re going to get some training, you’re going to get some training while you’re on the clock. You can’t focus like that. You have to prepare the meal. (CFG11, Jan 16)

Additionally, not all staff received the same training that contributed to food quality and implementation inconsistencies.

It’s hard to maintain consistency because not everyone is on the same skill level. So training is important to get everyone up to speed. (CFG5; May 15)

No matter what, no matter if we have training or not, we are putting it out, it might not be to standard the first few times, but we will perfect it eventually. (MFG1; May 15)

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Poor Management Practices

When asked about their experiences with changes related to intervention implementation, DFAC staff reported a lack of support and unrealistic expectations from their managers 158 times in 94% of sessions.

The DFAC manager needs to sit down with other managers and tell them that they need to take some of the responsibilities and give us some support. We cannot be the best unless we have some help. (MFG4; Sep 15).

Additionally, staff identified that management had not provided the training necessary to succeed in this fast-paced environment.

When I got here, pretty much on the second day they expected me to work and then I would just learn while I was working and it was a lot of stuff. (MFG5, Jan 16)

When I came to my first DFAC, I was so lost. They expected me to perform so hard but like, I don't know what I'm doing. (MFG5 Jan 16)

Moreover, it was reported that management were not knowledgeable about what the interventions entailed. As one foodservice worker stated:

I think the managers need to be trained, the supervisors need to be trained, and then they can come and show me something, because a lot of the time we'll be in here cooking something and they'll say, 'Ooh what's that?' or 'What did you put in there?' You're supposed to know. Seriously, you're supposed to know. (CFG11; Jan 16)

Low Staff Morale

When asked about the impact of the intervention on the morale of the patrons, 281 times in 97% of sessions, foodservice workers described how their own morale had suffered due to feeling unappreciated by patrons. As one staff member described,

Customers do not know or appreciate how hard we work. (MFG1; May 15)

Another theme repeated in many sessions related to the amount of time needed to support the intervention:

It's too much to do in a short amount of time. (CFG3; Sep 15)

The morale does go down because we feel we're being over-worked sometimes so I don't think it's fair that we [the DFAC] are open so much. (MFG3, Jan 16)

Another common theme related to morale was insufficient staffing. As one foodservice employee stated:

The morale is low. Staffing is inconsistent. Food could also be inconsistent. (MFG5; May 15)

I'm running around here like my head is cut off, I don't have time to check everything because three food service workers are never going to be on the shift at one time. (CFG12; Jan 16)

Additionally, other foodservice workers described the effect of management mood on morale:

If the top [manager] comes in a bad mood then it comes down on us so then we're in a bad mood. It affects our work also. (MFG4; Jan 16)

If leadership is in a bad mood, it affects the Soldier, and it affects the product. (MFG5; May 15)

DISCUSSION

This study sought to understand foodservice staff experiences during the implementation and sustainment of nutrition interventions at U.S. military DFACs. The concerns and challenges expressed by military and civilian foodservice workers were consistent, supporting the development of four main themes that were identified as barriers to program success.

Even in the highly structured environment of the Army, nutrition-related behaviors remain largely individualized. Therefore, by improving the food choices available at the DFACs, the Army may be able to improve the food choice behaviors of soldiers. The success of this approach is largely dependent on successful intervention implementation. The results of this study indicated that lack of training and education was a significant barrier hindering adherence to DFAC interventions. This theme corroborates qualitative research focused on staff and management experiences during interventions at civilian facilities where training was absolutely necessary for intervention success,^{13,19} and once administered, there was a positive response from staff.²⁰ The findings of this study identified several ways education and training of both foodservice staff and management may support program implementation.

An identified barrier to successful implementation was lack of nutrition knowledge related to the nutrition intervention. Although culinary training may focus on individual tasks and how to technically accomplish the intervention, nutrition education related to the intervention should aim to impart a basic level of knowledge on the health-related objectives the intervention is trying to achieve. Nutrition education may help foodservice staff understand the importance of their individual role in successful implementation. A well-defined role can give staff a degree of interconnectedness with intervention goals leading to increased adherence to the intervention.²¹ Previous studies in civilian DFACs demonstrate that workplace cultures that support the change process and place a sense of trust in their employees have demonstrated improved commitment to interventions.^{11,12} Therefore, foodservice workers are key stakeholders when planning DFAC interventions.

Another barrier identified was a lack of basic culinary skills. Foodservice employees may be hired, or transferred

between military units, with various levels of culinary expertise. Internal training practices for new employees must be established due to high employee turnover in this industry. To ensure adequate staff culinary skills, a standardized onboarding program conducted by DFAC management would be helpful for validating skills required of any new staff member. During this study, participants expressed experiential on-the-job training as the standard practice for training new employees with variations in training quality. A standardized program would assist program implementation teams to design intervention-specific culinary training programs that build on existing skills and allow the focus of training to be intervention specific. This would also help foodservice workers focus on the intervention without additionally needing to hone basic culinary skills. Additional basic culinary training may be difficult to schedule, but a hands-on intervention training program introducing intervention-specific concepts related to ingredients, recipes, culinary techniques, and equipment should be a high priority. Building in plenty of intervention-specific culinary training coming directly from the implementation team may help to build rapport with the foodservice staff, identify the necessary training needs to support the intervention, and invest foodservice staff in the process from implementation to intervention maintenance. Acquiring overtime or additional work hours for staff training can be difficult; therefore, it is important to identify how many hours of training the intervention will require to prevent delays and quality control issues.

The findings from this study also indicate that poor management practices may be a barrier to an effective intervention. Managers serve an integral role in day-to-day operations and must be well trained and knowledgeable about the intervention, to ensure that subordinates have confidence in management direction and leadership. Training DFAC managers on key intervention principles and specific culinary practices may mitigate confidence issues, may allow them to better train other staff, and thereby increase adherence to the intervention.

Management flexibility may be a key component to overall success. The logistics of foodservice operations requires a constant rotation in food procurement, delivery, and inventory. To ensure program compliance and adherence to dietary standards at each meal, reasonable food substitutions should be identified and available to meal planners at each facility. Another aspect of flexibility is the program's adaptability to the needs at each facility. Similarly to civilian operations, not every military DFAC has the same capabilities and resources. Managers should have an in-depth knowledge of their facility and be capable of working with the implementation team to tailor interventions where needed. Furthermore, the implementation schedule must remain flexible to allow time for employee training, purchase of needed equipment, and acquisition of ingredients from appropriate vendors. One noted example illustrating flexibility during implementation in this study was the creation of a "prep shift." The acquisition of more fresh local ingredients meant that some products

were not prepped or precut, creating an increased workload on existing shifts. The prep shift was tasked solely with the preparation of ingredients for the following day, allowing employees to focus on that day's patrons and production requirements. By creating this additional shift, the DFAC manager adapted to this challenge demonstrating that this kind of flexibility is essential for successful intervention implementation.

Low staff morale was a barrier, and in this study, staff reported feelings of confusion, being overworked, frustrated with changes, and feeling unappreciated by patrons and management. Improving staff morale has been linked with improved performance and a decrease in employee turnover,²² and might also enhance the implementation of DFAC interventions. However, maintaining a high staff morale can be difficult during periods of change. Addressing the concerns cited by employees related to training, education, and improved management practices may be effective for addressing low morale.

Another educational opportunity that may support DFAC interventions and morale is to improve the foundational nutrition and human performance training that all soldiers receive during initial military training. This could have the benefit of making sure all soldiers who become foodservice specialist start their careers with a better basic understanding of nutrition principles before receiving more specific training at their assigned DFAC. This could also help soldiers utilizing the DFAC to better appreciate the performance-based menu changes being implemented and therefore help the foodservice workers serving them feel more appreciated, thereby improving morale.

This study is one of few qualitative studies on military nutrition interventions and provides insights into the experience of foodservice employees and implementation barriers that are relevant to military and civilian operations. Strengths of the study include the large number of focus groups conducted and the examination of two different DFACs and nutrition interventions. An interdisciplinary group of military and civilian dietitians, experienced soldiers, and other researchers planned the study, and collected and analyzed the data. Although focus group discussions remain a principal tool for gathering qualitative data, there are limitations inherent in the nature of focus group interactions that include an inability to guarantee honesty and an equal contribution from all participants. Study investigators attempted to mitigate these limitations by calling on each focus group participant at least once during each session to minimize contributions from just an outspoken few and assuring participants of the confidentiality of their responses. Additionally, these findings may not be generalizable across the Department of Defense foodservice enterprise as this study focused on Army DFAC interventions, although based on the literature reviewed on this topic, it is reasonable to assert the challenges described herein are common among foodservice operations.

CONCLUSION

This study identified several interconnected factors affecting implementation success of nutrition interventions in military DFACs. Intervention implementation is a dynamic and complex process requiring input and investment at multiple levels to facilitate success. The effectiveness of interventions could be strengthened by increasing budgetary resources to ensure adequate staffing and by improved training programs for foodservice staff. Future interventions should consider these challenges when planning a well-structured training and education program that incorporates consistent and continuous interaction of foodservice staff and management with interventionists. Future research should focus on the establishment of best practices of staff training during implementation that increases individual proficiency and enhances managerial operations to promote sustainable changes.

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CONFLICT OF INTEREST STATEMENT

None declared.

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