Author Manuscript Author Manuscript Author Manuscript Author Manuscript

HHS Public Access

Author manuscript

Res Gerontol Nurs. Author manuscript; available in PMC 2021 February 01.

Published in final edited form as:

Res Gerontol Nurs. 2020 May 01; 13(3): 146–157. doi:10.3928/19404921-20191210-02.

Using the Social Ecological Model to Identify Drivers of Nutrition Risk in Adult Day Settings Serving East Asian Older Adults

Tina R. Sadarangani, PhD [Assistant Professor, Faculty Fellow],
School of Medicine, New York University, New York, New York

Jordan J. Johnson, BS [Medical Student],
Northeast Ohio Medical University, Rootstown, Ohio

Stella K. Chong, BA [Program Associate],
Langone Health, School of Medicine, New York University, New York, New York

Abraham Brody, PhD [Associate Professor of Nursing and Medicine],
Rory Meyers College of Nursing, School of Medicine, New York University, New York, New York

Chau Trinh-Shevrin, DrPh [Associate Professor]
School of Medicine, New York University, New York, New York

Abstract

Adult day care (ADC) centers provide community-based care (including meals) to frail, ethnically diverse older adults, many of whom are at risk for malnutrition. To support the development of interventions to benefit ADC users, the authors aimed to identify barriers and facilitators of healthy nutrition among ADC users born in Vietnam and China. Semi-structured qualitative interviews were conducted among ADC stakeholders to identify barriers and facilitators. Data were analyzed using Braun and Clarke's six-step method and organized within the framework of the Social Ecological Model (SEM). Facilitators of good nutrition included adherence to traditional diet at the ADC center, peer networks, and access to ethnic grocers. Poor health, family dynamics, and loneliness all contributed to poor nutrition, as did the restrictive nature of nutrition programs serving ADC users in the United States. Individual, relationship, organizational, community, and policy level factors play a role in ADC users' nutritional status. Targeted nutrition interventions should leverage culturally congruent relationships between ADC users and staff and include advocacy for enhancement of federal programs to support this population.

Across the United States, it is estimated that 50% of older adults are at risk of malnutrition, depending on the care setting (Kaiser et al., 2010). Malnutrition has serious consequences including morbidity/mortality, cognitive decline, hospital admission, and loss of function (Corkins et al., 2014; Norman, Pichard, Lochs, & Pirlich, 2008). Despite its ubiquity and association with poor health outcomes, malnutrition remains underrecognized and undertreated by clinicians (Saunders & Smith, 2010).

Address correspondence to Tina R. Sadarangani, PhD, Assistant Professor, Faculty Fellow, Rory Meyers College of Nursing, New York University, 433 First Avenue, 4th Floor, New York, NY 10010; trs233@nyu.edu.

The authors have disclosed no potential conflicts of interest, financial or otherwise.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

The American Society for Parenteral and Enteral Nutrition recommends that all older adults who screen positive for malnutrition receive systematic assessment and individualized interventions (Mueller, Compher, & Ellen, 2011). Designing and administering person-centered interventions requires identifying the underlying cause of malnutrition in an individual (Evans, 2005).

In older adults, the etiology of malnutrition is often multifactorial. Principle causes of malnutrition in older adults include inappropriate food intake, low socioeconomic status, loneliness, the presence of multiple chronic conditions, polypharmacy, or some combination of these factors (Tilly, 2017). The American College of Physicians has specifically called for an examination of policies to explore nutritional social determinants that reduce disparities and encourage health equity in disadvantaged communities (Daniel, Bornstein, & Kane, 2018).

Low-income frail older adults are often cared for in community settings including adult day care (ADC) centers (Anderson, Dabelko-Schoeny, & Johnson, 2013). In the United States, more than 260,000 community-dwelling, chronically ill, and functionally impaired individuals are cared for daily in ADC (Fields, Anderson, & Dabelko-Schoeny, 2014). Most adults served by ADC in the United States are racial minorities and/or economically disadvantaged (National Adult Day Services Association [NADSA], 2017). Chronic conditions such as hypertension (46%), diabetes (31%), and dementia (46%) are highly prevalent among participants (NADSA, 2017). Although services differ across countries and states, ADC centers provide interactive, safe, and secure environments for older adults requiring supervised care (Conrad, Hanrahan, & Hughes, 1990; Gaugler & Zarit, 2001; Gitlin, Reever, Dennis, Mathieu, & Hauck, 2006). In addition to providing a social benefit, many ADC centers in the United States provide health and therapeutic services and supervision by a RN (Fields et al., 2014).

ADC centers are well positioned to recognize and address the unique contributors to their users' nutritional risk. Currently, ADC meals are subsidized with funding from the U.S. Department of Agriculture's (USDA) Child and Adult Care Food Program (CACFP) (Hartle & Jensen, 2011). Studies have shown that access to a regular meal with peers at ADC is a critical component of perceived health improvements among immigrant users of ADC (Dubus, 2017; Sadarangani & Murali, 2018). Disease-based interventions in congregate settings, such as ADC, have lower costs and higher levels of adherence among participants (Dabelko & DeCoster, 2007).

To leverage the ADC center's capacity and address malnutrition among ADC participants, factors that drive their behaviors and practices around nutrition need to be examined. The purpose of the current study was to identify barriers and facilitators of malnutrition risk reduction among Chinese and Vietnamese older adults in the adult day health care setting using the Social Ecological Model (SEM) for nutrition (Gregson et al., 2001).

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

CONCEPTUAL MODEL

The SEM was developed to understand how the interplay among individuals, groups, communities, and policies determine behaviors (McLeroy, Bibeau, Steckler, & Glanz, 1988). The current authors used the SEM to identify individual, relationship, community, organizational, and societal/policy level factors that enhance or attenuate nutritional risk. *Individual-level factors* are specific to a person (McLeroy et al., 1988); these include personality, behaviors, attitudes, and biology. *Relationship-level factors* refer to connections between individuals; these include the role of social networks (e.g., family, friends, peers, culture) in influencing behaviors (Song, Simon, & Patel, 2014). *Community-level factors* refer to interplay between institutions within a person's built environment. For the current participants, these included ADC, local grocers, housing, and transportation. *Organizational factors* are reflected within rules and regulations that govern how an organization is operated, specifically, ADC (Song et al., 2014). *Policy factors* are state and national laws that determine how health and nutrition services are provided (McLeroy et al., 1988). Given the multifactorial etiology of malnutrition, the current authors purposefully chose the SEM to identify multilevel barriers and facilitators of healthful nutrition in ADC users to inform future development of targeted interventions that attenuate nutritional risk.

METHOD

In this exploratory descriptive pilot study, the authors used semi-structured qualitative interviews to support indepth exploration of barriers and facilitators of nutritional risk in ADC centers serving ethnically diverse persons. To obtain an interdisciplinary multi-stakeholder perspective, the authors engaged in purposeful sampling. The authors invited the ADC's registered dietician, RNs, social workers, a community health worker, and administrators at two sister ADC centers that predominantly service Chinese and Vietnamese older adults in Northern California to participate in 1-on-1 interviews with the first author (T.R.S.). In addition, the authors invited ADC users who have been enrolled for 6 months and family caregivers to participate as well.

The interview guide was developed collaboratively by the first author and ADC administrators to ensure questions were pertinent and relevant to stakeholders involved in research and practice. The initial guide was further reviewed and edited by the President of the California Association for Adult Day Services [**Query #1: Are the President and the principle investigator the same person?**], the principal investigator of the Center for Study of Asian American Health at New York University School of Medicine to ensure the questions were coherent, comprehensive, and relevant to study participants. Sample interview questions can be found in Table 1.

All interviews were conducted in a closed-door private room at the ADC center. An in-person certified medical interpreter was hired to assist the first author in conducting interviews with clients and caregivers with limited English proficiency. Interviews were recorded and subsequently transcribed verbatim by a professional transcription company after any potential identifiers had been removed from the recording. In addition to transcribing the interviews, the transcription company also translated the original recording

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

into English whenever necessary. This translation served to cross-check that the initial interpretation was accurate and allowed participants' original verbatim commentary to be used for analysis.

Ethical approval for the current study was obtained by the university committee on activities involving human subjects at the first author's institution. Participants were not required to participate and provided written consent only after the study was explained to them and all their questions were answered in their preferred language. Participants received a $25 incentive for participating in the study.

Data Analysis

Coding of interview data was conducted using Dedoose®, a qualitative software program. Analysis was guided by Braun and Clarke's (2006) [**Query #2: Please provide a reference for this citation.**] six-phase approach inclusive of (a) familiarization, (b) generating codes, (c) constructing themes, (d) defining themes, (e) revising themes, and (f) producing the report. In Phase 1, the first and second authors (T.R.S., J.J.J.) read all transcripts to familiarize themselves with the data. In Phase 2, codes were generated deductively based on published research focused on nutritional care of persons with dementia. The first and second authors worked collaboratively to generate an initial codebook and met weekly to review and discuss coding and create and revise codes when necessary. In Phase 3, the codes were grouped into themes based on the study's framework, and in Phase 4, the themes were defined in relation to the current study by the first author. These themes were crosschecked by the second author and collaboratively revised in Phase 5. Phase 6 comprised the written manuscript.

RESULTS

The current study sample ($N = 13$) comprised RNs ($n = 2$), a licensed clinical social worker ($n = 1$), a registered dietician ($n = 1$), a community health worker ($n = 1$), ADC users ($n = 5$), and family caregivers ($n = 3$). Several barriers and facilitators of nutritional risk among ADC users emerged from the qualitative analysis. Each of these were organized within the five levels of the SEM and are presented in Table 2 (barriers) and Table 3 (facilitators).

Individual-Level Barriers

Mental Health Conditions.—ADC users had depression, anxiety, and other conditions that were associated with poor appetite and consequent undernutrition. An ADC RN described, "For those with depression, anxiety, well they don't eat as good as those regular diets…. For those really depressed, we have to encourage them to eat. They just eat about 30%, 40% older adults." RNs and the registered dietician suggested that addressing the underpinnings of older adults poor mental health was essential to any nutritional intervention.

Education Level.—ADC users, all of whom were late-life immigrants to the United States, often had little formal education, which corresponded to poor health literacy. This forced RNs and the registered dietician to reexamine their approach to dietary education:

Author Manuscript

"…when you talk about nutrition, when you talk about vitamin, mineral, fiber, they don't; it doesn't get into the brain. They don't quite understand…."

Limited English Proficiency.—ADC users spent most of their lives in their native countries, Vietnam and China. They reported difficulty communicating in English, which made accessing community resources and navigating complex bureaucracies to obtain government benefits challenging. A community health worker, who assisted ADC users in applying for government nutritional programs, said, in reference to ADC users: "They're all monolingual, and so they're very dependent on their caregiver…they don't understand the system. They don't speak the language."

Impaired Physical Function.—ADC users' physical function was compromised due to age-related disorders, such as Parkinson's disease, limiting their ability to shop for, prepare, and consume food. Outside the ADC center, many users were dependent on caregivers to assist with grocery shopping and meal preparation.

Impaired Cognition.—Stakeholders noted cognitive impairments compromised proper nutrition. Cooking at home was a safety hazard for ADC users with cognitive impairment. In the ADC center, users with cognitive impairment refused meals due to lack of taste or familiarity. Users also found the busy mealtime environment overwhelming and distracting.

Poor Oral Health.—Poor oral health compromised ADC users' ability to chew and swallow. Those with issues swallowing required 1-on-1 assistance at mealtime. Users described tooth loss, mouth pain, and experiencing a choking sensation when swallowing. Many ADC users who required pureed food at mealtime said the appearance of their food was not appetizing.

Culturally Derived Food Palate.—ADC users were accustomed to eating foods that reflected their traditional diets. However, some foods did not conform to dietary guidelines and were not served. Fatty pork, white rice, and salty fish were among users' favorite foods, which were not provided at the center. In addition, interviewees reported high levels of lactose intolerance and a distaste for overly sweet items among ADC users. Staff emphasized supplemental shakes (e.g., Ensure®) were important in gaining and maintaining a healthy weight in users, but most could not digest them and found the taste prohibitively sweet: "[If] I was a company [I] would create something like Ensure for the Asian population, because the flavors…it's too sweet for them."

Autonomy.—There was consensus among study participants that although certain foods exacerbate nutrition-related chronic illness (e.g., type 2 diabetes mellitus, cardiovascular disease), older ADC users would benefit from person-centered nutrition that supports greater autonomy with respect to food choices. Per the registered dietician, "there's a misunderstanding on the [caregivers'] part because of their own guilt…that they're not willing to just let the participant eat whatever they want to, enjoy the quality of their life, which actually is vital."

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Polypharmacy.—ADC users were on multiple prescription medications, some of which had the unintended side effects of suppressed appetite and nausea. Polypharmacy contributed to compromised food intake and poor appetite. RNs often intervened by contacting the ADC users' physicians to request a medication change when they saw negative effects on appetite.

Relationship-Level Barriers

Family Dynamics.—Many ADC users lived in intergenerational households which, occasionally, fostered a complex family dynamic, particularly around mealtime. Rather than being a source of support, staff members described common complaints of isolation from ADC users. A social worker described a specific instance in which an ADC user was confined to her bedroom at mealtime because other members found her pureed meals to be unappetizing. "Yesterday, I was talking to a lady…. She lives with more than 10 people in her family…. They don't want [her] to eat together with them in the dining room. …she's dining alone in a house full of people."

Loneliness.—Outside of the center, ADC users most often consumed meals by themselves. Caregivers and family members were most often not present to provide support at mealtime. This was inconsistent with Chinese/Vietnamese cultural norms, which, according to the social worker, support shared family-style meals. This isolation translated into feelings of loneliness, which suppressed appetite and reduced users' desire to eat [**Query #4: Okay as edited?**].

Community-Level Barriers

Transportation.—For ADC users, cost of food was less of a problem than physically obtaining food. Most ADC users did not drive or have access to a car. Navigating public transportation was difficult due to physical impairments and language barriers, though some participants were able to use public buses: "…I don't have transportation to go [to the store]. We don't have any vehicles. We travel by bus."

Neighborhood Safety.—Interviewed staff members described some neighborhoods as unsafe, which created difficulties for ADC users leaving home. This limited access to food outside the ADC center contributed to loneliness and isolation. The registered dietician stated: "Some of them live in pretty bad neighborhoods…some of the areas they live in are dangerous…they're isolating themselves because of the safety issues that they might be encountering…."

Home-Delivered Meal Programs.—Outside the ADC center, users did not take advantage of home-delivered meal programs (e.g., Meals on Wheels America©) because unlike other non-profit organizations, they did not offer culturally appropriate foods. Thus, ADC users relied on caregivers to obtain and/or prepare meals.

Organizational-Level Barriers

Inability to Bring Outside Food into the ADC.—ADC policies prohibit outside food, ensuring that ADC users are eating healthful meals at the center. However, ADC users

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

suggested some foods were bland and they would consume more if they were able to bring their own food or condiments.

Inability to Take ADC Food Home.—Excess food was thrown out by the ADC center whether it was consumed or not as part of safe-handling practices. However, those who had difficulty preparing meals at home stated that they would benefit by taking their leftovers and extra meals home.

Lack of Onsite Kitchen.—Not having a kitchen onsite meant all meals were provided by an outside vendor, which significantly reduced optionality and did not allow users to be as involved in preparing or choosing daily meals.

Repetitive Menu Offerings.—ADC center menus were posted and cycled through on a monthly basis. Participants expressed dissatisfaction with the repetitive nature of meals and lack of variety with respect to offerings.

Policy/Societal-Level Barriers

Child and Adult Care Food Program Restrictions.—The CACFP provides partial subsidies to the ADC center to serve meals to clients, but meal components must follow program guidelines. Generally, CACFP meal components are based on general dietary guidelines for Americans (Murphy, Yaktine, Suitor, & Moats, 2011). Regulations require (a) inclusion of low-fat or non-fat milk, (b) sodium restrictions, and (c) reductions in added sugars. These three components were problematic in the study sample because most Asian ADC users were lactose intolerant and had an impaired sense of taste. ADC staff members reported meeting program guidelines for only partial subsidies was not cost-efficient.

Cost of Nutritional Supplements.—Nutritional supplements for underweight clients was costly for participants. Government insurers no longer reimbursed or subsidized nutritional supplements, creating financial burden for the study sample. The nutritionist provided education, but said, “I tell the family to go buy it. Okay, and some of the family members are very good. They will go and buy it, but some of the family members, it’s a cost issue.”

Lack of Physician Training in Nutrition.—CACFP guideline exceptions were made for physicians’ order for special diets. However, ADC users’ nutritional status was commonly overlooked by their physician. For example, in users with advanced dementia, for whom clinical guidelines (Volkert et al., 2015) recommend a liberalized diet, the registered dietician reported they were still required to adhere to a stringent diet. Facilitators of healthy nutrition found among ADC users are displayed in Table 2.

Individual-Level Facilitators

Culturally Based Perceptions of Food and Mealtime.—ADC users viewed food as nourishing, as a source of strength, and believed it was essential to well-being. As one caregiver stated, “She still eats because she’s very concerned about her health. She said, ‘If I don’t eat, I get weak.’” Food was associated with joyful celebrations, and meals were

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

described as "not just putting food in your mouth." Shared mealtime often elicited memories and feelings of camaraderie in users.

Life History.—Although some participants stated strong food preferences, others were more accepting of what was served. Multiple participants endured famine in their native country due to political turmoil, making them less particular with food choices. As one ADC user described, "Some people said [about food at the center] there's no taste, it doesn't taste good…. I think they were not like me—when I was small, I experienced hunger."

Budgeting.—Because many ADC users had experienced poverty in the United States and in their native country, they were frugal with respect to spending on food. They purchased foods from lower cost non-traditional grocery stores to accommodate their budgetary needs.

Adherence to Traditional Non-Western Diets.—Adherence to a traditional Chinese or Vietnamese diet meant that ADC users had a greater proportion of vegetables in their meals. Although ADC users were amenable to traditional American foods, they were less inclined to take advantage of inexpensive highly processed fast foods.

Relationship-Level Facilitators

Caregiver Support.—Caregivers shopped for groceries, prepared meals, and provided encouragement and emotional support at mealtime. A caregiver said of his spouse, "For example, if she eats just a little, I would put more food on her dish and tell her to eat more to be healthier. So, she finishes them." Others prepared and froze meals for ADC users, transported them to the grocery store, assisted with feeding, or simply provided them with company while eating.

Peer Networks.—Clients consistently stated they eat more than they might otherwise because of the social aspect at mealtime. Peers encouraged each other to eat, which was more effective than staff member encouragement. According to the social worker, "…when you're sitting at a table, you have some pressure, which is a good social pressure… I mean, for staff to say it, it's very different from the friends saying it and it works."

Community-Level Facilitators

Access to Ethnic Grocery Stores.—ADC clients reported access to local grocery stores within their neighborhood as beneficial. These small grocers and street vendors provided fruits, vegetables, and traditional Vietnamese and Chinese foods at a significant discount relative to formal grocery stores and were users' preferred source of produce.

Assistance from Non-Profit Organizations.—Although the home-delivered meals program was not well-suited to the dietary preferences of ADC users, other non-profit organizations, including local food banks, supported their nutritional needs. The registered dietician described one program that distributed groceries to ADC users in their apartment complex, providing shelf-stable items as well as fresh produce on a weekly basis.

Author Manuscript

Organizational-Level Facilitators

Interdisciplinary Staff.—Access to the ADC center's interdisciplinary team allowed users to benefit from a comprehensive approach to nutrition and wellness. RNs managed chronic conditions and provided general dietary education. This education was essential to preventing complications of chronic disease. The registered dietician provided specialized nutritional screening, care, and counseling based on the RNs' referral. The social worker ensured users had access to food outside the center and connected them with local resources. Exercise programs, led by physical therapists, were consistently participants' favorite aspect of the ADC center and this stimulated appetite. Occupational therapists supported those with eating and feeding difficulties. Therefore, coordinated interdisciplinary care was a fundamental component of good nutrition.

Culturally Tailored Menu.—The meals provided at the ADC were tailored to the cultural preferences of the Chinese and Vietnamese clientele. Traditional food provided users with a sense of familiarity that enhanced their experience at the ADC. Most ADC users believed that if the ADC did not offer traditional foods, they and their peers would not attend.

Policy/Societal-Level Facilitators

Government Subsidized Programs.—Government subsidized programs, including Supplemental Security Income (SSI) and California's In-Home Supportive Services (IHSS) program, were critical to meeting the complex nutritional needs of ADC users. Most ADC users relied on SSI and low-income housing. Many participants depended on these subsidies to eat and live. At the time of the current study, older adults in California who received SSI benefits were unable to apply for California's Supplemental Nutrition Assistance Program, known as CalFresh. Therefore, ADC users exclusively relied on SSI to purchase food. Housing subsidies and Medi-Cal (California's Medicaid program) freed additional income to spend on health and medical care. IHSS, a state-wide program administered at the county level, was also critical to ADC users' ability to remain in the community. IHSS workers provide personal care services that are fundamental to proper nutrition, including assistance with feeding, meal preparation, and grocery shopping. Users can choose their IHSS workers; this means they can hire paraprofessionals or family caregivers who would otherwise be uncompensated for this work.

DISCUSSION

The purpose of the current study was to identify barriers and facilitators of malnutrition risk reduction among ethnically diverse older adults in the adult day health care setting using the SEM. The authors identified many strengths within the design of the ADC center and within ADC users' cultural context and surrounding communities that facilitated healthful nutrition. However, barriers at every level, especially the policy level, challenged the ADC center's ability to maximize the effectiveness of nutritional programs to their users.

The design of the ADC center itself, which is focused on socialization, lends itself to strong peer networks and a supportive mealtime environment. ADC participation is associated with reductions in loneliness and isolation, which are known risk factors for malnutrition (Boulos,

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Salameh, & Barberger-Gateau, 2017; Locher et al., 2005). In the current study, participants ate more when encouraged by friends. The ADC center also promoted healthful nutrition by developing menus catering to traditional Chinese and Vietnamese diets. Not only were these meals culturally appropriate, their components (vegetables and lean proteins) were healthier than Western alternatives (Wong et al., 2019). ADC staff also emphasized unique aspects of participants' culture and life histories in their efforts to support nutrition. ADC users, for example, received a hearty slow-boiled soup each day, which they believed to have healing qualities. ADC staff also marked cultural celebrations, such as Chinese New Year, with festive celebratory meals.

The ADC center benefitted from having an interdisciplinary team (IDT) of a registered dietician, social worker, and RNs who could identify nutritional issues, counsel and educate, and connect users to appropriate local resources. Results illustrate that the IDT provide these services in a manner that caters to participants' limited English proficiency and low levels of health literacy, which would otherwise serve as barriers to healthy nutrition (Ahn, Park, & Kim, 2018; Ali & Watson, 2018). The IDT plays a critical role in the ADC center's ability to manage chronic conditions and facilitate care coordination through the integration of health and social services, including nutrition programs.

Social services were vital to reducing participants' risk of malnutrition. ADC users benefitted from government programs such as IHSS worker subsidies, housing assistance, and SSI (Keller, Dwyer, Edwards, Senson, & Gayle Edward, 2007; Zhu & An, 2013). Furthermore, ADC staff worked to ensure participants were receiving and benefitting from these subsidies. In addition, ADC RNs reported educating and training IHSS caregivers to prepare healthful meals.

Placing ADC centers in ethnically and culturally diverse neighborhoods is an essential part of promoting good nutrition. Consistent with other studies, living in an ethnic enclave promoted healthful eating (Osypuk, Diez Roux, Hadley, & Kandula, 2009). Access to ethnic grocers with affordable, healthy, culturally appropriate items allowed users to use their fixed incomes to purchase nutritious foods. Notably, at the time of the current study, older Californians who received SSI benefits were ineligible for CalFresh, the state's Supplemental Nutrition Assistance Program. This policy was changed, effective June 1, 2019, allowing individuals to receive both types of benefits (Department of Social Services, n.d.). The authors anticipate that this will positively impact users' health by expanding access to healthy food and freeing up additional funds for medical care and supplies, such as nutritional supplements that ADC users found to be prohibitively expensive.

Although the ADC center has many strengths that facilitate healthy nutritional habits, many barriers limit their effectiveness but also present areas that would benefit from targeted interventions and further study. At the individual level, poor oral health, cognitive impairment, polypharmacy, and impaired function disproportionately affected ADC users and are all well-established risk factors for malnutrition. Stressful family dynamics, which are common in intergenerational immigrant households, often left users feeling isolated in their own homes, particularly if they also live in unsafe neighborhoods, which many current users did (Sadarangani & Jun, 2015). The dynamics at home and in the community

Author Manuscript
Author Manuscript
Author Manuscript
Author Manuscript

exacerbated mental health conditions, such as depression and anxiety, which had implications on ADC user's diet.

Loneliness and isolation in the community underscore the importance of the ADC center as a buffer for anxiety and depression, which contribute to changes in appetite; however, the ADC center must work to overcome organizational barriers. Lack of an onsite kitchen, repetitive menus, and well-intentioned but restrictive policies that do not allow participants to bring food in and out of the center may be negatively affecting intake and working against achieving person-centered nutrition. The ADC center should be tasked with examining how their policies can be adjusted to compromise and promote intake.

Perhaps the greatest challenge for the ADC center to overcome is the restrictive nature of the CACFP and the low levels of reimbursements described by ADC staff. Changes to CACFP nutrition standards were made in April 2016, the first time since the program began in 1968 (USDA Food and Nutrition Service, n.d.). These important changes centered on increasing fruits, vegetables, and whole grains, and reducing sugar and saturated fats. However, it appears that the ADC center struggled to meet these guidelines within the context of users' culturally derived palettes without compromising taste. Strict rules around fat, sugar, and salt contact may benefit those with cardiovascular disease, but they may negatively affect participants who are underweight or whose sense of taste is compromised. Physicians often do not recognize these nuances and do not order liberalized diets to work around CACFP regulations. More communication and coordination between ADC staff and primary care providers is needed. Furthermore, results illustrate that older adult minorities who are currently receiving CACFP meals at their center may not be receiving the full caloric benefit of CACFP meals if the required components are not culturally appropriate.

The USDA offers little guidance on how to make meals culturally relevant within the context of the program's requirements and appeal to diverse palettes. For example, 8 ounces of milk (or 6 ounces of yogurt) must be offered at breakfast and lunch. However, it is difficult for the ADC center to support preferences and calcium requirements of East Asians through milk, as 90% of Asians have reduced ability to digest lactose (U.S. National Library of Medicine, n.d.). Therefore, it is vital that CACFP administrators offer more information on how to maximize program offerings to meet the unique nutritional needs of ethnically diverse older adults.

LIMITATIONS

The current study, although novel, is limited by several factors. The small sample and inclusion of two sister ADC centers limits generalizability of study findings. It is important to note that ADC centers vary considerably in their capacity and resources with respect to meal service (e.g., presence of on-site kitchen), and those represented herein do not capture this variability. The fact that the ADC center that participated in the current study predominately serves East Asian older adults means these findings do not capture the experiences and nutritional needs of ADC users in more heterogenous settings that can [**Query #5: Or cannot?**] readily cater to preferences of a single ethnic group.

Author Manuscript

Future studies should evaluate the needs of users in these types of settings to better understand how to cater to diverse adults. Large scale quantitative surveys of ADC users' food preferences, nutritional risk factors, and ADC administrators' ability to comply with CACFP guidelines are also an important future direction for research. Finally, the study conceptual model, which provided a comprehensive framework within in which the authors could organize their findings, was also somewhat limiting. Findings are guided by the structure of the SEM and may not include factors that exist outside of the model's levels.

CONCLUSION

ADC centers are emerging as a vital source of long-term care for ethnically diverse older adults and can play a critical role in meeting the nutritional needs of their users. Results, although limited to East Asian immigrants, suggest that barriers at the individual, relationship, community, organizational, and policy level may prevent the ADC center from providing person-centered nutritional care to their diverse users. Standardized nutritional screening and enhanced communication between the IDT and primary care providers are simple practice changes that can leverage the strengths of the ADC center as a provider of nutritional services. However, further research into the development of culturally appropriate nutrition interventions at the ADC center and the policy impact of CACFP and other nutrition programs on the health of older adult immigrants, particularly those from East Asia, is warranted.

REFERENCES

Ahn JA, Park J, & Kim CJ (2018). Effects of an individualised nutritional education and support programme on dietary habits, nutritional knowledge and nutritional status of older adults living alone. Journal of Clinical Nursing, 27(9–10), 2142–2151. 10.1111/jocn.14068 PMID:28885755 [PubMed: 28885755]

Ali PA, & Watson R (2018). Language barriers and their impact on provision of care to patients with limited English proficiency: Nurses' perspectives. Journal of Clinical Nursing, 27(5–6), e1152–e1160. 10.1111/jocn.14204 PMID:29193568 [PubMed: 29193568]

Anderson KA, Dabelko-Schoeny H, & Johnson TD (2013). The state of adult day services: Findings and implications from the MetLife National Study of Adult Day Services. Journal of Applied Gerontology: The Official Journal of the Southern Gerontological Society, 32(6), 729–748. 10.1177/0733464812447284 PMID:25474796 [PubMed: 25474796]

Boulos C, Salameh P, & Barberger-Gateau P (2017). Social isolation and risk for malnutrition among older people. Geriatrics & Gerontology International, 17(2), 286–294. 10.1111/ggi.12711 PMID:26790629 [PubMed: 26790629]

Conrad KJ, Hanrahan P, & Hughes SL (1990). Survey of adult day care in the United States. National and regional findings. Research on Aging, 12(1), 36–56. 10.1177/0164027590121002 PMID:2315555 [PubMed: 2315555]

Corkins MR, Guenter P, DiMaria-Ghalili RA, Jensen GL, Malone A, Miller S,…Resnick HE (2014). Malnutrition diagnoses in hospitalized patients: United States, 2010. Journal of Parenteral and Enteral Nutrition, 38(2), 186–195. 10.1177/0148607113512154 PMID:24247093 [PubMed: 24247093]

Dabelko HI, & DeCoster VA (2007). Diabetes and adult day health services. Health & Social Work, 32(4), 279–288. 10.1093/hsw/32.4.279 PMID:18038729 [PubMed: 18038729]

Daniel H, Bornstein SS, & Kane GC (2018). Addressing social determinants to improve patient care and promote health equity: An American college of physicians position paper. Annals of Internal Medicine, 168(8), 577–578. 10.7326/M17-2441 PMID:29677265 [PubMed: 29677265]

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Department of Social Services. (n.d.). Expanding CalFresh to SSI/SSP recipients beginning June 1, 2019. Retrieved from https://www.cdss.ca.gov/inforesources/CalFresh/Supplemental-Security-Income

Dubus N (2017). A qualitative study of older adults and staff at an adult day center in a Cambodian community in the United States. Journal of Applied Gerontology: The Official Journal of the Southern Gerontological Society, 36(6), 733–750. 10.1177/0733464815586060 PMID:25968908 [PubMed: 25968908]

Evans C (2005). Malnutrition in the elderly: A multifactorrial failure to thrive. The Permanente Journal, 9(3), 38–41. 10.7812/TPP/05-056 PMID:22811627 [PubMed: 22811627]

Fields NL, Anderson KA, & Dabelko-Schoeny H (2014). The effectiveness of adult day services for older adults: A review of the literature from 2000 to 2011. Journal of Applied Gerontology: The Official Journal of the Southern Gerontological Society, 33(2), 130–163. 10.1177/0733464812443308 PMID:24652952 [PubMed: 24652952]

Gaugler JE, & Zarit SH (2001). The effectiveness of adult day services for disabled older people. Journal of Aging & Social Policy, 12(2), 23–47. 10.1300/J031v12n02_03 PMID:11303365

Gitlin LN, Reever K, Dennis MP, Mathieu E, & Hauck WW (2006). Enhancing quality of life of families who use adult day services: Short- and long-term effects of the adult day services plus program. The Gerontologist, 46(5), 630–639. 10.1093/geront/46.5.630 PMID:17050754 [PubMed: 17050754]

Granic A, Mendonâ N, Hill TR, Jagger C, Stevenson EJ, Mathers JC, & Sayer AA (2018). Nutrition in the very old. Nutrients; Basel, 10(3), 269 10.3390/nu10030269

Gregson J, Foerster SB, Orr R, Jones L, Benedict J, Clarke B,. Zotz AK (2001). System, environmental, and policy changes: Using the social-ecological model as a framework for evaluating nutrition education and social marketing programs with low-income audiences. Journal of Nutrition Education, 33(Suppl. 1), S4–S15. 10.1016/S1499-4046(06)60065-1 PMID:12857540 [PubMed: 12857540]

Hartle M, & Jensen L (2011). Planning and creating successful adult day services and other home and community-based services. Retrieved from https://www.nadsa.org/wp-content/uploads/2011/05/NADSA-Tutorial-for-Starting-Center.pdf

Kaiser MJ, Bauer JM, Rämsch C, Uter W, Guigoz Y, Cederholm T,…Sieber, C. C. (2010). Frequency of malnutrition in older adults: A multinational perspective using the mini nutritional assessment. Journal of the American Geriatrics Society, 58(9), 1734–1738. 10.1111/j.1532-5415.2010.03016.x PMID:20863332 [PubMed: 20863332]

Keller HH, Dwyer JJM, Edwards V, Senson C, & Gayle Edward H (2007). Food security in older adults: Community service provider perceptions of their roles. Canadian Journal on Aging/La Revue Canadienne Du Vieillissement, 26(4), 317–328. 10.3138/cja.26.4317

Locher JL, Ritchie CS, Roth DL, Baker PS, Bodner EV, & Allman RM (2005). Social isolation, support, and capital and nutritional risk in an older sample: Ethnic and gender differences. Social Science & Medicine, 60(4), 747–761. https://doi.org/10.1016Aj.socscimed.2004.06.023 [PubMed: 15571893]

McLeroy KR, Bibeau D, Steckler A, & Glanz K (1988). An ecological perspective on health promotion programs. Health Education Quarterly, 15(4), 351–377. 10.1177/109019818801500401 PMID:3068205 [PubMed: 3068205]

Mueller C, Compher C, & Ellen DM (2011). A.S.P.E.N. clinical guidelines: Nutrition screening, assessment, and intervention in adults. Journal of Parenteral and Enteral Nutrition, 35(1), 16–24. 10.1177/0148607110389335 PMID:21224430 [PubMed: 21224430]

Murphy SP, Yaktine AL, Suitor CW, & Moats S (Eds.) (2011). Child and adult care food program: Aligning dietary guidance for all. Washington, DC: The National Academies Press.

National Adult Day Services Association. (2017). About adult day services. Retrieved from https://www.nadsa.org/learn-more/about-adult-day-services/

Norman K, Pichard C, Lochs H, & Pirlich M (2008). Prognostic impact of disease-related malnutrition. Clinical Nutrition (Edinburgh, Scotland), 27(1), 5–15. 10.1016/j.clnu.2007.10.007 PMID:18061312

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Osypuk TL, Diez Roux AVD, Hadley C, & Kandula N (2009). Are immigrant enclaves healthy places to live? The multi-ethnic study of atherosclerosis. Social Science & Medicine, 69(1), 110–120. 10.1016/j.socscimed.2009.04.010 [PubMed: 19427731]

Sadarangani TR, & Jun J (2015). Newly arrived elderly immigrants: A concept analysis of "aging out of place." Journal of Transcultural Nursing: Official Journal of the Transcultural Nursing Society, 26(2), 110–117. 10.1177/1043659614549074 PMID:25217594 [PubMed: 25217594]

Sadarangani TR, & Murali KP (2018). Service use, participation, experiences, and outcomes among older adult immigrants in American adult day service centers: An integrative review of the literature. Research in Gerontological Nursing, 11(6), 317–328. 10.3928/19404921-20180629-01 PMID:29989644 [PubMed: 29989644]

Saunders J, & Smith T (2010). Malnutrition: Causes and consequences. Clinical Medicine (London, England), 10(6), 624–627. 10.7861/clinmedicine.10-6-624 PMID:21413492

Song HJ, Simon JR, & Patel DU (2014). Food preferences of older adults in senior nutrition programs. Journal of Nutrition in Gerontology and Geriatrics, 33(1), 55–67. 10.1080/21551197.2013.875502 PMID:24597997 [PubMed: 24597997]

Tilly J (2017). Opportunities to improve nutrition for older adults and reduce risk of poor health outcomes. Retrieved from https://nutritionandaging.org/wp-content/uploads/2017/03/Malnutrition-Issue-Brief-final-3-2017.pdf

USDA Food and Nutrition Service. (n.d.). Child and adult care food program. Retrieved from https://www.fns.usda.gov/cacfp/child-and-adult-care-food-program

U.S. National Library of Medicine. (n.d.). Lactose intolerance. Retrieved from https://ghr.nlm.nih.gov/condition/lactose-intolerance

Volkert D, Chourdakis M, Faxen-Irving G, Fruhwald T, Landi E, Suominen MH,…Schneider SM (2015). ESPEN guidelines on nutrition in dementia. Clinical Nutrition (Edinburgh, Scotland), 34(6), 1052–1073. 10.1016/j.clnu.2015.09.004 PMID:26522922

White JV, Guenter P, Jensen G, Malone A, & Schofield M (2012). Consensus statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: Characteristics recommended for the identification and Fdocumentation of adult malnutrition (undernutrition). JPEN. Journal of Parenteral and Enteral Nutrition, 36(3), 275–283. 10.1177/0148607112440285 PMID:22535923 [PubMed: 22535923]

Wong J, Russo R, Min D, Ah-Yune J, Kwon S, & Yi S (2019). Cultural dietary norms and associated factors in an urban-dwelling Chinese American community sample (P04-129-19). Current Developments in Nutrition, 3(Suppl.1). 10.1093/cdn/nzz051.P04-129-19

Zhu H, & An R (2013). Impact of home-delivered meal programs on diet and nutrition among older adults: A review. Nutrition and Health (Berkhamsted, Hertfordshire), 22(2), 89–103. 10.1177/0260106014537146 PMID:24916974

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Table 1

Sample Interview Questions

Clinical Personnel

- Do your participants have access to healthy foods? What barriers might they encounter in accessing healthy foods?
- What type of public assistance programs, if any, do your clients receive support from outside the center? Examples might include, Calfresh or Meels on Wheels?
- How can we improve clients' overall health by addressing their nutrition? What changes can the adult day center make to better meet their needs?

ADC Users

- Are you able to cook or prepare meals by yourself? If not, who helps you?
- Where do you shop for food? Do you ever have problems getting access to groceries or paying for groceries? How do you deal with that?
- What foods do you enjoy most? Is there anything they serve here that you don't like?

Caregivers

- Tell me about your loved one. What do they like to eat at home? How does this carry over to the adult day center?
- How do you support your loved one in eating healthfully?

Administrators

- What changes would you like to see the center make in its nutrition offerings?
- Tell me a little bit about the food served at your center. What types of food and meals might you serve in an average week?
- What are the biggest barriers you face in improving nutrition offerings at your center?
- You get support from the Children and Adult Care Food Program to provide nutrition to your clients. Tell me about the requirements of this program.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

TABLE 2

Barriers to Healthy Nutrition Among Adult Day Care (ADC) Center Users Within the Social Ecological Model

Barriers to Healthy Nutrition/ Theme	Excerpt	Stakeholder
Individual barriers		
Mental health	"…oftentimes, I find weight loss is related to depression. It's related to something going on at home. That's the pattern that I know is one of the reasons."	Nutritionist
Education level	"…given their education level, their literacy level, it won't get in; it will not get in…. They don't link the food so much with their body."	Social worker
Limited English proficiency	"They're all monolingual, and so they're very dependent on their caregiver… they don't understand the system. They don't speak the language."	Community health worker
Impaired physical function	"…they need a caregiver to help with the food preparation and with shopping because a lot of them can't get around, walk, much less go shopping…"	Nutritionist
Impaired cognition	"…she often forgot what she was cooking. She watched TV and then she left the food there, and sometimes the food was burned. It almost burned the house."	Caregiver
Poor oral health	"She also has the onset of Parkinson's, so that also interferes with the muscle in the throat."	RN
Culturally derived food palate	"Some people eat fish or pork cooked with salty sauce, and some traditional food."	ADC user
Autonomy	"There's a misunderstanding on their part because of their own guilt…that they're not willing to just let the participant eat whatever they want to, enjoy the quality of their life, which actually is vital."	Nutritionist
Polypharmacy	"If they take medication, sometimes the medicines have the side effect or the antidepressant, so they have less appetite."	RN
Relationship barriers		
Family dynamics	"Yesterday, I was talking to a lady…. She lives with more than 10 people in her family…. 'They don't want me to eat together with them in the dining room' …she's dining alone in a house full of people."	Social worker
Loneliness	"I am on my own. I don't like my children to be with me because…I eat that baby food every day."	ADC user
Community barriers		
Transportation	"…in terms of buying food. Financially, they're largely okay but the problem is how do you get the food…"	Social worker
Neighborhood safety	"Some of them live in pretty bad neighborhoods…some of the areas they live in are dangerous…. They're isolating themselves because of the safety issues that they might be encountering…"	Nutritionist
Home-delivered meal programs	"Zero Meals on Wheels© because they serve western food."	Social worker
Organizational barriers		
Inability to bring outside food into the ADC	"For instance, sometimes I want to bring soy sauce or my home-cooked vegetables, but they don't allow me to do so."	ADC user
Inability to take ADC food home	"…I can't finish the food, I could have drunk that cup of milk after my afternoon nap. But I could not take home the milk."	ADC user
Lack of onsite kitchen	"We order the Chinese food because of the client, most of them are Chinese, we order Chinese food…"	RN
Recycling menus	"The menu is created, as long as I've been there, and it's just cycled through."	Nutritionist

Barriers to Healthy Nutrition/ Theme	Excerpt	Stakeholder
Policy/societal barriers		
Child adult care food program barriers	"…What we serve here is the regular milk, and a lot of them just don't drink it…. Either culturally, they don't like the milk…or they can't tolerate the milk…but that's what's required by the food program…. Whether they like it or not, you have to have it, so we always offer it." "…there's certain components that to be there… they have to have some carbs, protein, vegetable, fruits, and milk."	Nutritionist
Cost of nutritional supplements	"…the most expensive thing is getting the Ensure® because it's not covered by Medicare or Medi-Cal."	RN
Lack of physician training in nutrition	"…they still have all these diet restrictions that are really unnecessary…. But I think a lot of them [physicians] don't have that training for geriatric nutrition." **[Query #3: Okay as edited?]**	Nutritionist

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Table 3

Facilitators of Healthy Nutrition Among ADC Users set within the Social Ecological Model

Facilitators of Healthy Nutrition	Theme	Excerpt	Stakeholder
Individual Facilitators	Culturally Based Perceptions of Food and Mealtime	"They taught me what to eat… I feel that by doing so, my spirits are better and my mind is sharper. And I fall less often."	ADC User
		"In these different cultures, I would say that food is very important… it's very much a time to just bring everyone together and share that time together."	CHW
	Life History	"I was almost starved to death…there were only grass, straw…using a teacup for soup…the grass…each strand."	ADC User
	Budgeting	"Vietnamese in general often saves for the rainy days. That's why I always have enough money."	ADC User
	Adherence to Traditional Non-Western Diets	"…they probably prefer Chinese food…Most of our clients prefer rice with some vegetable, with some meat."	RN
Relationship Facilitators	Caregiver Support	"…but I like how my daughter prepare my food for me. When it's ready for me, when I need it, I just put it in the microwave because my daughter knows what's good for me and what the doctor wants me to eat. It's more convenient. I like my daughter's food."	ADC User
	Peer Networks	"…if she can have people next to her eating, feeding themselves, then that might stimulate, to initiate her to do the same thing as the others. Maybe that will encourage her to eat too."	RN
Community Facilitators	Access to Ethnic Grocery Stores	"I go to Chinese and Vietnamese supermarkets…things are cheaper. Grocery at American supermarkets like Lucky is really expensive."	ADC User
	Assistance from NonProfit Organizations	"…we get some non-profits… they provide free meal, we try a three month try to give free meal for those clients that they can bring home with it."	RN
Organizational Facilitators	Interdisciplinary Staff	"Sometimes, if I hear that nobody eats this or that, or they complain a lot…the floor staff will let me know, and then I will tell the kitchen…I'll give feedback to the kitchen, so that is addressed."	Nutritionist
	Culturally Tailored Menu	"Generally, it's Asian style, meaning they'll always have rice. The menu, it's Asian style…"	Nutritionist
Policy/Societal Level Facilitators	Government Subsidized Programs	"The government offer me retirement money. They also give me the rent cost and money to buy grocery and clothes."	ADC User
		"…a lot of them do have like IHSS workers, caregivers that are with them for a certain number of hours a day…They'll just prepare the food, make sure it's all set up for them."	Nutritionist