

The Role of the Registered Dietitian Nutritionist in California Group Homes for Weight Stabilization of Individuals with Intellectual and Developmental Disabilities

By: Romana Brennan, MS, Jacqueline Larson, MS, RDN, Alexis Deavenport-Saman, DrPH, MPH, and Cary Kreutzer, EdD, MPH, RDN, FAND



Research Snapshot

Purpose: The purpose of this study was to: 1) examine changes in BMI of adults with intellectual and developmental disabilities (IDD) residing in group homes with a Registered Dietitian Nutritionist (RDN) consultant and 2) to determine if time in the group home was associated with these changes.

Key Findings: Limited research has been published that evaluates nutrition adequacy of individuals with IDD residing in group homes in the United States. There is evidence supporting the notion that having an RDN consultant to serve those with IDD living in group homes may be an effective way to ensure these individuals receive adequate nutrition, as reflected by weight stabilization and normalization. However, further research should be conducted to evaluate if the provision of appropriate nutrition services and screening provided in group homes by an RDN, which is required in California, promotes weight stabilization.

Abstract

Background: Research is lacking that evaluates nutrition adequacy as related to body mass index (BMI) of individuals with IDD residing in United States group homes.

Objective: This study aimed to illuminate the protective factors provided by an RDN through oversight of food and nutrition services in California group homes in weight stabilization and normalization (approaching “normal range” from either underweight, overweight, or obesity).

Methods: A retrospective cohort study was conducted using 8 years of data for 459 residents (ages 20-82 years) in 86 Southern California group homes, with time in the group home ranging from 1 month to 8 years. A Wilcoxon signed-rank test was used to examine changes in BMI and a chi-square analysis examined how time in the group home influenced BMI.

Results: Change in BMI from entry to endpoint decreased slightly (median 24.13 vs. 23.95) but was not significant ($P = 0.19$). Adults staying 5 years or more versus 4 years or less were significantly less likely to be classified as obese (42.9% vs. 57.1%) but were more likely to be overweight (72.9% vs. 27.1%) and within normal range (64.3% vs. 35.7%) ($P = 0.001$).

Conclusion: This study provides evidence that having an RDN serve those with IDD living in group homes may be an effective way to ensure individuals are receiving adequate nutrition, reflected by weight stabilization and normalization. Further research is needed to evaluate if provision of appropriate nutrition services and screening provided by an RDN in group homes, required in California, promotes weight stabilization.

Introduction

Intellectual and developmental disabilities, or IDD, exist everywhere and across all racioethnic groups. In 2016, it was estimated that 7.37 million people in the United States had some intellectual and/or developmental disability.¹ IDD are often present at birth but can originate and be diagnosed up until the age of 22 and can impact an individual’s physical, intellectual, and emotional development by affecting several body systems. Intellectual disabilities describe problems related to learning, reasoning and problem solving, as well as adaptive behavior, namely social and life skills.² The category of developmental disabilities is broader and includes both intellectual and physical disabilities. Some IDD may be degenerative, impairing an individual’s skills and abilities as they age. Because the term IDD includes a wide array of disabilities, there is an even greater variety of known and unknown causes, including genetic disorders, nutritional inadequacies, malnutrition, complications at the time of birth during labor and delivery, and infection, to name a few. Examples of IDD include cerebral palsy, Down syndrome, Fragile X syndrome, autism spectrum disorders (ASDs), and Rett syndrome.³

continued on page 19

The Role of the Registered Dietitian Nutritionist in California Group Homes for Weight Stabilization of Individuals with Intellectual and Developmental Disabilities

continued from page 18

In 2002, the U.S. Surgeon General deemed the improvement of nutrition for adults with IDD a national priority.⁴ Nutrition services play a pivotal role in comprehensive care for individuals with IDD and special healthcare needs. These services should be interdisciplinary, family-centered, community based, culturally competent, and lifelong in order to promote wellness, improve quality of life, maintain good health, and reduce risk and cost of comorbidities and complications.⁵ Unfortunately, despite the growing prevalence of intellectual and developmental disabilities, little standardization exists within the United States in terms of providing care for and seeking to better understand those with IDD. The federal government does not require an RDN to be part of the group home interdisciplinary care team. However, California is one of 11 states that does require an RDN consultant in group homes in order to maintain licensure.⁶

The RDN plays a key role in the interdisciplinary care team to ensure the quality and effectiveness of nutrition services in group homes. Dietitians ensure dietary standards are being met according to the guidelines set forth by the group home funding agencies, for example adhering to the USDA dietary guidelines if federally funded, as well as ensuring that dietary intake is appropriate and individualized.⁷ This is especially important because individuals with IDD may have additional risk factors that make them more susceptible to weight gain, such as the use of appetite-altering psychotropic medications, syndromes that may increase risk for weight gain, physical limitations, and disordered eating habits.⁸ Conversely, individuals with IDD may also be more susceptible to unwanted weight loss and underweight due to feeding and swallowing difficulties, conditions affecting metabolism and nutrient absorption, reduced muscle mass, poor eating habits, and caregiver knowledge deficit.⁹

Among their responsibilities, RDNs recommend foods to meet special dietary needs as well as individual preferences, develop individualized meal and snack plans, create appropriate menus, recommend diet orders with individualized portion sizes to meet a resident's needs, and conduct assessments and evaluations. Dietitians also provide nutrition education and training for group home staff in order to promote practical improvements in nutrition knowledge and to encourage positive changes in food choices.¹⁰ These factors all contribute to better nourishment of individuals with IDD living in group homes, improving their health and well-being, as well as improving feeding of malnourished individuals, preventing chronic disease, and reducing obesity risk. Therefore, the purpose of this study is to evaluate the impact of the services provided by an RDN consultant across group homes throughout Southern California, and to expand the limited existing knowledge on the benefits that RDNs serve for this vulnerable population with special healthcare needs.

Methods

Setting and Participants

All data for this retrospective cohort study was collected by RDN consultants from January 2013 to January 2021. These RDNs serve as the dietitian consultants for each of these group homes, and collect annual heights and monthly weights for all residents. Height and weight data from 459 individuals residing in 86 group homes across 4 counties in Southern California was de-identified prior to being delivered to the research team. These individuals were aged 20 to 82 years, with an average age of 49. Three individuals were excluded from the dataset due to age (<20 years at the endpoint). Their length of stay ranged from 1 month to 8 years, with an average length of stay being 4 years and 8 months. These individuals had all been diagnosed with at least one intellectual or developmental disability and all consumed an oral diet, meaning that none were reported to be on enteral or parenteral nutrition support.

Statistical Analysis

This data was de-identified by way of a coding system prior to being sent to the researcher team. Each home was assigned a number and the individuals within each home were assigned a letter (A-F). For each individual, biological sex (M/F) and year of birth was also provided. Data was transferred into a spreadsheet and frequencies and percentages were reported for categorical variables. Means and standard deviations were reported for continuous variables, and medians and interquartile ranges were reported for variables that were not normally distributed. A Wilcoxon signed-rank test was used to examine overall changes in BMI for males and females and for the full length of stay. A chi-square analysis was conducted to examine how time in the group home influenced BMI categories.

Results

There were a total of 459 adults who resided in the 86 group homes, in which they had access to an RDN for the entirety of their time in the group home, which ranged from 1 month to 8 years. Individuals ranged in age from 20 years to 82 years at endpoint. The entry BMI ranged from 13 to 53, while the final BMI ranged from 15 to 50.

Although decreasing slightly, there were no significant changes in the median (IQR) entry BMI of 24.13 (6) compared to the final BMI of 23.95 (6); $P = 0.19$. Adults staying in the group homes 5 years or more versus 4 years or less were significantly less likely to be obese (42.9% vs. 57.1%), but were more likely to be overweight (72.9% vs. 27.1%) and within normal BMI range (64.3% vs. 35.7%); X^2 (df) = 17.73 (3), $P = 0.001$.

continued on page 20

The Role of the Registered Dietitian Nutritionist in California Group Homes for Weight Stabilization of Individuals with Intellectual and Developmental Disabilities

continued from page 19

Table 1. Demographic characteristics of adults in the sample of group homes served by a Registered Dietitian Nutritionist.

Demographic Characteristic	Total Sample
	n (%) or Median (IQR)
Age	49 (26)
Length of Stay in years	5 (1)
Biological Sex	
Male	281 (61.2)
Female	178 (38.8)
Entry BMI Categories	
Underweight	42 (9.2)
Normal	226 (49.2)
Overweight	130 (28.3)
Obesity	61 (13.3)
Final BMI Categories	
Underweight	21 (4.6)
Normal	249 (54.2)
Overweight	133 (29)
Obesity	56 (12.2)

Length of Stay	Underweight (N=21)	Normal (N=249)	Overweight (N=133)	Obesity (N=56)	X2 (df)	P
	n (%)	n (%)	n (%)	n (%)	17.73 (3)	.001*
4 years or less	11 (52.4)	89 (35.7)	36 (27.1)	32 (57.1)	–	–
5 years or more	10 (47.6)	160 (64.3)	97 (72.9)	24 (42.9)	–	–

*P < 0.05

Discussion

This is the first study, to our knowledge, to examine weight stabilization within group homes that utilize the services of an RDN consultant. There was no significant change in BMI from entry into the group home to the final BMI measurement. Furthermore, as the length of time that adults resided in the group home with the RDN increased, there appeared to be additional benefits in decreasing

the likelihood of obesity, and increasing the likelihood of having a normal or overweight BMI. These results suggest that over time, the weights of individuals living in these group homes tended to normalize toward normal range and overweight, moving away from the extremes of underweight and obesity.

continued on page 21

The Role of the Registered Dietitian Nutritionist in California Group Homes for Weight Stabilization of Individuals with Intellectual and Developmental Disabilities

continued from page 20

Overweight and obesity have been suggested to increase one's risk of developing multiple comorbidities, including serious chronic diseases. On the contrary, there is evidence suggesting that being overweight may serve as a protective factor for aging individuals, particularly those above the age of 60.¹⁷ However, more research is needed in order to determine if this information is able to be generalized to all populations, namely those with IDD. The Centers for Disease Control and Prevention estimated in 2018 that close to 74% of the general U.S. population over the age of 20 was either overweight or obese.¹³ According to 2018 National Core Indicators (NCI) survey data of all California Regional Centers, 62% of Californians with IDD are overweight or obese.¹⁴

In general among the population with IDD, the highest prevalence of obesity exists among women with IDD, those with Down syndrome, those with "mild" IDD, as well as those living independently or with family members as opposed to a more supervised environment in which dietary guidance is offered.^{4,15} Although the overweight and obesity rates of individuals with IDD living in group homes in California as a whole are unknown, among this study sample, 41.2% of individuals were overweight or obese at endpoint.

On the opposite end of the spectrum, individuals with IDD may also be at a higher risk of malnutrition resulting in underweight, especially with conditions such as cerebral palsy, for example. The 2017-2018 National Health and Nutrition Examination Survey (NHANES) estimated that 1.6% of U.S. adults above the age of 20 are underweight.¹⁶ 5% of Californians with IDD are underweight according to the NCI survey.¹⁴ In this study sample, the prevalence of underweight was 4.6%, although no other data has been published on this specific population. On either end of the spectrum, individuals with IDD are likely at increased nutritional risk and are more susceptible to nutritionally-related risk factors that could negatively impact their health and well-being.⁵

RDN consultants can effectively create and implement nutritional programs within group homes that focus on providing individuals with adequate nutrition and staff members with food and nutrition education and resources. These programs, as suggested by the data presented in this study, can result in weight normalization within group homes. It could be possible that these individuals living in group homes do not fall into the same weight gain patterns as the average adult, of 0.7-1.8 pounds per year, as estimated by Chambers et al.¹² RDN consultants may also be able to address feeding issues and other challenges present among malnourished underweight individuals to prevent weight loss and encourage appropriate weight gain. If individuals can maintain their standard weight or approach what may be considered a more "normal" weight, they may be able to decrease their risk

of developing multiple comorbidities, whether they are underweight, overweight, or obese.

Limitations

Limited research has been published that evaluates nutrition adequacy of individuals with IDD residing in group homes in the United States. While this study provides insight on this topic, limitations must be discussed. BMI was the primary characteristic used to evaluate nutrition adequacy as it relates to weight and weight stabilization. Given the data available, BMI was considered to be the most measurable outcome for this study. However, there are few standards of practice when it comes to determining the most appropriate ways in which to measure health status among individuals with IDD, and BMI was not designed to assess the health status of an individual. There are many factors that influence both health status and weight of individuals with IDD who may have special healthcare needs, and weight alone may not be an accurate measurement or reflection of health status. This makes it all the more necessary to have a trained professional, such as an RDN, who is able to perform additional quantitative and qualitative assessments on those residing in group homes, given their knowledge of the eating behaviors, diet tolerance, changes in appetite, etc. of those with IDD.

Furthermore, the data de-identification process involved excluding all diagnostic information, therefore it was unknown to the research team whether any of the individuals had additional conditions or diagnoses that may have impacted their nutritional status or mobility, or whether their conditions may have worsened over time. It was clarified, however, that no patients were on parenteral or enteral nutrition support, and all consumed an oral diet. The lack of racioethnic data may serve as an additional limitation, and more research is warranted in order to explore the racioethnic disparities that exist among individuals with IDD, not only those living in group homes.

Given the nature of this retrospective cohort study, this sample was unable to be compared to a population composed of individuals living in group homes who did not have the oversight of an RDN consultant. While National Core Indicators survey data gives some insight into Regional Center as well as California statewide averages of BMI classifications, exercise patterns, and tobacco use, there are no further details helping to connect living arrangements and quality of care with health status. In order to draw more clear conclusions on the impact of RDNs in this setting, further research is needed that compares outcomes of individuals with IDD living in group homes served by RDN consultants with an organized nutrition program, versus those living in group homes that lack RDN supervision.

continued on page 22

The Role of the Registered Dietitian Nutritionist in California Group Homes for Weight Stabilization of Individuals with Intellectual and Developmental Disabilities

continued from page 21

References:

1. Conway C, Lemons S, Terrazas L. Academy of Nutrition and Dietetics: Revised 2020 Standards of Practice and Standards of Professional Performance for Registered Dietitian Nutritionists (Competent, Proficient, and Expert) in Intellectual and Developmental Disabilities. *J Acad Nutr Diet*. 2020;120(12): 2061- 2075e57.
2. What are intellectual and developmental disabilities? University of Minnesota Institute on Community Integration. <https://ici.umn.edu/welcome/definition>. Accessed January 3, 2022.
3. About intellectual and developmental disabilities (IDDs). National Institutes of Health Eunice Kennedy Shriver National Institute of Child Health and Human Development. <https://www.nichd.nih.gov/health/topics/idds/conditioninfo>. Published November 9, 2021. Accessed January 3, 2022.
4. Humphries K, Pepper A, Traci M, Olson J, Seekins T. Nutritional intervention improves menu adequacy in group homes for adults with intellectual or developmental disabilities. *Disability and Health Journal*. 2009; 2:136-144.
5. Ptomey L, Wittenbrook W. Position of the Academy of Nutrition and Dietetics: Nutrition Services for Individuals with Intellectual and Developmental Disabilities and Special Health Care Needs. *Journal of the Academy of Nutrition and Dietetics*. 2015; 115(4):593-608.
6. Humphries K, Rosenzweig L, Cushing P, Licitra R. Registered Dietician's Service to Group Homes for Adults with Developmental Disabilities. *The Open Nutrition Journal*. 2012; 6:116-122.
7. Wellington, N. *Long Term Care Monitoring for Quality Resident Meal Time Food and Nutrition Services Revised*. Readers Magnet, LLC: San Diego CA, 2019.
8. Grondhuis S, Aman M. Overweight and obesity in youth with developmental disabilities: a call to action. *Journal of Intellectual Disability Research*. 2013; 58(9):787-799.
9. Groce N, Challenger E, Berman-Bieler R, et al. Malnutrition and disability: Unexplored opportunities for collaboration. *Paediatrics and International Child Health*. 2014;34(4):308-314. doi:10.1179/2046905514y.0000000156
10. Rocchi F. Effect of a staff nutrition education program on the nutrition status of clients with mental retardation living in ICF/MR group homes. *The University of North Carolina at Greensboro, ProQuest Dissertations Publishing*. 1996. 9632152.
11. Pendo E, Iezzoni LI. The Role of Law and Policy in Achieving Healthy People's Disability and Health Goals around Health Care, Activities Promoting Health and Wellness, Independent Living and Participation, and Collecting Data in the United States. https://www.healthypeople.gov/sites/default/files/LHP_Disability-Health-Policy_2020.03.12_508_0.pdf Published March 12, 2020. Accessed January 3, 2022.
12. Chambers ES, Viardot A, Psichas A, et al. Effects of targeted delivery of propionate to the human colon on appetite regulation, body weight maintenance and adiposity in overweight adults. *Gut*. 2015;64:1744-1754.
13. "FastStats - Overweight Prevalence." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 1 Mar. 2021, www.cdc.gov/nchs/fastats/obesity-overweight.htm.
14. California Department of Developmental Services (DDS). "NCI Adult In-Person Survey Regional Center Outcomes: North Los Angeles County Regional Center (NLACRC) Report - Fiscal Year 2017-2018." *California Department of Developmental Services*, 2018, www.dds.ca.gov/wp-content/uploads/2020/02/NLACRC_InPersonSurvey4FY17_18.pdf
15. Standcliffe R, Lakin K, Larson S, et al. Overweight and Obesity Among Adults With Intellectual Disabilities Who Use Intellectual Disability/Developmental Disability Services in 20 U.S. States. *American Association on Intellectual and Developmental Disabilities*. 2011; 116(6):401-418.
16. Fryar CD, Carroll MD, Afful J. Prevalence of underweight among adults aged 20 and over: United States, 1960-1962 through 2017-2018. *NCHS Health E-Stats*. 2020.
17. Pes GM, Licheri G, Soro S, et al. Overweight: A Protective Factor against Comorbidity in the Elderly. *Int J Environ Res Public Health*. 2019;16(19):3656. Published 2019 Sep 29. doi:10.3390/ijerph16193656

Save the Dates!

JANUARY 31 & FEBRUARY 7, 2023

DHCC's 2023 Virtual Symposium

Dietetics in Health Care Communities
a dietetic practice group of the Academy of Nutrition and Dietetics

eat right.

dhcc.eatrightpro.org/home

Dietetics in Health Care Communities
a dietetic practice group of the Academy of Nutrition and Dietetics

DHCC DPG WORKSHOP

\$harpen Your \$kills - \$trengthen Your Impact!

JOIN US AT FNCE® SATURDAY, OCTOBER 8, 2022