Mental Health-Focused Nutrition Education Intervention in Secondary School

Lindsey Kelley[1], Jacqueline Parker[2], Emily Riddle[1]

[1] SUNY Oneonta, Oneonta, NY

[2] Paul V Moore High School, Central Square, NY

ABSTRACT

Background: Many high schools in the US have insufficient nutrition education programs to inspire behavior change, resulting in a nutrition knowledge deficit in adolescents. School-based nutrition education programs typically do not cover the association between nutrition and mental health.

Objective: To evaluate the change in nutrition knowledge and behaviors of secondary school students following a nutrition education intervention.

Design: Quasi-experimental

Intervention: Students enrolled in health class at Paul V Moore High School received two 80-minute nutrition education sessions during the class period, covering macronutrients, micronutrients, MyPlate, nutrition facts labels, and the association between nutrition and mental health.

Methods: Student nutrition knowledge and behavior changes were assessed using a nutrition knowledge survey and food frequency questionnaire following the intervention. Outcomes following the intervention were compared to results from a previously conducted needs assessment.

Results: There was a significant increase in nutrition knowledge following the nutrition education intervention. The intervention group reported highest confidence in their ability to choose foods to support their physical and mental health. The intervention group reported low intake of breakfast, fruits, vegetables, and simple carbohydrates.

Conclusion: This study did support the effectiveness of inclusion of mental health in a nutrition education intervention to improve nutrition knowledge and behaviors. Further research is needed to assess similar interventions.

INTRODUCTION

- Current food literacy in schools is insufficient to promote nutrition knowledge and behavior change, based on CDC recommendations.[1]
- Lack of nutrition education in schools leads to poorer health outcomes.[2]
- Nutrition has a strong association with mental health.[3]
- The impact of mental health-focused intervention on behavioral outcomes has not been evaluated.
- The purpose of this study was to determine the impact of mental health-focused nutrition education on nutritional knowledge and behavior outcomes in secondary school students.

METHODS

- This study was conducted in the health classes at Paul V Moore High School in the Central Square School District.
- 150 14–18-year-old students were enrolled in the health classes. These students participated in two 80-minute nutrition education sessions, which included PowerPoint lectures and interactive activities covering macronutrients, micronutrients, MyPlate, nutrition facts labels, and the association between nutrition and mental health.
- 56 students from the intervention group and 8 students from the needs assessment group completed the consent process and completed the assessment tools.
- Two evaluative tools were distributed to the two student groups to evaluate changes in nutrition knowledge and behavior. The 17-question nutrition knowledge survey was developed based on two validated tools: the GeSNK and SBNM. The 10-question nutrition behaviors survey was developed as an FFQ.
- Nutrition knowledge test scores were compared between the needs assessment and intervention groups. Likert scale confidence questions and nutrition behavior assessments were only evaluated among the intervention group.
- Nutrition knowledge tests were scored as 1 for correct answers and 0 for incorrect, “I do not know”, or blank responses.
- Qualitative data between the two student groups from the nutrition knowledge tests were evaluated using Mann Whitney U tests.
- Correlation between Likert score confidence response among the intervention group was evaluated using Pearson’s correlation.
- The software used in this study was SPSS. Statistical significance was determined at p-value <0.05.

RESULTS

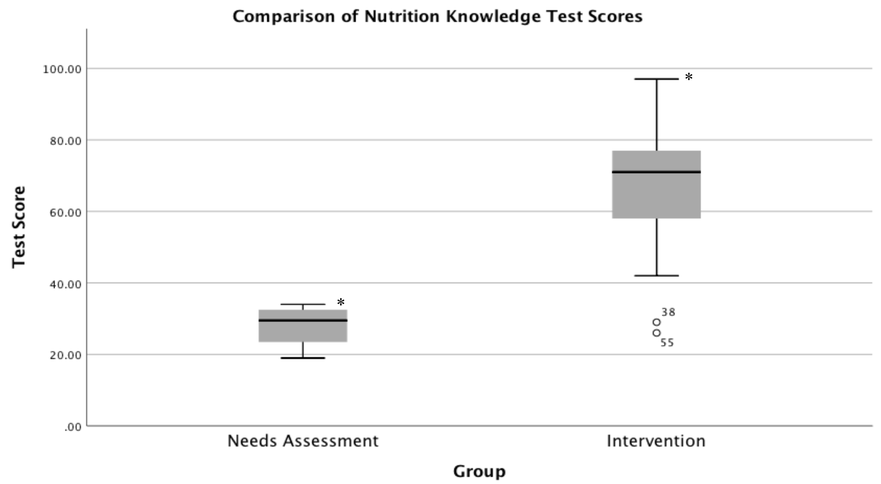

Figure 1. Student Performance: total grade comparisons between Needs Assessment students and Intervention students on the nutrition knowledge section of the evaluation tool. n=8 students in needs assessment group, n=56 students in intervention group. Mann Whitney U Test. *=significant at the 0.01 level (2-tailed).

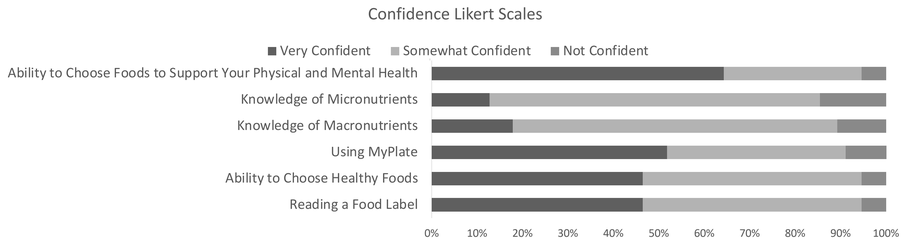

Figure 2. Comparison of reported confidence in nutrition knowledge and behaviors in the intervention group of students.

	Reading Food Labels	Choose Healthy Foods	Using MyPlate	Macronutrient Knowledge	Micronutrient Knowledge	Supporting Health	Test Scores
Reading Food Labels	1	.512**	.285*	.331*	.387**	.310*	.351**
Choose Healthy Foods	.512**	1	.213	.393**	.386**	.498**	.453**
Using MyPlate	.285*	.213	1	.296*	.301*	.253	.167
Macronutrient Knowledge	.331*	.393**	.296*	1	.565*	.501*	.183
Micronutrient Knowledge	.387**	.386**	.301*	.565**	1	.468**	.167
Supporting Health	.310*	.498**	.253	.501**	.468**	1	.261
Test Scores	.351**	.453**	.167	.183	.167	.261	1

Table 1. Correlation between perceived confidence of nutrition-related behaviors and knowledge, along with nutrition-knowledge test scores. Pearson’s Correlation. *=significant at the 0.05 level (2-tailed). **=significant at the 0.01 level (2-tailed).

RESULTS, CONTINUED

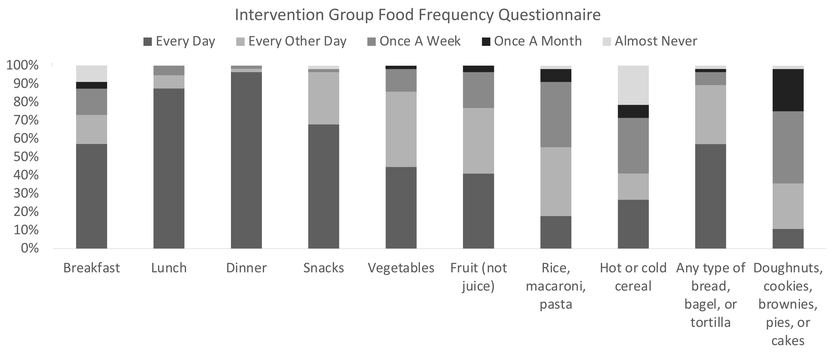

Figure 3. Reported food frequency questionnaire responses among the intervention group.

DISCUSSION

- There were several limitations to the data comparison for this study. There was a notable difference in sample size between the two student groups, which may have skewed results. Confidence Likert scales and food frequency questionnaire responses were not able to be compared between the two groups.
- Strategies for effective nutrition education session that have been evaluated include collaboration between teachers and parents, age-appropriate hands-on experiences, frequent sessions, adequate duration, environmental changes, and alignment between stated objectives and methodology.[4] Several of these tactics were employed in this intervention, which yielded similar positive outcomes.
- Nutrition interest has been found to strongly influence nutrition knowledge, behaviors, and skills.[5] Students reported confidence in their nutrition skills was largely paired with confidence in nutrition knowledge. However, nutrition test knowledge scores were not correlated with confidence in nutrition knowledge, which warrants further investigation.
- Previous nutrition education interventions in similar populations have reported positive mental health outcomes through their intervention.[6] Although specific mental health outcomes were not evaluated in this study, students did report high confidence in their ability to choose foods to support their physical and mental health, which may indicate similar results.

CONCLUSIONS

The mental health-focused nutrition education intervention performed in this study had a statistically significant impact on nutrition knowledge or behavior outcomes. The intervention group reported the highest confidence in their ability to choose foods that support their physical and mental health, compared to other assessed factors. Further research is needed to investigate this form of nutrition education, along with the association between nutrition knowledge and confidence in nutrition skills or knowledge of nutritional subject areas.

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