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Garden-Based Nutrition Education May Lead to Increased Dietary Knowledge in Low Income Hispanic School Children

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Garden-Based Nutrition Education May Lead to Increased

Dietary Knowledge in Low Income Hispanic School Children

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12/4/23

Abstract

Background: Childhood obesity is a pressing public health concern in the United States, with rates continuing to increase in recent years. This problem disproportionately affects Latino children as well as those from low socioeconomic status. It is well established that nutrition knowledge deficiencies and resulting poor dietary habits are some of the most common contributing factors to childhood obesity. Garden-based nutrition education programs have been introduced to remedy this knowledge deficit; however, a gap remains regarding whether this model can be viable for low-income, culturally diverse populations.

Aim: This literature review investigates the importance of diet in reducing childhood obesity while exploring the effects of gardening-based nutrition education on dietary choice improvements. This literature review presents gardening-based nutrition education models as an effective and sustainable method of obesity reduction by establishing a connection between improved dietary knowledge and dietary choices, thus leading to a lower incidence of obesity.

Method: A quasi-experimental design with a convenience sample of 200 subjects split into an interventional and a control group. The interventional group will receive an 11-week-long nutrition education program to accompany the children's regular school hours. Participants will be between the ages of 7 and 10, consistent with the ages of third to fifth grade elementary school children. Both groups will take a pre- and post-test using the Healthy Eating Index (HEI) Survey, where results will be further plotted along a radar plot to examine each scoring component of the HEI.

Result: The expectation is that the interventional group will see improvements to the HEI scores in each category compared to the control group, except for a decrease in the added sugars category.

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Acknowledgments

First and foremost, I would like to express gratitude to my mother and brother. Their unwavering support has enabled me to embark on this journey that started with me working right out of high school with no prospect of ever attaining higher education and culminating in, as I am writing this, almost attaining a degree in Nursing.

In addition to this, I would also like to express gratitude towards Professor Deborah Meshel, who has been a close mentor this semester. She has helped me navigate my experience providing the children at San Pedro Elementary with the nutrition education this proposal is pushing for. On top of this, she has closely guided me throughout the process of writing this thesis, which is only possible with her insight and feedback.

I would also like to mention Lori Davis and her nonprofit Sanzuma, who have also been instrumental in facilitating my time at San Pedro Elementary. Her passion for equitable access to health and food for socioeconomically challenged school children has been infectious to me.

Lastly, I want to acknowledge the students and teachers at San Pedro Elementary School for allowing me the opportunity to put into practice my thesis. The experience has been unforgettable, and I do hope I had some positive impact on the community.

Background

Childhood obesity is a pressing public health concern, particularly affecting children from low-income and ethnically diverse backgrounds, such as Latino communities (CDC, 2021). In the United States, childhood obesity rates exhibit a concerning trend, with Latino school children experiencing a disproportionate impact compared to the general population (CDC, 2021). This health disparity underscores the critical need to address childhood obesity and nutritional knowledge deficiencies within underserved communities.

Research has consistently highlighted insufficient nutritional knowledge and unhealthy dietary habits as critical contributors to childhood obesity (Black & Macinko, 2017; Ng et al., 2014). Children in low-income areas face significant challenges in acquiring essential dietary knowledge and making healthier food choices, leading to immediate and long-term health consequences, including an increased risk of obesity, diabetes, and cardiovascular diseases (Gittelsohn et al., 2017; Swindle et al., 2018) (Black & Macinko, 2017; Ng et al., 2014).

Problem Statement

Escalating childhood obesity rates and inadequate nutritional knowledge among schoolchildren, particularly in low-income Latino communities, represent significant public health concerns (CDC, 2021). This health disparity underscores the immediate need to address childhood obesity and nutritional knowledge deficits in underserved communities. While the potential benefits of gardening interventions may be recognized, a notable gap exists in understanding how to effectively enhance nutritional knowledge and promote healthier dietary behaviors among schoolchildren in low-income, culturally diverse settings.

Purpose

In order to address the research gap, this research proposal aims to investigate the factors contributing to the elevated rates of childhood obesity and poor nutritional knowledge among Latino school children compared to the general population while also considering the potential impact of gardening programs. After analyzing the data to elucidate the extent and patterns of childhood obesity in the United States, the proposal will specifically focus on disparities among Latino school children. Additionally, the literature review will examine the role of gardening programs in improving nutritional knowledge and physical health outcomes among children in low-income, culturally diverse communities. By identifying the key factors driving these disparities and evaluating the potential of gardening interventions, the study aims to provide academically grounded insights into addressing the complex issue of childhood obesity and nutritional knowledge deficits in underserved communities. The findings can inform policy and programmatic decisions to reduce health disparities and promote the well-being of vulnerable student populations.

Hypothesis

The implementation of an 11-week garden-based nutrition curriculum will positively impact dietary habits and nutrition knowledge among low-income Hispanic children at San Pedro Elementary School.

Literature Review

This literature review aims to investigate the importance of diet in reducing childhood obesity while exploring the effects of gardening-based nutrition education on dietary choice improvements. This literature review presents gardening-based nutrition education models as an effective and sustainable method of obesity reduction by establishing a connection between improved dietary knowledge and dietary choices, thus leading to a lower incidence of obesity. In addition, this review also aims to explore any socioeconomic and cultural components that could lessen the efficacy of nutrition education, as there is a current research gap on low-income Hispanic Americans and nutrition education. The Dominican University of California library was used to gather articles from databases, including CINAHL, Academic Search Complete, EBSCO/Iceberg, and PubMed. Keywords utilized in the search include the following: "Gardening-based nutrition education outcomes," "Correlation between Childhood Obesity and Healthy Eating Index," "Dietary knowledge and childhood obesity," "Childhood obesity and poverty," "Socioeconomic status and obesity".

Criteria for research articles:

- Peer-reviewed

- Published in the last ten years

- Relating to diet, nutrition, and obesity

- Articles must be meta-analysis, quasi-experimental studies, cross-sectional studies, or randomized control trials

This literature review consists of six articles relating to the topic of obesity and diet and will be reviewed in three categories consistent with the themes of this paper:

- Childhood Obesity

- Gardening-based nutrition education

- Socioeconomic status and Culture's effects on obesity

Childhood Obesity

A possible cause of childhood obesity is a knowledge deficit regarding nutrition and diet. A cross-sectional study by Wang et al. (2022) used a self-administered questionnaire on a sample of 1200 children and adolescents between the ages of 8 and 18 to assess dietary knowledge. In addition, Wang and peers collected anthropomorphic data from the children which consisted of heigh, weight, and waist circumference. The study found a negative correlation between childhood obesity and nutrition knowledge in the children, with children who scored higher on the questionnaire being negatively associated with obesity when compared to children who scored lower (Wang et al., 2022). One limitation of this study was that it did not consider the children's activity level, which can directly affect anthropomorphic measurements. An additional limitation is that the relationship between nutritional knowledge and obesity is correlational which requires further exploration in order to determine a causational relationship between the two factors. Nevertheless, the study did provide a theoretical framework for exploring nutritional knowledge and obesity.

Eating healthy is key to avoiding obesity, but it's not enough on its own. Being active is important too. A cross-sectional analysis by An (2017) examined National Health and Nutrition Examination surveys from a sample of 2818 children aged 6-17. The study used 24-hour diet recalls to create a Healthy Eating Index (HEI). Kids with unhealthy diets and little activity were 19.03% more likely to be overweight, and 15.84% more likely to be obese than those with healthy diets and active lifestyles (An, 2017). For children eating a healthy diet but not physically active, the probabilities were 3.22% and 3.1% higher for overweight and obesity,

respectively (An, 2017). Ideally, children should eat a healthy diet and stay physically active, but if they can only consume a healthy diet, it is still about 16% less probable for them to be overweight and 12% less likely to be obese. The critical thing is to start developing habits when the children are still young to ensure retention and prevent obesity (An, 2017). The limitation of this survey was that the HEI was constructed using dietary recalls, which opened up the results to self-reporting bias. In addition to the above, the cross-sectional nature of this study allows for correlation but precludes causation, so further research is needed to establish any causal relationship.

Gardening-based Nutrition Education

One promising approach to address increasing childhood obesity rates is the implementation of gardening programs. A systematic review and meta-analysis by Kunpeuk et al. (2020) investigated gardening interventions to improve nutrition and physical health outcomes. Kunpeuk and peers included evidence from 19 different articles (14 cross-sectional studies, four quasi-experimental studies and one case–control study), with the only common measurement unit amongst these articles being BMI. Their research demonstrated that gardening programs can positively influence participants' dietary habits and physical health (Kunpeuk et al., 2020). This meta-analysis also found common weaknesses in many of the articles examined, one of which is low response rates to self-reporting articles, as well as the lack of control for any confounding variables, which will be helpful to know when moving forward with experimental design (Kunpeuk et al., 2020).

A study conducted by Landry et al. (2021) aimed to evaluate the impact of a school-based gardening, cooking, and nutrition intervention on diet intake and quality among children. The study was conducted in 28 elementary schools in Central Texas, United States, with a sample

population of 3rd to 5th grade students. A total of 1,495 students participated in the study. The

study design was a randomized control trial, with the intervention group receiving a 12-week

program that included gardening, cooking, and nutrition education, while the control group

received no intervention. Dietary intake was assessed using a food frequency questionnaire at

baseline and post-intervention. Diet quality was assessed using the Healthy Eating Index (HEI)-

2015. The study found that the intervention group had significantly higher HEI-2015 scores than

the control group. Additionally, the intervention group had significantly higher intakes of fruits,

vegetables, and whole grains than the control group. In addition, the intervention group increased

the total percentage of protein consumed toward total caloric intake. Results showed that non-

Hispanic subjects had larger increases in the number of vegetables consumed (Landry et al.,

2021). One limitation of this study is that self-reporting can be biased, and the study was based

in Central Texas, where the population breakdown might not apply to the rest of the U.S.

The garden-based nutrition education model has also been successful even when it

explicitly targets children from families with limited resources. Whiteside-Mansell and Swindle

(2019) examined the outcomes of a preschool nutrition promotion curriculum known as Together

We Inspire Smart Eating (WISE) to evaluate the program's effectiveness in increasing fruit and

vegetable consumption among school-aged children from families with limited resources. The

study was conducted in 15 centers in the United States, with a total sample size of 526 children,

with 268 as part of the interventional group and the other 258 as the control group. The study

found that the WISE program effectively improved in-home diet and could potentially contribute

to obesity prevention in at-risk populations (Whiteside-Mansell, 2019). The study's strengths

include a large sample size and a nationally representative cohort to examine the association

between household poverty dynamics and childhood overweight risk in the USA. However, the

study relied on self-reported data for weight-related health behaviors, which may be subject to recall bias. The study did not examine other potential confounding factors, such as physical activity levels or dietary intake. Furthermore, half of the cohort was unaccounted for by the time the data gathering was done.

Socioeconomic Status and Culture on Obesity

The previously mentioned study by Landry et al. (2021) noted that non-Hispanic subjects in the experimental group had significantly higher HEI scores than their control counterparts. However, the reason behind this was unknown. This leaves a gap in the literature for more research to be done in order to examine why Hispanic subjects tend to have different results compared to their counterparts.

Aside from cultural differences, familial socioeconomic status, and income also directly affect the BMI trajectory of children. Min et al. (2018) conducted a longitudinal data analysis to determine how family income dynamics affect children's BMI trajectory and behavior. The study used mixed models with fractional polynomial functions and estimating equation models to examine the differences in BMI trajectory, weight-related health behaviors, and risk of overweight in association with household poverty dynamics during follow-up. The sample population consisted of 16,800 children between kindergarten and 8th grade in the United States. The study found that the experience of recurrent household poverty had a significant association with children's adverse eating behaviors and increased obesity risk. Children in the recurrently poor group had a 1.5 times higher risk of being overweight than those who had never experienced poverty during follow-up (Min et al., 2018). The study's strengths include a large sample size and a nationally representative cohort to examine the association between household poverty dynamics and childhood overweight risk in the USA. However, the study relied on self-

reported data for weight-related health behaviors, which may be subject to recall bias. The study did not examine other potential confounding factors, such as physical activity levels or dietary intake. Furthermore, half of the cohort was unaccounted for by the time the data gathering was done.

In conclusion, although obesity can be caused by a variety of factors such as diet, exercise, genetics, and socioeconomic status, nutrition education has been shown as an effective way of combating childhood obesity. In addition, garden-based nutrition education models have been successful even when families have limited resources; it is important to note that interventions should still be targeted toward vulnerable populations at the most significant risk. Finally, there is still an extensive gap in research explicitly directed at low-income Hispanic populations that needs to be addressed.

Theoretical Framework

The Health Promotion Model (HPM) developed by Nola Pender is a theoretical framework that aims to understand how individual differences and various factors influence health-related behaviors. The model emphasizes the importance of preventing illnesses and maintaining good health through personal responsibility. According to the HPM, various factors, such as individual characteristics, beliefs, and experiences, all play a vital role in motivating individuals to engage in health-promoting behaviors (Gonzalo, 2023). By promoting nutrition education and adopting an upstream approach to tackle obesity in our target population, we can utilize this theoretical framework to achieve better health outcomes. Additionally, highlighting the extent of control individuals have over their health outcomes can help instill a sense of autonomy in at-risk children, which is essential for making and sticking to positive lifestyle changes (Gonzalo, 2023).

Experimental Design

This study seeks to evaluate the efficacy of a garden-based nutrition education program when specifically targeted at a predominantly low-income Hispanic population of school-aged children. This study proposes a quasi-experimental design where the intervention will implement an 11-week-long garden-based nutrition education program to supplement the existing school education. There will be 200 subjects (n=200) between the ages of 7 and 10 (3rd to 5th graders). In addition to the interventional group, this study will maintain a control group using different students from the same school that fall within the proposed demographics. Both the pre-and post-tests will also be given to the participants. The control group's mean delta is expected to be significantly less than the interventional group. The convenience sample will include Students from San Pedro Elementary School located in the Point San Pedro neighborhood of San Rafael. The efficacy of the intervention will be measured using the Healthy Eating Index (HEI) survey as a pre and post-test at the start and end of the program to gauge improvements in the individual children's dietary habits. The HEI is a survey that assesses different aspects of a diet, which are as follows: 1) Whole Fruits, 2) Total Fruits, 3) Whole Grains, 4) Dairy, 5) Total Protein Foods, 6) Seafood and Plant Proteins, 7) Greens and Beans, 8) Total Vegetables, 9) Fatty Acids, 10) Refined Grains, 11) Sodium, 12) Added Sugars, and 13) Saturated Fats. The HEI scores range from 0 to 100, with a score of 100 indicating a diet that closely aligns with the American Dietary Guidelines jointly published by the U.S. Department of Health and Human Services and the Department of Agriculture (Krebs-Smith et al., 2018). The HEI has been previously evaluated with scores analyzed and means and standard deviations estimated using multiple statistical techniques. In summary, research has found the HEI to be a valid and reliable indicator of diet quality, especially when in correlation with the reduction of long-term chronic illnesses related to

diet, including obesity, diabetes, and cardiovascular disease mortality (Reedy et al., 2018). Through the use of the HEI as a pre and post-test, we can determine whether or not the proposed interventions will positively impact scores, which would indicate an improvement in diet as well as a decreased risk of chronic diseases relating to diet. For further clarity as to where dietary choices may be deficient, the children's HEI scores will be plotted visually on a radar plot, with each point being one of the 13 aspects measured by the survey. We can then analyze the data and focus on future nutrition education program changes to address those shortcomings. Descriptive statistics will be used to compare the survey results and determine the intervention's effectiveness. A t-test will be used to evaluate the statistical significance between the two groups.

One limitation of this design is that HEI scores will be self-reported and based on individual recall, so we cannot expect 100% accuracy. Another limitation is that there is not another school in the area with a similar demographic makeup in terms of ethnicity and socioeconomic status, making it challenging to keep the control and interventional groups genuinely separate, as there is a possibility that children from the interventional group may discuss lessons, activities, and scoring with the control group.

Ethical considerations

This study will be conducted without bias, and the contents of the tests administered to both groups will be identical. Since the study will involve minors, proper parental consent will be obtained. In addition to this, parents will be briefed appropriately. As many parents are Guatemalan immigrants, the designer of this study will ensure the availability of a Spanish translator in order to be as transparent as possible. Individual test scores will be kept anonymous, and subjects or parents may withdraw whenever they deem fit. This study is pending IRB approval by the Dominican University of California IRB board.

Conclusion

Combating increasing rates of childhood obesity is a priority public health concern, but what is especially concerning is the disproportionate rates at which it affects both low-income and Hispanic children. School-based nutrition education programs have been proven to be effective models for combating the knowledge deficit that usually accompanies childhood obesity, however there still exists a gap on whether or not the models may be useful for the aforementioned demographic. The aim of this research proposal is to address that gap and to hopefully find an effective and sustainable solution to providing nutrition education and combating childhood obesity. Hopefully, the proposed intervention will yield improved Healthy Eating Index scoring in these schoolchildren and provide a framework for Public Health Nurses to help address this ongoing issue.

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R., Jeans, M. R., Waugh, L., Nikah, K., Sharma, S. V., & Davis, J. N. (2021). Impact of a

School-Based Gardening, Cooking, Nutrition Intervention on Diet Intake and Quality:

The TX Sprouts Randomized Controlled Trial. Nutrients, 13(9), 3081. https://doi-

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Min, J., Xue, H., & Wang, Y. (2018). Association between household poverty dynamics and

      childhood overweight risk and health behaviours in the United States: a 8-year nationally

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Whiteside-Mansell, L., & Swindle, T. M. (2019). Evaluation of Together We Inspire Smart

      Eating: pre-school fruit and vegetable consumption. Health Education Research, 34(1),

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APPENDIX A: LITERATURE REVIEW TABLE

Student Name: Larry Bui
Paper Title: Garden-Based Nutrition Education May Lead To Increased Dietary Knowledge in Low Income Hispanic School Children

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Citation: Kunpeuk, W., Spence, W., Phulkerd, S., Suphanchaimat, R., & Pitayarangsarit, S. (2020). The impact of gardening on nutrition and physical health outcomes: a systematic review and meta-analysis. Health Promotion International, 35(2), 397–408. https://doi-org.dominican.idm.oclc.org/10.1093/heapro/daz027

Purpose/ Objective of the study: Meta analysis to investigate the association between community gardening and nutrition and physical health among adults.

Sample- population of interest and sample size: n=19 different articles filtered down from 1056 articles from five databases were used to conduct this meta-analysis.

Study Design: Systematic Review and Meta Analysis

Study Methods: The study included quantitative studies that compared gardening (as 'treatment') to non-gardening or any alternative activities (as 'controls'). The term 'community gardening' in this study referred to an activity in which people grow, cultivate and take care of (both edible and non-edible) plants for non-commercial purposes. It comprised activities that related to agriculture, horticulture, allotment, home or greening gardening. It had been conducted in any country, and activities were undertaken at home, or in urban or rural areas, or in the community. Participants were adults aged 18 years or older or were part of samples where the sample mean age was not less than 18 years. There were three main sets of outcomes in this study including nutrition, physical health and physical activity. Of the 19 included articles, 15 and four articles identified as observational and experimental studies, respectively. Among the 15 observational studies, 14 applied cross-sectional design, whereas one used a case–control study. For quasi-experimental design, one used post-test-only design with control group.

Major (stats) Findings:(is it stat significant) : The study found that community gardening was associated with improved dietary intake, increased fruit and vegetable consumption, and improved physical health outcomes such as reduced BMI, waist circumference, blood pressure, and cholesterol levels. Community gardening was also associated with increased physical activity levels among adults. However, the study also found that there was a lack of high-quality evidence on the effectiveness of community gardening interventions on health

outcomes due to the limited number of experimental studies available for inclusion in the meta-analysis

Strengths: The study used a systematic review and meta-analysis approach to examine the association between community gardening and nutrition and physical health among adults. The study included a large number of observational studies that provided valuable insights into the potential benefits of community gardening on health outcomes.

Limitation: The study was limited by the lack of high-quality experimental studies available for inclusion in the meta-analysis. Additionally, the study relied on self-reported data for dietary intake and physical activity levels which may be subject to recall bias. Finally, the study did not examine other potential confounding factors such as socioeconomic status or access to healthcare services that may have influenced the observed associations between community gardening and health outcomes

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Citation: Whiteside-Mansell, L., & Swindle, T. M. (2019). Evaluation of Together We Inspire Smart Eating: pre-school fruit and vegetable consumption. Health Education Research, 34(1), 62–71. https://doi-org.dominican.idm.oclc.org/10.1093/her/cyy048

Purpose/ Objective of the study: To evaluate the efficacy of the WISE program towards achieving its goal of increased fruit and vegetable consumption in school-aged children.

Sample- population of interest and sample size: N = 268 in WISE classrooms with an additional N = 258 used as the control. Total sample size was 526

Study Design: Quasi-experimental, pre-post intervention study with a non-randomized comparison group utilizing data from 15 centers from

Study Methods: Full information maximum likelihood (FIML) was used to estimate regression models predicting child dietary outcomes. FIML uses all available data and provides the least bias estimates in multiple regression models with missing data compared with other commonly used methods such as pairwise or listwise deletion. FIML estimates were computed using SAS. Bonferroni adjustments were used to adjust for multiple comparisons.

Major Findings:Together WISE was an effective tool to improve in home diet and could potentially contribute to obesity prevention in at-risk populations.

Strengths: Both the control and experimental groups were conducted in schools that were all under the purview of WISE which allowed methodology to be consistent as there is one governing body for the program. Parents given pre and post test along with their Family Map

Inventories used to screen for environmental tests were blinded to what group their children were in which prevented biased responses.

Limitation: Consumption assessment was based on parental observation which may be at risk of inconsistency due to time parents had in contact with the children, or by overreporting, partially mitigated by the FMI.

Citation: Landry, M. J., van den Berg, A. E., Hoelscher, D. M., Asigbee, F. M., Vandyousefi, S., Ghaddar, R., Jeans, M. R., Waugh, L., Nikah, K., Sharma, S. V., & Davis, J. N. (2021). Impact of a School-Based Gardening, Cooking, Nutrition Intervention on Diet Intake and Quality: The TX Sprouts Randomized Controlled Trial. *Nutrients*, *13*(9), 3081. https://doi-org.dominican.idm.oclc.org/10.3390/nu13093081

Purpose/ Objective of the study: The purpose of this study was to evaluate the impact of a school-based gardening, cooking, and nutrition intervention on diet intake and quality among children.

Sample- population of interest and sample size: The study was conducted in 28 elementary schools in Central Texas, United States. The sample population consisted of 3rd to 5th-grade students. A total of 1,495 students participated in the study.

Study Design: Randomized control trial

Study Methods: The intervention consisted of a 12-week program that included gardening, cooking, and nutrition education. The control group received no intervention. Dietary intake was assessed using a food frequency questionnaire at baseline and post-intervention. Diet quality was assessed using the Healthy Eating Index (HEI)-2015.

Major Findings: The study found that the intervention group had significantly higher HEI-2015 scores compared to the control group. Additionally, the intervention group had significantly higher intakes of fruits, vegetables, and whole grains compared to the control group. Also of note, the intervention group had an increase in the total percentage of protein consumed towards total caloric intake. Interestingly, Non-hispanic subjects had larger increases in number of vegetables consumed.

Strengths: Large sample size with randomized control groups

Limitation: Self reporting can be biased. Study was based in central Texas where the population breakdown might not be applicable to the rest of the U.S.

Citation: Wang, L., Zhuang, J., Zhang, H., & Lu, W. (2022). Association between dietary knowledge and overweight/obesity in Chinese children and adolescents aged 8-18 years: a

cross-sectional study. BMC Pediatrics, 22(1), 1–11. https://doi-org.dominican.idm.oclc.org/10.1186/s12887-022-03618-2

Purpose/ Objective of the study: To determine if there was a correlation between dietary knowledge and obesity

Sample- population of interest and sample size: 1200 participants aged 8-18

Study Design: Cross-sectional study

Study Methods: The authors used a self-reported questionnaire to assess dietary knowledge and collected anthropometric measurements (height, weight, waist circumference) to calculate BMI

Major Findings: Children who scored higher on the questionnaire indicating higher nutritional knowledge were negatively associated with obesity when compared to children who had lower questionnaire scores.

Strengths: The sample size was large with a wide age range. The outcomes that informed their conclusion were found to be consistent in the children regardless of gender, age, or geographical location.

Limitation: The study used a self reported questionnaire so there are always concerns with validity and reporting bias. In addition to this the study did not take into account the activity levels of the individual children, which may play a part in determining the children's BMIs.

Citation: Min, J., Xue, H., & Wang, Y. (2018). Association between household poverty dynamics and childhood overweight risk and health behaviours in the United States: a 8-year nationally representative longitudinal study of 16 800 children. Pediatric Obesity, 13(10), 590–597. https://doi-org.dominican.idm.oclc.org/10.1111/ijpo.12292

Purpose/ Objective of the study: To determine how family income dynamics affects children's BMI trajectory and behavior

Sample- population of interest and sample size: 16800 children between Kindergarten and 8th grade

Study Design: Longitudinal data analysis

Study Methods: The study used mixed models with fractional polynomial functions and estimating equation models to examine the differences in BMI trajectory, weight-related health

behaviors, and risk of overweight in association with household poverty dynamics during follow-up.

Major Findings: The experience of recurrent household poverty had a significant association with children's adverse eating behaviors and increased obesity risk subsequently. Children in the recurrently poor group had a 1.5 times higher risk of overweight than those having never experienced poverty during follow-up

Strengths: The study used a large sample size and a nationally representative cohort to examine the association between household poverty dynamics and childhood overweight risk in the USA.

Limitation: The study relied on self-reported data for weight-related health behaviors, which may be subject to recall bias. Additionally, the study did not examine other potential confounding factors such as physical activity levels or dietary intake. Additionally, by the time the data gathering was done half of the cohort was unaccounted for.

Citation: An, R. (2017). Diet quality and physical activity in relation to childhood obesity. International Journal of Adolescent Medicine & Health, 29(2), 1–9. https://doi-org.dominican.idm.oclc.org/10.1515/ijamh-2015-0045

Purpose/ Objective of the study: The purpose of this study was to examine the relationship between diet quality, physical activity, and childhood obesity.

Sample- population of interest and sample size: The study sample consisted of 1,742 children aged 6-17 years from the National Health and Nutrition Examination Survey (NHANES) 2003-2006

Study Design: Cross-sectional design

Study Methods: Data were collected through interviewer-administered surveys with parents or guardians of the children. The surveys included questions about the children's dietary intake, physical activity, and demographic characteristics. Diet quality was assessed using the Healthy Eating Index-2010 (HEI-2010). Physical activity was assessed using a questionnaire that asked about the frequency and duration of moderate and vigorous physical activity.

Major Findings: The study found that children who consumed an unhealthy diet and were physically inactive had a higher probability of being overweight or obese compared to those who consumed a healthy diet and were physically active. Children who consumed a healthy

diet but were physically inactive also had a higher probability of being overweight or obese compared to those who consumed a healthy diet and were physically active..

Strengths: The study provides important insights into the relationship between diet quality, physical activity, and childhood obesity in a nationally representative sample of children in the United States. The use of a standardized measure of diet quality (HEI-2010) allows for comparisons with other populations.

Limitation: The study sample was limited to children aged 6-17 years in the United States, which may limit generalizability to other populations. The cross-sectional design precludes causal inference. The use of self-reported data may introduce bias.