

ENGAGEMENT IN NUTRITION EDUCATION PROVIDED ON INSTAGRAM VERSUS
FACEBOOK AMONG LOW-INCOME CAREGIVERS OF PRESCHOOLERS

A THESIS

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BY

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DEDICATION

To my whole world, my son, Ransom Thomas, for being the driving force behind my ambitious journey.

ABSTRACT

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ENGAGEMENT IN NUTRITION EDUCATION PROVIDED ON INSTAGRAM VERSUS FACEBOOK AMONG LOW-INCOME CAREGIVERS OF PRESCHOOLERS

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Poor diet quality in preschool-aged children is increasing in prevalence, leading to childhood obesity and comorbidities in adulthood. Social media often shares nutrition information that features foods of low nutritional value compared to fruits and vegetables (F/V). This study used qualitative and quantitative methods to assess the influence of social media on F/V intake in low-income families as well as satisfaction with social media over an 8-week period. Social media content was developed to promote F/V intake among low-income families of preschoolers using Health Belief Model concepts. Data was collected through Facebook and Instagram by assessing engagement through likes, comments, and shares. F/V intake were assessed in 4 participants ($n = 4$) through a pre- and post-assessment survey and a post-assessment social media satisfaction survey. Overall, F/V intake of the families did not change. More studies are needed to assess whether social media can influence F/V intake for low-income families.

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CHAPTER I

INTRODUCTION

Obesity is particularly prevalent among preschool-aged children in low-income and minority households.^{1,2} Obesity in children is defined as plotting at the 95th percentile or greater for body mass index (BMI)-for-age.^{3,2} Childhood obesity can increase the probability of developing cardiovascular diseases, diabetes, respiratory issues, gallstones and fatty liver, and psychological complications.^{4,2} Furthermore, children can carry obesity into adulthood.^{4,2} According to the Centers for Disease Control and Prevention's (CDC) most recent data, children ages 2-5 had obesity prevalence of 12.7%.¹ Additionally, children and adolescents aged 2-19 in the lowest income bracket had the highest obesity prevalence of 18.9%.¹ Children in low-income and minority households have higher rates of obesity, which puts them at especially high risk for poor health outcomes.^{1,4}

The Supplemental Nutrition Assistance Program (SNAP) is a government assistance program to support households of low-income families by providing monetary support to purchase foods for good health.^{5,6} Forty-five percent of SNAP recipients are children 18 years and younger, with research suggesting that this population is far less likely to meet the recommended dietary guidelines for nutritional intake.^{7,8} This population may consume processed meat, sugar sweetened beverages (SSB), added sugar, saturated fats, and other less healthy foods at higher rates than higher income populations, leading to an increase in health complications beginning in early childhood.^{2,7,8}

Technology has become a major platform for nutrition education through social media, specifically in young adults, who may be largely influenced by social media and open to using this form of technology on smart phones.⁹ Not only has technology become a highly utilized tool

for social connectedness, but individuals have become substantially reliant on social media as a resource for nutrition and health-related information.¹⁰ For example, social media has been proven a powerful platform to provide nutrition education in young adults to reduce health complications and implement nutrition behavior change.^{9,11} Researchers have recognized that 92% of younger adults and 90% of new mothers use social media to share a connection with their peers and cultivate healthy behaviors at home.⁹ Social media can also be used as a constructive and functional platform to provide an alternative form of low-cost nutrition education in SNAP recipients and other low-income populations.^{9,12,13}

Although social media is a popular source of nutrition information, the social media landscape is dominated by content produced by influencers, individuals who alter or change how others behave and may not provide reliable content.^{14,15} Content delivered via social media is fundamentally based on promotional enterprises, whereas the use of an appropriate theoretical foundation is recommended when disseminating nutrition education to influence or modify behavior.¹⁴ The Health Belief Model (HBM) is a widely applied model that originated from applied public health programs to understand why individuals were not participating in programs that provided preventative measures related to identifying and mitigating disease states.¹⁶ As time progressed, the model developed to examine individuals' beliefs about their susceptibility to health-related conditions, the seriousness of those conditions, and their likelihood of adopting health behaviors to mitigate their health risks.¹⁶

In creating a social media-based intervention to improve feeding practices among caregivers of preschoolers, addressing key concepts of the HBM may aid in influencing health beliefs and behaviors to achieve positive health outcomes. The HBM features several key concepts that may be used to support behavior change, but for the purposes of this study, the

researcher used perceived benefits, self-efficacy, cues to action to structure the content of the posts.¹⁶ Increasing perceived benefits can heighten awareness of the benefits of taking action to achieve a positive outcome. Shifting the scales so that perceived benefits outweigh the perceived risks (costs) of adopting or avoiding a specific health behavior coincides with the raised awareness.¹⁶ Self-efficacy indicates an individual believes they can take action to achieve a desired outcome.¹⁶ Cues to action are used to increase readiness to take action or provide information on how to increase individual awareness of the need to take action.¹⁶

Social media influences individuals' health behaviors and is an effective tool to distribute nutrition education to diverse populations.¹⁷ Social media also provides an accessible way for low-income families to receive a low-cost form of nutrition education through their mobile devices.^{9,12,13} However, it is unclear whether one social media platform is more engaging than another when assessing fruit and vegetable (F/V) intake in low-income families, specifically caregivers of preschool-aged children.

Use of social media platforms vary by age, with 70% of users aged 18-29 using Facebook (FB) and 71% using Instagram (IG).¹⁸ Among individuals aged 30-49, 77% use FB while 48% use IG.¹⁸ Caregivers of preschoolers may range in age from older teens to adults in their 40s, thus it is unclear whether they would be more engaged in IG or FB. Therefore, assessing social media engagement could help SNAP-Ed providers determine the best platform(s) for providing reliable and engaging nutrition education content to guide caregivers on how to improve health behaviors within their homes.

The type of posts on IG and FB often differs in style due to the nature of the platforms. FB groups are used as a place of connection, communication, and interaction to build a community.¹⁹ FB notes that 2.7 billion people use this platform monthly to interact and connect

with family and friends to build relationships.²⁰ IG is used to share photos and videos focusing on the imagery of photography in addition to branding and advertising.²¹ The platforms' communities also differ in that FB has been identified as a platform in which participants most often interact with people they know or have been in touch with whereas IG is a community for individuals with common interests.²² Moreover, it has been noted that the engagement average per post is relatively higher on FB while IG has been more successful in the effectiveness of branding for consumers.²² Overall, the distinct difference between FB and IG is that FB is fundamentally used for social networking with family and friends while IG is primarily used as a photo-sharing platform for people with common interests.²²

PURPOSE

The purpose of this study was to develop engaging content for two social media platforms (FB and IG) to increase F/V intake in low-income households of preschoolers and compare engagement and impact between the platforms.

RESEARCH AIMS AND HYPOTHESIS

- *Aim 1:* To assess social media engagement between two social media platforms (through a private IG page and a private FB group) to identify whether IG produces more engagement than FB among caregivers of preschoolers in low-income households.

Hypothesis 1: IG will produce a higher rate of engagement than FB among caregivers of preschoolers in low-income households.

- *Aim 2:* To compare F/V intake in preschoolers of low-income families over 8 weeks to identify whether engagement with social media improves F/V consumption at home and whether one platform produces greater improvement compared to the other platform.

- *Hypothesis 2a:* F/V consumption will increase in low-income households by the end of the 8 weeks. *Hypothesis 2b:* F/V intake will be higher in the IG group compared to the FB group.
- *Aim 3:* To assess social media platform satisfaction among caregivers of preschoolers in low-income households. *Hypothesis 3:* Social media satisfaction will be higher among IG users versus FB users.

Findings from this study can shed light regarding how a preferred social media platform can be used to effectively engage low-income caregivers of preschoolers and support health and behavior changes within the home.

ASSUMPTIONS AND LIMITATIONS

Potential limitations of this study include the possible bias associated with social media platform preferences, specifically between IG and FB. In addition, this study had a small sample size, and participation and survey responses were lower than expected. Assumptions of this study include the following: (1) Caregivers had regular access to social media, and participants regularly checked social media, (2) participants had access to F/V at home, and (3) social media had an influence on caregivers to make behavioral changes at home to increase F/V consumption among their preschoolers.

DEFINITION OF TERMS

- Health Belief Model (HBM): a widely applied model that originated from applied programs in which individuals could not identify and address their disease risk.¹⁶ The model developed to examine individuals' behaviors as they were identified at varying degrees of disease risk or disease states.¹⁶

- Childhood overweight: children between the ages of 2-20 are measured through the CDC's standard of reference that defines obesity as having a BMI at or above the 85th percentile for child's age and sex.²
- Childhood obesity: children between the ages of 2-20 are measured through the CDC's standard of reference that defines obesity as having a BMI at or above the 95th percentile for child's age and sex.²
- Food insecurity: the inability to meet the Dietary Reference Intake (DRI) and insufficient access to foods that are safe and nutritious.²³
- Supplemental Nutrition Assistance Program (SNAP): a federal nutrition assistance program that supports low-income families with resources to purchase food for good health.⁴⁻⁶
- Preschool-aged children: children identified between the ages of 3-5 years.²⁴
- Influencers: individuals who alter or change how others behave.^{14,15}
- Registered Dietitian Nutritionist (RDN): individuals meeting requirements to obtain a credential as an expert in nutrition and food.²⁵
- Social media: interaction between people by creating or sharing information through a virtual network.²⁶
- Body Mass Index (BMI): weight/height² (kg/m²), an ambiguous measurement of body adiposity in reference to age and biological sex.²⁷

STUDY SIGNIFICANCE

Obesity is highly prevalent among preschool-aged children classified in low-income and minority households.¹ Childhood obesity can lead to lifelong complications and cause an increase in poor health outcomes.^{1,4} This study provides nutrition professionals a better understanding

about how to promote social media engagement among low-income caregivers of preschoolers. Furthermore, this study provides insight into how HBM-based messaging can be integrated within FB and IG posts to increase the consumption of F/V among preschoolers. In turn, increasing F/V consumption in preschoolers can promote healthy eating patterns and help support a healthy weight.²⁸ This study also contributes to the goals and objectives of Healthy People 2030, specifically the objective to reduce the proportion of obesity in children and adolescents.²⁹

This research increased understanding of how social media messaging, supported by the HBM, promote positive outcomes such as healthier eating behaviors at home. While this study intended to contribute to the understanding of which social media platforms are more effective at driving engagement among low-income caregivers of preschoolers to support health and behavior change within the home, limited participation impacted this goal.

CHAPTER II

REVIEW OF LITERATURE

A Paper to be Submitted For Publication in the

Journal of Nutrition Education and Behavior

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POOR DIET IN CHILDHOOD

Obesity in children is increasing in prevalence and causing increasing concern within the United States.² A primary cause of childhood obesity is due to an excess of caloric intake in relation to energy expenditure.² Obesity in children likely leads to comorbidities into adulthood such as poor psychosocial health, cardiometabolic disease states, insulin resistance, premature mortality, and more.^{1,2,27,30-32} Twenty-three million children within the United States have overweight or obesity with up to 80% having obesity persist in adulthood.³² Moreover, preschool aged children (2-5 years) have an obesity prevalence of 8.4%, with 22.8% having overweight or obesity, and even higher rates are found in lower-income populations.²

Excessive consumption of fast food, calorically dense foods, SSB, and foods low in micronutrients are all contributing factors to the rise of obesity in children.^{2,23,27,32} Low-income neighborhoods typically have limited opportunity for produce and are often surrounded by fast and convenience foods which can lead to food insecurity.²³ Families who are food insecure have been reported as having children who consume less fruit than other children their age.²³ Thus, households with minimal financial resources present with a greater level of food insecurity and children with obesity.²³

F/V consumption is fundamental to optimal growth and health in childhood development.^{33,34} Without consistent and adequate consumption of F/V, children are more likely

to develop undesired health outcomes such as cardiovascular disease.³⁵ In contrast, sufficient F/V intake is correlated with positive health outcomes, weight stability, and a decreased risk of obesity.³⁶ Therefore, educating caregivers about how to promote or increase F/V intake is critical to aid in the prevention of overweight and obesity in preschool-aged children.

FRUIT AND VEGETABLE INTAKE IN CHILDREN

In 2021, a parent report through the National Survey of Children's Health (NSCH) representing children between the ages of 1 and 5 found that 32.1% of children did not consume fruits daily; 49.1% did not consume vegetables daily; 57.1% consumed an SSB at least one time per day.³³ Among children aged 2 to 5 years, Black children and children from low-income families who experience food insecurity present with relatively lower intake of daily F/V consumption.^{23,33,36} Another study reported that F/V intake among children aged 2-18 years within the United States remains low with just 40% consuming a daily F/V and 7% meeting the recommended servings for F/V.³⁴ Similarly, between 2007 and 2010, 33% of U.S. children aged 1-3 met the recommendations for fruits, while 13% met the recommendations for vegetables.³⁵

As early as preschool, children begin developing dietary habits regarding their food groups.³⁴ Parents are known to be the primary influencers of the home environment and play decisive roles in implementing healthy practices related to nutritional intake.³⁶⁻³⁸ A review of literature indicated that serving F/V at mealtimes, home F/V availability, home-cooked meals, eating meals as a family, and positive parental F/V relationships all increased F/V intake at home for children ages 5-12 years.³⁶ Consequently, targeting caregivers of preschool-aged children to support F/V intake and provide dietary education may instill healthy habits for a lifetime.

SOCIAL MEDIA AND NUTRITION INFLUENCE

Social media is increasing in interest as a tool to prevent childhood obesity.³⁸ The utilization of FB and IG has increased from 16% to 75% from 2006 to 2014.³⁸ Another study reported an increase in social media use from 5% to 69% from 2005 to 2018.³⁹ In 2014 the Pew Research Center conducted a survey in the United States that showed 74% of parents who are online use FB, and approximately one-fourth use IG, with the majority being female.⁴⁰ Parents and women who are pregnant are utilizing social media to obtain support and information related to their child's health.⁴⁰ One study reported that among parents in the United States, YouTube, FB, and IG were among the most popular platforms, while parents of younger aged children used IG, Snapchat, and TikTok.⁴⁰ However, mothers primarily used FB and IG while fathers primarily utilized Twitter and Reddit.⁴⁰

Many people utilize social media platforms to share information digitally, develop personalized profiles, and create a place of social connectedness through users who use the same platform.⁴¹ Sharing nutrition-related information on social media has been shown as one of the most popular topics within the online community,⁴¹ and evidence suggests that social media platforms widely share and circulate dietary-related content.³⁸ Therefore, individuals who are active on social media may be exposed to dietary content and cultivate social norms that influence how they provide dietary support to their children.³⁸

Emergent evidence indicated that mothers, specifically those between the ages of 24 and 39 who have children of preschool or elementary age, may be exceptional targets on social media to influence nutrition-related behavior change due to their level of platform engagement.^{38,39} Parents, particularly mothers, exhibit an enormous dietary influence on their school-aged

children.^{38,39,42} Therefore, this creates a considerable need to provide dietary-related interventions on social media for caregivers of childbearing years.

Advanced technology, such as social media, has allowed for low-cost, on-demand, and reliable nutrition and dietary behavior content that can be widely disseminated.³⁷ The ability to access such information virtually has bridged a gap between nutrition educators and at-risk populations. Therefore, it has been suggested that electronic means of distributing nutrition-related content may be particularly beneficial to influence dietary and behavior change at home for low-income caregivers with preschool-aged children; specifically, online health communication strategies can prevent childhood obesity and comorbidities from occurring into adulthood.^{38,42}

SOCIAL MEDIA USE TO IMPROVE DIETARY QUALITY

Influencers, professionals, organizations, and the public utilize social media to present a wide variety of information, including health-related material.^{43,44} Many adults have reported utilizing social media as a resource for health-related information in place of referring to in-person resources.⁴³ Systematic reviews on the use of social media or social media intervention have identified that such use may improve behavior outcomes related to physical activity and diet.⁴³ The World Health Organization Global Action Plan for Physical Activity has acknowledged that social media may be able to target and provide outreach to large population groups to encourage physical activity.⁴⁵ Furthermore, evidence has suggested that social media may be used as a tool to promote physical activity and positive dietary habits in adults through educational, clinical, professional, and community settings.⁴⁵

A systematic review presented multiple studies that had positive health-related outcomes related to social media. One of the reviewed studies provided a social media intervention through

FB to assess physical activity, BMI, dietary habits and quality, and inflammatory outcomes related to diet.⁴⁵ Daily social media posts provided information regarding nutrition and physical activity.⁴⁵ As a result, the Healthy Eating Index scores increased significantly while the Dietary Inflammatory Index scores decreased significantly from baseline to post-intervention.⁴⁵ Another study reviewed presented an increased consumption of F/V from the beginning of the study to baseline through a social media intervention utilizing WeChat where health-related information was shared daily.⁴⁵ Overall, the systematic review indicated that interventions provided through social media have the potential to influence progressive changes in health-related behaviors such as physical activity and dietary habits.⁴⁵ However, only two-thirds of the reviewed studies were considered high quality, while a third of the studies were deemed insufficient in evidence.⁴⁵

Another systematic review featured a meta-analysis of randomized control trials for social media interventions related to exercise and diet.⁴⁶ Overall, the review resulted in insignificant differences found through social media interventions for positive health-related outcomes due to low participation and compliance.⁴⁶ A mixed-methods systematic review assessed social media engagement in young adults related to body image and food choices.⁴⁴ This review found that individuals are highly impacted by influencers compared to health professionals and present outcomes associated with poor body image and food choices.⁴⁴ However, the content presented on social media was not indicated to promote positive outcomes but to assess body image and food choices after participants were exposed to image-related content.⁴⁴

A mixed-methods systematic review was conducted in 2018 to assess nutrition outcomes in young adults through the application of social media.⁴⁷ Fourteen of the 23 studies examined assessed social media effectiveness regarding energy, F/V, and SSB intake.⁴⁷ However, the

analysis was impossible to conclude due to the inability to appropriately assess the effectiveness of social media related to nutrition outcomes.⁴⁷ Overall, this systematic review concluded that current research regarding social media's influence on young adults related to health and dietary outcomes such as F/V intake is limited in the effectiveness to improve dietary outcomes.⁴⁷ A supplemental systematic review analyzed the effectiveness of online social network interventions influencing dietary intake.⁴⁸ This review included the assessment of FB and its dietary influence.⁴⁸ Significant improvements related to health-related outcomes were observed in nine of the 10 studies with small effect size for behavior change.⁴⁸

None of these literature reviews included studies addressing F/V intake at pre- and post-assessment in homes of caregivers or parents with preschool-aged children or children of any age. However, two studies addressed social media interventional programs used to prevent obesity in children.^{37,42} Neither study measured nutritional intake pre- and post-intervention, but both studies assessed social media engagement among parents of school-aged children.^{37,42} Outcomes included parental barriers to social media engagement and what content produced higher engagement.^{37,42} Parents reported minimal engagement was primarily due to limited time.^{37,42} Moreover, parents were interested in social media content that included simple recipes, educational material for their children regarding nutrition, and the ability to involve their child in the social media intervention or program.^{37,42} Thus, there is a clear a need for further investigation regarding how social media may be used to influence the feeding practices of caregivers of preschoolers and the F/V intake of children.

FUTURE RESEARCH

Research related to social media engagement used as an intervention to promote F/V intake for preschoolers of low-income caregivers is limited. Current research to date includes

many systematic reviews indicating that social media used as an intervention to increase positive behaviors related to physical activity and dietary habits is possible.^{43,45,48} On the other hand, some research indicates that social media may be detrimental to body image, physical activity, and nutritional intake.^{44,46-48} Yet, none of these studies has been conducted in low-income parents of preschool-aged children. Additional research is necessary to understand how social media may be used as a tool to influence caregiver practices in promoting healthy dietary behaviors such as F/V consumption among their young children.

CHAPTER III

METHODOLOGY

This study was approved by the Institutional Review Board of Texas Woman's University. Prior to the study, participants provided the primary student investigator (PI) with signed consent to participate.

The study included qualitative and quantitative measures to assess social media engagement with nutrition education content provided via FB and IG among low-income caregivers of preschoolers. Social media engagement with nutrition education, F/V consumption for low-income families with preschool-aged children, and social media satisfaction were measured.

Social media content was created for low-income caregivers of preschoolers with relevant and reliable nutrition-related material regarding F/V intake. Each piece of content addressed at least one of three concepts of the HBM: cues to action, self-efficacy, and perceived benefits. Pre- and post-assessment surveys, a demographic questionnaire, and a social media satisfaction survey were all conducted to measure the influence of the study conducted. Emails were the primary resource used when communicating with the participants of the current study.

CONTENT DEVELOPMENT

The PI curated F/V content geared toward low-income families with preschoolers between the ages of 3 and 5. The social media content is rooted in three concepts developed through the HBM: cues to action, self-efficacy, and perceived benefits. Cues to action is an HBM concept used to increase readiness to act or provide information on how to increase individual awareness of the need to act.¹⁶ Self-efficacy indicates an individual believes they can take action to achieve an outcome.¹⁶ Perceived benefits are intended to heighten awareness of the benefits of

taking action to achieve a positive outcome.¹⁶ Utilizing these concepts provided a theoretical foundation when disseminating reliable and accurate F/V related material.

Common topics related to low-income families of preschool-aged children were chosen to support the needs of this specific population. Such topics included: benefits of consuming F/V, cooking with preschool-aged children, how to incorporate more F/V, purchasing F/V on a budget, F/V-related activities, helpful reminders, and F/V resources. Seven out of 16 posts were intended to provide cues to action, 6 out of 16 promoted self-efficacy in feeding their preschoolers F/V, and 4 out of the 16 addressed perceived benefits of eating F/V. The PI used Google Sheets to create a timeline for the social media posts, have accessible links to the social media content, categorize each post by the HBM, and prepare pre-written scripts to support each post on social media. The social media content published for FB and IG is found in Appendix B.

The PI used a creative platform, Canva, (Surry Hills, Australia) to build and create the social media content to post on both FB and IG. Videos for the reels on IG and the image-related posts on FB were created on the PI's iPhone. The educational material content produced was the same on each platform. However, the presentation of the material appeared differently in relation to the nature of FB versus IG. Content presented on IG included "swipe" and reel-oriented posts, while FB resembled content associated with handouts and pictures. To ensure reliability of the information presented through social media, the PI referred to an RDN to review and provide feedback regarding the content presented. The RDN is specialized in pediatric and education expertise. Additionally, the content was created to meet a literacy level of 6th grade or lower.

RECRUITMENT

Recruitment was conducted in Denton, Texas at two preschools, identified as supporting many low-income families, and one elementary school with preschool classrooms through a total

of four school-oriented events. The preschools included the Ann Windle School for Young Children and the Gonzalez School for Young Children; the elementary school was Newton Rayzor Elementary. The PI attended one event at Newton Rayzor Elementary, one event at the Ann Windle School for Young Children, and two events at the Gonzalez School for Young Children.

The PI created a recruitment flyer on Canva to advertise the current study and an incentive for a \$10.00 gift card to be redeemed at the end of the study. The flyer was shared with the principals of each school, who were asked to share the physical flyer to each preschool teacher. The preschool teacher may have added the flyer to the preschooler's folder to take home for their caregiver. In addition, the flyer was posted more than once on See-Saw, a school app for school staff to share information with caregivers. Two-hundred copies of the flyer were brought to each school-oriented event for the PI to distribute and share information with the caregivers.

To participate in the study, each caregiver completed a screening survey that they accessed via a QR code on the flyer. Inclusion criteria included being 18 years of age or older, ability to speak English fluently, having both an FB and IG account, and caring for children of preschool age(s) at home. After the caregivers completed the consent form, completed and passed the online screening survey, and provided an email to contact the PI, the PI emailed each caregiver to have the participant complete a demographic questionnaire and F/V pre-assessment. The same questions were asked at the end of the intervention. Questions in the demographic questionnaire asked about caregiver gender, age, race/ethnicity, hours per week of work, number of children in the home, and participation in income-based programs such as Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), SNAP, and free/reduced school lunch.

Once the demographic questionnaire and F/V pre-assessment were completed, the PI randomized the participants to the private FB page or private IG group. First, the PI wrote down the initials of each participant on small separate pieces of paper placed in a jar and shook the jar. Next, the PI took two sets of randomized numbers on the Research Randomizer and wrote down each set of numbers on small separate pieces of paper. Each set of numbers was either indicative of being placed on FB or IG; set one was for FB and set two for IG. The set of numbers were added to another jar separate from the participants' initials, and the PI shook the jar. Lastly, the PI chose an initial at random in one jar and a number at random in the other jar. This process indicated who was added on FB and who was added on IG.

INSTRUMENT

Both FB and IG were used to post content geared toward promoting F/V intake for low-income caregivers of preschoolers. A private FB and IG were created to post the F/V-related content that had been created on Canva. PyschData (State College, Pennsylvania) was used to administer the online screening survey, demographic questionnaire, pre- and post-assessment survey, and social media satisfaction survey. Emails were used to share links to surveys in PyschData for participants to complete. All data collected was securely stored on Google Drive and shared with the faculty advisor of the study using a restricted link.

To assess whether F/V intake increased over the course of the intervention, a pre- and post-assessment was distributed at baseline and at the 8th week. Questions from a validated survey for Texas SNAP-Ed participants developed by the University of Texas (UT) Health were used with permission to assess F/V intake at baseline and at the end of the study (Sarah Macias and Alejandra Gonzalez, email communication, April 4, 2022). Questions included in the F/V intake pre-assessment survey are shown below.

1. Yesterday, did YOUR CHILD eat more than one kind of FRUIT?
2. Yesterday, did YOUR CHILD eat more than one kind of VEGETABLE?
3. Yesterday, how many times did YOUR CHILD eat fruit? Fruits are all fresh, frozen, canned, or dried fruits. Do not count fruit juice.
4. Yesterday, how many times did YOUR CHILD eat any orange vegetables like carrots, squash, or sweet potatoes?
5. Yesterday, how many times did YOUR CHILD eat salad made with lettuce, or any green vegetables like spinach, collard greens, Swiss chard, green beans, sugar snap peas, broccoli, or other greens?
6. Yesterday, how many times did YOUR CHILD eat any starchy vegetables?
(Starchy vegetables could be potatoes, corn, peas, or plantains. DO NOT count French-fries or chips.)
7. Yesterday, how many times did YOUR CHILD eat any other vegetables like peppers, tomatoes, zucchini, asparagus, cabbage, cauliflower, cucumbers, mushrooms, eggplant, celery, or artichokes?
8. Do you eat more than one kind of fruit each day?
9. Do you eat more than one kind of vegetable each day?
10. FRUIT: How much do you eat each day?
11. During the past 7 days, on how many days did you eat fruit? Please provide the closest answer you can.
12. VEGETABLES: How much did you eat each day?
13. How many days each week do you usually eat vegetables (including fresh, frozen, and canned)?

Social media analytics through FB and IG were collected to evaluate engagement through likes, comments, and shares. Data for the pre- and post-assessment survey and the social media satisfaction survey were analyzed using SPSS (Version 28.0.1.0 (142); Chicago, Illinois).

To assess platform satisfaction, a qualitative survey consisting of open-ended questions was developed (see Appendix E).

PROCEDURE

Once the F/V-related social media content had been finalized and participants randomized to either FB or IG, the PI began the intervention on February 27, 2023, through social media for a total of 8 weeks. The PI posted the social media content on each platform, FB and IG, twice a week on Mondays and Thursdays. However, some of the posts were made on other days or the weekend at random. The PI intermittently checked the social media pages to monitor engagement and intended to interact with caregivers who might have commented on the social media content.

STATISTICAL ANALYSIS

The primary outcome of this study, social media engagement, was planned to be measured with likes, comments, and shares. This engagement was planned to be assessed by graphing the trend of likes, comments, and shares over a period of 2 weeks, 4 weeks, and 8 weeks. The secondary outcome assessed F/V intake with a pre- and post-assessment survey. Repeated measures ANOVA was planned to be used and analyzed for within-between subject interactions for pre- and post-measures of F/V intake. G Power was used to estimate the number of participants needed to achieve power of .90, significance at 0.05, and effect size of .25. Thus, 44 participants were needed to participate to test the difference in F/V intake at pre- and post-assessment, which accounted for a drop-out rate of up to 20%. The final outcome assessed was

the social media platform satisfaction, which was planned to be assessed via an open-ended survey by coding open-ended responses.

Due to much lower participation than anticipated, the actual statistical analysis was revised as follows. First, a frequency distribution was executed for both the participant demographics and F/V pre- and post-assessment surveys to describe the sample. Second, the PI conducted reliability using Cronbach's Alpha for the questions catered toward the child pre- and post-assessment survey. Third, the mean was obtained for scale. Lastly, the paired samples t-test was conducted to compare the means of the pre- and post-assessment surveys regarding F/V intake for caregivers and children. All methods were conducted through SPSS.

CHAPTER IV

RESULTS

Twenty-seven individuals completed the screening survey. Seven qualified to participate in the study. Five of the 7 individuals shared their email for the PI to contact them and signed the consent form. However, only 3 of the 5 completed the demographic questionnaire.

Four of the 5 individuals who qualified and completed the required forms to participate followed the assigned social media platforms. Three followed on the private FB page while only 1 of the other 2 followed the private IG account. That is, one participant dropped from the study prior to the start, thus only 4 ($n = 4$) participants began the study. The demographics are presented in Table 4.1 below.

Table 4.1 Caregiver Demographic Characteristics

Characteristics	Treatment Group	Total n (%) (n = 4)
Gender	Female Unknown	3 (75%) 1 (25%)
Age	25-34 35-44 Unknown	1 (25%) 2 (50%) 1 (25%)
Race/Ethnicity	White Hispanic Unknown	1 (25%) 2 (50%) 1 (25%)
Hours/Week Work	21-40hrs Unknown	3 (75%) 1 (25%)
Marital Status	Married Parent Unknown	3 (60%) 1 (25%)
Children at Home	2 Children 3 Children Unknown	2 (50%) 1 (25%) 1 (25%)
Applicable Programs	Free & Reduced Lunch None Unknown	1 (25%) 2 (40%) 1 (25%)

Zero engagement was found on IG through the assessment of likes, comments, and shares. FB received a total of 17 reactions through a “like” reaction, “love” reaction, or both. Posts on FB were not commented on or shared to others. Content on FB linked to healthy habits, nutrient-related content, budget friendly F/V options, and friendly reminders were the posts that received the highest engagement.

Four of the participants completed the F/V pre-assessment survey while two completed the post-assessment survey. When assessing the F/V survey at baseline for children, caregivers indicated children were consuming much more variety of fruits compared to vegetables. Many of

the children consumed a variety of fruit at least 2 times in 1 day compared to limited consumption and variety of vegetables. When assessing vegetable intake for children, the majority did not consume orange vegetables or green vegetables. However, half of the caregivers reported that their children ate at least one starchy vegetable in a day. Additionally, caregivers reported that about half of their children ate a vegetable different from orange, green, or starchy vegetables in a day.

Most caregivers consumed more than one type of fruit per day; they usually consumed about one cup per day. The frequency of their fruit intake varied from 2 to 7 days a week. Half of the caregivers reported sometimes having more than 1 type of vegetable a day, consuming up to 2 cups of vegetables a day, and eating vegetables at least 4 days a week. Overall, there was no improvement in any paired statistic when comparing F/V intake for both children and caregivers at baseline and 8 weeks. Table 4.2 represents the results at baseline and eighth week for children and Table 4.3 for caregivers.

Table 4.2 Child Pre- and Post-Fruit and Vegetable Intake

Outcome	Pre (n = 4)	Post (n = 2)	<i>p</i> -value
Consumed >1 fruit	75%	100%	N/A
Consumed > 1 vegetable	25%	50%	N/A
Consumed $\geq$ 2 fruits	75%	100%	N/A
Consumed $\geq$ 1 orange vegetable	25%	50%	N/A
Consumed $\geq$ 1 green vegetable	25%	0%	.50
Consumed $\geq$ 1 starchy vegetable	25%	100%	.50
Consumed $\geq$ 1 other type of vegetable	50%	50%	N/A
Child F/V Intake	1.8 (0.56569 SD)	1.8 (0.28284 SD)	1.00

Note: Values for individual items presented as percentages; scales are presented as mean (Standard Deviation); N/A indicates inability to calculate *p*-value due to no change in response from pre- to post-assessment.

Table 4.3 Caregiver Pre- and Post-Fruit and Vegetable Intake

Outcome	Pre (n = 4)	Post (n = 2)	<i>p</i> -value
Consumed > 1 fruit/day	75%	50%	.50
Consumed > 1 veggie/day	75%	50%	.50
Consumed $\geq$ 1 cup of fruit/day	100%	50%	.50
Consumed fruit $\geq$ 4 days/week	75%	50%	.41
Consumed $\geq$ 1 cup of vegetables/day	50%	100%	.50
Consumed vegetables $\geq$ 4 days/week	75%	100%	.13
Caregiver F/V Intake	2.25 (0.35355 SD)	2.0 (0.00000 SD)	.50

Note: Values for individual items presented as percentages; scales are presented as mean (Standard Deviation).

Two of the 4 participants completed the social media satisfaction survey. Due to low numbers of participants answering open-ended questions, a thematic analysis was not possible. The responses are simply listed instead. One individual preferred sharing social media content with family and friends when it is meaningful to them. The other individual wanted to share content when they learned something new and would have liked to make others aware. Both participants enjoyed the reels with a child present. Both participants felt more motivated after the end of the intervention; one reported that the recipes helped support ideas for their family, and the other had wished they had their child watch more of the social media content with them. One participant reported that going on a walk was a helpful tip, although this study did not present information related to physical activity. The other participant reported that being reminded to include a variety of F/V was helpful. One participant wanted to learn more about recipes, while the other wanted more simple recipes that their children will consume. Lastly, one individual shared that they had no additional comments to share to improve the program.

CHAPTER V

DISCUSSION

This planned study compared the influence of two social media platforms, FB and IG, on F/V intake among low-income caregivers of preschoolers found that neither platform positively nor negatively influenced F/V intake within this population. This is the first study to attempt this comparison within this specific demographic. Engagement was assessed between the two platforms to determine influence of the social media material in relation to F/V intake for families of low-income. FB had higher engagement compared to IG, but this finding may be inaccurate due to low participation. No changes in F/V intake from baseline to the end of the 8-week period were found in caregivers from either group.

These findings are similar to findings from systematic reviews indicating insignificant differences or ineffective outcomes associated with social media as a dietary intervention to improve nutrition-related outcomes.^{46,47} One of the systematic reviews reported low participation and compliance as being a major limitation that contributed to the insignificant differences found,⁴⁶ similar to the outcomes associated in the present study. However, another systematic review reported a positive association in dietary-related outcomes related to social media interventions.^{45,48}

Aside from the systematic reviews, no randomized control trials (RCT's) were found that had been conducted similarly to identify nutrition-related outcomes. The two participants who completed the social media satisfaction survey reported high levels of satisfaction, which is similar to a result found in another study.⁴² One caregiver reported that they wish their child would have been more involved, which coincides with caregiver feedback in other studies. For example, Burrows et al. reported that caregivers enjoyed the social media posts that included

children, which is similar to findings from another study.⁴² Additionally, the nutrition content and cost-saving material were common topics that were associated with higher engagement on FB in both this study and others.^{37,42} Lastly, direct assessment of F/V intake as a result of social media interventions was not assessed in other studies. Therefore, comparisons regarding social media intervention and nutritional intake cannot be made.

Strengths of this study include social media content developed by the PI, who has additional training in pediatric nutrition. The social media content was reviewed and approved by an experienced RD with an extensive and specialized background in child nutrition. The PI created social media content that was intended to be relatable to low-income caregivers as the PI is also a low-income caregiver of a preschooler. This content included videos and images of a preschooler who was participating in the nutrition-related activities to support and promote participation at home for the families.

Limitations of the study include, but may not be limited to, recruitment challenges and participation, leading to low sample size. Flyers were shared with school staff to be shared with caregivers and posted on platforms accessed by caregivers; it is unknown how many times or if the flyers were provided to the caregivers or published on school platforms such as See-Saw. A considerable limitation of the study is the social media algorithm found primarily on IG. When following a private IG account, you are not notified when a post has been made. However, when you are following a private FB group, you receive a notification stating that a new post has been made. Therefore, the FB participants may have had a higher engagement due to the prompted notification. Additionally, because of IG's algorithm, the posts made through the private account, may not have been seen on the participants IG feed due to the nature of their account. Instagram

ranks certain posts to be prioritized on one's social media feed depending on their search history, activity, and user preference of material based on views, shared material, likes, or comments.⁴⁹

Due to the low number of participants, it is impossible to assess whether social media interventions to increase F/V intake are efficient or appropriate for low-income caregivers of preschoolers. Another limitation may be only allowing fluent English-speakers in the study, which also may have contributed to the small sample size in the study. Overall, the small sample size and poor participation affected the researcher's ability to report notable outcomes.

Obesity in preschool-aged children has become highly prevalent in low-income households.¹ Childhood obesity may cause comorbidities and increases the likelihood of poor health outcomes leading into adulthood.^{1,4} The present study can help health professionals understand how social media platforms may be used to promote healthy habits and behaviors at home for low-income caregivers of preschoolers. Using social media to influence caregivers and encourage F/V consumption at home may lead to a more stable and healthy weight throughout childhood.²⁸ However, this study revealed that recruiting caregivers to follow and engage with social media that is educational poses several challenges.

This research increased understanding of how social media messaging, supported by the HBM, promote positive outcomes such as healthier eating behaviors at home. While this study intended to contribute to the understanding of which social media platforms are more effective at driving engagement among low-income caregivers of preschoolers to support health and behavior change within the home, limited participation impacted this goal.

CHAPTER VI

RECOMMENDATIONS AND CONCLUSIONS

Obesity in children is increasing in prevalence, particularly in low-income households and may increase the probability of developing comorbidities and poor health outcomes progressing into adulthood.^{1,2,4,27,30-32} Excessive intake of fast food, calorically dense foods, SSB, and foods found with low micronutrient content are many of the contributing factors leading to obesity and potential comorbidities.^{2,23,27,32} Families residing in low-income neighborhoods are generally surrounded by fast food establishments, leading to increased fast food consumption and a higher probability of obesity.²³ Additionally, studies indicate that low-income families present with low F/V intake.^{2,23,33,}

F/V consumption is critical in promoting positive health outcomes such as healthy childhood development and decreased risk of obesity.^{33,34} Educating caregivers to promote positive health behaviors and habits, such as healthy eating, is desired due to the key influence they exert on their family's nutrition-related behaviors.³⁶⁻³⁸ Social media has presented as a low-cost and resourceful tool to outreach caregivers and provide reliable nutrition-related content to support healthy behaviors at home.^{37,38,42,43,45}

This study aimed to assess social media engagement and the influence of social media content related to F/V intake for families of low-income with preschoolers. This was intended to better support optimal feeding practices at home. Outcomes presented insignificant results regarding F/V intake in this population with a limitation of inadequate participation and sample size in addition to the social media algorithms in place, specifically on IG. Nevertheless, caregivers reported satisfaction with the social media content, specifically related to the social media posts that included children and cost-saving material for F/V. Understanding social media

engagement and influence in low-income families can inform research and practice regarding how to support this population with feeding practices at home to build healthy and sustainable habits.

FUTURE PRACTICE AND RESEARCH

Future research needs to be conducted to better understand social media engagement and its influence to promote positive health outcomes in households of low-income caregivers of preschoolers. This study presented several challenges that can be addressed in future research or practice. For example, other recruitment strategies can be employed to achieve a higher level of caregiver participation. Recruitment strategies may include requesting access to school applications, such as See-Saw, or through a text messaging system to ensure advertisement of the study. Moreover, this may be a more promising tool to communicate with caregivers. Social media algorithms should be reviewed to better understand how to promote social media material that may not otherwise be viewed.

Additionally, assessing caregivers' nutrition-related interests and needs through focus groups or semi-structured interviews can help health professionals provide social media content to create more engagement and lead to significant outcomes. Furthermore, understanding and learning from health communication literature may improve outcomes as this may support comprehension of material for the participants. In terms of the current study, it would have been beneficial to assess why social media engagement was very limited within this population. Overall, it is essential to further investigate how social media may be used to influence and engage low-income caregivers to increase positive nutrition-related outcomes at home for preschoolers.

SUMMARY

Overall, this study presents an insignificant outcome relating to social media engagement and influence on F/V at home for low-income families with preschoolers. Engagement was greatest in social media content that related to cost-saving options for F/V and social media posts with children in them, as was reported in other studies.^{37,42} It is essential to understand the barriers related to participation for caregivers of children and what factors may enhance their social media engagement, interaction on such platforms, health-related topics of interest, and platforms that are most useful to this population. By understanding the barriers that may be interfering with caregiver participation, this may support and provide caregivers with the necessary tools to engage in the intervention. Future research should include assessments to create a better understanding of what social media content might increase influence on caregivers to promote implementation of healthy habits at home to prevent poor health outcomes.

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APPENDIX A
IRB APPROVAL LETTER



Texas Woman's University
Institutional Review Board (IRB)

irb@twu.edu

<https://www.twu.edu/institutional-review-board-irb/>

July 14, 2022

Anne-Marie Alford
Nutrition and Food Sciences

Re: Exempt - IRB-FY2022-355 Engagement in Nutrition Education Provided on Instagram versus Facebook among SNAP-Eligible Parents of Preschoolers

Dear Anne-Marie Alford,

The above referenced study has been reviewed by the TWU IRB - Denton operating under FWA00000178 and was determined to be exempt on July 14, 2022. If you are using a signed informed consent form, the approved form has been stamped by the IRB and uploaded to the Attachments tab under the Study Details section. This stamped version of the consent must be used when enrolling subjects in your study.

Note that any modifications to this study must be submitted for IRB review prior to their implementation, including the submission of any agency approval letters, changes in research personnel, and any changes in study procedures or instruments. Additionally, the IRB must be notified immediately of any adverse events or unanticipated problems. All modification requests, incident reports, and requests to close the file must be submitted through Cayuse.

On July 13, 2023, this approval will expire and the study must be renewed or closed. A reminder will be sent 45 days prior to this date.

If you have any questions or need additional information, please email your IRB analyst at irb@twu.edu or refer to the [IRB website](#).

Sincerely,

TWU IRB - Denton

APPENDIX B

SOCIAL MEDIA CONTENT

IG: Week 1			
Topic	Social Media Content	Post Comment	HBM Concept
Meatless Monday	 MEATLESS MONDAY DINNERS TRY SPAGHETTI SQUASH IN PLACE OF PASTA ADD IN YOUR KIDDO'S FAVORITE COLOR OF VEGGIES IN PLACE OF MEAT (EX: RED BELL PEPPER, GREEN ZUCCHINI, RED TOMATOES, OR AVOCADO) SNACK ON COLORFUL KABOBS GO VEGGIE WITH IT: ADD PEPPERS, ZUCCHINI, SQUASH, & ONION ON A STICK TO GRILL ON THE STOVE GO FRUITY WITH IT: ADD STRAWBERRIES, APPLES, BANANAS, & BLUEBERRIES ON A STICK TO ENJOY!	Going meatless on a Monday and trying new kinds of colored fruits and veggies can help your little one gets a mix of nutrients in their meals and snacks! Adding color to your plate gives you many kinds of vitamins and minerals in place of always having the same colors. Try these tips to add new kinds of fruits & veggies!	Perceived Benefits
F/V and Good Health	 5 fruit & veggie tips to help with your child's health and growth 01 HELPS BODY BREAK DOWN FOODS 02 HELPS PROTECT YOUR HEART 03 GOOD FOR BRAIN HEALTH 04 HELPS TO PUT A STOP TO DIABETES 05 GOOD FOR YOUR EYE HEALTH HOW FRUIT & VEGGIES CAN HELP WITH GOOD HEALTH FOR YOUR KIDDO'S	Giving your kiddos a mix of fruits and veggies offers your child many different vitamins and minerals to help with good health and growth. Try adding a mix of color and new fruits/veggies to help get the good health perks from these foods!	

IG: Week 2

Topic	Social Media Content	Post Comment	HBM Concept
F/V Water Content	Video (Reel) Content	Don't forget that fruits & veggies have water in them. They can help give your body some of the water that it needs! This is a great way to make sure your busy kiddos are eating healthy while getting the water and nutrients they need!	Perceived Benefits
Cooking with Kids		Cooking with your child can help build new skills and be more aware of new fruits and veggies. Kids like to know where our food comes from. By giving our kids the skill to see and make their food may help them try new things and be more likely to eat a mix of foods! Let's keep our kiddos involved and give them the skill to make their own foods!	Perceived Benefits & Cues to Action

IG: Week 3			
Topic	Social Media Content	Post Comment	HBM Concept

Eat More F/V



Do you feel like you have a hard time getting your kiddos to try new fruits and veggies? I feel like this can be really hard to do too. Check out these 5 tips to get your little one(s) to eat more fruits & veggies.

Self-Efficacy

	04 Grocery shop together! • Helps children become use to different foods • Give them healthy options to choose at the store • Further impacts healthy eating & learning  05 Try & try again! • Don't give up! • Keep trying and stick with it -- this is key! • Keep bringing the same foods back • They'll grow to become familiar with the foods • Patience, patience, patience 	
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Prepare Fruits	How to make fruits for your kiddos Swipe for tips  PAGE 1 Wash, wash, & wash Always rinse your fruits under cool water (even if they have a peel). Rinsing our fruits helps take any germs off! 	Getting fruits ready ahead of time for meals and snacks can help you have healthy snacks handy for your hungry kiddos to grab as they need them! This can help you when you're busy and give your little one(s) options for healthy snacks!	Self-Efficacy
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	PAGE 2 Cut fruits into bite size pieces • Use a clean cutting board to cut your fruits into small sizes • Give your kiddo child-friendly utensils (knives, etc) to have them cut fruit with you!  PAGE 3 Store & save for snacks • Store in your fridge 2 hours after getting your fruits ready • Store in a clean to-go dish away from raw foods • Try to keep at eye level for your kiddo to have the choice for a healthy snack at any time! 		
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IG: Week 4			
Topic	Social Media Content	Post Comment	HBM Concept
Child Prepares F/V	Video (Reel) Content	Put those kiddos to work! Having our lil tots make their snacks with fruits and veggies can help them want to eat more of these. Let's teach them those good habits now! Check out this tutorial to help get your kiddos started! Step 1: clean the counter tops (get those germs off!) Step 2: Rinse your fruits/veggies (rid those foods of dirt) Step 3: Cut your veggies! Step 4: Get your favorite dip and enjoy!	Self-Efficacy

Cook Vegetables



Cooking veggies can seem like a hard thing to do - from canned, frozen, to raw veggies. Take a look at these helpful tips! These may help you feel better about cooking veggies in the kitchen for or even with your kiddos!

3 | COOK

✓ Fully thaw tightly packed frozen veggies (spinach & kale) & partially thaw lightly packed frozen veggies (broccoli) & do not thaw small/loose packed frozen veggies (peas/corn)

✓ Canned veggies are already cooked - only need to reheat by stovetop or microwave

✓ Add oil to stop veggies from burning (olive oil is a healthy choice!)

Microwaving & steaming keeps the most amount of nutrients in the veggies!

DID YOU KNOW?



4 | ENJOY!

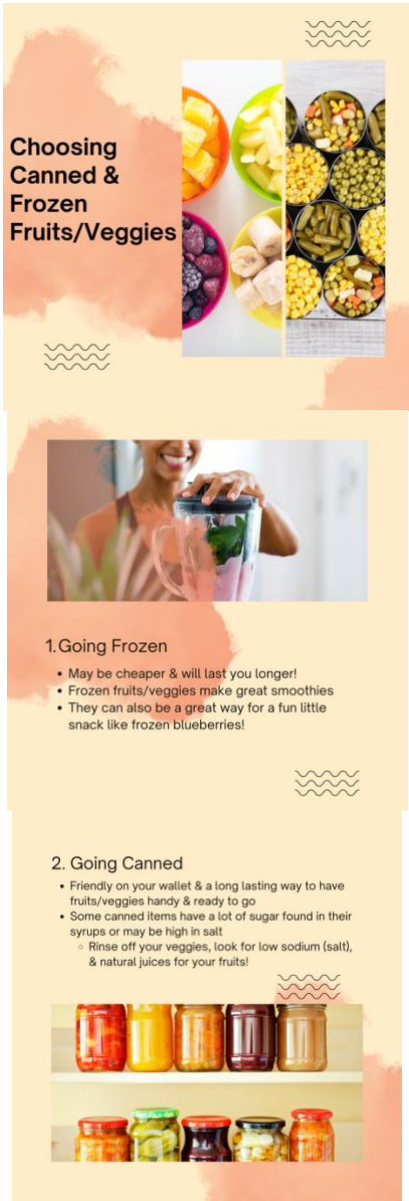
✓ Load up your kiddos plate with a mix of colored veggies!

✓ If you have to add fat free ranch for them to dip their veggies - so be it!

✓ Try cooking a mix of veggies with each other!

✓ Veggies also make great snacks like bell peppers & carrots with ranch or celery with peanut butter!



IG: Week 5			
Topic	Social Media Content	Post Comment	HBM Concept
Frozen/Canned F/V	 Choosing Canned & Frozen Fruits/Veggies 1. Going Frozen • May be cheaper & will last you longer! • Frozen fruits/veggies make great smoothies • They can also be a great way for a fun little snack like frozen blueberries! 2. Going Canned • Friendly on your wallet & a long lasting way to have fruits/veggies handy & ready to go • Some canned items have a lot of sugar found in their syrups or may be high in salt ◦ Rinse off your veggies, look for low sodium (salt), & natural juices for your fruits!	Having frozen and canned options can be super handy when you need your food to last you a little longer. Plus - these options are nicer to our wallets! I like to keep my fridge full of frozen broccoli, frozen mixed veggies, and frozen peas while my pantry is stocked with canned peaches, canned oranges, canned corn, and canned beans! This is an easy way for me to have fruits & veggies ready to go at any time!	Self-Efficacy

Packing Lunch with F/V

3 Tips

TO ADD FRUITS & VEGGIES
TO YOUR KIDDOS LUNCH
BOX



1. Mixture and color!

- Lunch boxes full of color look tasty & gives us many kinds of nutrients!
 - Oranges & green bell pepper
 - Grapes & carrots
 - Apple & celery



2. Fun shapes & finger foods!

- Creating fun shapes makes it exciting & fun for your little one to eat!
- Finger foods makes it easy to eat - giving them more of a chance to eat their foods
- Go for to-go boxes that are easy for them to open!

It can feel hard to get our lil' ones to eat veggies at times. One way we can try to get our kiddos to try those new fruits & veggies is to dip. (Yes, I said dip!) Dipping is fun and may even add good sources of fat and protein like peanut butter with celery!

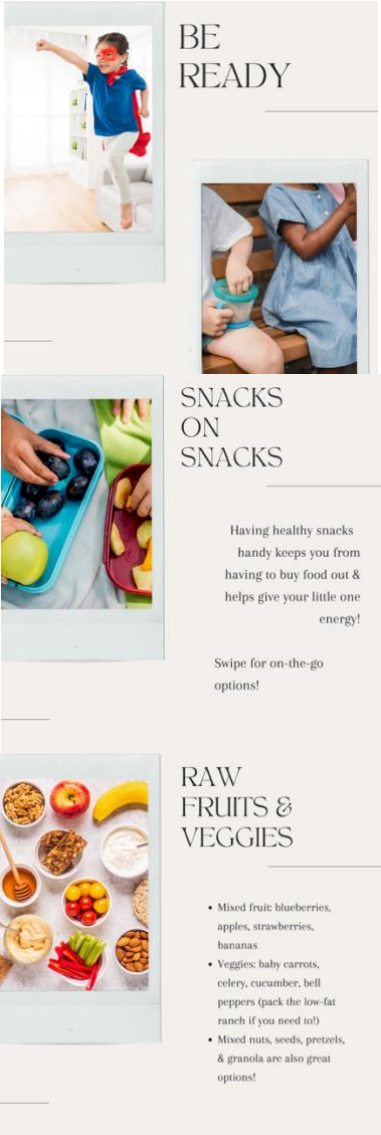
3. Add dips if you think you need to!

- Dipping our fruits/veggies may be a good way for your kiddo(s) to try new fruits/veggies
 - Carrots + fat-free ranch
 - Bell peppers + hummus
 - Celery + peanut butter



Ask me your questions in the comments! :)



IG: Week 6			
Topic	Social Media Content	Post Comment	HBM Concept
Try New F/V	Video (Reel) Content	Trying new fruits and veggies at home can be hard to do! The more you try, the easier it gets! Showing new types of foods to your kiddos can help them want to try new things. They may even be shocked that they like it!	Cues to Action
Be Ready	 BE READY SNACKS ON SNACKS Having healthy snacks handy keeps you from having to buy food out & helps give your little one energy! Swipe for on-the-go options! RAW FRUITS & VEGGIES • Mixed fruit: blueberries, apples, strawberries, bananas • Veggies: baby carrots, celery, cucumber, bell peppers (pack the low-fat ranch if you need to!) • Mixed nuts, seeds, pretzels, & granola are also great options!	BE READY! I always have snacks ready to go. I never know if my little one is going to be hungry! AND it saves me money from eating out! Here are some easy and healthy snacks you can take on the go.	Cues to Action

IG: Week 7

Topic	Social Media Content	Post Comment	HBM Concept
F/V Taste Test		Now that you and your kiddo have been trying new fruits/veggies and new ways to have them at home, it's time to make a new at home activity with fruits or veggies! Check out this post for ways you can try fruits/veggies as a family while learning what you like about them!	Cues to Action

Reminder to
Try New F/V



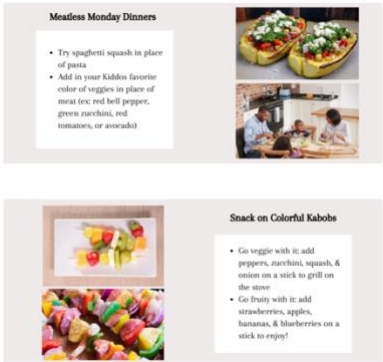
Trying new fruits and veggies at home helps your kiddos learn about new foods! When we eat foods that aren't the same, we are giving our bodies new sources of nutrients to fuel our preschoolers' growing bodies. Don't forget to keep trying and don't give up! If we keep giving new foods, they will try them one day and will learn to like eating new things. Here are some new fruits and veggies to try at home: canned artichoke hearts, spaghetti squash, blood oranges, and pomegranates!

Cues to
Action

IG: Week 8

Topic	Social Media Content	Post Comment	HBM Concept
F/V Resources		Are you having a hard time finding a trustworthy source to give you some fruit and veggie tips for you and your family? Say less. Check out the links listed in this post to help you when you feel at a loss! Try even keeping these links saved in your phone for easy use! Swipe to find even more sources on where you can get fruits and veggies in the area for cheap!	Cues to Action
Final Reminder	Video (Reel) Content	We have made it to our last post! I hope you all have found everything to be of help to you and your family when it comes to feeding our kiddos more fruits and veggies. Check out this video to help remind you of things that may be of help at home. Please save these posts for you to use at any time! Thank you for participating!	

FB: Week 1

Topic	Social Media Content	Post Comment	HBM Concept
Meatless Monday	 Meatless Monday Dinners • Try spaghetti squash in place of pasta • Add in your kiddos favorite color of veggies in place of meat (ex: red bell pepper, green zucchini, red tomatoes, or avocado) Snack on Colorful Kabobs • Go veggie with it: add peppers, zucchini, squash, & onion on a stick to grill on the stove • Go fruity with it: add strawberries, apples, bananas, & blueberries on a stick to enjoy!	Going meatless on a Monday and trying new kinds of colored fruits and veggies can help your little one gets a mix of nutrients in their meals and snacks! Adding color to your plate gives you many kinds of vitamins and minerals in place of always having the same colors. Try these tips to add new kinds of fruits & veggies!	Perceived Benefits
F/V and Good Health	 HOW FRUIT & VEGGIES CAN HELP WITH GOOD HEALTH FOR YOUR KIDDOS 1. Helps body break down foods 2. Helps protect your heart 3. Good for brain health 4. Helps to put a stop to diabetes 5. Good for your eye health	Giving your kiddos a mix of fruits and veggies offers your child many different vitamins and minerals to help with good health and growth. Try adding a mix of color and new fruits/veggies to help get the good health perks from these foods!	

FB: Week 2

Topic	Social Media Content	Post Comment	HBM Concept
F/V Water Content	Picture Content	Don't forget that fruits & veggies have water in them. They can help give your body some of the water that it needs! This is a great way to make sure your busy kiddos are eating healthy while getting the water and nutrients they need!	Perceived Benefits
Cooking with Kids		Cooking with your child can help build new skills and be more aware of new fruits and veggies. Kids like to know where our food comes from. By giving our kids the skill to see and make their food may help them try new things and be more likely to eat a mix of foods! Let's keep our kiddos involved and give them the skill to make their own foods!	Perceived Benefits & Cues to Action

FB: Week 3			
Topic	Social Media Content	Post Comment	HBM Concept
Eat More F/V	 5 Ways to Eat More Fruits & Veggies Cook as a Family! - Helps everyone to be more willing to try new foods - Helps your kids feel skilled, strong, and able to do things on their own - Gives a chance for learning - Creates time to spend with each other - Teaches how to use all five senses Keep Fruits & Veggies Handy! - Gives chances to eat those foods - Try to keep fruits & veggies at eye level - Have snacks ready to go - Fruits & veggies out on the counter makes it easy for kids to get to Be your Childs Model! - Role model - lead by example - Eat same foods as a good guide - Helps follow healthy eating habits - Eat these foods with each other - They'll grow to become familiar with the foods - They want to be like YOU! Grocery Shop Together! - Helps children become use to different foods - Give them healthy options to choose at the store - Further impacts healthy eating & learning Try & Try Again! - Don't give up! - Keep trying and stick with it -- this is key! - Keep bringing the same foods back - They'll grow to become familiar with the foods - Patience, patience, patience	Do you feel like you have a hard time getting your kiddos to try new fruits and veggies? I feel like this can be really hard to do too. Check out these 5 tips to get your little one(s) to eat more fruits & veggies.	Self-Efficacy
Prepare Fruits	 HOW TO MAKE FRUITS FOR YOUR KIDDOS WASH, WASH, & WASH Always rinse your fruits under cool water when if they have a peels. Rinsing our fruits helps take any germs off! CUT FRUITS INTO BITE SIZE PIECES - Use a clean cutting board to cut your fruits into small sizes - Give your kiddo child-friendly utensils (knives, etc) to have them cut fruit with you! STORE & SAVE FOR SNACKS - Store in your fridge 2 hours after getting your fruits ready - Store in a clean to-go dish away from raw foods - Try to keep at eye level for your kiddo to have the choice for a healthy snack at any time!	Getting fruits ready ahead of time for meals and snacks can help you have healthy snacks handy for your hungry kiddos to grab as they need them! This can help you when you're busy and give your little one(s) options for healthy snacks!	

FB: Week 4

Topic	Social Media Content	Post Comment	HBM Concept
Child Prepares F/V	Picture Content	Put those kiddos to work! Having our lil tots make their snacks with fruits and veggies can help them want to eat more of these. Let's teach them those good habits now! Check out this tutorial to help get your kiddos started! Step 1: clean the counter tops (get those germs off!) Step 2: Rinse your fruits/veggies (rid those foods of dirt) Step 3: Cut your veggies! Step 4: Get your favorite dip and enjoy!	Self-Efficacy
Cook Vegetables	 Let's Talk: Cooking Veggies WHAT TO DO & HOW TO DO IT STEP 01 Wash Rinse under cool water and scrub veggies that have tough skin like potatoes. Rinse & drain canned veggies (this helps remove extra salt too). You do not have to rinse frozen veggies! Rinsing our veggies makes sure that all of the bacteria (or germs) are off of our food keeping our bodies safe & healthy! STEP 02 Chop You can dice, chop, or slice any of your veggies! This helps evenly cook all of our food. Use clean kitchen knives & cutting boards. Trying different shapes may keep your kiddo interested! STEP 03 Cook Fully thaw tightly packed frozen veggies (spinach & kale) & partially thaw lightly packed frozen veggies (broccoli) & do not thaw small/loose packed frozen veggies (peas/corn). Canned veggies are already cooked, which means you only need to reheat by stovetop or microwave. Add oil to keep veggies from burning (olive oil is a good choice)! Microwaving & steaming keep the most amount of nutrients in the veggies! STEP 04 Enjoy! Load up your kiddos plate with a mix of colored veggies! If you have to add fat free ranch for them to dip their veggies – so be it! Try cooking a mix of veggies with each other! Veggies also make great snacks like bell peppers & carrots with ranch or celery with peanut butter!	Cooking veggies can seem like a hard thing to do - from canned, frozen, to raw veggies. Take a look at these helpful tips! These may help you feel better about cooking veggies in the kitchen for or even with your kiddos!	

FB: Week 5

Topic	Social Media Content	Post Comment	HBM Concept
Frozen/Canned F/V	 Choosing Canned & Frozen Fruits/Veggies Going Frozen • May be cheaper & will last you longer! • Frozen fruits/veggies make great smoothies. • They can also be a great way for a fun little snack like frozen blueberries! Going Canned • Friendly on your wallet & a long lasting way to have fruits/veggies handy & ready to go • Some canned items have a lot of sugar found in their syrups or may be high in salt • Rinse off your veggies, look for low sodium (sodium), & natural juices for your fruits!	Having frozen and canned options can be super handy when you need your food to last you a little longer. Plus - these options are nicer to our wallets! I like to keep my fridge full of frozen broccoli, frozen mixed veggies, and frozen peas while my pantry is stocked with canned peaches, canned oranges, canned corn, and canned beans! This is an easy way for me to have fruits & veggies ready to go at any time!	Self-Efficacy
Packing Lunch with F/V	 3 TIPS TO ADD FRUITS & VEGGIES TO YOUR KIDDOS LUNCH BOX 1 Mixture & Color • Lunch boxes full of color look tasty & gives us many kinds of nutrients! • Oranges & green bell pepper • Grapes & carrots • Apple & celery 2 Fun Shapes & Finger Foods • Creating fun shapes makes it exciting & fun for your little one to eat! • Finger foods makes it easy to eat - giving them more of a chance to eat their foods • Go for to-go boxes that are easy for them to open! 3 Add Dips if You Think You Need To • Dipping our fruits/veggies may be a good way for your kiddo(s) to try new fruits/veggies • Carrots + fat-free ranch • Bell peppers + hummus • Celery + peanut butter	It can feel hard to get our lil' ones to eat veggies at times. One way we can try to get our kiddos to try those new fruits & veggies is to dip. (Yes, I said dip!) Dipping is fun and may even add good sources of fat and protein like peanut butter with celery!	

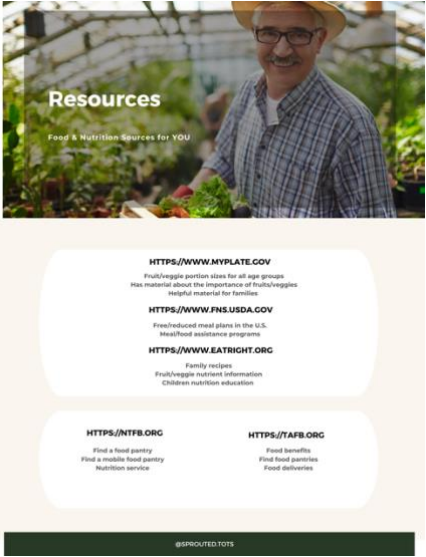
FB: Week 6

Topic	Social Media Content	Post Comment	HBM Concept
Try New F/V	Picture Content	Trying new fruits and veggies at home can be hard to do! The more you try, the easier it gets! Showing new types of foods to your kiddos can help them want to try new things. They may even be shocked that they like it!	Cues to Action
Be Ready	 TAKE ACTION: Be Ready Having healthy snacks handy keeps you from having to buy food out & helps give your little one energy! Check out these options for on-the-go: • Mixed fruit: blueberries, apples, strawberries, bananas • Veggies: baby carrots, celery, cucumber, bell peppers (pack the low-fat ranch if you need to!) • Mixed nuts, seeds, pretzels, & granola are also great options! My child is ALWAYS hungry!	BE READY! I always have snacks ready to go. I never know if my little one is going to be hungry! AND it saves me money from eating out! Here are some easy and healthy snacks you can take on the go.	

FB: Week 7

Topic	Social Media Content	Post Comment	HBM Concept
F/V Taste Test	 FAMILY TASTE TEST 1) Creates moments as a family. 2) Creates space to try new things or to try them again. 3) Helps build sensory skills. 4) Helps give us variety. 1 GRAB A FEW DIFFERENT TYPES OF APPLES 2 PUT A SLICE OF EACH APPLE ON EACH PERSON'S PLATE 3 TAKE TURNS RATING EACH APPLE BASED ON: TASTE, TEXTURE, APPEARANCE, & HOW YOU LIKED IT OVERALL 4 TRY THIS EVERY ONCE IN AWHILE WITH FRUITS OR VEGGIES!	Now that you and your kiddo have been trying new fruits/veggies and new ways to have them at home, it's time to make a new at home activity with fruits or veggies! Check out this post for ways you can try fruits/veggies as a family while learning what you like about them!	
Reminder to Try New F/V	 REMINDER TRY NEW FRUITS & VEGGIES AT HOME POMEGRANATES Full of fiber, vitamin C, & folate to help your body heal & give nutrients to grow! BLOOD ORANGES Full of vitamin C to help heal your body from bumps & bruises! SPAGHETTI SQUASH Substitute your regular noodles for spaghetti squash! It's a vegetable full of fiber & vitamin B6! ARTICHOKE HEARTS • Add canned artichoke hearts to salads & more! • High in fiber, protein, and full of vitamins like vitamin C!	Trying new fruits and veggies at home helps your kiddos learn about new foods! When we eat foods that aren't the same, we are giving our bodies new sources of nutrients to fuel our preschoolers' growing bodies. Don't forget to keep trying and don't give up! If we keep giving new foods, they will try them one day and will learn to like eating new things. Here are some new fruits and veggies to try at home: canned artichoke hearts, spaghetti squash, blood oranges, and pomegranates!	Cues to Action

FB: Week 8

Topic	Social Media Content	Post Comment	HBM Concept
F/V Resources		Are you having a hard time finding a trustworthy source to give you some fruit and veggie tips for you and your family? Say less. Check out the links listed in this post to help you when you feel at a loss! Try even keeping these links saved in your phone for easy use! Swipe to find even more sources on where you can get fruits and veggies in the area for cheap!	Cues to Action
Final Reminder	Picture Content	We have made it to our last post! I hope you all have found everything to be of help to you and your family when it comes to feeding our kiddos more fruits and veggies. Check out this video to help remind you of things that may be of help at home. Please save these posts for you to use at any time! Thank you for participating!	

APPENDIX C

RECRUITMENT FLYER



ARE YOU

looking for ways to
increase fruit &
vegetable intake at
home?

Study for parents & caregivers
with **growing** preschoolers

We're looking for parents or caregivers of preschoolers who are willing to engage on social media. Our social media posts will include nutrition tips to help you get your little ones to eat more fruits and vegetables!

We are looking for parents or caregivers who speak mostly English at home. We also want parents/caregivers who like to use both Facebook and Instagram.

This is a research study. Participating is voluntary.
There is a potential risk of loss of confidentiality in all email, downloading,
electronic meetings, and internet transactions.

Participants will receive:

- \$10 gift card
- Free nutrition information
- Free tips about fruits & veggies

Survey link



CONTACT FOR MORE
INFO

 aalford6@twu.edu



APPENDIX D
EMAIL SCRIPTS
FIRST EMAIL

Hello caregiver!

My name is Anne-Marie Alford. I am a graduate student at Texas Woman's University in Denton, TX and I am conducting a research study.

Thank you for taking our screening survey about being part of this social media study to help you get your growing preschoolers to eat more fruits and vegetables at home for you! We want to find out if social media content about feeding your preschoolers fruits and vegetables helps your kids eat more of them. We also want to know what types of posts you like best and which works best for this: Facebook or Instagram.

To be part of the study, we will assign you at random (you will not be able to choose your group) to join either a closed Facebook group or to follow a private Instagram page with posts to help you get your preschooler to eat more fruits and vegetables. You will be part of either social media for 8 weeks. We will also ask you to fill out a survey at the beginning and end of the study about how many and what types of fruits and vegetables you and your preschooler eat. We will ask you to fill out a survey about what you liked about the social media at the end of the study.

The researchers will remove all of your personal or identifiable information (e.g., your name, date of birth, contact information) from any study information. After all identifiable information is removed, any personal information collected for this study may be used for future research or be given to another researcher for future research without additional informed consent.

Participation is voluntary and confidential. Participants may leave the study at any time.

There is a potential risk of loss of confidentiality in all email, downloading, electronic meetings and internet transactions.

To participate in the study, you first must **read and sign a consent form**.

The consent form is attached to this email. Please read it carefully, ask me if you have any questions, then sign it and send it back to me.

Please let me know if you have any questions or concerns!

Healthy regards,

Student Investigator: Anne-Marie Alford, AAlford6@twu.edu

Faculty Investigator: Kathleen Davis, KDavis10@twu.edu

SECOND EMAIL

Hello caregiver!

Thank you for returning the signed consent form. To get started, please send me your social media handle for Instagram and full name for Facebook. I will send you an invitation or follow you through either social media platform in order for you to follow the platform back.

We will choose at random whether you are added to Facebook or Instagram.

This is research. Participating is voluntary. There is a potential risk of loss of confidentiality in all email, downloading, electronic meetings and internet transactions.

Please let me know if you have any questions or concerns!

Healthy regards,

Student Investigator: Anne-Marie Alford, AAlford6@twu.edu

Faculty Investigator: Kathleen Davis, KDavis10@twu.edu

THIRD EMAIL

Hello caregiver!

I have added you to the ____ group or page. Again, thank you for participating! I have attached a link here to a pre-assessment survey in addition to another link here for a demographic questionnaire.

Please let me know if you have any questions. I appreciate your time and efforts!

We will choose at random whether you are added to Facebook or Instagram.

This is research. Participating is voluntary. There is a potential risk of loss of confidentiality in all email, downloading, electronic meetings and internet transactions.

Please let me know if you have any questions or concerns!

Healthy regards,

Student Investigator: Anne-Marie Alford, AAlford6@twu.edu

Faculty Investigator: Kathleen Davis, KDavis10@twu.edu

APPENDIX E

SOCIAL MEDIA SATISFACTION ASSESSMENT SURVEY

1. When sharing social media with family and friends, what type of post would you be most likely to share and why?
2. Which type of reel did you find more interesting and why? (include reel of cooking with/without child)
3. After engaging in the social media content on Facebook and Instagram, did you feel more motivated and how?
4. When thinking of being healthy at home, which tips were most helpful on Facebook or Instagram?
5. In order to make healthier choices for you and your family, what would you like to learn from us?
6. Please share anything you would like to tell us about the program that we have not asked you about.