

**Learning Outcome 3:** Integrate scientific, psychological, social, and economic aspects of the environment and examine how they individually and collectively affect food and nutrition, a healthy lifestyle, pleasurable eating, and food policy in diverse urban population groups

**NUTR 6102:** Nutrition Intervention

**Artifacts:** Futures Proposal Grading Form and Graded Intervention: Futures Year 2025 Project Proposal

NUTR 6102: Nutrition Intervention is a course at Georgia State University (GSU) designed to enable students to critically examine nutrition intervention strategies in community settings. The course consists of weekly lectures, two individual projects, and three group projects. Each project focused on researching and conducting various parts of nutrition interventions. Our first project was to conduct a needs assessment. A needs assessment is used to address a current nutrition issue and how the results can be used to improve the direction of a nutrition intervention program. The topic of my group's needs assessment was to determine if information for restaurant foods needs to be available at the point of purchase and if so, how and what. In order to determine the answer to our question we developed and conducted a 9-question survey that was completed by our target population; high school female volleyball players. Based on the results of the surveys, we concluded that our target population was interested in the availability of nutrition information on restaurant menus. The majority of our target population responded that the addition of nutrition information, including calories, fat, and sugar, directly visible on restaurant menus would benefit their needs most.

Our second group project was to develop and test an eating pattern message. An eating pattern message is a meaningful and relevant message that focuses on a specific target nutrient and audience for a nutrition intervention. My group chose to focus on folic acid intake in Hispanic women of childbearing age because Hispanic women are less likely to have heard about folic acid, to know it can prevent birth defects, or take vitamins containing folic acid prior to pregnancy. The first draft of our eating pattern message was: "Choose folic acid fortified rice, spinach, and dried pinto and black beans. One cooked cup of each of these foods provides about  $\frac{1}{3}$  of the daily recommendations for folic acid. Eat 3 total cups of a variety of these foods each day. Prepare dried beans instead of canned beans and soak overnight." The eating pattern message was tested on our target population and was revised based on their feedback via surveys to improve transparency and understanding. After analyzing the results of the surveys, we determined Hispanic women were confused about the instructions to not use canned beans, as this is not a staple food in their diet because they are more likely to cook using dry beans. The eating pattern message allowed our group to further focus on the psychological aspect as well as the social aspect of the environment by focusing on what our target population believed we should change in respect to their cultural dietary habits.

The strategies learned while completing the projects outlined in this class build upon one another throughout the semester to focus on developing a future-oriented nutrition intervention program for a selected target group. The intervention is projected to begin 10 years in the future, in 2025. The main purpose of the project was to determine, through the use of a historical review, the current status of nutrition intervention for the target group based on experiences of today and projected trends for the future. My group targeted folic acid intake in Hispanic women

of Mexican descent aged 18-24 years old who are not currently pregnant. We planned to recruit participants via flyers and notices listed in doctor's offices, Women, Infants and Children clinics (WIC), Centro Internacional De Maternidad, family planning clinics, and grocery stores located in Gwinnett Co, GA in order to capture a large sample size from our target population.

While researching folic acid and its effects on neural tube defects (NTDs) during the first month of pregnancy, we found Hispanic women of Mexican descent are the most likely to have an inadequate consumption of folic acid and are more likely to have a child with a NTD. The U.S. Public Health Service recommends women of childbearing age consume 400 micrograms (mcg) of folic acid daily to prevent NTDs. In an effort to alleviate the issue, the U.S. Food and Drug Administration (FDA) mandated the enrichment of cereal grain products with folic acid. This mandate dropped the national rate of NTDs by 36% from before fortification to after fortification. Unfortunately, due to their dietary choices and high rate of unplanned pregnancies, Hispanic women of Mexican descent are still at a greater risk of NTDs. These statistics lead my group in choosing this population as our target audience. In order to determine the methods of our nutrition intervention, we conducted a literature review to determine the effects of the use of educational materials on folic acid intake in pregnant women and women of childbearing age. We also reviewed publications on future trends to project what nutrition issues need to be addressed, what federally mandated programs and interventions will affect the nutrition and health status of our target group, and how our intervention will be delivered. For example, we determined that the FDA is working to fortify corn masa flour, a staple food in the Hispanic diet, with folic acid. It has already been done in Latin American countries, but the U.S. has yet to follow suit. Understanding what has been done in previous studies and how our intervention could be used to further increase folic acid consumption in Hispanic women of Mexican descent was an important part of our project. Interventions are not effective without first researching history, trends, and applying creativity for future efforts.

Our study design included randomly assigning 50 Hispanic women of childbearing age between the ages of 18-24 into two equal groups, an intervention group and a control group. Each group would answer a validated food-frequency questionnaire at the beginning and at the conclusion of the study. Participants that completed the entire study would receive a \$50 grocery store gift card. The 3-month study includes three classes or educational workshops. The first class taught the intervention and control group general information about folic acid and NTDs, the importance of adequate folic acid intake before pregnancy, and how much folic acid they needed daily. The second class would be available to the intervention group only and would include a grocery store tour taught by a registered dietitian (RD) focusing on foods rich in folic acid. The third class would also only be available to the intervention group and would include a hands-on food demonstration to allow participants to practice cooking with folic acid rich foods. Once a month throughout the study, the control and the intervention group would each receive Spanish educational print materials in the mail with the information that was covered in the previous class. Also, a commercial would play on two popular Hispanic television channels, Telemundo and Univision, one time per day (between 7 PM- 8 PM). The commercials would address folic acid importance, NTDs information, the amount of folic acid needed during pregnancy, and folic acid rich foods.

We were required to present our intervention project to our class and receive feedback from classmates as well as our professor. The final grade for the project was broken into a written component, the presentation grade, and our individual contribution to group work. We received 134 points out of 150 on the paper, 97 points out of 100 for the presentation, and I received 49 points out of a possible 50 for my contribution to the group. These grades combined to a 93% on the entire intervention project. Areas of concern in the paper included failure to justify the hands-on-approach and use of technology in the intervention as well as not clearly stating the goals and objectives in one specific section of the proposal. While we included what type of technology we would use in our proposal, we did not cite the evidence of using this type of technology. The latter area of concern was an overlook on our part, as our professor previously approved our goals and objectives, but we were unsuccessful in presenting them appropriately in the paper. As for the presentation, we were deducted a few points for not including a summary of information. Looking back, our presentation ended without a summary slide, had we included one, we could have brought everything full circle and provided a more appropriate synopsis.

It is important to research prior to designing nutrition interventions. Taking an in-depth look at various health disparities in diverse communities and populations and measuring the success of intervention strategies lay the groundwork for future research and health initiatives. Integrating the scientific approach of conducting the literature review and developing methods and evaluation allows RDs to evaluate what has been done in the past and where and how they can take their nutrition intervention one step further. By determining sociocultural determinants of food choices in a population, such as Hispanic women of Mexican descent in our proposal, the researcher can better determine the psychological and social aspects of the environment. By determining their knowledge pre- and post-intervention the researcher can gain a better understanding of what nutrition education pieces worked and what can be adjusted for a larger scale intervention. Economic aspects must also be integrated, such as determining what their average food budget is each month, in order to better shape the intervention to your specific population. For our proposal we had to practice using the Guide for Effective Nutrition Interventions and Education (GENIE) in order to self-assess the quality of our intended intervention and to highlight any gap there may be. All of these factors individually and collectively affect food and nutrition, a healthy lifestyle, pleasurable eating, and food policy in diverse urban population groups. This course and the projects involved have given me the resources and ability needed to conduct community nutrition interventions throughout my career as an RD.