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Prenatal Dietary Education using the Midwifery Model in Ireland vs. United States

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Abstract

Prenatal dietary education is a very important component of care in healthy pregnancies, but more than that, dietary education can be an indicator of the value a healthcare provider places on holistic care or preventive medicine. The United States and Ireland are compared in this study because they represent high intervention vs. low intervention approaches, respectively, to obstetric care. Healthcare professionals from the United States and Ireland perceive the most important nutrients and method of receiving those differently. Maybe the most telling contrast, healthcare professionals in Ireland perceive food as the way pregnant women should receive vital nutrients, but healthcare professionals in the United States cited vitamins or supplements as the best way. The participants did agree on several topics as well. Most agree diet should be discussed at every visit, and that physicians do not provide individualized or consistent prenatal dietary education, but midwives do. This indicates holistic care is valued across the board, even if it is not normally executed.

Introduction

This research project compared dietary patient education, using the midwifery model, in Ireland with that in the United States (hereafter US). Ireland was used as the comparison because midwifery is much more developed there compared to the United States. Midwifery's holistic model provides for patients to receive unique prenatal care, including dietary education. The importance of this education cannot be over-emphasized: Whatever the mother consumes, the fetus will use to develop. An extremely important role for any healthcare provider is patient education. Medical interventions do not reach maximal effect unless the patient understands how to implement day-to-day care strategies. As a nurse, I will be able to use my experience in Ireland to benefit the culture of patient education surrounding pregnancy in the US.

Data was collected in the US utilizing local specialists throughout the year 2020 and planned to in Ireland during the summer 2020 study abroad program, U of A Faculty Led: Health Professions in Ireland – Focus on InterProfessional Practice. This program would have been ideal because it would have put me in contact with a multitude of different healthcare professionals in Ireland, most notably midwives. The Institutional Review Board approved the project, and before the COVID-19 pandemic, there was success connecting with people in Limerick, Dublin, and Galway working with study abroad faculty leader, Dr. Henry. However, pandemic travel restrictions prevented the study abroad from happening. So, quantitative data was collected in the form of a questionnaire, which was then analyzed to record descriptive statistics. Applied only to healthcare professionals, this study avoids research on a “vulnerable population.” The portion of data collection from interviews with midwives was not able to be achieved.

Background/Significance

Researching in the Republic of Ireland, Larkin, Begley, and Devane, (2017) document the high frequency of pregnancy and labor being under the care of a midwife, with a consultant (physician) present only in the case of an emergency. In stark contrast, as of 2016, 91% of births in the hospital setting were led by physicians, while only 9% were led by midwives (Neal et al., 2019). In general, the relative costs of births attended to by midwives vs. physicians are more favorable to midwifery, considering that in the US at least, physicians routinely use interventions like analgesic substances, labor inducing medications, and cesarean sections. Premised on the notion that in both Ireland and the US, most pregnancies are low risk, the less expensive, minimally interventional approach of midwifery could lead to equally safe and effective care for mothers and their babies.

The midwifery model, characterized by its holistic, minimally interventional approach, and its theme of empowering women's choices, is gaining social acceptance in the US. Following standards which revolve around "Protecting Normality, Education and Decision Making," the midwifery model places prenatal dietary education as a high priority (Hunter et al., 2017). The greater inclusion of prenatal dietary advice afforded by midwives in the Irish experience would be exceptionally attractive anywhere, including the US, because the lack of good nutrition is linked to several adverse outcomes including gestational diabetes, preterm birth, postpartum hemorrhage, or even neural tube defects (Arrish, Yeatman, Williamson, 2017). The human body never grows or develops more quickly than in the womb. That said, certain nutrients are required for this time. A mother is at an increased risk of metabolic deficiencies during pregnancy. This is often expressed in peripheral edema or hyperemesis in most healthy pregnancies but can escalate to more severe effects of vitamin or electrolyte imbalances. A carefully maintained diet can serve as preventive medicine for serious implications of unmanaged imbalances, yet as high as 20% to 30% pregnant women worldwide do suffer from some vitamin deficiency (Mousa, Naqash, Lim, 2019).

Methods

This study included a questionnaire given to healthcare professionals from Ireland and the US in the spring and fall of 2020. The target was norms of prenatal education for each audience. It involved questions that allow for short answers if the healthcare professional desires. A list of the questions can be found in the first paragraph of the results section or Table 1 below (not included is Q1, which asks "What is your profession?"). These questions were about perceptions of prenatal nutrition, to not direct the research only on midwives. Any healthcare professional was able to have opportunity to input data. This allowed a greater number of

participants in the research. The participant indicated his or her occupation at the beginning of the questionnaire.

Data Analysis

The goal in analyzing this information is to determine discrepancies between Ireland and the United States. Data was organized by country of residence and topic, keeping together the questions which target the same topic. Outliers were identified and are outlined in the discussion section. Trends were assessed for consistency across a country, or even just midwifery. Data collected has been analyzed utilizing descriptive statistics. Content of obstetric and pediatric nursing classes supplement the discussion with the nursing considerations of each trend. Because midwifery is more developed and widely accepted in Ireland, data from healthcare professionals there is considered as what is mature for the profession. Though COVID prevented field data collection, IRB approval allowed distribution of surveys to collect data from healthcare professionals.

Results

Descriptive Statistics

Introduction

Frequencies and percentages were calculated for country of residence (Q2), “What do you believe to be the 5 most important nutrients for the pregnant mother?” (Q3), the Likert scale “The nutrient intake of a pregnant woman should change significantly from the first to the third trimester” (Q4), “At approximately how many of a patients prenatal visits do you believe nutrition should be discussed?” (Q5), “Which of the following should patients be encouraged to utilize to increase nutrient intake in pregnancy?” (Q6), the Likert scales “Physicians provide individualized prenatal nutritional education” (Q7), “Physicians provide consistent prenatal

nutritional education” (Q8), “Midwives provide individualized prenatal nutritional education” (Q9) and “Midwives provide consistent prenatal nutritional education” (Q10).

Frequencies and Percentages

Most survey participants reside in the United States (n=29, 76%). Participants most commonly cited Fats, Carbohydrates, Proteins, Folate, Iron and Omega-3 fatty acids as the most important nutrients in pregnancy. One survey participant included calcium in the “other” section of the most important nutrients in pregnancy. The most selected answer was “disagree” to the question of nutrient intake changing significantly from the first to third trimester (n = 16, 42%) but the majority agreed diet should be discussed at every prenatal checkup (n = 24, 63%). The way most survey participants believe pregnant women should receive nutrients is through Vitamins or supplements, Foods, Activities (i.e. going outside, exercise) (n = 14, 37%), with three participants including water in the “other” section. The most selected answer by survey participants was disagree for the idea that physicians provide individualized (n = 17, 45%) or consistent (n = 16, 42%) prenatal dietary education. Contrary, the most selected answer was “agree” for the idea that midwives provide both individualized (n = 17, 45%) and consistent (n = 17, 45%) prenatal dietary education. Frequencies and percentages are presented in Table 1.

Table 1

Frequency Table for Nominal Variables

Variable	<i>n</i>	<i>%</i>
Q2: Country of Residence		
United States	29	76.32
Ireland	9	23.68
Q3: What do you believe to be the 5 most important nutrients for the pregnant mother?		
Proteins,Folate,Choline,Vitamin D,Vitamin C	1	2.63
Fats,Carbohydrates,Folate,Iron,Other:	1	2.63
Fats,Carbohydrates,Proteins,Folate,Iron	4	10.53

Proteins,Folate,Iron,Vitamin D,Vitamin C	2	5.26
Fats,Proteins,Folate,Omega-3 fatty acids,Iron	4	10.53
Fats,Carbohydrates,Proteins,Omega-3 fatty acids,Iron	1	2.63
Carbohydrates,Proteins,Folate,Iron,Vitamin C	1	2.63
Proteins,Folate,Omega-3 fatty acids,Vitamin D,Vitamin A	1	2.63
Carbohydrates,Proteins,Folate,Omega-3 fatty acids,Iron	3	7.89
Proteins,Folate,Omega-3 fatty acids,Iron,Zinc	2	5.26
Proteins,Folate,Iron	2	5.26
Proteins,Omega-3 fatty acids,Iron	1	2.63
Proteins,Folate,Omega-3 fatty acids,Iron,Vitamin D	2	5.26
Proteins,Folate,Omega-3 fatty acids,Iron,Vitamin C	1	2.63
Carbohydrates,Proteins,Folate,Iron,Choline	1	2.63
Proteins,Omega-3 fatty acids,Iron,Vitamin A,Zinc	1	2.63
Carbohydrates,Proteins,Folate,Iron,Vitamin D	2	5.26
Proteins,Folate,Iron,Vitamin D,Vitamin A,Vitamin C,Vitamin E	1	2.63
Proteins,Omega-3 fatty acids,Iron,Vitamin A	1	2.63
Proteins,Folate,Iron,Vitamin C,Zinc	1	2.63
Proteins,Folate,Iron,Choline,Vitamin D	1	2.63
Fats,Folate,Omega-3 fatty acids,Iron,Vitamin D	1	2.63
Fats,Carbohydrates,Proteins,Folate,Vitamin D	1	2.63
Carbohydrates,Folate,Iron,Vitamin D,Vitamin E	1	2.63
Proteins,Folate,Iron,Vitamin C,Other:	1	2.63
Q3: Other		
Calcium	1	2.63
Q4: The nutrient intake of a pregnant woman should change significantly from the first to the third trimester.		
Agree	9	23.68
Disagree	16	42.11
Strongly disagree	2	5.26
Neither agree nor disagree	9	23.68
Strongly Agree	2	5.26
Q5: At approximately how many of a patients prenatal visits do you believe nutrition should be discussed?		
Every visit	24	63.16
Half of the visits	7	18.42
More than half of the visits	7	18.42
Q6: Which of the following should patients be encouraged to utilize to increase nutrient intake in pregnancy? You may select more than 1 answer.		
Vitamins or supplements,Foods,Activities (i.e. going outside, exercise)	14	36.84
Vitamins or supplements,Foods	7	18.42

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Foods,Activities (i.e. going outside, exercise)	5	13.16
Vitamins or supplements,Foods,Beverages	1	2.63
Vitamins or supplements,Foods,Activities (i.e. going outside, exercise),Other:	2	5.26
Vitamins or supplements,Foods,Activities (i.e. going outside, exercise),Creams or lotions	1	2.63
Vitamins or supplements,Foods,Activities (i.e. going outside, exercise),Beverages	2	5.26
Vitamins or supplements,Activities (i.e. going outside, exercise),Other:	1	2.63
Vitamins or supplements,Activities (i.e. going outside, exercise),Beverages	1	2.63
Vitamins or supplements,Activities (i.e. going outside, exercise),Creams or lotions	1	2.63
Foods,Activities (i.e. going outside, exercise),Beverages	1	2.63
Foods	1	2.63
Vitamins or supplements,Foods,Activities (i.e. going outside, exercise),Creams or lotions,Beverages	1	2.63
Q6: Other		
Water	3	7.89
Missing	35	92.11
Q7: Physicians provide individualized prenatal nutritional education.		
Neither agree nor disagree	8	21.05
Strongly disagree	4	10.53
Disagree	17	44.74
Agree	8	21.05
Strongly Agree	1	2.63
Q8: Physicians provide consistent prenatal nutritional education.		
Strongly Agree	3	7.89
Strongly disagree	4	10.53
Disagree	16	42.11
Agree	7	18.42
Neither agree nor disagree	8	21.05
Q9: Midwives provide individualized prenatal nutritional education.		
Disagree	3	7.89
Agree	17	44.74
Strongly disagree	1	2.63
Neither agree nor disagree	14	36.84
Strongly agree	2	5.26
Missing	1	2.63
Q10: Midwives provide consistent prenatal nutritional education.		
Disagree	3	7.89
Agree	17	44.74
Neither agree nor disagree	15	39.47
Strongly disagree	1	2.63
Strongly agree	1	2.63

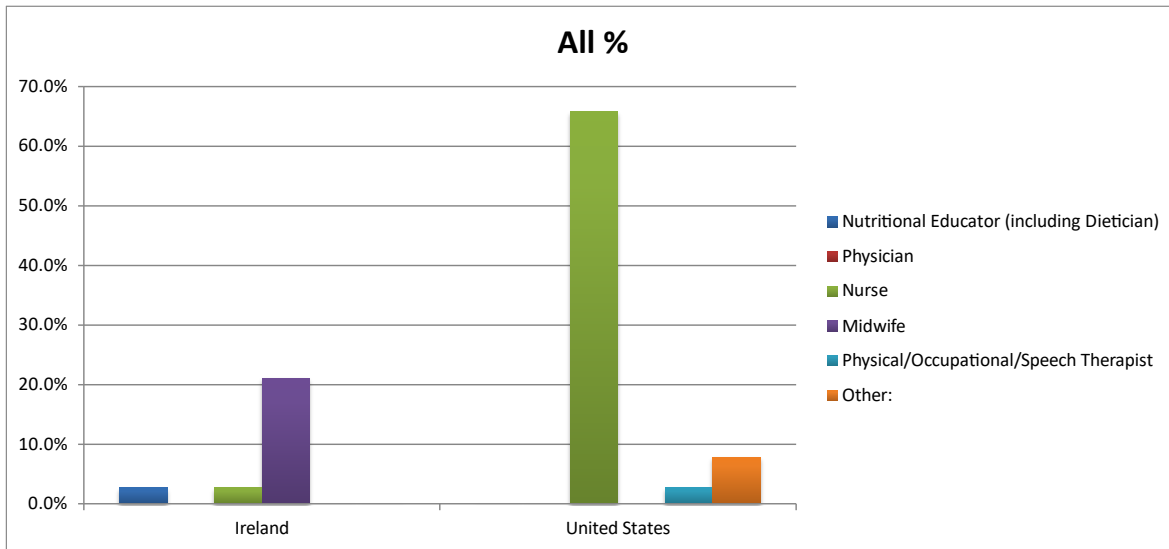
Missing

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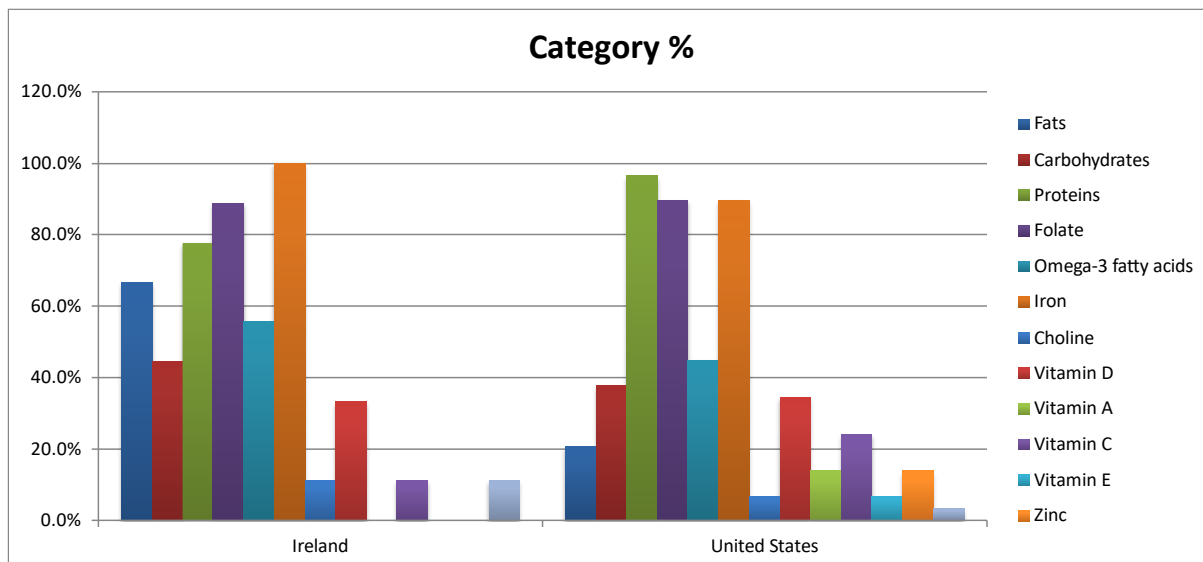
Note. Due to rounding errors, percentages may not equal 100%.

Discussion

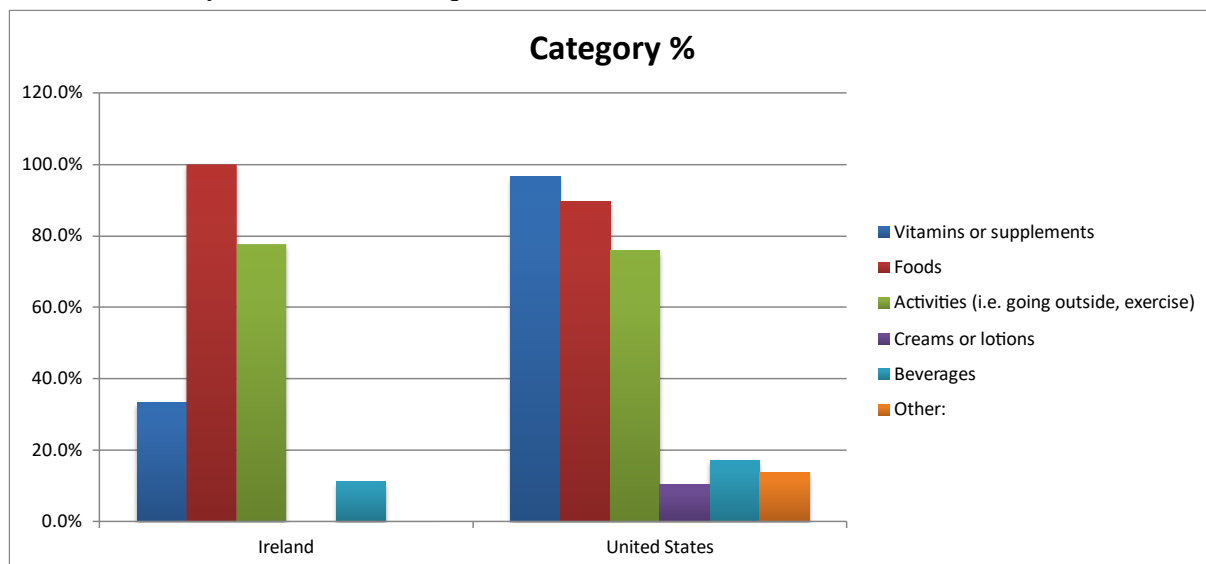
The vast majority of participants were nurses from the US because recruitment of Irish participants was extremely limited since the study abroad trip was canceled. It was expected this



would impact the results because labor and delivery nurses in the US are heavily impacted by physician's practices and are accustomed to performing high levels of intervention each time they work. However, the data revealed that perceptions of prenatal diet contrast most clearly against country of residence, while perceptions of prenatal dietary education as provided by a physician versus a midwife are much more unified.

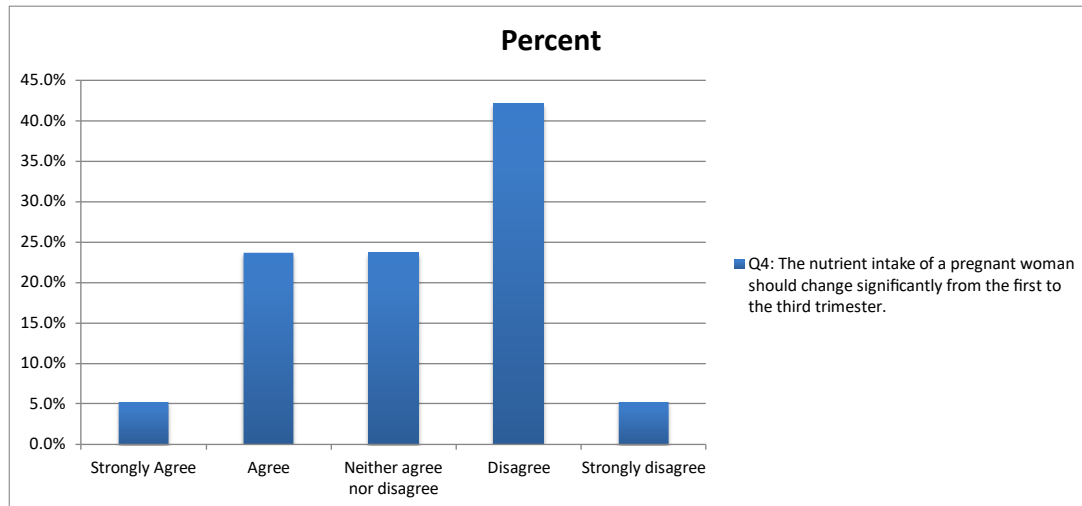


According to the data collected, the US and Ireland share the same perceptions of the top three most important nutrients for a pregnant mother – proteins, folate, and iron. In descending order, the following three for Ireland are fats, omega-3 fatty acids, and carbohydrates. For the US, they are omega-3 fatty acids, carbohydrates, and vitamin D. The most contrasting nutrient is fats. For Ireland, it is close to reaching the top three, whereas for the US, it is ranked as 8th most important. This could be because of misperceptions of the obesity crisis in the US. Healthy fats are required for brain development of the fetus, but unhealthy fat contributes to many factors an obese mother may face (Mousa, Naqash, Lim, 2019).

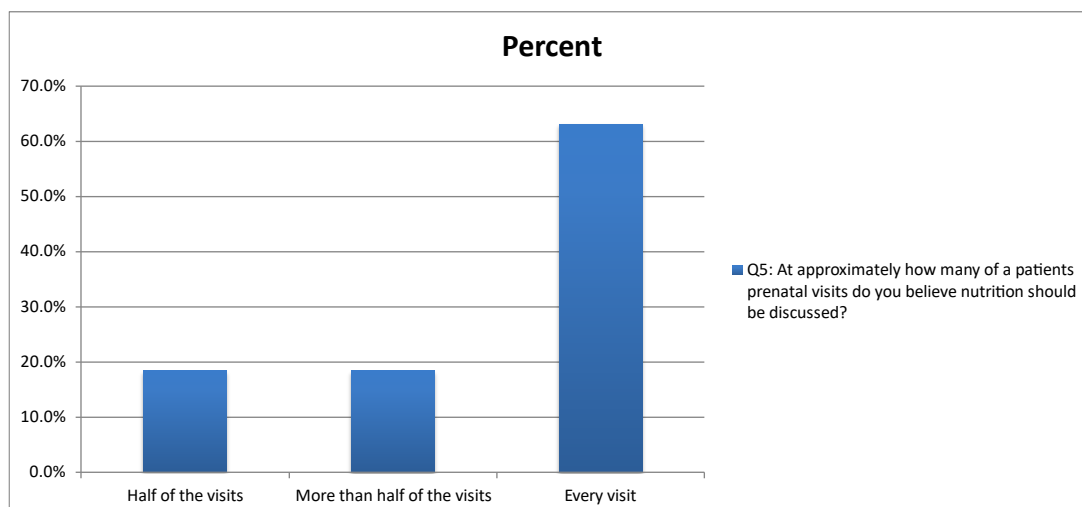


The next stark contrast in perceptions of appropriate prenatal diet revolves around how a mother should receive her nutrients. For Q6, nearly one hundred percent of US participants reported that pregnant mothers should receive nutrients through vitamins or supplements, but just over thirty percent of Irish participants agree. Instead, Irish participants ranked foods as the number one source of nutrition. The US participants ranked vitamins or supplements above food. This is an issue of lifestyle. If primary prevention were valued at a greater scale in the US, the answers would be more similar. It is difficult to find and maintain a healthy diet in the US. Additionally, there is an instant gratification culture in the US that would support taking a daily

supplement rather than working to plan meals with green vegetables, healthy fats, and proteins (Mousa, Naqash, Lim, 2019). It only makes sense with the patient population of the US to prescribe supplements because pregnant mothers need the nutrients somehow.

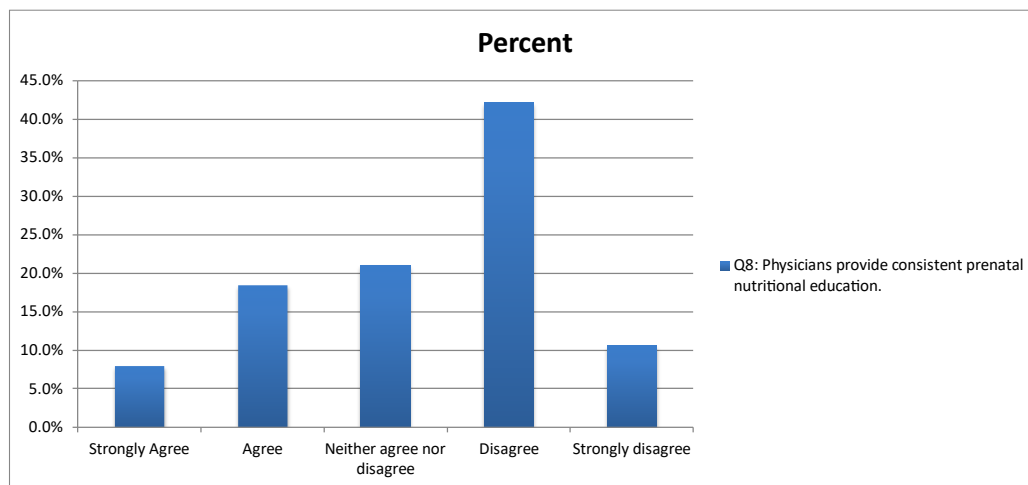


The areas which Ireland and the US agree revolve around timing of patient education and provider preference. The first is Q4, regarding if the nutrient intake of a pregnant woman should change per trimester. The most agreed upon answer was no, it should not. The US and Ireland also agree nutrition should be discussed at every prenatal visit, as seen by the data in Q5. This suggests healthcare professionals perceive consistency as an important aspect of prenatal dietary

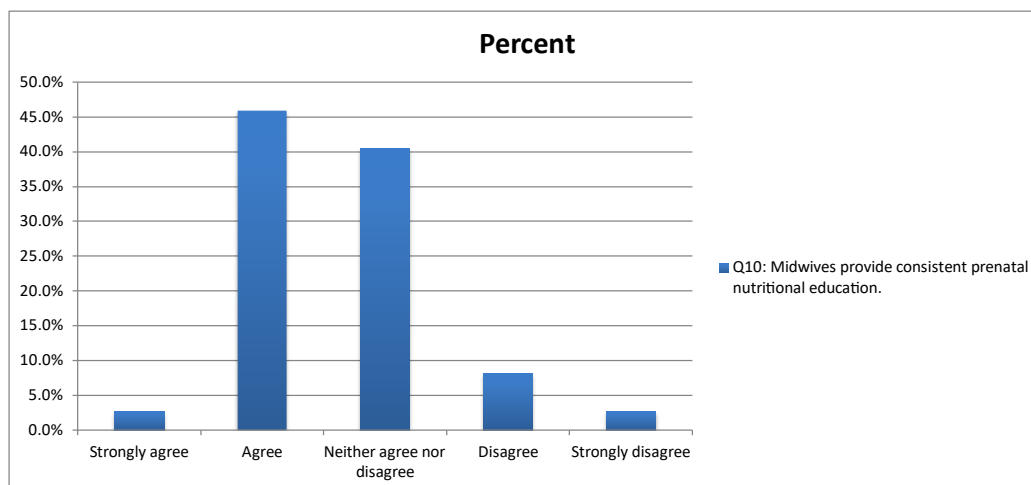


education. Regarding provider preference, the data suggests most healthcare professionals perceive midwives as more consistent in prenatal nutritional education. For Q8, the great

majority of the group disagreed that physicians provide consistent prenatal nutritional education, which is very insightful considering most of the participants work with obstetric physicians.



Relating back to Q6, this could be attributed to the US preference of vitamins or supplements over dietary changes. There were several responses of “neither agree nor disagree” to Q10, most likely because most of the participants have limited exposure to midwives. However, even with



that little knowledge, there were still enough participants who agreed with Q10 to meet the majority. This data indicates healthcare professionals recognize the benefits of holistic care.

Conclusion

Increasing acceptance of holistic approaches to obstetric care in the US will continue to improve maternal-fetal outcomes. To reach a maternal-fetal mortality rate as low as that of Ireland, primary prevention of complications and normalization of the birthing process must be

valued. The culture of fear around pregnancy in the US influences decisions that may deviate from facilitating the physiological process, incurring more expense, but not necessarily improving outcomes. Consistent prenatal dietary education is clearly valued among healthcare professionals in both Ireland and the US, so the future is promising. I know I will do my best in my role as a nurse to provide holistic and individualized care in the acute setting.

Research Timeline

- **January 2020:** Formulated a list of non-midwife sources to collect data from in the United States.
- **February 2020:** Acquired funding to travel abroad.
- **March 2020:** Study abroad trip was canceled due to COVID-19 pandemic.
- **April 2020:** Restructured data collection methods to solely remote survey distribution and acquired IRB approval.
- **May 2020:** Distributed IRB approved letter to health centers in Dublin, Limerick, and Galway, Ireland as well as U.S. participants.
- **June 2020-November 2020:** Continued data collection.
- **December 2020:** Closed survey to participants.
- **January 2021-February 2021:** Data was analyzed and organized.
- **March 2021-April 2021:** Report write up and honors thesis preparation
- **April 28, 2021:** Defense

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