

I. Research Proposal: *An investigation into the cultural and societal factors affecting infant and maternal birth outcomes in Iceland, the Netherlands, and the United States*

This study aims to understand the cultural and societal differences surrounding maternal care and childbirth practices between Iceland, the Netherlands, and the United States. I hypothesize that these cultural differences lead to different infant and maternal health outcomes.

One major difference is that Iceland and the Netherlands have a form of universal healthcare, unlike the United States. In both countries, healthy patients have pre-natal visits with midwives rather than obstetricians. As of 2020 data, Iceland has the lowest infant mortality rate worldwide, modeled to be 1.542 deaths per 1,000 live births (I). The maternal mortality ratio was modeled to be four deaths per 100,000 live births in 2017. This ratio is much lower than that of the United States in 2017: nineteen deaths per 100,000 live births (II). Culturally, out-of-wedlock births are less stigmatized in Iceland than in the United States. Iceland is a very progressive country with many government programs in place to aid single mothers. In Iceland, 71.3 percent of children were born out of wedlock in 2020, as opposed to 40 percent in the United States in 2019 (III, IV).

The Netherlands also has unique birthing practices. Many births do not occur at hospitals. Of Dutch births in 2010, 16.3 percent occurred at home and 11.4 percent occurred at birth centres. Although the percentage of home births is much greater in the Netherlands than in other countries, such as Iceland (1.8%) and England (2.5%), this figure was much higher in the past. In 2004, over thirty percent of Dutch births occurred at home (V). In addition, the Netherlands has one of the lowest Cesarean section rates of all industrialized countries. In 2017, 16.2 percent of births in the Netherlands and Iceland were performed via Cesarean section. Only Norway and Israel had lower rates, sixteen percent and 14.8 percent respectively (VI). The World Health Organization stated in 1985 that there is “no justification” for countries to have Cesarean section rates greater than ten to fifteen percent (VII).

In contrast, in the United States, maternal mortality rates have increased over the past generation. The maternal mortality ratio has increased from twelve deaths per 100,000 births in 2000 to nineteen deaths per 100,000 births in 2017 (VIII). Thirty-two percent of all births are Cesarean sections (VI). When infants are delivered via Cesarean section, the maturation of their immune system may be disrupted due to antibiotics given to mothers and not being exposed to microbes from the vaginal microbiome (IX). Cesarean section has also been associated with increased risks of infants developing diabetes, asthma, obesity, autism spectrum disorder, attention deficit disorder, and schizophrenia (X).

I posit that the culture surrounding pregnancy, childbirth, and child-rearing affects healthcare decisions and health outcomes for mothers and their children. In this project, I intend to perform interview-based qualitative research in Iceland and the Netherlands. I have confirmed ten interviews in Reykjavik, eight interviews in Amsterdam, and two interviews in Rotterdam. I will be interviewing a range of experts in the field of maternal health: midwives, obstetricians, professors of maternal epidemiology and obstetrics, and midwifery doctorate students. In Amsterdam, I have been invited to visit a maternal ward. I intend to schedule interviews with similar experts in the United States before departing. Through interviews with experts and observation of these cultures, I will be able to investigate and further understand how differences between the birthing and child-rearing cultures in the United States and Iceland and the Netherlands lead to these different health outcomes.

Maternal health is a multifactorial issue, affected by many facets that I am continuously researching. I have divided these into three categories: culture, societal structure, and healthcare. During my travels and interviews, I will investigate how the country’s overall culture regarding

pregnancy and motherhood compares to the United States, such as whether birth is regarded as a natural process, the prevalence of working mothers, the average age of mothers, trends in marital status, and cultural perceptions of contraception. I will inquire as to the societal structure of the country to learn about the government programs in place such as sex education, public pre-schools, public childcare, and parental stipends. I will also investigate and observe the country's healthcare system, including the health of populations before pregnancy, the prevalence of doulas and midwives, government-provided maternal healthcare, reproductive rights, and the prevalence of other maternal health issues such as fetal alcohol syndrome and chromosomal abnormalities. I have created an interview guide with questions for participants that I would be happy to submit to the committee upon request.

Individuals that I will be interviewing have been identified through research of hospitals and higher education institutions in Reykjavik, Amsterdam, and Rotterdam. These participants will be given a consent form giving full details of the study. Participants will be asked to read this information before the interview and will be asked to sign this form on the day of the interview. Participation in these interviews presents minimal to no potential risks to the participants. In order to protect participants' safety and confidentiality, at the start of each interview, I will ask participants if there are any topics they do not feel comfortable discussing and whether they would like their names and organizations to be omitted from subsequent write-ups and research materials. If requested, I will not include any identifiable data in interview transcriptions. With participants' consent, I will record each interview using a digital sound recorder or recording software. After completing these interviews, I will transcribe and code them, looking for keywords and phrases across multiple interviews. These keywords and phrases will then guide my interpretation of the interviews and will serve as data. I will use my cultural observations and data to guide my research paper and presentation. I will work with my faculty advisor, Dr. Gary Miller of the Health and Exercise Science department, to ensure accurate analysis and interpretation of the data.

My faculty advisor has been an invaluable resource as I plan my research and trip and has helped shape my research question and methods. In addition to Dr. Miller, I have many contacts in Iceland and the Netherlands that have provided a wealth of knowledge about their country and culture. Continuing these relationships leading up to my trip will be integral to its success. I have attached correspondence from each of these contacts, along with their name, position, and location. My support system for this research already exceeds twenty people and will grow as I continue planning my travels.

I believe I have the abilities and resources needed to accomplish my proposed research. Firstly, I have traveled with my family throughout Europe and the United States. While I have never been to Iceland or the Netherlands and feel that I will learn and gain so much from this experience, I feel very comfortable traveling independently. I am adaptable and resourceful and feel equipped to solve the problems that will inevitably arise during my trip. I am unafraid to ask for help when I need it and can communicate effectively with many types and groups of people. I respect and admire the differences between the culture in the United States and other countries and would be thrilled to have the opportunity to learn more about Icelandic and Dutch culture in such a hands-on way. I would like to pursue Human Subjects Research for this project and met with Pam Moser in January to discuss this. I have already completed CITI Program courses for Human Research in both Group 1 Social-Behavioral and Group 3 Biomedical settings. I have experience with Human Subjects Research through my work as a behavioral coach for the Behavioral Medicine Lab of the Health and Exercise Science department. As a sociology minor, I have participated in sociology research in which data was gathered through interview and conference

transcriptions, then coded and analyzed. In addition to my research experience, I intend to apply for international research positions after completing my undergraduate studies prior to attending medical school, hoping to specialize in maternal health and obstetrics. The Richter Scholarship would provide a life-changing opportunity to perform independent international research as an undergraduate while experiencing the cultures of Iceland and the Netherlands.

Due to the ongoing pandemic, I understand the need to be flexible during this application and planning process. If needed, my Plan B would be to limit my travels to just Iceland or the Netherlands and adjust my itinerary as needed. Additionally, if necessary, I can conduct all interviews via Zoom during my trip to limit my contact with others. If I am unable to travel, I will still conduct all interviews virtually and would like to include more observational experiences and interviews with experts in the United States to allow for a more complete comparison of birthing practices between Iceland, the Netherlands, and the United States.

Works Cited:

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- III. Statistics Iceland. [“Live births by sex and marital status of mother 1838-2020.”](#) Statistics Iceland. Accessed 18 January 2022.
- IV. CDC. [“Unmarried Childbearing.”](#) U.S. Department of Health & Human Services. Accessed 6 February 2022.
- V. Euro-Peristat. [“The European Perinatal Health Report 2010.”](#) Euro-Peristat Network. 27 May 2013. Accessed 18 January 2022.
- VI. OECD Health Statistics. [“Caesarean sections.”](#) *Health at a Glance 2019: OECD Indicators*. 2019. Accessed 18 January 2022.
- VII. World Health Organisation. [“Appropriate Technology for Birth.”](#) *The Lancet*, vol. 326, no. 8452, 1985, pp. 436-437. Accessed 18 January 2022.
- VIII. Roser, M and Ritchie, H. [“Maternal Mortality.”](#) *Our World in Data*. 2013.
- IX. Thomson, CA and McCoy, KD. [“The Role of Mom’s Microbes During Pregnancy.”](#) *The Scientist*. 1 August 2021. Accessed 18 January 2022.
- X. Chen, H and Dingliang, T. [“Caesarean Section or Natural Childbirth? Caesarean Birth May Damage Your Health.”](#) *Frontiers in Psychology*, vol. 10. 21 February 2019. Accessed 18 January 2022.

II. Trip Itinerary

| Date (2022) | Location | Activities |
|---------------|--------------|--|
| Mon. May 30 | Jacksonville | Fly JAX to KEF |
| Tues. May 31 | Reykjavik | Check into hotel or Airbnb Hallgrímskirkja Church, Sun Voyager, Imagine Peace Tower |
| Wed. June 1 | Reykjavik | Blue Lagoon |
| Thurs. June 2 | Reykjavik | Art Festival |
| Fri. June 3 | Reykjavik | Interviews |
| Sat. June 4 | Reykjavik | Vestmannaeyjar puffin colony |
| Sun. June 5 | Reykjavik | Festival of the Sea |
| Mon. June 6 | Reykjavik | Interviews |

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| Tues. June 7 | Reykjavik | Interviews |
| Wed. June 8 | Reykjavik | Interviews |
| Thurs. June 9 | Reykjavik | Interviews |
| Fri. June 10 | Reykjavik | Transcribe and compile interviews |
| Sat. June 11 | Reykjavik | Viking Festival |
| Sun. June 12 | Reykjavik | Elliðaárdalur Valley hike |
| Mon. June 13 | Reykjavik | Interviews |
| Tues. June 14 | Reykjavik | Interviews |
| Wed. June 15 | Reykjavik | Interviews |
| Thurs. June 16 | Reykjavik | Interviews |
| Fri. June 17 | Reykjavik | Transcribe and compile interviews. |
| Sat. June 18 | Amsterdam | Fly KEF to AMS Check into hotel or Airbnb |
| Sun. June 19 | Amsterdam | Vondelpark and Jordaan |
| Mon. June 20 | Amsterdam | Interviews |
| Tues. June 21 | Amsterdam | Interviews |
| Wed. June 22 | Amsterdam | Interviews |
| Thurs. June 23 | Amsterdam | Interviews |
| Fri. June 24 | Amsterdam | Interviews |
| Sat. June 25 | Amsterdam | Anne Frank Huis |
| Sun. June 26 | Amsterdam | Rijksmuseum, Van Gogh museum |
| Mon. June 27 | Amsterdam | Interviews |
| Tues. June 28 | Amsterdam | Interviews |
| Wed. June 29 | Amsterdam | Interviews |
| Thurs. June 30 or Friday, July 1 | Amsterdam | Travel to Rotterdam Markthal, Euromast Tower Interviews |
| Sat. July 2 | Amsterdam | Zaanse Schans windmills |
| Sun. July 3 | Amsterdam | MOCO Museum, A'DAM Tower |
| Mon. July 4 | Amsterdam | Interviews |
| Tues. July 5 | Amsterdam | Interviews |
| Wed. July 6 | Amsterdam | Interviews |
| Thurs. July 7 | Amsterdam | Interviews |
| Fri. July 8 | Amsterdam | Interviews |
| Sat. July 9 | Amsterdam | Pack, begin compiling interviews |
| Sun. July 10 | Amsterdam | Fly AMS to JAX |

Word Count: 1956