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Information needs during pregnancy from women's perspective

With regards to cultural differences

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ABSTRACT

Introduction: Pregnancy is a life-changing experience that is accompanied by many psychological and physical changes. The importance and life-altering effects of this stage in women's lives, also put special demands on the information they might want and need. Further, there are differences in what information is readily available through various health systems, both culturally and through pregnancy care models adopted by the given systems. Therefore, this project aims to capture women's experience and find out if the cultural aspects of the women's residual area can affect their needs and decisions.

Methodology: This study employed both an online survey and interview as data collection tools. The survey questionnaire was distributed online through Facebook pregnancy-related groups. In addition, face-to-face interviews were conducted in Norway and Iran. There were 15 interviewees recruited in total, with the ratio of 9 in Iran and 6 in Norway.

Results: Findings of this study indicate a strong effect of cultural values on one's preference and decisions. It also highlights the importance of a communicative relationship between the physicians and the patients.

Conclusion: From the results of this study it can be concluded that in order to understand ones' needs, the cultural perspective of that society should be considered. The cultural values constantly influenced one's decision making and behaviour. Therefore, understanding this factor can be of utmost importance especially in multicultural societies' health system.

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PREFACE

This thesis is written to fulfil the requirements for the degree of Master of Science (MSc) at the Faculty of Medicine, Department of Telemedicine and eHealth, University of Tromsø, Norway.

This research project aims to reveal the pregnancy experience from a less medical viewpoint, and rather a more experienced-based process. Each individual can have a different perception of more or less similar experience. As a woman, the mystery of this experience aroused my curiosity to explore this topic further. Having moved to Norway, I noticed a huge difference in health care system and how things are different here in comparison to my home country. As an example, general practitioners (GP) in Norway are the first step in the treatment process and they also play an important role as a medium for referring special cases to the related specialist. While back home, each person can directly apply for an appointment with the specialist they would prefer. The differences won't end here and exceed to the different approach for pregnancy visits in which GPs and midwives play the main role. My personal experience was limited to considering Gynaecologist/ obstetricians as the main point of visits during pregnancy. After exploring this through conversation with people back home, I found out that midwives' clinics have always been an option for pregnancy check-ups. Therefore, I decided to scrutinize the reasons behind specialist preference back home and the comparison of this experience in these two countries. Through studies of relevant topics, I came across various information seeking (IS) models and its role in various areas, I also noticed that very little is done in examining IS pattern in a normal pregnancy period. Therefore, this study is designed to analyse women's needs during this experience and how they help themselves meet these needs through various sources of information.

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1. INTRODUCTION

This study attempts to provide a framework to compare pregnant women's needs and investigating if their residual region, health system, and cultural differences affect these needs; in this regard, a comparison between Norway and Iran is designed to help with examining the role of these factors. Additionally, this investigation can further help with developing a knowledge base for pregnant woman's information needs during pregnancy process. The outcome of this research is expected to add on the body of knowledge in "pregnancy information" and information-seeking model of pregnant women.

1.1 JUSTIFICATIONS FOR THE STUDY

Transition to parenthood along with the new experience of being pregnant is a very stressful situation for many women, especially first-time mothers. It is not easily manageable if their pregnancy comes with the side effects such as nausea, back pain, sleeping problems, etc. It is vital to provide them with personally tailored information to ease their experience and satisfy their curiosity. As the availability of information has significantly increased during the last decade, accessing the right information from the right source has become a debatable issue. Hence, identifying pregnant women's needs and the information sources they frequently seek, can help with mapping a guideline for healthcare professionals in order to assist them in the best way possible. Considering the definition of patient-centred care, it is of importance to examine their needs and try to satisfy them.

The Institute of Medicine (IOM) defines the patient-centred care as:

“Patient-centred care takes into consideration patients’ personal preferences, cultural traditions, values, families, and lifestyles. Patient-centred care empowers patients to be responsible for their self-care. It reduces the use of healthcare interventions that are unwanted, inappropriate, or not needed” (as cited in Dekker, 2012)

In addition, the results of this study will give system designers and health policy makers, an overview of their users' needs and expectations.

1.2 SPECIFIC GOALS

1. This study aims to outline the information seeking pattern of women undergoing a normal pregnancy, through in-depth study of information seeking behaviour (ISB) introduced by Wilson (T.D. Wilson, 1999)
2. The comparative nature of this study investigates women's perception of various choices they make and exploring whether cultural differences, norms, and beliefs play role in making these decisions.

1.3 THE SIGNIFICANCE OF THIS STUDY

This study contributes to identifying the gaps in the pregnancy education from women's vantage point and introduces the possibility of tailoring the information provided, based on their preferences. The important questions this study aims to investigate, are "what", "where" and "how". What do the pregnant women want to know? Where do they find it? How do they obtain their desired information? These questions are to be examined with special consideration to the cultural background of the information seekers. Therefore, this project aims to highlight the importance of monitoring these supplementary information sources to meet the reliability requirements, and to prevent negative consequences for the information seeker.

Additionally, comparative aspects of this study provide a deep understanding of cultural factors affecting one's experience with the health care system. This perspective can be particularly helpful for preparing a guideline for health workers in maternity care in multicultural societies, to improve pregnant women's encounter with the health care system.

1.4 ORGANIZATION OF THE THESIS

- Chapter 2 begins with a literature review of relevant studies in information needs of pregnant women. Further, it is followed by reviewing the healthcare system in Iran and Norway. This chapter describes two different methods of prenatal care in the health system of these two countries. It attempts to build a common understanding with the readers in terms of the differences in the pregnancy care adopted in Iran and Norway.

- Chapter 3 covers the theoretical model of Information Seeking Behaviour (ISB) by Wilson (Wilson, 1999). It starts with a background of this models and clarifying various concepts and theories required to grasp the model thoroughly. In this chapter, various elements affecting the information seeking pattern are studied in detail.
- Chapter 4 explains about the methodology applied in this study. This section goes through the process of choosing the sample, different methods employed, and the analysis approach. The organization of the questions designed both in the survey and the interview guide is explained this chapter as well.
- Chapter 5 presents the data collected through survey and interviews by means of illustrative figures and narrative explanation of the interviewees' account.
- In chapter 6 findings of this study is discussed by the means of the theories introduced in chapter 3. This chapter covers the explanations of how the findings of this study address the specific goals introduced above. Additionally, it describes the limitation associated with this study.
- Chapter 7 includes a short summary of this project and the recommendations suggested by the researcher to highlight the opportunities for further studies.

2. BACKGROUND

It is evident that having a baby is a major life event, particularly for those in their first pregnancy. Studies emphasize the importance of this period, as it is the time when they seek information to cope with the challenges along their transition to parenthood. A study by Collins shows that women with prior pregnancies are almost 17 times more likely than primigravidae, and married women are almost twice as likely as non-married women, to know more about pregnancy and childbirth prior to this pregnancy (Collins, 2007). Shieh et al (2009) confirmed that being pregnant for the first time is positively related to more tendency towards information-seeking (C. Shieh, McDaniel, & Ke, 2009). Although there is a huge variety of information sources, access to large volumes of information does not necessarily equate to understanding and comprehension of the information found, and in some cases, it can cause confusion. In a survey study conducted at a public tertiary women's hospital in Melbourne, Australia, women were asked to indicate the sources from which they received information during their pregnancy and which of these sources were used most often or considered most useful. The results showed an interesting difference between those who received most of their care from a midwife and those who got most of their care from a specialist physician. The former found that their discussion with a midwife was their most useful source of information while the latter reported that the Internet was the most useful source of information and the one that they used most often (Grimes, Forster, & Newton, 2014).

“Recent data indicate that the growth rate for Internet use in the past decade has increased by almost 500 percent, and 30 percent of the world’s population now has online network access. With almost 136 million websites currently disseminating pregnancy-related information, online usage by pregnant women is growing rapidly” (Lagan, Sinclair, & Kernohan, 2011, p. 336)

A study of the use of the Internet by Swedish women seeking pregnancy-related information revealed that a large number of women (84%), used the Internet for retrieving information. Among these women, 70% claimed not to have discussed the information they found with their midwife. On the other hand, more than half of them (55%) stated that they had searched for information on topics introduced by their midwives (Larsson, 2009).

In 2016, a qualitative study on how Web-based discussion forums influence maternal health literacy was conducted in Norway. The result of 11 interviews with women selected from the

3 different websites, proves the popularity of these online forums to supplement their information regarding their pregnancy. Many of these interviewees valued these online platforms even more than their discussion with the health professionals (Fredriksen, Harris, & Moland, 2016).

Due to a wide range of information that should be given to pregnant women, there are some areas which are mostly neglected. Maternal nutrition during pregnancy affects the long-term health outcomes of both the woman and her offspring. In a study in the Coombe Women and Infants University Hospital (CWIUH)- one of the largest maternity hospitals in the European Union (EU)- the use of web-based nutritional information by women during pregnancy has been examined. This survey-based study identified the risk that pregnant women may not get evidence-based nutritional information from online resources. In an investigation of the reliability of web-based medical advice, only 39% of the 500 sites examined provided correct information to answer the questions asked by users. This result highlights the importance of Healthcare professionals' (HCP) role to guide them towards an authentic source of information (Kennedy et al., 2017).

Another gap in pregnancy education is the importance of physical activity during this period which has not received enough attention. In a literature review, investigating the reasons behind decreased leisure time physical activity (LTPA), the following factors have been identified: Pregnancy-related symptoms such as tiredness, fatigue, nausea, physical pain, etc. Additionally, mother-child safety concerns were categorized as intrapersonal barriers which within this category, lack of advice, information, and social support were most often reported in qualitative studies. Accordingly, previous research shows that health care providers often give little or no advice about exercise during pregnancy. Pregnant women's knowledge about the LTPA, is one of the neglected areas that requires efforts to be prioritized in pregnancy education (Coll, Domingues, Gonçalves, & Bertoldi, 2017).

2.1 MATERNITY CARE IN IRAN

Iran is located in South West Asia in the middle east region with the population of 79,926,270 which 59,146,847 of them living in the urban areas. National census of 2017 presents a 1,24% average annual population growth rate. According to the CIA World Factbook, the crude birth rate in Iran in 2017 has been 17.9 birth/ 1,000 population with the total of 1.97 children born / women ("The World Factbook. IRAN," 2018).

The range of procedures general practitioners are allowed to perform is very limited in Iran. GPs have limited experience in the field of obstetrics and gynaecology. The lack of practice in this area is more noticeable especially among male GPs, because that due to cultural reasons, gynaecological examinations are preferred to be done by female doctors (Couper, 2004).

Iran's health system is run by the Ministry of Health and Medical Education (MOHME) and it has the legal authority to supervise and regulate the activities of private health sector (*Science, Technology and Innovation Policy Review. The Islamic Republic of Iran 2005*). One of the main tasks of primary health care is the provision of prenatal care. There are two different approaches to maternity care, a midwifery model, and a medicalized model. Midwifery approach views delivery as a natural event which does not require to be unnecessarily disturbed. However, the medicalized approach, on the other hand, considers childbirth a risky situation that demands medical intervention. In Iran, this medico-technical approach is more or less the main model. Therefore, caesarean rate is relatively high (Berg, Asta Olafsdottir, & Lundgren, 2012).

The definition of the midwifery profession in Iran is according to the definition of International Confederation of Midwives (ICM) which is as follows (Moghasemi, Vedadhir, & Simbar, 2018):

“A midwife is a person who has successfully completed a midwifery education program that is based on the ICM Essential Competencies for Basic Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education; and is recognized in the country where it is located; who has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title ‘midwife’; and who demonstrates competency in the practice of midwifery.” (“International Definition of the Midwife,” 2017)

However, the practical approach to the model for presentation of midwifery care in Iran is different from those in other countries prioritizing natural delivery. Indeed, despite the international attention to the midwives’ role and the importance of investing in them, total capacities of this profession have not been yet used in Iran.

Midwifery-care models in Iran have a poor body of knowledge and research as well as intervention background. Further, there is no proper and comprehensive understanding of the

needs of women, men, and families regarding midwifery care. Therefore, there are numerous challenges and unanswered questions in this regard (Moghasemi et al., 2018).

In Iran, it is more common to routinely visit an obstetrician (OB) and or a gynaecologist during pregnancy rather than midwives. These specialists have the main responsibility during labour, birth, and the postnatal period as well as decision making in this regard (Bagheri, Masoudi Alavi, & Abbaszadeh, 2013).

2.2 Maternity care in Norway

Norway is located in Northern Europe with the population of 5,320,045, 81% of which live in urban areas. According to a census in 2017, Norway has a population growth rate of 1.01% with 12.2 births/1,000 population and the total fertility rate of 1.85 children born/woman ("The World Factbook. NORWAY," 2018).

The Norwegian health care system comprises of three organizational levels, namely: national, regional and municipality level. The Ministry of Health and Care Services is the responsible body for government policies on healthcare services in Norway ("Ministry of Health and Care Services," 2018). In Norway, specialized healthcare is provided by regional health authorities, but the primary public health care is administered by the municipalities (Severinsson, Haruna, & Friberg, 2010). Pregnancy care as a part of the Norwegian preventive public health scheme is one of the largest programs which consist of about 720 000 antenatal check-ups for about 60 000 pregnant women yearly (Heitmann, 2014).

Prenatal care in Norway follows a midwifery model in which women with a normal pregnancy have their check-ups by a midwife at a Maternity and Child Health Care Centre ("helsestasjon") and/or a general practitioner. Only complicated pregnancies will be referred to the gynaecologist (Holan, Mathiesen, & Petersen, 2005). This model which allows midwives to legally provide maternal care at healthcare centres has begun in 1995 (Zemaite, 2013). Each pregnant woman in Norway will be given appointments for regular pregnancy check-ups, called "svangerskapskontroll" which are free of charge.

The Norwegian health directorate offers a lot of guidelines and information through its website "helsedirektoratet.no". In a normal pregnancy, there are 8-9 prenatal visits and one ultrasound screening offered at week 17-19 (Holan, n.d.).

2.3 SUMMARY

This chapter highlights how pregnancy raises the information seeking behaviour, especially in first-time expectant mothers. It also reviews some of the most commonly neglected topics in the pregnancy education such as the maternal nutrition and the physical activities.

Furthermore, it underlines the importance of caregivers' role in this respect as well as the necessity of supervising the additional information sources they use.

Moreover, an overview of the healthcare system in Iran and Norway has been provided. In order to build a common understanding of the differences, two distinct pregnancy care models - Midwifery versus the Medicalized model - have been discussed in this chapter. The key points to remember from these models are the point of care and the delivery method. While the medicalized model values the specialists' position in the pregnancy care, the midwifery model employs the midwives' potentials in this regard. Subsequently, these two models have a different perspective on the delivery mode.

It is worth noting that this chapter aims to provide an understanding of the pregnancy care differences in these two countries not favouring any of them over the other.

3. THEORY

Until recently information system communities have been focusing on how a person approaches an information system, and studies were mostly focused in this area. System designers are mainly concerned about “how a person is using the system” while on the other hand, health care providers are mainly interested in ways to improve their rendered care in practice. There has been a lack of connecting these two streams to benefit the users to find the information they need instead of the information which is available to them (Wilson, 2000).

Seeking health-related information arises in order to serve different purposes: reducing stress about one's health situation, enabling one to make an informed decision, increasing knowledge, and improving the communication with healthcare providers (Merrell, 2016). Therefore, understanding the methods that the information seekers choose to find their expected result, can help prevent them from ending on a wrong path and unfavourable results.

There are various information seeking behaviour theories and models with different features and dimensions. In 2000, Wilson suggested the need to take users as the focus of interest and designing a system based on users' needs. Therefore, he described the information seeking behaviour as: *“the purposive seeking for information as a consequence of a need to satisfy some goal”* (Wilson, 2000, p. 49).

In the following section, a short history of Wilson's model will be described, and different elements of his model applicable to this study will be clarified in detail. Furthermore, different studies regarding pregnancy information seeking behaviour will be compared to the elements of Wilson's model to better understand the determining factors on pregnancy information seeking pattern.

3.1 WILSON'S MODEL OF information BEHAVIOUR

In 1981, Wilson proposed his first model in information behaviour. Wilson relates this model to the field of “user studies” and states that this model is not aimed to present an information seeking behaviour, but to present the interrelationships among the concept of information seeking behaviour (Wilson, 2006). In this study, this model has been employed as a supplementary tool for the 1996 model to better explain the information seeking pattern. Therefore, different parts of this model relevant to the purpose of this paper, will be studied in detail in subsection “Information seeking behaviour” by the end of this chapter.

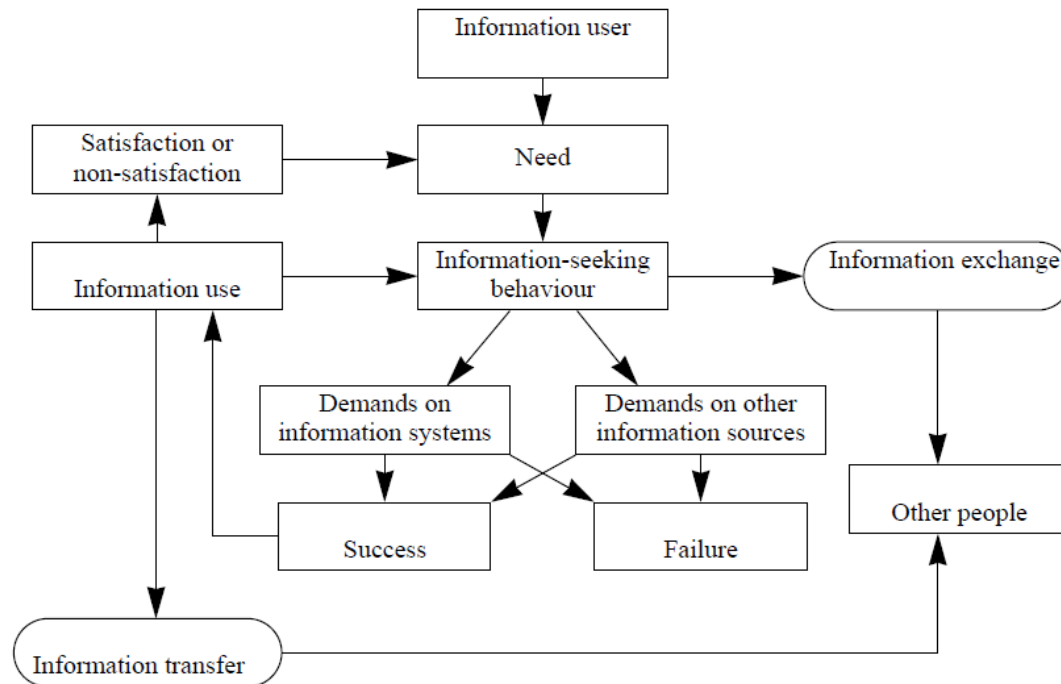


Figure 1 Wilson's (1981) model of information behaviour

Wilson 1981 model claims that ISB arises in response to a user's realization of a need. The user consequently seeks through formal and informal information sources to satisfy that need. Depending on the results retrieved, the user will act accordingly; if successful, he/she will use the information and/or share it with others and if not successful, the user will reiterate the searching process. This pattern more or less represents the different steps in what he later calls an active search.

In 1994 he altered his first model by combining Ellis model of information seeking stages. He based his model on the following propositions: 1. Information seeking is not initiated by "information need" as a primary need, but as a secondary which is provoked by individual's physiological, cognitive, and affective needs and 2. The enquirer is likely to face some barriers in an attempt to discover information. These two propositions are the basis of his first model in which, he focused on "how information needs arise" and "the understanding of human information seeking behaviour". He later described it as a "model of gross information seeking behaviour" or a "macro-model". He argued that this model is based on hypothesis and is not explicitly going through the information context and its effect on a person and his/her perception of a barrier.

3.2 WILSON'S 1996 MODEL OF INFORMATION SEEKING BEHAVIOUR

In 1996, he suggested a major revision on his 1981 model. There are several new aspects added in this new version, but the “person in context” is still the focus of information needs, while the barriers are introduced as “intervening variables” which their effect can be either supportive or preventive (Wilson, 1999).

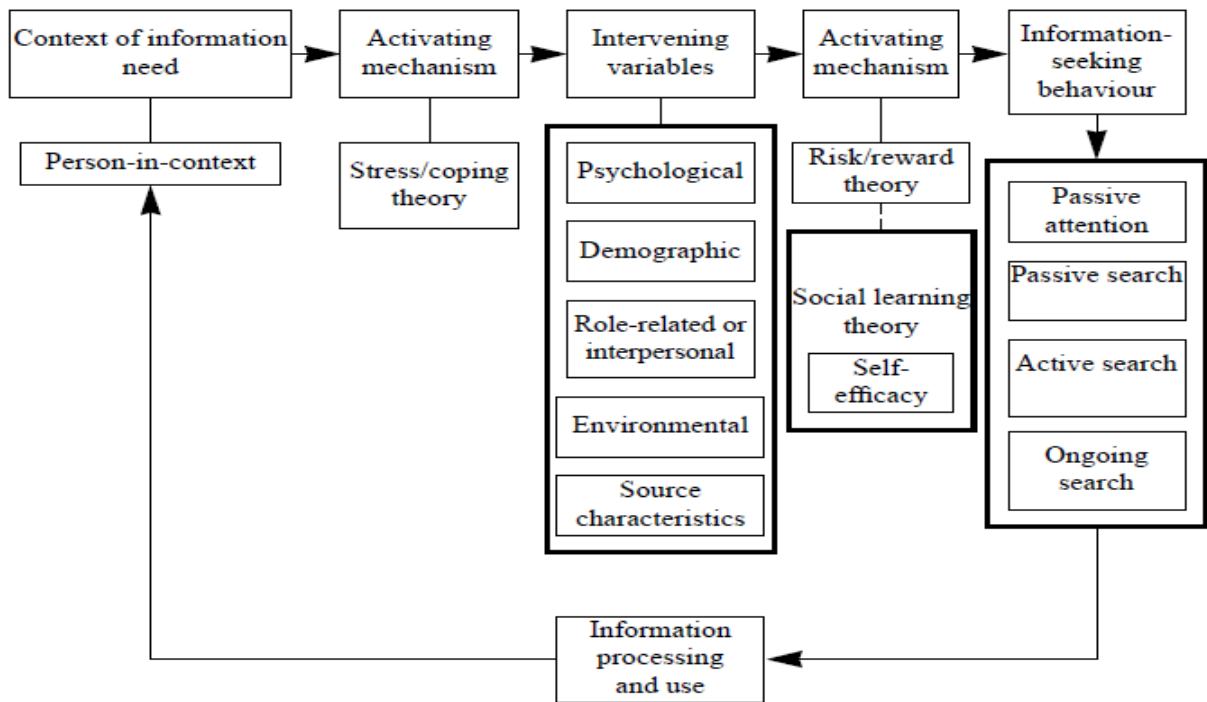


Figure 2 Wilson's 1996 model of information seeking behaviour (Wilson, 1999)

Wilson’s theoretical model of information seeking behaviour (ISB) describes the information users’ need for seeking information is influenced by some intervening variables, such as demographic, psychological, interpersonal, environmental, and source characteristics (Wilson, 1999). In the following, these variables will be explained through various concepts and theories.

3.2.1 PSYCHOLOGICAL VARIABLES

Psychological variables embrace view on life and system of values, knowledge, learning methods, emotions, attitude towards stereotypes, preferences, self-perception, and interests (Niedźwiedzka, 2003).

Wilson has embedded three theoretical concepts in his model playing the role of “activating mechanism” in order to explain: 1. Why some needs do not prompt information seeking behaviour from psychology field by stress/coping theory (figure 2), 2. Why some information sources are preferred over others from consumer research by risk/reward theory, 3. Individual’s capacity to produce desired effects by the concept of “self-efficacy¹” as a subset of social cognitive theory (Flammer, 2001; Wilson, 1999).

3.2.2 DEMOGRAPHIC VARIABLES

Studies show that demographic attributes such as younger age, female gender, higher socioeconomic status, and being married are positively correlated with more information seeking (Czaja, Manfredi, & Price, 2003). The results of a study carried out in 2017, also presented a positive effect of women’s age, religion, and marital status on their information seeking pattern (Ojewole & O. Oludipe, 2017). On the other hand, factors such as older age, having prior childbearing experience, low literacy, and lower socioeconomical status are identified as demographic barriers to information seeking (C. Shieh et al., 2009). In a study with the purpose of investigating a link between low health literacy and use of information sources in pregnant women, participants with low health literacy showed a lower tendency toward using the Internet and were more prone to self-efficacy barriers (Carol Shieh, Mays, McDaniel, & Yu, 2009).

3.2.3 ROLE-RELATED OR INTERPERSONAL VARIABLES

Pregnant women use the Internet for acquiring either new information or to get additional information about topics that were not clear to them as explained by their care provider. This supplementary information that they seek will empower them in decision-making and having a better communication with their health care providers. They further share the information obtained from various sources such as websites, online support groups, etc. with each other. This will help them cope with pregnancy-related problems such as physiological, social, and emotional changes, and the parenting concerns (Guillory et al., 2014; Yali & Lobel, 2002).

Considering that the role of women has increasingly shifted from housewives to working mothers, workplace stressors along with family-related problems expose women to more

¹ Self-efficacy refers to one’s confidence in his/her ability to perform a given task (information seeking) (Lam, 2012).

stressors than before. This "inter-role conflict²" leads them to seek balance in their lives. Despite men, women's work does not primarily consist of a paid job, but it includes childcare, housework, in addition to a paid job as well (Biggs, Brough, & Drummond, 2017). The effect of anxiety on information-seeking can vary from person to person. Studies show a mixed behaviour in this regard; therefore, high anxiety in one individual can be associated with less information seeking while it can result in an entirely different approach in one other. This behaviour can be defined within the concept of Stress/coping theory (Czaja et al., 2003).

3.2.4 ENVIRONMENTAL VARIABLES

Wilson lists environmental variables as an impacting factor, but the increased importance of context in information seeking recommends including cultural variation, even though it has been neglected in many studies (Komlodi & Carlin, 2004). Savolainen categorizes the intervening variables into two groups of external and internal. Then he explains these external barriers as those that are imposed on individuals from outside and they can be in three subcategories of spatial, temporal, and socio-cultural (Savolainen, 2015). In order to find a framework to better meet the purpose of this study, specifying that cultural differences can have a strong impact on IS and subsequently scrutinizing their influences carefully is of utmost importance. To identify these cultural variables, Hofstede's model introduces five dimensions in this respect that two of them are selected for this study (Komlodi & Carlin, 2004).

1. Individualism vs. collectivism: This index investigates the level of people's integration into groups in a society. Individualistic and collectivistic societies differ in who they count as their in-group. While the former considers oneself and the immediate family, the latter also incorporates extended families and others into their in-groups.

2. Power distance index (PDI): the degree of the interpersonal power or in other words the influence of the relationship between a person in a high hierarchy (H) and the one in lower rank (L). The term "power" is used to describe the extent to which 'H' can have an effect on the behaviour of 'L'. Both low- and high-PDI countries have hierarchies, but in the low-PDI

² According to Nelson and Quick (2015): "opposing expectations related to two separate roles assumed by the same individual" (as cited in Cocchiara, 2017, p. 328)

countries, the hierarchy is set for convenience, not as superiority symbol as it is on the low-PDI side (Hofstede, 2003).

3.2.5 SOURCE CHARACTERISTICS

Information sources can be categorized into two forms of “formal” and “informal” sources. We are living in the era in which each individual is bombarded with different sources of information ranging from a conversation with family and friends to more technological-based resources such as Internet and cell phones. Certain pre-requisites are required to be able to use some of these sources such as literacy level both in understanding the information found and in the process of selecting the right information (Potnis, 2015). We, as information users, will innately trust the information that is originating from a trustworthy source more, and as a result, these sources lead to greater attitude change in comparison with information coming from unreliable sources. The higher level of education, social status, and higher profession status correspond to the perception of the reliability of a source (Sjöberg & Engelberg, 2005).

Johnson and Meischke in their Comprehensive Model of Information Seeking (CMIS) suggested a framework for identifying the characteristics of information sources. They have categorized these characteristics into two groups: A. information carrier characteristics, and B. information carrier utilities. Carrier characteristics are those attributes that relate to the content of the message, while carrier utilities refer to if the information provided by the selected source, meets the needs of the information seeker. Therefore, a careful evaluation of the source characteristics by individuals can lead to a greater exposure to the utility of a medium (Johnson & Meischke, 1993).

3.2.6 STRESS/ COPING MODEL

There are various coping styles and strategies when encountering a stressor, the cognitive reappraisal is one of these approaches. There is an easy rationale lying behind this strategy: "if our cognitive appraisal of a stressor is a determining factor in producing stress, then by reappraising that stressor as being less threatening, stress should be reduced". In another word, by restructuring our perception of a stressor in a more positive way, the stress level will be decreased (Martin, Carlson, & Buskist, 2013).

Along the transition to parenthood, adapting to changes accompanying pregnancy women will face different physical and mental challenges. Their coping behaviour regarding these challenges will affect the development of their baby. Therefore, understanding of

psychological adaptation and women's vulnerabilities can help with better health outcome for both the women and their babies. Pregnancy-related anxiety can be described as a woman's fears about her baby's health, her own health, and labour and delivery (Rini, Dunkel-Schetter, Wadhwa, & Sandman, 1999).

The results of various studies regarding coping strategies show a difference in women's perception of stress in comparison to men. Lazarus and Folkman have identified two different coping approaches when encountering a demand: the problem-focused and emotion-focused strategy. Studies show that women are more inclined towards the emotion-based coping strategy such as expressing feelings or finding an emotional support (as cited in Biggs et al., 2017). Pregnancy is entrenched in a broader interpersonal context and hence, it is mostly important to understand the effect of a pregnant woman's close personal relationships on her coping effectiveness (Guardino & Schetter, 2014).

3.2.7 RISK/ REWARD THEORY

There are certain factors that may encourage or discourage one from seeking information. These incentives, whether positive or negative, can further affect the "information-seeking behaviour". Wilson explains the effect of these factors on ISB through Risk/reward theory. Individuals' Risk-taking behaviour influences the process of information seeking and the development of "information sharing and awareness" in a group. Individuals habitually exchange the information they have obtained with others based on sources' social, and economic contexts, which, consequently, evolves risks or rewards for others' information seeking. Ultimately, individuals may choose certain sources of information over others depending on their earlier experience (Potnis, 2015). Putting it in simpler words, risking not only financial resources but also psychological and physical resources in setting out searching for information can be the definition of this theory (Wilson, 1997).

3.3 INFORMATION SEEKING BEHAVIOUR

In Wilson's 1996 model, the information seeking behaviour consists of 4 different parts, which a short explanation would be as follow:

- Passive attention: as the title implies, this means acquiring information in a passive mode without seeking for it i.e. by listening to a conversation, tv, etc.
- Passive search: refers to acquiring the relevant and desired information accidentally
- Active search: actively seeking for information

- Ongoing search: an extension of what the seeker has attained during an active search, for better processing information (Potawad, 2013)

One of the criticisms regarding Wilson's 1996 model is the causative relation presented between activating mechanisms and intervening variables which can be a misleading presentation (Niedźwiedzka, 2003). Another issue with the graphical presentation of this model is confining the effect of different variables to single stages of ISB. Therefore, this study aims to investigate the extent of these variables' effect further.

Wilson's 1981 model of ISB can better map what he calls active and ongoing search in his 1996 model. Considering that the focus of this study is the active searching process, his first model is more applicable to this end. Due to the complexity of the graphical presentation of this model, it is divided into smaller sections to better investigate the potential steps through information seeking.

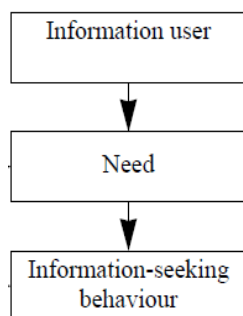


Figure 2 the first part of Wilson's 1981 model

As the figure above shows, the information user will perform ISB as a consequence of a need. These information needs differ from person to person and will vary at different points in time. The users' information needs can have roots in their uncertainty and need for reassurance (Hsieh & Brennan, 2005). Studies regarding pregnancy information needs show that inadequate provision of information based on individual needs, and lack of involvement in decision making is highly associated with dissatisfaction in pregnant women (Jafari, Eftekhari, Mohammad, & Fotouhi, 2010).

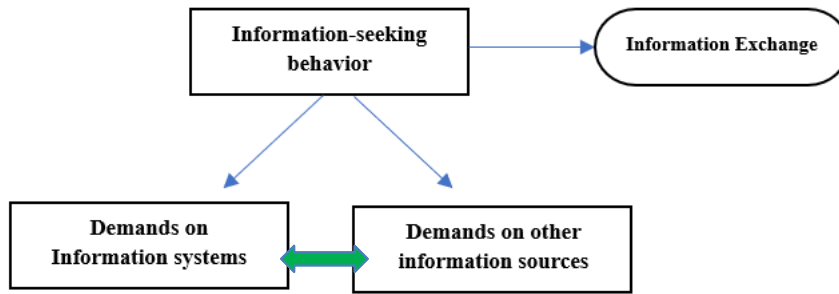


Figure 3 the second part of Wilson's 1981 model

Evidence shows that individuals seeking information will not rely on only one source due to different source characteristics. There are some sources that provide less credible information but are easily accessible, while other sources with credible information are not readily accessible. Therefore, information seeker goes through various sources in order to confirm the credibility of the information found earlier. Bernhardt and Felter described this method of information seeking as "information convergence" (as cited in C. Shieh et al., 2009). Therefore, the green arrow is drawn to show the interconnection that Bernhardt and Felter have proposed.

The increased variety of information sources arises this question that what makes one information source to be considered as "useful". In an article regarding the new medical information that each primary care clinician needs to read to remain up to dated, a formula for evaluating the usefulness of this high volume of available information was introduced (Slawson, Shaughnessy, & Bennett, 1994)

$$\text{relevant} \times \text{validity}$$

$$\text{Usefulness of information} = \frac{\text{relevant} \times \text{validity}}{\text{Work}}$$

Work

According to the formula above, the usefulness of information is linked to three attributes "relevance", "validity", and "work". The usefulness of the information retrieved is directly associated with the validity and the relevance of that information to the actual searching

intention. On the other hand, it has a non-proportional relation with the amount of work required to obtain the intended information (Slawson et al., 1994).

3.4 SUMMARY

In this chapter a short history of Wilson's information behaviour models has been presented to better fathom the potential of his models for the purpose of this study. Different variables' effect on ISB including psychological, demographic, interpersonal, environmental, and source characteristics have been explained with supporting literatures.

Considering that the focus of this study is the pregnant women's perspective on various information sources they use, the usefulness of these supplementary sources should be evaluated. Therefore, a complementary theory to weigh the usefulness of different sources was introduced.

4. MATERIALS AND METHODS

Conducting an interpretive study, the key role of theory becomes prominent. Walsham suggests three roles for theory in an interpretive study: 1. “as an initial guide for designing and data collection, 2. as part of an iterative process of data collection and analysis, 3. as a final product of the research” (Walsham, 1995, p.76). The theoretical framework which takes account of previous knowledge and creates a sensible theoretical basis to inform the topics and approaches of the early empirical work can be a starting point in a research. On the other hand, a degree of openness and willingness to modify the initial assumption can help minimize the danger of getting stuck in the theory framework (Walsham, 1995).

One of the benefits this methodology can offer is that it can be used to explore the 'taken for granted' practices within healthcare. Qualitative evaluations can grasp small but extremely significant changes in people's conditions resulting from interventions that structured methods could never be sensitive to (Popay & Williams, 1998).

A narrative methodology is an interpretive approach in which the object of the study is the story narrated. This method is well-suited in studies of the subjectivity and the cultural influences (Mitchell & Edugo, 2003). This study adopted this method for the description of the interviewees' accounts.

4.1 THE STUDY SITES

The core purpose of multi-sited studies is to follow people, connections, associations, and relationships in different places. Conducting comparative studies over multiple sites can provide a better understanding of the similarities and differences (Blomberg & Karasti, 2013). Multi-sited research is designed where the researcher establishes some form of literal and physical presence (Marcus, 1995). Indeed, integration of real world and the virtual environment to structure the fieldwork and data collection will eliminate the concern of spatial or temporal dimensions of work (Blomberg & Karasti, 2013).

This study has been partially conducted on the Internet (virtual environment) through Google questionnaire forms as well as face-to-face interviews. The target population of this study is the Pregnant women residing in Norway and Iran. The field site is constructed through the activities of connecting, selecting, and bonding; thus, what is often missing is the reflection

on these choices other than the tuning of data collection and analysis (Blomberg & Karasti, 2013).

Bandar Abbas was chosen as the study site in Iran, due to the researcher's familiarity with this town and ease of access to the health system in this respect. It is also a small city and the centre of care for many small villages around it. Based on the initial hypothesis it was a good place to find cases that still value traditional experiences passed down from the older generation. Bandar Abbas is the capital city of Hormozgan province, located on the southern coast of Iran with the population of 680,366 based on the census of 2016 ("Population and Housing Censuses," 2017). This city is also the host of people from different cities due to the job opportunities that a port city offers. Hence, the chance of having a variety of ladies from different cities and experiences increases and will make the sample a better representative of this country.

The interview cases were randomly selected from the 22 listed gynaecologists in Bandar Abbas ("List Of Gynecologists In Bandar Abbas," 2017).

4.2 Research approach

In order to understand a phenomenon from the viewpoint of participants, qualitative methods like interviews, document analysis, and observations are ideal approaches. These methods are capable of capturing "what, why and how" of a social phenomenon and document how a person perceives and experiences a system in a social context (Stoop & Berg, 2003).

In this study, two different methods were applied including surveys and interview. The term "survey" is used in a variety of ways but commonly referred to the collection of standardized information from a specific population usually by means of questionnaire or interviews. Surveys are well-suited for descriptive studies (Robson, 2002). In this study, surveys were produced by the Google questionnaire forms which will be explained in the "data collection" section.

Interviewing is a turn-taking practice in which the interviewer inquires some questions and the respondents will seek producing answers (Miller & Dingwall, 1997). Face-to-face interviews offer the possibility of modifying one's line of inquiry, following up interesting responses and investigating more questions. Interviews are categorized into three different styles: fully structured, semi-structured and unstructured. Powney and Watts (1987) suggested

a new typology, highlighting the difference between respondent interviews and informant interviews. In respondent interviews, the interviewer controls the whole process. In this type, the main point is that interviewers have the ultimate power for steering the conversation. In contrast, in informant interviews – also referred to as non-directive – the prime concern is the interviewees' perception of a specific context (as cited in Robson, 2002). The researcher's main purpose was to keep the balance between the respondent and the informant interview strategies.

This study pursues a mixed approach for collecting and analysing data in which quantitative (surveys) and qualitative (interviews) methods are combined. Triangulation of qualitative data with quantitative data (Golden-Biddle & Locke, 1993) can generate theories to be tested more rigorously. Robson (2002) emphasizes on using more than one method on an investigation in order to avoid “specious certainty” that using single method might cause. He explains this as clear-cut results of the single method, that might delude investigators into believing they have got the “right answers”. The “complementary model” of triangulation approach can address different but complementary research questions within a study and can be used to assess the “plausibility of threats to validity” of the primary research technique (Robson, 2002).

Researchers in quantitative studies calculate the sample size before the beginning of the study, whereas qualitative researchers follow a less direct approach. Quantitative sampling is not a one-time decision, but an iterative process of lasting throughout the research plan. One of the challenges in regard to sample size in qualitative studies is the lack of a clear guideline. Methodologists have suggested the concept of theoretical saturation as the indicator for a sufficient sample size. This concept in qualitative research is explained as achieving sufficient quality and comprehensiveness; therefore, a researcher should continue data collection until there is data of value (Guetterman, 2015). The sample size of this study, therefore, was determined by the saturation indicator.

4.3 DATA COLLECTION

This study has used a literature review on previous similar studies to come up with a structure on the questions' sequence and logic. The questionnaire proposed, went through several changes and ultimately the final version was designed by google survey. The survey was posted on 10 different pregnancy-related Facebook pages. Meanwhile, working on theory

section of this thesis, and following different posts on these groups helped with some modification in the questionnaire and preparing them as my interview guideline.

The mixed methodology is used when the combination of various methods can better help with discovering the research goals than either of each alone. By mixing both survey and semi-structured interview data, detailed understanding and insight will be gained, while offsetting the weaknesses inherent in using each approach by itself (Robson, 2002).

Triangulation approach will allow identifying different aspects of pregnant women's information needs by approaching it from different perspectives. This is exactly the case in this research where the purpose is to integrate data from Iran and Norway to better understand the pattern of information seeking in pregnant women in different contexts.

4.3.1 SURVEY

The survey questionnaire included a set of questions that had been used in previous studies about pregnancy information needs (attached as appendix 4). The questionnaire consists of multiple choices, Likert scale, open and, open-ended questions. A short description of the purpose of this study and the estimated time to finish the survey was written on the first page. The first page of the survey was intended to ensure the respondents' confidentiality and be as the agreement showing that they accepted to participate in this study.

The questionnaire was categorized into different sections to better meet the requirements described by Robson (2003). In the first section, "about you", in order to find out "who you ask?" the age, marital status, education, and total household income in form of multiple choice questions were asked.

The second section was filtering the respondents to be the exact target group as expected, meaning to be either currently pregnant or having been pregnant no later than in the last 5 years. The reason behind choosing these women was to make sure they have a fresh memory of their experience.

Section three was designed to capture information on which countries' health system respondents benefited from, who they chose to visit for their prenatal check-ups. Thereafter, they were given a Likert scale table to evaluate different possible options among "Specialists", "Midwives", "GPs", and "Pharmacists" based on their experience and viewpoint.

The fourth section was devoted to other supplementary sources respondents might have used. In this part, questions were mostly concerning to respondents' view on different sources of information, how they evaluate them, how useful they find them, and how reliable they consider them to be. The last part of the survey was allotted to questions regarding various reasons for searching online and the topics they were interested to know more of.

4.3.2 INTERVIEW

The interview guide is described as a tool for collecting data through a set of questions for directing the conversation towards the research questions. A semi-structured interview guide consists of two levels: pre-defined theme and follow-up questions as the interview go on. The pre-defined theme is a set of questions listed in a progressive and logical order so that the interview starts with an ice-breaking conversation and makes the interviewee engaged in the topic (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). The semi-structured interview guide for this study was hence designed accordingly (attached as appendix 2).

The interview guide was divided into 5 different sections including demographic information, pregnancy status, preferred point of visits, topics of interest, and the supplementary sources. In the first section, the interviewees' age, education, total household income, and working status was asked. This section was designed in order to examine the effect of demographic factors such as younger age, higher income, etc. on the information seeking behaviour.

Then It was followed by a set questions to investigate their pregnancy status, finding out if they are on their first pregnancy or they have had prior experience, which trimester they are in, and who they go to for their prenatal visits. Depending on their answer to the last question, they were asked to explain their reasons for choosing to visit whether a specialist or a midwife and their opinion on the counterpart was explored as well. Afterward, the conversation was directed towards their point of the visit to investigate how many appointments they have had (or expect to have), how long each visit lasts, and what topics do they discuss on each visit. Next section explores their interests and needs. They were asked to describe how their pregnancy experience was, whether they had any discomforts or side effects and how they dealt with them, how and where they find their answers out of their appointments. This part of the questionnaire was intended to find out whether cultural differences play a role in their interests.

And finally, their opinion on different sources they had used was looked into and their preference among these options was carefully examined. The purpose of this section was to investigate the source characteristics and different factors related to them as proposed in the theory chapter.

“Informed consent is the bond of trust which is the foundation and the central stone to any research involving human subjects” (Mandal & Parija, 2014, p. 78). It is a crucial guideline and is the most central part of any research. It creates one of the most important principles of research which ensures that participants understand the purpose of the study and are willing to participate; therefore, the researcher must ensure that the informed consent form is in the regional language serving to the cultural, psychological, and communal requisites of the participants (Mandal & Parija, 2014). Thus, before conducting the interviews, respondents were given a consent form (attached as appendix 3 section). In addition, a short description of the intentions behind this study was provided.

Participants in this study were recruited from random clinics matching the criteria of either being currently pregnant or having been pregnant in the last 5 years. The total number of participants was 15 with 9 interviews carried out in Iran and 6 interviews in Norway. Participants were interviewed in private at the clinic they have been chosen from. Permission from both the clinic's doctor and the secretary were granted beforehand. Interviews lasted 7 to 40 minutes, depending on the interest of interviewees in sharing their experiences. Almost all interviews have been recorded except for few participants who were not willing to be recorded.

As suggested in many studies, interviewing should not be considered as a mere data collection tool, it is rather a natural interaction between interviewee(s) and interviewer that can take place in different situations. The presence of the interviewer, helps with mutual understanding, as the interviewer has the opportunity to rephrase and/or clarify questions that were not understood by his/her interviewees at first (Alshenqeeti, 2014).

4.4 DATA ANALYSIS

Walsham (1995) described the reporting method of interpretive researchers as “interpretation of other peoples’ interpretation”; therefore, he suggested researchers describe the way they got their result in detail, in order to better establish credibility to readers (Walsham, 1995).

Irrespective of the approach of the study (qualitative or quantitative), the major task is to find answers to our research question(s). To come up with trustworthy answers, the analysis should be done in a fair and bias-free way. In a descriptive case study like this, ongoing analysis during data collection is of utmost importance (Robson, 2002). As suggested by Golden-Biddle and Locke, the iterative movement between data collection and data analysis will assure readers that the author has been genuine to the field experience which can form the authenticity of the research project (Golden-Biddle & Locke, 1993).

The survey's responses are presented in visual illustrations to better grasp the general characteristics of the respondents (as shown in chapter 5). Based on the different format of questions various analysis processes such as tabulating of data, and calculating the percentage, and frequencies through excel was performed.

Regarding the analysis of interview data, Walsham reminds that tape recording alone, cannot capture the context of the interview; therefore, early transcribing can better portray the intangible aspects of this process. Additionally, in-depth study of the data along with the interpretation of the interaction can help with "thick description" and a better understanding of the intended context (Walsham, 1995).

Interviews were transcribed verbatim at the end of each day. Each interview was read several times and the data of value was thereupon coded through ATLAS.ti windows application. After coding the whole interview one by one, all interviews were compared with each other by each code. This helped with the process of extracting the same content in each interview for easier comparison and development of an explanation for the research questions.

5. FINDINGS

The sample size of this study was limited to 18 survey respondents and 15 interviewees. The identity of interviewees was anonymized by numbers. The letters “I” and “N” were used to indicate the place of the interview, as “I” stands for Iran and “N” indicates Norway.

The organization of the questions asked in the survey and the interview guide started with capturing demographic information, followed by pregnancy status, and then directed towards the point of the visit, their preference, topic of interest, and lastly the information sources used by them. Therefore, the arrangement of this chapter is based on this order.

5.1 DEMOGRAPHIC CHARACTERISTICS

The age range of the interview participants was between 25 to 40. The prior interest of this study was interviewing only first-time mothers, but a few women with previous pregnancy were included to find out if they have different information needs.

In this section, the age, education level, and the income of the participants were inquired. Due to the small sample size of the survey (17 participants), tracing a meaningful correlation between these demographics (age and education level) and their choice of supplementary sources and/or prenatal caregiver (whether midwife, GP, or specialist) was not feasible.

5.1.1 INCOME AND POINT OF VISITS

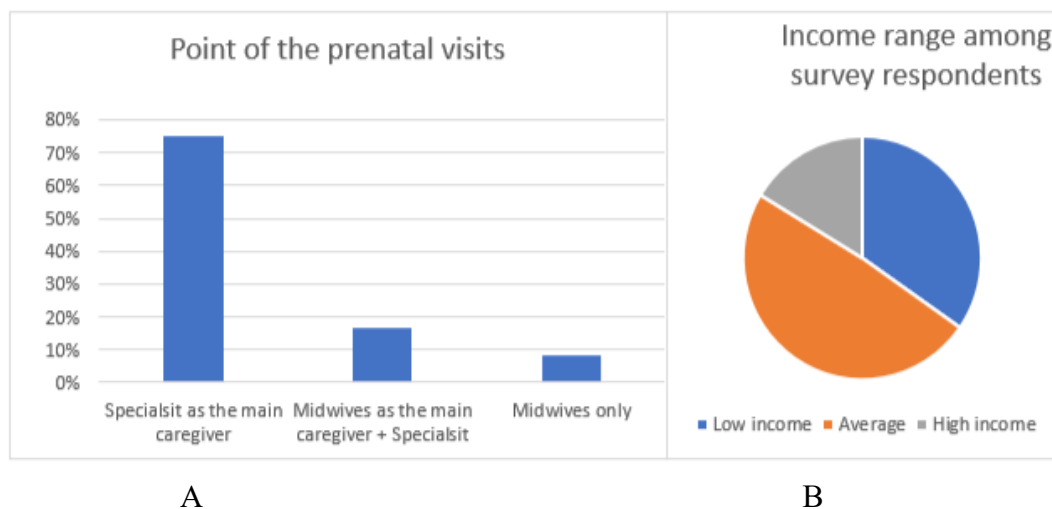


Figure 4 A) the frequency of the survey's respondents' points of the prenatal visits. B) the income range among the survey respondents

Survey participants were mainly from the United States (12 respondents) and few other countries (UK, Australia). The above figures are based on the 12 American respondents in order to keep the variable of health system experience and options fixed. In a comparison between the income levels and the choice of caregiver, a relation between “higher income” and the preference of “specialists” was observed. In the figure above all the participants choosing midwives as their main caregiver were coming from a low-income category.

In order to gain a better understanding of the role of income in the choice of prenatal caregiver in Iran, interviewees’ income was categorized into three range of total household income labelled as “Low income”, “Average”, and “High income” to find out if there is a correlation.

Among the 9 participants who have been interviewed in Iran, 7 (78%) of them were in “average” range and 2 (22%) of them were in “low income” group. The interviewees were then asked if visiting the specialists was financially difficult for them, or if the price of specialist fees played any role in their decision regarding changing their prenatal caregiver.

Analysis of the interviews shows that despite participants’ dissatisfaction with the price of the specialists’ visiting fee, they had other reasons for their choice. In what follows, their explanations of their reasons for preferring specialist over midwives are narrated and described.

8 out of 9 interviewees stated that they chose specialists because they could easily trust them, and they believed that midwives' knowledge is not enough, and they want to be "in the hands of a professional". Among these 8 women, one of them had a prior abortion and difficulty in getting pregnant, which could explain the reasons for choosing a specialist. But the rest had very unclear and distrustful view on midwifery practice. One of the participants had changed her point of the visit from specialists to midwives and she explains her reasons as follow:

I had two prior pregnancies and in both, I went to a specialist... I feel like I know more about this pregnancy... but now I am 40 years old and this makes me nervous. It takes a lot of time sitting in the clinics waiting for the doctor and it's so stressful for me. I feel comfortable with my midwife and I am sure that if necessary, she sends me to a specialist... #91

She then added:

“...Visiting specialists are expensive for me ...”

One of the participants in Norway was an Iranian residing in Norway for about 4 years. When she was asked to describe her experience and the differences she noticed, she explained her experience as:

I was surprised that I would only visit midwife and my GP for my pregnancy check-ups. But I should say midwives here are very skilled and they know the system very well. My prior experience from back home was considering midwives as more of an assistant rather than someone in charge. She listened to my feelings and helped me a lot. Despite all, I can't deny that it was a cultural shock at first...

#4N

5.2 NUMBER OF VISITS AND POINT OF THE VISIT

53% of the total survey respondents had chosen a specialist for their pregnancy check-ups. All of them had more than 8 visits compared to those who visited midwives and or General practitioners which had 8 or fewer visits planned for them. The results of the interviews in Iran shows an increasing trend in the number of visits during pregnancy. 7 out of 9 interviewees declared having more than 10 visits and two of them had 20 visits.

The results of the interviews in Norway, however, shows that the average number of prenatal visits for each woman during a normal pregnancy is between 6 to 8, while this average number in Iran was 12.

Later the interview was shifted towards their personal experience regarding the discomforts associated with their pregnancy. Respondents had different stories which some of them are explained below.

on the second month I got very high heart beat... I got really scared, so immediately went to a cardiologist. He prescribed some pills that I took up until my 8th month then he said that it's not good for my delivery, so I had to stop but didn't have any problems afterwards...., but I had one more issue that made me stressed out a lot which was my low-lying placenta...#11

Another participant in Iran describes her experience as:

During my pregnancy I had some issues with spasms in my thighs and arms especially in the morning and while sleeping. ... I also had nausea in my early pregnancy and backache in the last months... #3I

One participant in Norway describes her discomforts as:

During the last months the top of my tummy was very hard, and I could not eat properly and had some issue breathing. I discussed it with my midwife and she ordered a sonography for me which showed that I had a breech baby. I was so lucky that I talked about this because here you won't get a second sonography ...#4N

One participant expressed some discomfort due to her strong craving. And another explained her problem with her high heart rate. Almost all the interviewees (both in Iran and in Norway) had experienced some degree of the above-mentioned discomforts, which is normal during pregnancy. But, the intention for asking this question was to find out how they felt about these problems, and if these discomforts initiated an information seeking behaviour in them.

Therefore, they were asked to explain how they reacted when they first experienced these discomforts and if they sought the answer for these problems from any other sources rather than their caregiver. All the participants showed a high level of trust in their caregiver and claimed that they discussed their discomforts with their physicians and or midwives as soon as they could book an appointment. They also mentioned that searching their discomforts online or by asking others could better prepare them for their discussion with the caregiver.

One important finding regarding the interviewees' discomforts and their reaction towards that, was that higher aged women were more worried about their condition and showed a higher level of stress. This correlation between age and high level of stress was noticed among participants in both countries.

5.3 RELATIONSHIP WITH CAREGIVER

Interviewees were asked to describe their relationship with their caregiver; whether they felt comfortable asking their questions or not. Interviewees in Iran and Norway showed a big difference in the way they described their relationship.

In this regard, Iranian participants described their relationship as a very formal experience, limited to some examinations and tests. They mentioned that they did not receive any educational information from their specialist. The only way for them to obtain educational information, was to specifically ask for it.

However, the Norwegian participants expressed a very open and educational relationship with their midwives. They stated that they had received many brochures and extra information sources and that they felt comfortable asking their questions.

5.4 IMPORTANCE OF CAREGIVER'S GENDER

During the interviews in Iran – due to religious and cultural preferences – gender limitation in the women's care specialties was noticed. This observation led to ask this question from the participants in Norway to find out if it has any effects on women's choice.

Their answers were quite similar. They all mentioned that it would be nice if either the midwife or GP were female, but it didn't matter if they were not. They insisted that being professional is more important than their gender.

5.5 TOPIC OF INTEREST

Despite all the differences in each participant's experience, all of them showed interest in fairly similar topics. The most important thing for them was ensuring their baby is healthy by following the foetus development stages. They also mentioned that they were really interested to know more about their diet and lifestyle changes. Some of the interviewees mentioned that they wanted to know about the changes after the delivery as well, topics such as breastfeeding and the alternatives.

5.6 SUPPLEMENTARY INFORMATION SOURCES

Interviewees in Iran were all asked if they had participated in any pregnancy group sessions. They had very different information about these classes, some had only heard about the private classes and did not know about the classes offered by the government and some other did not even know these classes exist.

One of the participant describes these classes in this way:

“... the government has recently held these classes for pregnant women to help them. They are held by midwives to give you information. In total there will be 8 sessions with a CD and a book. These classes are free of charge and last about 30 to 45 minutes. And it includes some exercise to promote natural delivery. There are some private classes too but not everyone can afford them.” #4I

While another interviewee did not know about these free of charge classes but had taken the private alternatives. She described her experience as:

There is an agency which I guess is called ‘mom classes’ that my doctor was working with. So, she introduced them to me. They explained about the delivery process and how to be prepared. The classes were private, and you had to pay. I paid like 150,000 tomans (Iranian currency) for one session of ‘natural delivery explanation’ which was held by a midwife explaining these things to us. I went to some yoga classes as well. The yoga classes, you had to pay for 8 sessions, something around 200,000 tomans and could participate as much as you wanted. I guess you can start them as soon as you are in the 16th week. #9I

Despite the efforts for promoting natural delivery through these free-of-charge classes offered by the health ministry in Iran, they were not well introduced. Particularly so among those visiting specialists as their main caregiver. This discrepancy between the accounts, questions the equity in the care and the information received by each individual. In this regard, the participants in Norway had all the same experience in receiving an equal attention by being offered one group course explaining the preparation before and after the delivery.

93% of the participants in this study- including the survey respondents and the interviewees both in Iran and in Norway- irrespective of their age and education level, had used at least three different information sources. Among these supplementary sources, the Internet (93%), mobile applications (93%), and friends (73%) were the most common ones.

5.6.1 THE INTERNET

94% of the survey respondents had used the Internet as their supplementary information source and 82% of them rated it as "useful" or "very useful". Popularity and the huge capacity of the Internet are not hidden from anyone in the 21st century. All the interviewees of this study claimed having used the Internet, except one participant in Iran. She described her situation as following:

I got pregnant with specialist supervision.... I was well prepared for the pregnancy discomforts like nausea and so on. The only important thing for me was my diet. I did read some book, but I mostly asked my questions from my friends that had earlier given birth and then double-checked it with my doctor. I had no interest in attending the group classes. ... I was busy sewing at home ... #21

This participant had a prior abortion and was under specialist’s supervision for one year before conceiving. She mentioned her fear of increased stress for coming across unwanted information on the Internet. Further, she explained that keeping herself busy with different activities such as sewing at home, made her pregnancy a very relaxing experience

Moreover, participants were asked about the language they chose for searching information on the Internet. Among the participants in Iran, only two of them claimed to know English and having used it for retrieving information online. All Norwegian interviewees, however, stated that they had searched in English in addition to Norwegian.

5.6.2 MOBILE APPLICATIONS

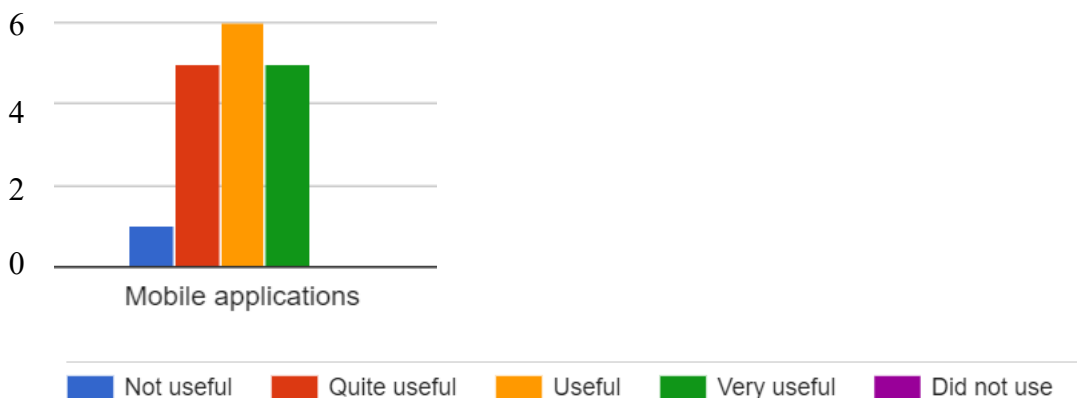


Figure 5 usefulness of mobile applications from pregnant women's perspective

94% of survey respondents had used a mobile application and almost all of them found it somehow useful. Despite this high popularity of mobile applications, respondents did not classify them as a very reliable source.

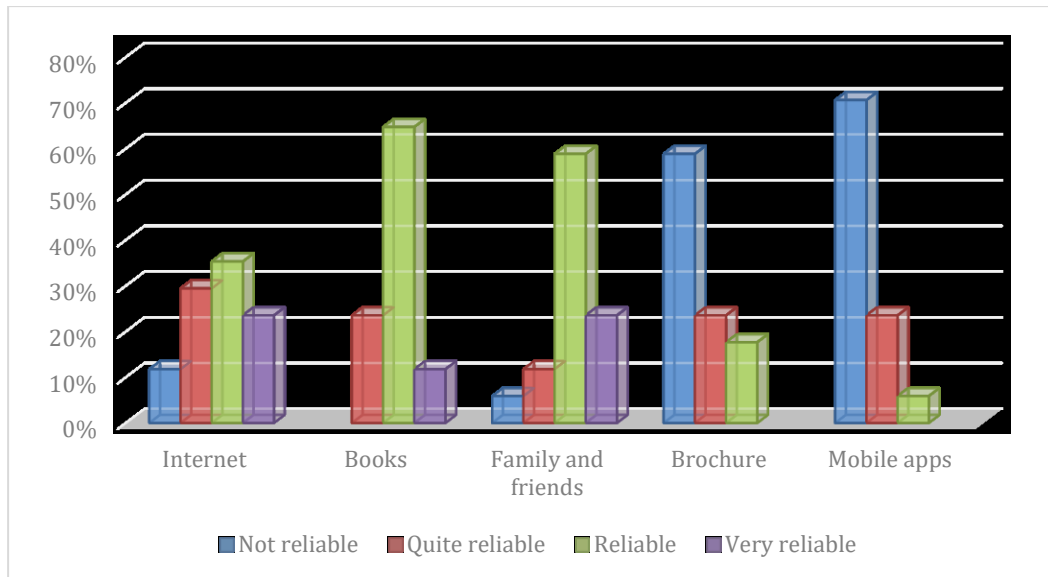


Figure 6 Reliability of the supplementary sources from the survey respondents' perspective

Despite the exponential increase in mobile applications' popularity yet identifying high-quality apps is not an easy task. Selecting applications, based on their popularity, would not equate their quality. The mobile applications rating scale (MARS), is a tool for validating the existing applications in the market (Stoyanov et al., 2015). But the question is, how can users evaluate an app before using it? Despite the fact that app stores have the right to remove apps in case of infringement of privacy, there is no clear policy in term of medical information security and privacy (Sunyaev, Dehling, Taylor, & Mandl, 2015).

Interviewees were hence asked if they had used a mobile application in order to find information regarding their pregnancy.

Seven out of nine (77%) interviewees in Iran and four out of six (66%) interviewees in Norway had used a mobile application in order to get information about diet and the development process of the foetus. They explained that using mobile apps is the easiest way to learn about certain things, for example, the foetus development and the suggested diet for each month of pregnancy. Almost all the interviewees in Iran reported using a telegram³ group as their main interactive pregnancy information source. This group is described as follow by one of the interviewees:

³ An instant messaging application which is one of the main communication platforms in Iran

...There was a telegram group created by 4 or 5 midwives as a forum for pregnant ladies, there you could ask any question you had. Then, either those with similar experience or the midwives were answering the questions. I found it in my early pregnancy and I still ask my questions there. #3I

However, not filtering the information communicated through this groups can have an adverse effect on some others. One of the interviewees described these groups as a very stressful platform.

In this group, women go crazy! They made me so nervous. They were writing every single thing happening to them, for example: 'I have pain in my lower tummy, is it normal? 'I had bleeding, is it normal?' ... they made everything so stressful for me. It was kinda the same as the yoga classes too... but, on the websites like BabyCenter, I could write whatever I wanted to know more about such as how to make my baby latch on? And so on... so other women could share the same experience and solutions they found with me. #10I

5.6.3 FAMILY AND FRIENDS

One of the oldest sources of information before the emergence of the Internet was the experience passed down from the one's social contacts. During pregnancy, the women's mothers used to have an important role in helping with the information needs. But, whether this relationship is affected or not by the variety of information sources, is answered below.

One of the participant in Iran describes her relationship along these lines:

One of my friends helped me a lot, she still helps me. Her baby is 3 or 4 months older than mine and personally she is very strict about lots of things, she searches a lot and I kinda trust her. Things like how to choose a doctor for your baby, breastfeeding problems, and so on. She shares her experience and it helps me a lot. BUT, my mom not much! #10I

Why not your mom?

"Not that she didn't help, she helped but in her own way!"

What do you mean by "her own way"?

Very old methods.... I do trust a lot in older ways because they have worked! For example, she suggested Purgative manna for her jaundice, I did not say no but most of the things she says sound like superstitious beliefs. But, the experience is important, and I do respect her experience. At least, I try to trust but I also consider the new scientific methods. # 10I

Another participant's view of family and friends' information support was:

I had a lot of questions... I asked people too, but did not trust them so much, mostly I could only rely on the overall answers, I mean for example I was reading 10 websites, the answer that was repeated in all, seemed more accurate to me. It was the same for people too if they all said the same thing I would have trusted and if everyone had different opinion did not listen to them and I considered it as a personal opinion. I checked every important thing with my doctor... #1I

Almost all participants in Iran, showed some degree of reliance on their family and friends' information sharing. While participants in Norway mentioned that having their family and friends around them was emotionally very helpful, most said it might not necessarily be a good source of information for them.

5.6.4 BOOKS, BROCHURES, ETC.

Another interesting finding from the survey respondents was the difference in women's perspective regarding the reliability of a source and the actual usage of it. As shown in Figure 6, 65% of women rated "books" as a reliable source which is higher than "the Internet" (35%), however only 52% of them had claimed reading books compared to 94% Internet users.

Ten out of fifteen interviewees stated that they had read books (all 6 interviewees in Norway and 4 interviewees in Iran). In the comparison of books and the Internet use, they mentioned the interactivity feature of the Internet makes it a better source. One of the participants mentioned:

One of the things that I really liked was that I could see many videos on YouTube and it helped me a lot. Despite the disagreement of my midwife, I watched the C-section videos when I first found out about my condition Personally, I should say it was really useful to have an idea of what will happen... #4N

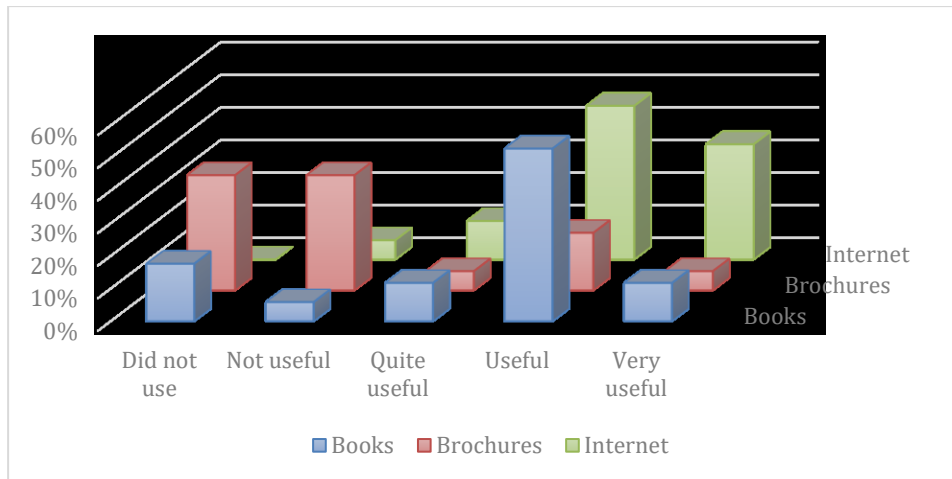


Figure 7 Survey respondents' view on the usefulness of the books, brochures, and the Internet

As presented in the figure above, brochures were not rated as a useful source when comparing to alternatives such as the Internet and books. In this area, the opinions of interviewees in Norway and Iran were entirely different. Most of the Iranian interviewees had not used or received any brochures and they did not have a very positive view regarding them, while participants in Norway stated that these brochures had introduced very interesting information to them. They also mentioned that they received these brochures through their visits with the midwives.

6. DISCUSSION

As the specific goals of this study highlight, two main objectives will be discussed in this section. Firstly, how the cultural differences affect the information needs and behaviour and secondly if the information-seeking pattern of pregnant women differs or resembles the Wilson's ISB 1981, 1996 models.

This study did not find a meaningful correlation between younger age and higher socioeconomic status with more information seeking. However, the results of the interviews in Iran and the survey conducted shows a tendency towards preferring specialist among those in higher economic classes and higher stress level among older-aged pregnant women.

The modernity nested in today's life has brought about the availability and access to new technologies (smartphone, the Internet, ...) to everyone irrespective of their residual area and income. Of course, having access to these sources does not necessarily mean having the knowledge of using all their potential. Literacy level – a as an influencing factor in information seeking – has been mentioned earlier in theory section. This factor specifically in form of “lack of English knowledge” was observed among the participants in this study. English language is undoubtedly a door-opener to more opportunities in searching and as a result more information. The participants with English knowledge claimed having benefited from searching in English and the diversity of the information sources in this language.

The high breadth of information available through the different sources ensures the carrier utilities mentioned earlier to some extent. In other words, finding the desired information in today's life with the high variety of information sources available, does not seem to be a difficult task. However, findings of this study showed that acquiring the required information that women wish to know, depending on the sources they seek, can affect their sense of confidence differently. The analysis of the interviews indicates that those women who got their desired questions answered by their caregiver or in other words their caregiver played a role in educating them, were more confident regarding their pregnancy and the everyday discomforts associated with it. On the other hand, those who had a less communicative relationship with their caregiver, showed a level of uncertainty and more inclination towards searching in various sources.

Of course, psychological factors, and personal traits regulated this behaviour to a large degree as well. These variables were observed in a form of reluctance to know more and ignorance of

the condition as different coping strategies in stressful situations. The stress level was associated with older age pregnancy, working, and uncertainty level. The risk-taking behaviour as described in the risk-reward theory was well discerned through the participants' account, for instance, watching C-section videos despite the recommendation for avoiding this.

In Wilson's ISB model (1996), many various intervening variables were mentioned but were not clearly explained that in what way they will affect the ISB. As the focus of this study is to identify the cultural norms' and beliefs' effect on the information needs and the information seeking pattern of pregnant women, Wilson's model 1981 could better show the process of active searching. The environmental variables mentioned in the theory section could be interpreted as an umbrella word for the cultural aspect, but no detailed reference was made.

Before discussing the cultural differences observed, it is worth mentioning that the Iranian participants recruited in this study are limited to only one area. Considering that Iran is a big country with many various cultures, ethnicity, and languages, generalization of the findings to the total population is not the purpose of this study.

The descriptive image gained from the accounts of Iranian participants presents a non-communicative relationship between the specialists and the pregnant women. The interviewees claimed that their visits were limited to different examinations and tests, no initiation for starting a conversation from the physicians was reported, not overlooking the fact that they were responsive to all the questions asked from them. This can be linked to the cultural attitude in Iran showing professionalism among the specialists, not neglecting the patients' emotional aspects. However, Norwegian participants claimed to have a very friendly and communicative relationship with their GPs and Midwives, which can stem from the Norwegian view on the hierarchal positions not affecting the communication level. This observation can be explained through the concepts explained by 3.2.4) in the theory section. Comparing Norway and Iran, Norwegians are considered as an individualistic society with lower power distance while Iran is viewed as a collectivistic society with higher hierarchical power in positions.

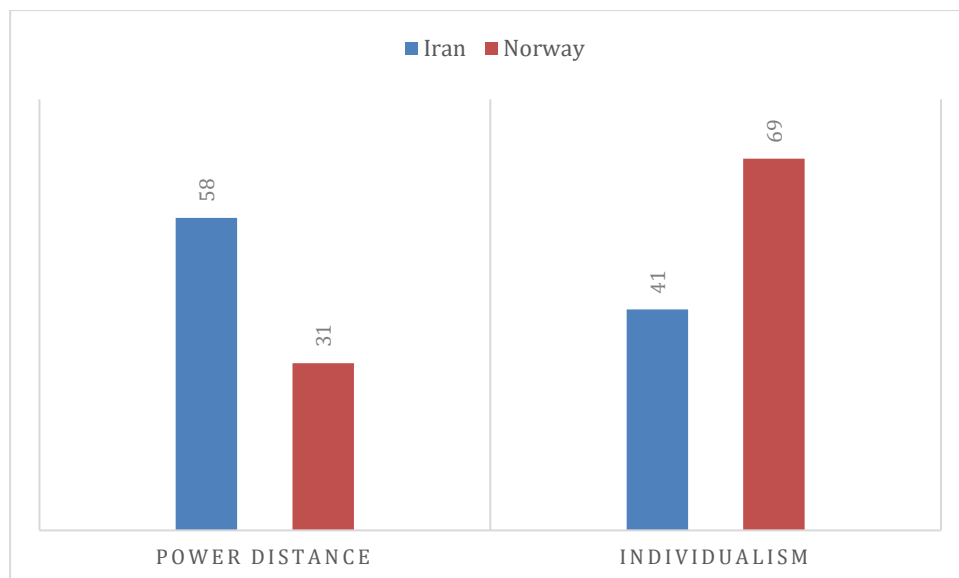


Figure 8 Cultural dimensions by Hofstede retrieved from <https://www.hofstede-insights.com/country-comparison/iran,norway/>

This difference had played an important role in the women's viewpoint towards additional searching. While Iranian participants were more active in different groups (telegram groups and channels, family, and friends, ...) fulfilling their communication needs, Norwegian interviewees showed more interest in non-communicative sources (reading books and brochures).

The results of this study can add to the explanation for the high rate of Caesarean section in Iran. Studies show a 40% rate of caesarean in public section and 90% in private health system in Iran (Torkzahrani, 2008). This study highlighted the role of cultural differences and health care system in one's decision towards their delivery mode through comparing two different health system models. Iranian participants did not mention any advice from their specialist regarding the natural delivery. Their conversation was based on questions that women asked in each session and was not stretched for educating them as well. The only way for educating women by the health system was the pregnancy classes recently introduced. Almost all participants showed a level of uncertainty towards their decision for the delivery mode. The Norwegian health system, however, was designed based on this perspective that pregnancy is a natural experience and does not require any medical interference unless evidentially necessary. This was clearly noticeable in the participants' decision and tendency towards natural delivery.

6.1 SUGGESTED INFORMATION SEEKING PATTERN

The outcome of the interviews presented a repeated pattern of information seeking among the participants. To simplify the observed pattern, a model of ISB, inspired by Wilson, is suggested.

According to the interviewees' accounts, searching behaviour was initiated by a question in mind. Then, based on the importance of this question, individuals will search through the available sources. Participants mentioned that they usually don't rely on the first answer they find. For the most part, they said they would keep looking for the answer by searching in various sources, and asking about others' experience. Ultimately, they would go through a final consultation by discussing the answer found with their caregiver. This behaviour was described as “information convergence” in the theory. The observed pattern is presented in the model below.

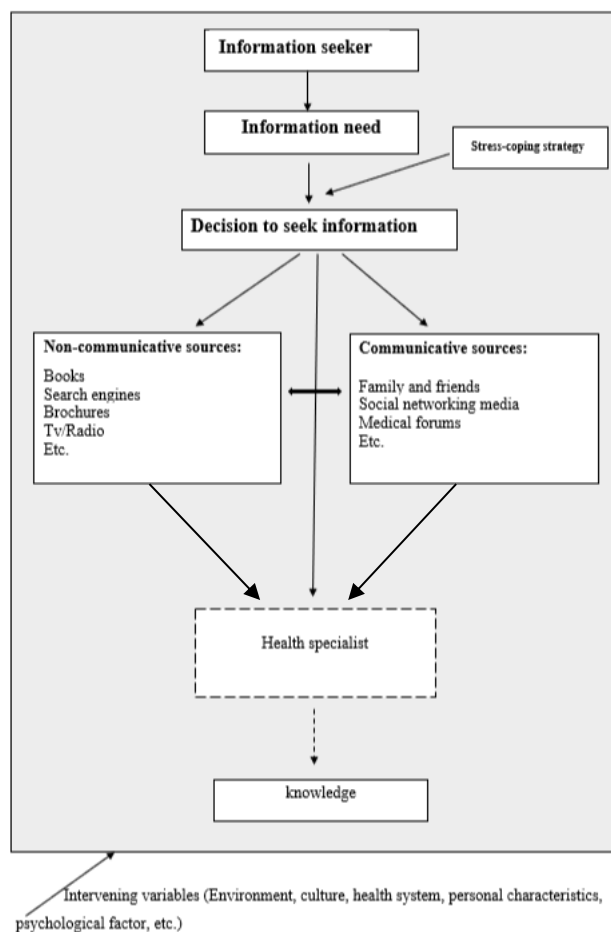


Figure 9 Information seeking behaviour observed among the participants of this study

Findings of this study shows the inability of Wilson's model in addressing the literal effect of the culture in information seeking behaviour. Assessing the interviewees' accounts in both countries, presents a pattern of repeated stages that women go through in order to find the desired information.

The act of information seeking starts in response to a need/question in mind and this action is regulated by different factors (personal traits, interpersonal, environmental, and psychological variables). As discussed in the theory, the coping mechanism can vary in each individual and, hence, depending on the strategy employed by information seeker, it can act as an on/off switch for further stages. If the information seeker decides to look for the question in mind, there are many various possibilities available. One of the interesting findings of this study was the difference in the preference of sources by the Iranian and Norwegian participants. As a result of this difference, the information sources were divided into two categories of non-communicative and communicative sources. This study showed that a person's experience with the health system and the cultural mores can play an important role in one's further seeking behaviour. One of the benefits of this way of categorizing information sources, is the omission of one extra loop for information exchange. In this model, other's experience is considered as an information source for the information seeker and is included in the "family and friends" sub-heading.

Participants mentioned using various sources in order to find the answers they were looking for. They referred to this method as a way of evaluating the validity of the answers they had obtained. If the overall answers conveyed the same message, they would deem the information reliable.

Depending on the importance of the question/need, they might prefer to go directly to the health professionals (gynaecologists, GPs, midwives, etc.). This can be explained by the usefulness formula introduced in the theory chapter, since they can get the desired answer with high reliability in a short amount of time. Health professionals also play a filtering role, as many participants double-checked the information they had already found with their caregiver.

One of the main improvements of this model, in comparison with Wilson's 1996, is the placement of intervening variables as the frame of this model to present their effect in all various stages of ISB.

It is worth noting that even though the purpose of this study was not to explore the social factors influencing the searching path – and this area is not within the researcher's background – these factors' effects (as explained in the theory section), were observed along the analysis process, and accordingly included in the suggested model.

6.2 STRENGTHS AND LIMITATIONS OF THE STUDY

This study has employed a theoretical framework for evaluating pregnant women's information seeking pattern, with a particular focus on cultural considerations. To this researcher's knowledge, no former studies have combined the aforementioned factors in this particular way.

Limitations are an inevitable part of a research experience. Studies can be influenced by financial barriers, lack of time, accessibility issues and many other unforeseen problems. Acknowledging a study's limitation can become an open opportunity for future research.

In this project, survey questionnaires were supposed to be distributed to various Facebook groups and related web pages, but along the way, many admins of these media refused to post the survey. And therefore, the distribution was limited to a few Facebook groups with more than 10 thousand members in total. Despite the high activity in these groups, the response rate was low. The survey was reposted several times to show up in the top posts of the group but still failed to get the expected response rate. Although the design of the survey was tailored to require as little time as possible to respond without asking for any identity information, it was not successful in getting the number of respondents this study anticipated.

Another obstacle in this study was the limitation in the time frame considered for this project. The qualitative research has been always known for its time-consuming methodology and this study had faced the same issue. Even though the interviews were conducted as predicted in the proposal, having had the chance to increase the sample could be advantageous.

It is worth noting that the interviewees recruited in Iran were selected from the private healthcare, not the public health system; therefore, all the reported observations are only directed to the population using the private care system.

7. CONCLUSION AND RECOMMENDATION

7.1 CONCLUSION

This research investigated the experience of pregnant women regarding their needs for seeking information and their preference in this respect. The comparative nature of this study helped to inspect the role of cultural differences in ones' choice of information sources and the way they seek it.

The following conclusions can be drawn:

1. Personal traits or psychological factors can affect one's tendency towards seeking information in either impeding or facilitating direction.
2. Cultural norms and beliefs will constantly influence one's decision.
3. Women's trust level in the health system will have an effect on their choice of additional information sources and decision making. The results of this study indicated the higher the trust in the caregiver, the higher confidence in one's decision making.
4. Due to the strong effect of the cultural values, any changes in the healthcare model should be accompanied by cultural consideration.

7.2 RECOMMENDATION FOR FUTURE RESEARCH

This study shed light on new possibilities of improving the pregnancy care through analysis of pregnant women's information seeking behaviour. Unfortunately, due to the limitations of this study (short time and small sample size) the outcome of this study cannot be generalized and requires further investigation. Analysis of the cultural factors influencing one's information needs and behaviour, can shorten the distance to the provision of personally-tailored information.

During recruiting the interviewees in Iran, a big difference in the number of patients visiting each clinic was noticed. The fame spread about certain physicians had dragged all the people to these few famous clinics. Some of the interviewees claimed that these physicians admit three patients at the same time which questions the privacy required in each visit between the

patient and the physician. Interestingly, despite the long queue and lack of preferred attention from these clinics they are still preferred over other options. This unbalanced distribution of patients can have a destructive effect on the private health system which needs to be further reviewed and studied.

8. REFERENCES

- Alshenqeeti, H. (2014). Interviewing as a Data Collection Method: A Critical Review. *3*, 7. doi:10.5430/elr.v3n1p39
- Bagheri, A., Masoudi Alavi, N., & Abbaszadeh, F. (2013). Iranian obstetricians' views about the factors that influence pregnant women's choice of delivery method: A qualitative study. *Women and Birth*, *26*(1), e45-e49. doi:10.1016/j.wombi.2012.09.004
- Berg, M., Asta Olafsdottir, O., & Lundgren, I. (2012). A midwifery model of woman-centred childbirth care--in Swedish and Icelandic settings. *Sex Reprod Healthc*, *3*(2), 79-87. doi:10.1016/j.srhc.2012.03.001
- Biggs, A., Brough, P., & Drummond, S. (2017). Lazarus and Folkman's Psychological Stress and Coping Theory. In C. L. Cooper & J. C. Quick (Eds.), *The Handbook of Stress and Health*.
- Blomberg, J., & Karasti, H. (2013). Reflections on 25 Years of Ethnography in CSCW. *Computer Supported Cooperative Work (CSCW)*, *22*(4), 373-423. doi:10.1007/s10606-012-9183-1
- Cocchiara, F. K. (2017). Gender, Workplace Stress, and Coping. In C. L. Cooper & J. C. Quick (Eds.), *The Handbook of Stress and Health: A Guide to Research and Practice*.
- Coll, C. V. N., Domingues, M. R., Gonçalves, H., & Bertoldi, A. D. (2017). Perceived barriers to leisure-time physical activity during pregnancy: A literature review of quantitative and qualitative evidence. *Journal of Science and Medicine in Sport*, *20*(1), 17-25. doi:10.1016/j.jsams.2016.06.007
- Collins, C. (2007). The discrepancy between the information pregnant women expect and receive in Ireland and the lost opportunity for health promotion and education. *International Journal of Health Promotion and Education*, *45*(2), 61-66. doi:10.1080/14635240.2007.10708102

- Couper, I. D. (2004). Medicine in Iran: A brief overview. *South African Family Practice*, 46(5), 5-7. doi:10.1080/20786204.2004.10873077
- Czaja, R., Manfredi, C., & Price, J. (2003). The Determinants and Consequences of Information Seeking Among Cancer Patients. *Journal of Health Communication*, 8(6), 529-562. doi:10.1080/716100418
- Dekker, R. (2012). What is Patient-Centered Maternity Care? Retrieved from <https://evidencebasedbirth.com/what-is-patient-centered-maternity-care/>
- Flammer, A. (2001). Self-efficacy A2 - Smelser, Neil J. In P. B. Baltes (Ed.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 13812-13815). Oxford: Pergamon.
- Fredriksen, E. H., Harris, J., & Moland, K. M. (2016). Web-based Discussion Forums on Pregnancy Complaints and Maternal Health Literacy in Norway: A Qualitative Study. *J Med Internet Res*, 18(5), e113. doi:10.2196/jmir.5270
- Golden-Biddle, K., & Locke, K. (1993). Appealing Work: An Investigation of How Ethnographic Texts Convince. *Organization Science*, 4(4), 595-616. doi:10.1287/orsc.4.4.595
- Grimes, H. A., Forster, D. A., & Newton, M. S. (2014). Sources of information used by women during pregnancy to meet their information needs. *Midwifery*, 30(1), e26-33. doi:10.1016/j.midw.2013.10.007
- Guardino, C. M., & Schetter, C. D. (2014). Coping during pregnancy: a systematic review and recommendations. *Health psychology review*, 8(1), 70-94. doi:10.1080/17437199.2012.752659
- Guetterman, T. C. (2015). Descriptions of Sampling Practices Within Five Approaches to Qualitative Research in Education and the Health Sciences. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 16(2). doi:<http://dx.doi.org/10.17169/fqs-16.2.2290>

- Guillory, J., Niederdeppe, J., Kim, H., Pollak, J. P., Graham, M., Olson, C., & Gay, G. (2014). Does Social Support Predict Pregnant Mothers' Information Seeking Behaviors on an Educational Website? *Maternal and child health journal*, 18(9), 2218-2225. doi:10.1007/s10995-014-1471-6
- Heitmann, I. (2014). *Electronic antenatal health care records – potentials for structured representation with openEHR archetypes and templates: A qualitative case study*. Norwegian University of Science and Technology,
- Hofstede, G. (2003). *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations*: SAGE Publications.
- Holan, S. (n.d.). *Are you pregnant? Are you expecting a child? Pregnancy, birth and the postnatal period in Norway*. Norwegian Directorate of Health Retrieved from <https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/97/Er-du-gravid-venter-dere-barn-graviditet-fodsel-og-barseltid-i-norge-IS-1395-engelsk.pdf>.
- Holan, S., Mathiesen, M., & Petersen, K. (2005). *A National Clinical Guideline for Antenatal Care. Short version*. Directorate for Health and Social Affairs, Norway.
- Hsieh, Y., & Brennan, P. F. (2005). What Are Pregnant Women's Information Needs and Information Seeking Behaviors Prior to Their Prenatal Genetic Counseling? *AMIA Annual Symposium Proceedings, 2005*, 355-359.
- International Definition of the Midwife. (2017). Retrieved from https://internationalmidwives.org/assets/uploads/documents/CoreDocuments/ENG%20Definition_of_the_Midwife%202017.pdf
- Jafari, F., Eftekhar, H., Mohammad, K., & Fotouhi, A. (2010). Does Group Prenatal Care Affect Satisfaction And Prenatal Care Utilization in Iranian Pregnant Women? *Iranian J Publ Health*, 39(2), 10.

- Johnson, J. D., & Meischke, H. (1993). A Comprehensive Model of Cancer - Related Information Seeking Applied to Magazines. *Human Communication Research*, 19(3), 343-367. doi:10.1111/j.1468-2958.1993.tb00305.x
- Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi - structured interview guide. *Journal of Advanced Nursing*, 72(12), 2954-2965. doi:10.1111/jan.13031
- Kennedy, R. A., Mullaney, L., Reynolds, C. M., Cawley, S., McCartney, D. M., & Turner, M. J. (2017). Preferences of women for web-based nutritional information in pregnancy. *Public Health*, 143, 71-77. doi:10.1016/j.puhe.2016.10.028
- Komlodi, A., & Carlin, M. (2004, August 6-8, 2004). *Identifying Cultural Variables in Information-Seeking*. Paper presented at the 10th Americas Conference on Information Systems, New York, NY, USA.
- Lagan, B. M., Sinclair, M., & Kernohan, W. G. (2011). What is the impact of the Internet on decision-making in pregnancy? A global study. *Birth*, 38(4), 336-345. doi:10.1111/j.1523-536X.2011.00488.x
- Lam, M.-L. T. H. (2012). *The role of self-efficacy in the information-seeking behaviour of high school students in Mauritius* Charles Sturt University. Australia.
- Larsson, M. (2009). A descriptive study of the use of the Internet by women seeking pregnancy-related information. *Midwifery*, 25(1), 14-20. doi:10.1016/j.midw.2007.01.010
- List Of Gynecologists In Bandar Abbas. (2017). Retrieved from <https://goo.gl/JYgphx>
- Mandal, J., & Parija, S. C. (2014). Informed consent and research. *Tropical Parasitology*, 4(2), 78-79. doi:10.4103/2229-5070.138533

Marcus, G. E. (1995). Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography. *Annual Review of Anthropology*, 24(1), 95-117.
doi:10.1146/annurev.an.24.100195.000523

Martin, G. N., Carlson, N. R., & Buskist, W. (2013). *Psychology*: Pearson.

Merrell, L. K. (2016). *Exploration of the Pregnancy-Related Health Information Seeking Behavior of Women who Gave Birth in the Past Year*. (Doctor of Philosophy), University of South Florida, Retrieved from <http://scholarcommons.usf.edu/etd/6116>

Miller, G., & Dingwall, R. (1997). *Context and Method in Qualitative Research*: SAGE Publications.

Ministry of Health and Care Services. (2018). Retrieved from <https://www.regjeringen.no/en/dep/hod/id421/>

Mitchell, M., & Edugo, M. (2003). *A review of narrative methodology / M. Mitchell and M. Egudo*. Edinburgh, S. Aust: DSTO Systems Sciences Laboratory.

Moghasemi, S., Vedadhir, A., & Simbar, M. (2018). Models for Providing Midwifery Care and its Challenges in the Context of Iran. *Journal of Holistic Nursing and Midwifery*, 28(1), 64-74. doi:10.18869/acadpub.hnmj.28.1.64

Niedźwiedzka, B. (2003). A proposed general model of information behaviour. *Information research*, 9.

Ojewole, F., & O. Oludipe, Y. (2017). *Pregnancy-Related Information Need and Information-Seeking Pattern Among Pregnant Women Attending Antenatal Clinic at Ikorodu General Hospital, Lagos State, Nigeria* (Vol. 13).

Popay, J., & Williams, G. (1998). Qualitative research and evidence-based healthcare. *Journal of the Royal Society of Medicine*, 91(Suppl 35), 32-37.

Population and Housing Censuses. (2017). Retrieved from <https://www.amar.org.ir/english/Population-and-Housing-Censuses>

Potawad, K. (2013). *Wilson 1996 model*.

Potnis, D. (2015). Wilson's Information Seeking Behavior Models (1981, 1996, 1999). In *Information Seeking Behavior and Technology Adoption: Theories and Trends*

Rini, C. K., Dunkel-Schetter, C., Wadhwa, P. D., & Sandman, C. A. (1999). Psychological adaptation and birth outcomes: The role of personal resources, stress, and sociocultural context in pregnancy. *Health Psychology, 18*(4), 333-345.
doi:10.1037/0278-6133.18.4.333

Robson, C. (2002). *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*: Wiley.

Savolainen, R. (2015). Cognitive barriers to information seeking: A conceptual analysis. *Journal of Information Science, 41*(5), 613-623. doi:10.1177/0165551515587850

Science, Technology and Innovation Policy Review. The Islamic Republic of Iran (2005). Paper presented at the United Nations Conference on Trade and Development.
http://unctad.org/en/docs/iteipc20057_en.pdf

Severinsson, E., Haruna, M., & Friberg, F. (2010). Midwives' group supervision and the influence of their continuity of care model – a pilot study. *Journal of Nursing Management, 18*(4), 400-408. doi:10.1111/j.1365-2834.2010.01106.x

Shieh, C., Mays, R., McDaniel, A., & Yu, J. (2009). Health Literacy and Its Association With the Use of Information Sources and With Barriers to Information Seeking in Clinic-Based Pregnant Women. *Health Care for Women International, 30*(11), 971-988.
doi:10.1080/07399330903052152

Shieh, C., McDaniel, A., & Ke, I. (2009). Information-seeking and its predictors in low-income pregnant women. *J Midwifery Womens Health, 54*(5), 364-372.
doi:10.1016/j.jmwh.2008.12.017

- Sjöberg, L., & Engelberg, E. (2005). Lifestyles, and Risk Perception Consumer Behavior. *International Review of Sociology*, 15(2), 327-362. doi:10.1080/03906700500159755
- Slawson, D. C., Shaughnessy, A. F., & Bennett, J. H. (1994). Becoming a medical information master: feeling good about not knowing everything. *J Fam Pract*, 38(5), 505-513.
- Stoop, A. P., & Berg, M. (2003). *Integrating Quantitative and Qualitative Methods in Patient Care Information System Evaluation: Guidance for the Organizational Decision Maker* (Vol. 42).
- Stoyanov, S. R., Hides, L., Kavanagh, D. J., Zelenko, O., Tjondronegoro, D., & Mani, M. (2015). Mobile App Rating Scale: A New Tool for Assessing the Quality of Health Mobile Apps. *JMIR mHealth and uHealth*, 3(1), e27. doi:10.2196/mhealth.3422
- Sunyaev, A., Dehling, T., Taylor, P. L., & Mandl, K. D. (2015). Availability and quality of mobile health app privacy policies. *Journal of the American Medical Informatics Association*, 22(e1), e28-e33. doi:10.1136/amiajnl-2013-002605
- Walsham, G. (1995). Interpretive case studies in IS research: nature and method. *European Journal of Information Systems*, 4(2), 74-81. doi:10.1057/ejis.1995.9
- Wilson, T. D. (1997). Information behaviour: An interdisciplinary perspective. *Information Processing & Management*, 33(4), 551-572. doi:10.1016/S0306-4573(97)00028-9
- Wilson, T. D. (1999). Models in information behaviour research. *Journal of Documentation*, 55(3), 249-270. doi:10.1108/eum0000000007145
- Wilson, T. D. (2000). Human information behaviour. *Information Science Research*, 3(2), 7.
- Wilson, T. D. (2006). 60 years of the best in information research on user studies and information needs. *Journal of Documentation*, 62(6), 658-670. doi:10.1108/00220410610714895

The World Factbook. IRAN. (2018). Retrieved from

<https://www.cia.gov/library/publications/the-world-factbook/geos/ir.html#People>

The World Factbook. NORWAY. (2018). Retrieved from

<https://www.cia.gov/library/publications/the-world-factbook/geos/no.html>

Yali, A. M., & Lobel, M. (2002). Stress-Resistance Resources and Coping in Pregnancy.

Anxiety, Stress, & Coping, 15(3), 289-309. doi:10.1080/1061580021000020743

Zemaite, K. (2013). *Birth experiences among Lithuanian immigrant women in Norway*.

Appendix 1



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Approval of Contract of Supervision for Master's Thesis in Telemedicine and E-health (Health) – Tahmineh Sanginan

According to the regulations of the University, the board of the department offering the Master Program must approve the credits and other conditions governing the thesis.

The Case IKM F10- 17 is handled by authority at the Department of Clinical Medicine with the following result:

"Institutt for klinisk medisin godkjenner den fremlagte veiledningskontrakten for TLM-3902 Closing Master's Thesis for Tahmineh Sanginan under forutsetning at det ikke er behov for innkjøp av utstyr utover det som er tilgjengelig. Det henvises for øvrig til de utfyllende bestemmelsene for mastergradsutdanningen for telemedisin og e-helse ved fakultetet.

<i>Hovedveileder:</i>	<i>Prof. Johan Gustav Bellika, Institutt for klinisk medisin, UiT</i>
<i>Studieprogram:</i>	<i>Master of Science in Telemedicine and e-health</i>
<i>Studieretning:</i>	<i>Health field of study</i>
<i>Foreløpig tittel:</i>	<i>Information needs during pregnancy from women's perspective</i>
<i>Antall studiepoeng:</i>	<i>60</i>
<i>Arbeidssted:</i>	<i>Forskningsparken</i>
<i>Eksamensform:</i>	<i>Sensur av skriftlig innlevering</i>
<i>Evalueringsform:</i>	<i>Bokstavkarakter A-F</i>
<i>Utleveringsdato:</i>	<i>1.9.2017</i>
<i>Innleveringsdato:</i>	<i>15.5.2018"</i>

Your Master's Thesis has the preliminary title, *"Information needs during pregnancy from women's perspective"*, and is supervised by Professor Johan Gustav Bellika. The number of credits for this thesis is 60 ECTS/studiepoeng and the deadline for delivery is the 15th May, 2018. It will be graded from A-F by an appointed examination board that composes of internal and external examiners. The grading of Master's Theses in Mathematics, Science and Technology (MNT) subjects will also be applied.

The Master's Thesis must be submitted electronically in MUNIN (www.ub.uit.no/munin/).

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Appendix 2

The interview guide

Ice breaking:

Explaining a bit about this project and introducing myself!

Demographic information

Introduction!

- Education Level?
- Age?
- working/ housewife?
- Total household income (categorizing into three groups)

Pregnancy status

- Which trimester?
- First time or not?

Preferred point of visits

- Why did they choose to go to the specialist (or the midwife) for the prenatal visits?
 - If specialist: asking about the check-up fee and if it is a problem for them!
- Their experience about each check-up (how long it lasts? What topics they talk about?)
- What sources did their caregiver introduce to them?
- How comfortable are they to ask questions? how satisfied they are with the answers?
- Number of the pregnancy check-ups?

Topic of interest

- First-time expectant mother: When you found out that you are pregnant what was the first thing you wanted to know about?
- If she had prior pregnancy: Do you feel like you are more prepared for this pregnancy? Do you feel like you know more this time? What are the things you want to know more about?

Supplementary sources

1. Have you had any discomforts during your pregnancy?

- If yes > what was your first reaction to it? (explanation: did you immediately call your doctor, or did you ask someone / did you search for it?)
2. Who do u mostly ask your questions from?
 - Have they ever said things different from your doctor? which one do u prioritize?
 3. Do you have access to the Internet? have you ever searched anything regarding your pregnancy online? (asking for some sample questions she has searched, the language of search, and their evaluation of that)
 - Asking if she has used mobile applications:
 - if yes: what application? How did she like it? Was it useful? etc.
 - if no: why?
 - How does she evaluate the trustworthiness of the resources?
 4. Family and friends
 - How much do you count on your family and friends' support?
 - How much do you trust them?
 - Have you ever discussed anything with them? How useful were their responses?
 5. Books and brochures
 - Have you read any books regarding your pregnancy?
 - (if yes) How did you like it?
 - Have you received any brochures? • (if yes) Were they useful?
 6. Pregnancy classes? (How did you find out about them? What did you learn in this classes? Were they useful?)



Interview consent form



Research project title:

“Information needs during pregnancy from women’s perspective”

Thank you for agreeing to be interviewed as part of this research project. The interview will take approximately 15 minutes. You have the right to stop the interview at any time you decide and withdraw from the research by the end of this interview.

According to ethical procedures for academic research, interviewees require to agree on being interviewed and be informed about how the information contained in their interview will be used. This consent form is necessary for us to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Therefore, this information sheet should be signed to certify that you approve the following:

- Your anonymity is insured, and no personal identifier is required or asked
- The interview will be recorded, and a transcript will be produced
- The transcript of the interview will be analyzed and the access to the interview transcript will be limited to me as research investigator and academic colleague and researchers with whom I collaborate as part of the research process
- Any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you will not be identified
- The actual recording will be kept only for research purposes
- The researchers may publish documents that contain quotations by me.
- I am voluntarily taking part in this project. I understand that I don’t have to take part, and I can stop the interview at any time;
- I did not receive any benefit or payment for my participation;
- I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have during the interview.

By signing this form, I agree that:

- I am aware of the purpose of this study
- The researcher may publish documents that contain quotation by me
- I am voluntarily taking part in this project, I understand that I don’t have to take part, and I can stop the interview at any time
- The transcribed interview or extracts from it may be used as described above.
- I did not receive any benefit or payment for my participation

Participant’s signature

Date

APPENDIX 4

Survey 2017-2018

Welcome to this international survey regarding information needs of pregnant women!

Thank you for considering taking part in this survey!

The purpose of this survey is to evaluate pregnant women's information needs as part of a master thesis project, which is in collaboration with the Norwegian centre for e-health research.

Therefore, the target population of this survey is pregnant women (either currently pregnant or during the last 5 years). Your invaluable thoughts and opinions will help us gain a better understanding of your perspective in regard to pregnancy information needs and hence serve your needs better in the future. It is estimated that it will take about 5 minutes to complete this questionnaire. All your answers will be kept in full confidentiality. Please avoid writing any personal information (such as name, date, address, etc.) in open fields.

- Please click "next" to begin.

Section 1: About you!

1. Which of the following best describes your marital status? *

- single
- married
- divorced
- live-in partner (domestic partner/ significant other)

2. What is the highest educational degree you have completed? *

- Some high school
- Diploma
- Associate degree (2 years)
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree

3. Do you have an educational/a career background concerning or related to pregnancy? *

- Yes
- No
- Prefer not to say

4. What was your annual household income after taxes last year? *

- Less than \$25,000
- \$25,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 or more

Section 2

5. Have you been pregnant in the last 5 years? *

- Yes (go to next section)
- No (submit form)
- I am currently pregnant (go to next section)

6. Which trimester are you in? *

- First trimester (week 1 to week 12)
- Second trimester (week 13 to week 27)
- Third trimester (week 28 to birth)
- I am not currently pregnant

7. Is this your first pregnancy?

- Yes
- No

8. How old are/were you during your pregnancy? (Consider your most recent pregnancy) *

- <20
- 20-25
- 26-30
- 31-35
- 36-40
- 41 ≥

Section 3

9. Which Country's health system did you mainly use during your pregnancy? *
(Dropdown)

10. Who did you go to for your pregnancy check-ups (antenatal visits)? *

- Midwives
- General Practitioners
- Specialist (Obstetricians)
- Pharmacist
- Other... (please specify)

11. How many pregnancy check-ups have you attended (or have been planned for you) during the whole pregnancy period? *

- less than 3
- 3 - 5
- 6-8
- more than 8
- I don't remember

12. How well were your information needs met by each of the sources you used? *

	Very poor	Poor	OK	Good	Very good	Not applicable
Midwife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GP	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specialist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pharmacist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
other (as specified before)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 4

13. What other sources do/did you use to supplement your information needs? *

- Internet
- Books
- Family and friends
- Brochure
- Parentcraft (antenatal classes)
- Mobile applications
- Social media (Facebook, YouTube, etc.)
- Other... (please specify)

14. How useful do/did you find the sources you use/used? *

	Not useful	Quite useful	Useful	Very useful	Did not use
Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Books	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family and friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brochures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parentcraft	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile applications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Which of the following best describes your intentions for searching for additional information? *

- Searching for general pregnancy information
- Searching for information on pregnancy product (breast pump, anti-stretch mark oil/cream, etc.)
- Searching for information about a specific pregnancy condition
- Participating in pregnancy discussion group (for example: Facebook groups)
- Purchasing items for pregnancy
- Seeking second opinion
- Searching for information about a treatment prescribed
- Bringing information to a health professional
- Other... (please specify)

16. How do you evaluate the trustworthiness of the additional sources you used?

	Not reliable	Quite reliable	Reliable	Very reliable
Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Books	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Family and friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brochures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parentcraft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile applications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. Have you ever searched for a specific pregnancy condition or a treatment that has been prescribed for you? *

- Yes
- No

18. How was your feeling after reading more about that specific condition or treatment? *

- Anxious

- Reassured
- Feeling more knowledgeable
- Confused

19. How did the supplementary information you found influence your behaviour? *

- Discuss the information you found with your doctor
- Discuss the information you found with your family and friends
- Start or stop a treatment without consulting your doctor
- Feeling unsure about your doctor's diagnosis
- Other... (please specify)