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## Pregnancy and health behaviors

A cross-sectional study investigating beliefs, attitudes and practices among Norwegian health care providers regarding physical activity, gestational weight gain and nutrition.

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## **ABSTRACT**

**BACKGROUND:** As far as we know there is only one study examining beliefs, attitudes and practices of Norwegian health care providers towards regular exercise, gestational weight gain (GWG) and nutrition during pregnancy (Mass, 2016). The providers may lack knowledge or skills to undertake this type of counseling, or it may be of low priority in the context of a typical prenatal visit. Hence, the present study aimed at replicating Dalhaug's (Mass) study with a larger more representative population, especially in regard to midwives practicing in prenatal care. The main aims were to examine beliefs, attitudes, and practices of Norwegian health care providers towards regular PA, GWG and nutrition during pregnancy and compare counseling practices of midwives and family physicians.

**METHODS:** The present project was a cross-sectional study conducted from January to April 2019, in Oslo and Akershus, Norway. Midwives and family physicians were asked to answer a questionnaire investigating their lifestyle, beliefs, attitudes and practices regarding the recommendations for regular PA, GWG and nutrition during pregnancy, and their capacity to provide the information to pregnant women. The questionnaire is the same questionnaire used in part B in Dalhaug's (Mass) study. Participant data (n=15) from Dalhaug's (Mass) study was included in the current dataset (n=68) to add more data to the current project (n=83).

**MAIN RESULTS:** The most unpleasant topic to talk about according to the health care providers was GWG. Over 90% of the health care providers reported giving advice on PA, GWG and nutrition to all pregnant patients. However, almost 70% of the respondents did not give advice consistent with the health authorities recommendations for PA (ACOG, 2015). With respect to advice on GWG, 50% of all the providers reported values discordant with the IOM recommendations (2009). Nutritional advice given in accordance with ACOG (2015) was given by approximately 70-85% on selected food groups.

**CONCLUSION:** Supplementary education for Norwegian health care providers may be needed to improve the knowledge of recommendations, especially regarding PA and GWG.



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Julie Mjønerud

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## **ABBREVIATIONS AND DEFINITIONS**

American College of Obstetricians and Gynecologists (ACOG)

Beats per minute (bpm)

Caesarean section (CS)

Gestational diabetes mellitus (GMD)

Gestational weight gain (GWG)

Institute of Preventive Medicine (IOM)

Maternal heart rate (MHR)

Physical Activity (PA)

Physical Activity Level (PAL)

Randomized controlled trials (RCT)

Small gestational age (SGA)

World health organization (WHO)

## 1.0 INTRODUCTION

In Norway prenatal care is primarily provided by midwives, family physicians and obstetricians (Backe, 2001; Helsedirektoratet, 2017). According to the Norwegian guidelines all pregnant women should receive lifestyle counseling, including advice on physical activity (PA), gestational weight gain (GWG) and healthy eating on the first prenatal visit (Helsedirektoratet, 2017). Health care providers are well placed to promote PA to the pregnant population, and may have an important role in advising and educating women on healthy behaviors. In the general population, brief counseling from a general practitioner has shown to be a cost effective and successful method of improving activity levels (Garret, Elley, Rose, O'Dea, Lawton & Dowell, 2011).

Over 90% of the health care providers reported giving advice on PA, GWG and nutrition to all pregnant patients. However, almost 70% of the respondents did not give advice consistent with the health authorities recommendations for PA (ACOG, 2015). With respect to advice on GWG, 50% of all the providers reported values discordant with the IOM recommendations (2009). Nutritional advice given in accordance with ACOG (2015) was given by approximately 70-85% on selected food groups. According to this study there was a significant difference between the midwives and family physicians, on basis for advice on recommendations regarding PA. Family physicians seem to be the provider reporting highest on advice based on own experiences.

Few studies of Scandinavian healthcare providers seem to been conducted. As far as we know this is the second study investigating Norwegian health care providers beliefs, attitudes, and practices regarding regular PA, GWG and nutrition during pregnancy. This study tries to replicate Dalhaugs (Mass) study with a larger, more representative population, especially regarding midwives practicing in prenatal care.

## **2.0 LITERATURE REVIEW**

### **2.1 Physical activity**

Physical activity (PA) is defined as “any bodily movement produced by skeletal muscles that results in substantial energy expenditure above a basal level” (Caspersen, Powell & Christenson, 1985). The definition of exercise is PA that it is planned, structured and repetitive. The goals are often to maintain or improve physical fitness (Caspersen et al., 1985). The different terms; PA, exercise and training describe different concepts, however they are frequently used interchangeably in the literature (Caspersen et al., 1985). In this thesis the terms will be used the same way the cited articles are using them.

#### **2.1.1 Recommendations regarding physical activity during pregnancy**

For healthy pregnant women, the recommendations regarding physical activity are similar to the general adult population, but with some modifications (ACOG, 2015). To date, the recommendations are to be physically active at moderate intensity for a minimum of 150 minutes per week (ACOG, 2015). In addition pregnant women are recommended to do strength training, pelvic floor muscle exercises and avoid high-risk sports (ACOG, 2015). Adjustments concerning fetal requirements, and normal anatomic and physiological changes such as gestational weight gain (GWG) and shift in the point of gravity (progressive lordosis) are also highly recommended (ACOG, 2015). Women that are frequent exercisers pre-pregnancy are recommended to maintain their physical activity level (PAL) during pregnancy. However, according to a study investigating pregnant elite athletes it is not recommended to do exercises at intensity above 90% of MHR (Salvesen, Hem & Sundgot-Borgen, 2011).

#### **2.1.2 Adherence to recommendations regarding physical activity**

Few pregnant women appear to follow the recommendations for regular PA (Nascimento, Surita, Godoy, Kasawara & Morais, 2015). In the study by Nascimento and colleagues (2015), only 7.2%, 7.6% and 4.7% met the recommendations in the first, second and third trimester, respectively. A large proportion of the women decreased their PAL during pregnancy compared to pre-pregnancy levels (Nascimento et al.,

2015). In a Norwegian study investigating exercise behavior during gestational week 17-21, about 15% of the participants met the recommendations (Gjestland, Bø, Owe & Eberhard-Gran, 2012).

### **2.1.3 Benefits of being physically active during pregnancy**

Systematic reviews and randomized controlled trials (RCT) have shown several benefits of regular physical activity during pregnancy including; prevention of excessive weight gain during pregnancy (da Silva, Ricardo, Evenson & Hallal, 2017; Muktabhant, Lawrie, Lumbiganon & Laopaiboon, 2015), and the development of gestational diabetes mellitus (GDM) (da Silva et al., 2017; Di Mascio, Magro-Malosso, Saccone, Marhefka & Berghella, 2016), as well as improve glycaemic control (Harrison, Shields, Taylor & Frawley, 2016). Being regularly active showed a significant reduction in pregnancy-induced hypertension (Magro-Malosso, Saccone, Di Tommaso, Roman & Berghella, 2017), and no gestational hypertension ( $p=0.16$  compared with controls) (Price, Amini & Kappeler, 2012). Improved aerobic fitness ( $p<0.05$ ) and muscular strength ( $p<0.01$ ) and significantly fewer cesarean deliveries ( $p<0.01$ ) (comparable size infants) and a faster recovering postpartum are also associated with being physical active during pregnancy ( $p<0.05$ ) (Price et al., 2012). In addition, an intervention showed significantly lower maximal maternal heart rate (MHR) ( $61.6 \pm 7.2$  beats per minute [bpm]) in the highly active group compared to the non-exercise ( $79.0 \pm 11.6$  bpm) and regularly active ( $71.9 \pm 7.4$  bpm) groups ( $p<.001$ ), including higher fitness (Szymanski & Satin, 2012). Last but not least, pregnant women experienced improved quality of life (Price et al., 2012; Szymanski & Satin, 2012) and symptoms of urinary incontinence appear to have beneficial effect of being regularly physically active during pregnancy (Perales, Santos-Lozano, Ruiz, Lucia & Barakat, 2016; Mørkved & Bø, 2014).

#### **2.1.4 Risks of being physical active during pregnancy**

It is questioned whether exercise at high intensity and volume may cause a competitive relationship between mother and fetus. Due to the maternal body's physiological response to exercise, the fetus' physiological needs may not be fulfilled (Artal & O'Tool, 2003). Potential risk factors related to exercise with high intensity during pregnancy include the following: Hypoxia, a condition that occurs when oxygen and nutritional demands of the fetus in the placenta are insufficient, and may occur when pregnant women exercise due to the redistribution of blood flow from inner organs to skeletal muscles (Bø et al., 2016). Salvesen and colleagues (2011) study on pregnant elite athletes found fetal bradycardia when the blood flow in the umbilical cord was below 50% of the original value. After 10-20 min with moderate intensity fetal bradycardia was found in up to 40% of the women, in addition to exercises at intensity above 90% MHR (Salvesen et al., 2011). This is a normal physiological adoption to reduced blood flow, and several studies have found no harmful effects on moderate intensity (Tavares, 2019; Simon, 2015). Early pregnancy loss caused by exercise may also occur (Madsen, Jørgensen, Jensen, Juhl, Olsen, Andersen & Nybo Andersen, 2007), as well as preterm labor (da Silva et al., 2017). Hyperthermia is caused if the body absorbs more heat than it dissipates, and the body temperature increases more than 1.5 degrees than the core body temperature (Artal & O'Tool, 2003). Growth restrictions due to insufficient nutrition have also been associated with exercising during pregnancy (Bell, Palma & Lumley, 1995). However, for uncomplicated pregnancies these risks are not concerning, and the benefits of exercising are stronger than the potential risks (ACOG, 2015). Absolute- and relative contraindications, in addition to warning signs for exercising while pregnant, are shown in Table 1.

**Table 1:** Contraindications and warning signs indicating no exercise during pregnancy. From ACOG (2015).

<b>Absolute contraindications</b>	<b>Relative contraindications</b>	<b>Warning signs</b>
Restrictive lung disease	Unevaluated maternal cardiac arrhythmia	Calf pain or swelling
Severe anemia	Poorly controlled type 1 diabetes	Muscle weakness affecting balance
Multiple gestation at risk of premature labor	Chronic bronchitis	Vaginal bleeding
Preeclampsia or pregnancy-induced hypertension	Anemia	Regular painful contractions
Hemodynamically significant heart disease	Poorly controlled hypertension	Chest pain
Premature labor during the current pregnancy	Extreme morbid obesity	Amniotic fluid leakage
Placenta previa after 26 weeks of gestation	Extreme underweight (BMI less than 12)	Headache
Incompetent cervix or cerclage	History of extremely sedentary lifestyle	Dizziness
Persistent second- or third-trimester bleeding	Intrauterine growth restriction in current pregnancy	Dyspnea before exertion
Ruptured membranes	Heavy smoker	
	Orthopedic limitations	
	Poorly controlled seizure disorder	
	Poorly controlled hyperthyroidism	

## 2.2 Gestational weight gain

Gestational weight gain (GWG) and a shift in the point of gravity that results in progressive lordosis are two of the greatest changes during pregnancy (ACOG, 2015). GWG is affected by several factors such as; placenta, breasts, the size of the fetus, the amount of amniotic fluid, the blood volume and extracellular fluid, in addition to gained fat mass for the pregnant women (Haakstad, Dalhaug, & Torstveit, 2018). Among young women postpartum weight retention is one of the contributing factors in the epidemic of obesity (Rong et al., 2015), hence the IOM developed recommendations on GWG (Table 2) (IOM, 2009).

### 2.2.1 Recommendations regarding gestational weight gain

GWG should, in accordance with the IOM, be based on pre-pregnancy body mass index (BMI) (IOM, 2009). The Norwegian Directorate of Health is based on the IOM guidelines, shown in Table 2 (Helsedirektoratet, n.da).

*Table 2: Recommendations for GWG from IOM based on pre-pregnancy BMI (IOM, 2009).*

Category	Pre-pregnancy BMI range (kg/m <sup>2</sup> )	Total weight gain range (kg)
Underweight	<18.5	12.5-18
Normal weight	18.5-24.9	11.5-16
Overweight	25-29.9	7-11.5
Obese	>30	5-9

\*Includes class I (30-34.9), II (35.39.9) and III (>40).

### 2.2.2 Adherence to recommendations regarding gestational weight gain

Few pregnant women appear to follow the recommendations for GWG (Goldstein et al., 2017; Yeo, Crandell & Jones-Vessey, 2016). The meta-analysis by Goldstein and colleges (2017) shows that 23% has an inadequate GWG, 30% is within the recommendations and 47% has excessive GWG (Goldstein et al., 2017). To our knowledge, there is only one study that has investigated Norwegian women's adherence to the recommendations for GWG. The study showed that approximately 65% of the women had a GWG outside the IOM recommendations (Mass, 2016). Women with excessive GWG gained 3.0 ( $\pm$  2.4) kg more in average, and women with inadequate GWG gained 2.6 ( $\pm$  2.2) kg less than recommended (Mass, 2016).

### **2.2.3 Benefits of a healthy gestational weight gain**

A GWG within the IOM recommendations may be associated with lower risk of adverse maternal and infant outcomes (Goldstein et al., 2017). Some of the benefits are; easier return to ideal weight for the mother and optimal fetal growth (IOM, 2009). Keeping a healthy GWG may also reduce the risk of caesarean section (CS), as well as maternal hypertension according to two reviews (O'Brien, Grivell and Dodd, 2016; Muktabhant et al., 2015). The two high-quality reviews may indicate that dietary and exercise interventions, or the combinations of the two, help pregnant women keep a healthy weight (O'Brien et al., 2016; Muktabhant et al., 2015).

### **2.2.4 Risks of excessive and inadequate gestational weight gain**

Excessive GWG are together with inactivity, independent risk factors for related pregnancy complications such as maternal obesity and gestational diabetes mellitus (GMD) (ACOG, 2013; Dye, Knox, Artal, Aubry & Wojtowycz, 1997; Artal, 2015), as well as high weight retention postpartum (Rong et al., 2015). Other negative health outcomes that may be associated with excessive GWG are shown in two large reviews and include macrosomia and cesarean section (Muktabhant et al., 2015; Goldstein et al., 2017). In addition, evidence showed that infants of high-risk women had a reduced risk of respiratory distress syndrome, however the evidence of all the outcomes is limited (Muktabhant et al., 2015). A RCT by Ruchat and colleagues (2012) showed that an exercise intervention combined with nutritional control prevented excessive GWG in 70% of the exercise group with low intensity, and 77% of the exercise group with moderate intensity. In Chang and colleagues (2013) study, they used semi-structured qualitative interviews and concluded that both patients and providers might benefit from increased awareness of the morbidity of excess weight gain during pregnancy (Chang et al., 2013). According to Goldstein and colleagues' review (2017), inadequate GWG must be taken seriously as well, and can lead to outcomes such as; preterm delivery and infants small for gestational age (SGA) (Goldstein et al., 2017). Stillbirth and low birth weight are also outcomes associated with low GWG (IOM, 2009).



## **2.3 Nutrition**

The nutritional recommendations for pregnant women are similar to the general adult population, with some restrictions such as staying away from certain food groups (Helsedirektoratet, n.db; IOM, 2009).

### **2.3.1 Recommendations regarding nutrition during pregnancy**

Pregnant women are recommended to eat a varied diet that includes plenty of vegetables, fruits and berries, choose wholegrain products with high fiber content, eat fish and choose lean milk and dairy products. It is also recommended to choose products that are labeled with a keyhole, avoid large quantity of processed food and avoid food with high amounts of salt, saturated fat and sugar. In addition pregnant women are advised to reduce the intake of coffee and stay away from alcohol and cigarettes (Helsedirektoratet, n.db; Helsedirektoratet, n.dc; Helsedirektoratet, n.dd; IOM, 2009). Due to the growing fetus and body when being pregnant, the need for energy will increase during pregnancy (IOM, 2009). Hence, pregnant women are recommended to add approximately 100 kcal daily during the first trimester, increasing to 300 and 500 kcal/day during the second and third trimester, respectively (Helsedirektoratet, n.db; IOM, 2009).

### **2.3.2 Adherence to recommendations regarding nutrition**

Studies show that few pregnant women meet the guidelines for healthy eating (United States Department of Agriculture, 2015; Fowles, 2002). Among pregnant women in New Zealand, an observational study showed that one of four did not meet the recommendations for the four food groups, and 3% met the recommendations (Morton et al., 2014). In this study there was also big varieties between ethnic groups, which can indicate that there are differences in nutritional behavior and beliefs (Morton et al., 2014). Another study showed that only 56%, 29% and less than 10% of Australian pregnant women met the Australian recommendations for dietary for the fruit, dairy and other core food groups, respectively (Malek, Umberger, Makrides & Zhou, 2016). For Spanish pregnant women there was also poor adherence to dietary guidelines according to a cross-sectional study done in the first trimester (Rodríguez-Bernal et al., 2013).

Age, education, and country of origin appear to be factors related to dietary intake and adequacy (Rodríguez-Bernal et al., 2013).

### **2.3.3 Benefits of eating healthy during pregnancy**

Weight control and a healthy GWG are two of the benefits pregnant women will experience following the IOM recommendations for nutrition (IOM, 2009). Eating the right amount of food helps preventing excessive GWG and inadequate GWG during pregnancy (Ruchat et al., 2012; IOM, 2009). In addition, following the nutritional recommendation and eating nutritious food will maintain the mothers health and support the growth of the fetus (Morton et al., 2014). High-quality evidence in two reviews showed a reduced risk of CS and maternal hypertension in women receiving an prenatal diet and exercise intervention, or a combination of the two (O'Brien et al., 2016; Muktabhant et al., 2015). Healthy eating during the periconceptional may also have an effect on fetal, postnatal and adult cardiovascular and metabolic health, as well as the timing of parturition and the foetus' ability to respond to acute and chronic stressors (MacLaughlin & McMillen, 2007).

### **2.3.4 Risks of unhealthy eating**

Smoking cigarettes and using other types of tobacco are potential risk factors while being pregnant (Helsedirektoratet, n.dd; IOM, 2009). It is recommended to stay away from alcohol, because alcohol consumption during pregnancy may result in behavioral or neurological defects in the fetus (Academy of Nutrition and Dietetics, 2014).

Consuming a moderate intake of coffee on the other hand does not increase the risk of growth retardation, preterm birth, miscarriage or other risks, however high amounts of caffeine is not favorable (Brent, Christian & Diener, 2011). Overconsumption of food is also seen as a potential risk factor for the mother, and can lead to excessive GWG (Shapira, 2008). Excessive GWG and inadequate GWG are both associated with nutritional behavior (Goldstein et al., 2017).

## **2.4 Midwives and family physicians role**

Prenatal care in Norway is free of charge and offered to all pregnant women since the late 1940's, as part of the community-based primary health care (Backe, 2001; Helsedirektoratet, 2017). The number of prenatal care visits varies from nine or more, depending on complications or the need for more supervision during the pregnancy (Backe, 2001; Helsedirektoratet, 2017). The visits are between week 8 and 40, and the pregnant women can choose between seeing a midwife, a family physician or an obstetrician during pregnancy (Helsedirektoratet, 2017). The difference between primiparous and multiparous women's number of visits are minimal (Backe, 2001). Compared to other Nordic countries, Norway is one of the few countries where general practitioners provide prenatal care to a greater extent than midwives (Backe, 2001). During prenatal care the pregnant women usually receive advice and information to prepare for the arrival of the baby and what to expect as parents, as well as conducting routine medical tests (Helsedirektoratet, 2017).

Pregnancy has long been recognized as a significant teachable moment (Phelan, 2010). Pregnant women are often concerned about the health of their baby. Hence, they are motivated to engage in healthy behaviors, such as eating healthy and smoking cessation (Phelan, 2010). Pregnant woman appear to change their lifestyle for the better after becoming mothers and their new role as a role model for their child (Phelan, 2010). Therefore, helping and educating women about healthy behaviors while being pregnant may be the time in their lives when the advices have the biggest impact (Phelan, 2010).

The health care providers may be well placed in the community to reach pregnant women and inform them about the importance of following the current recommendations on PA, GWG and nutrition (ACOG, 2013; ACOG, 2015). However, health care providers may lack knowledge or skills to undertake this type of counseling, or it may be of low priority in the context of a typical prenatal visit (Stengel, Kraschnewski, Hwang, Kjerulff & Chuang, 2012; Whitaker, Wilcox, Liu, Blair & Pate, 2016; Mass, 2016). Training may be inadequate, and differences in training and education may result in providing different advices and information for pregnant women based on attitudes and beliefs. It is not clear how much education midwives and

family physicians receive about the most current recommendations for regular PA, GWG and nutrition during pregnancy (Heslehurst, Russel, McCormack, Sedgewick, Bell & Rankin, 2013). Adopting optimal health behaviors is difficult or impossible when there is confusion and lack of knowledge about what optimal health behaviors during pregnancy are. Hence, more studies with larger samples are required to find the best, most effective way to reach and educate pregnant women (Phelan, 2010).

## **2.5 Health care providers beliefs, attitudes and practices**

The Norwegian Directorate of Health (2017) lists the three topics; PA, GWG and nutrition as important during the prenatal visits and a part of the lifestyle counseling (Helsedirektoratet, 2017). However, several studies report that few women receive advice no information about PA, GWG and nutrition during pregnancy (Whitaker et al., 2016; Stengel et al., 2012; Mercado, Marquez, Abrams, Phipps, Wing & Phelan, 2017; Vinturache, Winn & Tough, 2017; Mass, 2016).

Health care providers reasons for not giving enough counseling on the three respective topics was lack of time, insufficient training and lack of knowledge (Whitaker et al., 2016; Stotland, Gilbert, Bogetz, Harper, Abrahams & Gerbert, 2010). Not giving advice on PA, GWG and nutrition was also reported as not being prioritized, including concern for the sensitivity of the topics, especially regarding GWG (Stotland et al., 2010; Whitaker et al., 2016; Chang et al., 2013). The perception that counseling was ineffective was also reported from Stotland and colleges (Stotland et al., 2010). In addition, a study using a survey to investigate obstetricians' beliefs and recommendations on PA, the majority reported advice in accordance with the recommendations for healthy pregnant women (ACOG, 2015; McGee, Cignetti, Sutton, Harper, Dubose & Gould, 2018). Being comfortable discussing the topic with their patients was also reported (McGee, Cignetti, Sutton, Harper, Dubose & Gould, 2018). However, varieties were found, inactive women were not recommended being active during pregnancy by most providers (57%), and recommendations on strength training and intensity of PA were not given in accordance with ACOG's guidelines for 2015 (ACOG, 2015; McGee et al., 2018).

In the study by Whitaker and colleagues (2016) using a mixed-methods design, 63% of American and Canadian women reported receiving advice regarding PA during pregnancy from their health care provider. In addition 56% and 54% reported advice regarding healthy eating and GWG, respectively (Whitaker et al., 2016). The “Fit for Delivery” study reported that 55.6%, 48.2% and 33.9% of the pregnant women received advice regarding nutrition, physical activity and GWG respectively, from their health care provider (Mercado et al., 2017). In a small study on overweight and obese pregnant women, the health care providers advice was questioned and appeared to show lack of knowledge according to the women in the study (Stengel et al., 2012). Nine (9) of 24 reported their provider did not mention the recommendations on GWG, and 10 of 24 reported receiving advice regarding exercise (Stengel et al., 2012). In Norway however, only 34.7%, 29.7% and 16% reported receiving advice on and nutrition, PA and GWG respectively, from a midwife or a family physician while pregnant (Mass, 2016). Among the women receiving advice on GWG, only 6.7% received advice in compliance with the IOM recommendations (Mass, 2016).

## **2.6 The aims of the study**

The US and Canada appear to be leading countries on investigating health care providers beliefs, attitudes and practices towards regular exercise, GWG and nutrition during pregnancy (Whitaker et al., 2016; Stengel et al., 2012; Mercado et al., 2017; Vinturache et al., 2017; McGee et al., 2018). Few studies of Scandinavian healthcare providers seem to been conducted. As far as we know Dalhaug’s (Mass) study (2016) is the only one examining beliefs, attitudes and practices of Norwegian health care providers towards regular exercise, GWG and nutrition during pregnancy (Mass, 2016). However the sample size in the study was small (n=15) and therefore the respective results has a low statistical power (Mass, 2016). This study contributes to fulfill the gap. Hence, the present study aimed at replicating Dalhaug’s (Mass) study with a larger more representative population, especially in regard to midwives practicing in prenatal care. The main aims were to examine beliefs, attitudes, and practices of Norwegian health care providers towards regular PA, GWG and nutrition during pregnancy and compare counseling practices of midwives and family physicians.

## **3.0 METHODS**

### **3.1 The study design**

The present project was a cross-sectional study conducted from January to April 2019, in Oslo and Akershus county, Norway. Midwives and family physicians were asked to answer a questionnaire investigating their lifestyle, beliefs, attitudes and practices regarding the recommendations for regular PA, GWG and nutrition during pregnancy, and their capacity to provide the information to pregnant women (Appendix 1).

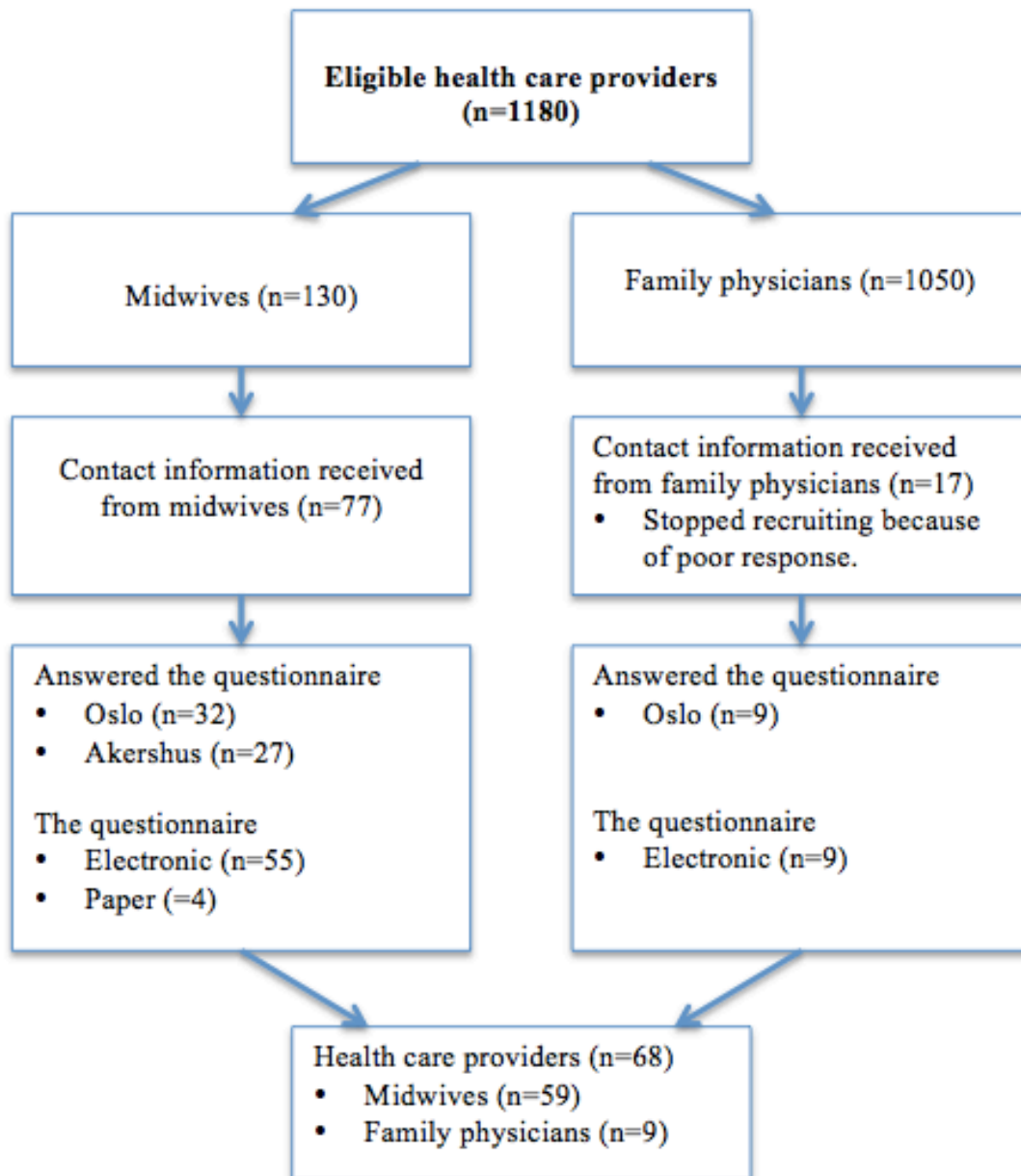
Before initiating the project and data collection the project was approved by the Norwegian Social Science Data Service (NSD), ref.nr.: 560627. All participants received a written informed consent describing the project's purpose and procedures, and gave a written or electronic consent depending on how they answered the questionnaire, prior to the data collection. This is in accordance with the World Medical Association Declaration of Helsinki. Participation in this project was voluntary and it was possible to withdraw from the project at any time, no explanation was needed. The collected data was kept confidentially, and identifying numbers were not presented in the results of the analyses. The participants were not given any financial support.

### **3.2 Participants and recruitment**

Recruitment of the participants took place in medical centers and healthcare clinics. Oslo and Akershus are high-populated areas, comprising both urban and rural settings with a large number of midwives and family physicians offering prenatal care (Statistisk sentralbyrå, 2013). In the two counties there are 45 (17 Oslo, 28 Akershus) healthcare clinics, in addition to one clinic in Oslo, called "ABC", providing prenatal care, natural birth and postnatal care, and 328 (173 Oslo, 155 Akershus) family physician offices altogether (Helseadresser, 2019; Oslo kommune, n.d; Oslo universitetssykehus, n.d; Alle fastlegekontor i Norge, n.d). In these clinics and offices there are approximately 130 midwives and 1050 family physicians (Legelisten, 2019) working with prenatal care. The number of midwives were found by calling the respective clinics, 10 of the midwives were from the "ABC"-unit at Oslo University Hospital, Ullevål. The project

manager sent e-mails with information about the project to the offices and clinics that showed interest after contacting them on the phone.

Of 130 midwives working with prenatal care in Oslo and Akershus, contact information for 77 was given out from their respective healthcare clinic. Out of these 59 answered the questionnaire, giving a response rate of 76.6%. Every 6th family physician in Oslo was asked to participate in an alphabetic order from “Legelisten’s” database (Legelisten, 2019). However, gather contact information from midwives and family physicians turned out to be more difficult than anticipated because of restrictions of privacy. There were especially strict privacy restrictions for the family physicians, which made it almost impossible to contact them. Thus, the project manager aimed to recruit as many midwives as possible to ensure a representative sample of one of the groups, and stopped recruiting family physicians in. Figure 1 shows the flow of the recruitment. There was not sent a form asking why the respondents did not want to answer the questionnaire.



**Figure 1:** Flowchart of the recruitment of the participants in the study.



### **3.3 The questionnaire**

The questionnaire was drawn from Dalhaug's (Mass) study part B (2016), and included 72 questions, divided into seven subcategories. The subcategories were participant's demographics (1), health care providers health and lifestyle (2), physical activity (3), and diet (4), as well as physical activity (5), nutrition (6) and weight control (7) in pregnancy. It consisted of mostly closed questions, with some questions giving the option to elaborate, in addition to a few forced choice questions (0-10 scale). The complete questionnaire can be found in Appendix 1. The electronic version of the questionnaire was made in SurveyXact and took approximately 10 minutes to complete, which was the same amount of time as the paper version. Participant data (n=15) from Dalhaug's (Mass) study, investigating beliefs, attitudes and practices of Norwegian health care providers towards regular exercise, GWG and nutrition (Mass, 2016), was included in the current SPSS file to add more data to the current project (n=68). Thus, the collection of the data was in different time periods and counties and conducted by two project managers. Dalhaug's (Mass) data (group 1) were collected in Oslo, February to August 2016, and the data for the current project (group 2) were collected three years later and also included Akershus. There were no significant differences on background variables such as age, gender, lifestyle variables and health, and percentage of working in prenatal care between the two groups. Hence, the datasets were merged because the groups were still considered comparable. None of the respondents reported smoking. Background variables are shown in Table 3.

**Table 3:** General characteristics of the participants (n=83), divided into participants recruited for data collection 1 (n=15) and data collection 2 (n=68).

	<b>Group 1</b>	<b>Group 2</b>	<b>All</b>	
	Mean (SD)	Mean (SD)	Mean (SD)	p
Age	51.2 (±8.3)	47.3 (±8.7)	48 (±8.7)	.116
	Median (IQR)	Median (IQR)	Median (IQR)	p
Percentage*	20 (82.5)	80 (50)	80 (80)	.060
Years**	17 (10.5)	8 (12)	10 (13.3)	.004
	n (%)	n (%)	n (%)	p
Gender				.093
Woman	13 (86.7)	65 (97)	78 (94)	
Men	2 (13.3)	2 (3)	4 (4.8)	
Clinical title				<.001
Midwives	6 (40)	59 (86.8)	65 (78.3)	
Family physician	9 (60)	9 (13.2)	18 (21.7)	
County				.002
Oslo	15 (100)	39 (57.4)	54 (65.1)	
Akershus	0 (0)	29 (42.6)	29 (34.9)	
Active ≥10 years	13 (86.7)	48 (81.4)	61 (73.5)	.202

\*Percentage of working with prenatal care

\*\*Numbers of years practicing prenatal care

One new question was added to the questionnaire, concerning what county the health care providers were working. In addition, two more alternatives were added to a question concerning; if the respondent never eats meat/fish. Except from those questions, the questionnaire was pre-tested among six health care providers from February to May 2015. Two bachelor students conducted this preliminary study and revealed a large number of questions remained unanswered. The questionnaire was restructured and the respondents had the possibility to continue to the next category if the answer was “no” to the first question.

### 3.3.1 Collection of data and outcome measures

The data collection for both midwives and family physicians were mainly collected by e-mail using an electronic version of the questionnaire, four of the respondents answered the questionnaire using pen and paper only.

### *Participant's demographics*

The first subcategory included six questions addressing the participant's age, gender, clinical title, percentage of workload consisting of prenatal care, number of years working with prenatal care and in what county they are working.

### *Health care providers' health and lifestyle, physical activity level and diet*

In this subcategory the providers personal practices regarding their smoking habits, PA, diet, in addition to their barriers, social support and their motives when it comes to PA/exercise were investigated. Smoking habits were investigated by asking if the respondents were smoking on a daily basis. Their options were "yes" and "no". If the respondents answered "yes" they were asked how many cigarettes they smoked daily.

### *PAL*

Further PAL was investigated by asking if the health care providers followed the health authorities recommendations on duration and intensity, as well as frequency and everyday activities. The respondents could choose between "yes" and "no". If the answer was "yes", the next questions investigated how many sessions of exercise per week, and how much time was spent on a regular session. These questions were based on Caspersen's definitions of PA and exercise (Caspersen et al., 1985). Further, it was investigated how long the respondents had been regularly physically active. The alternatives were: 1) *Less than 6 months*, 2) *6 months-1 year*, 3) *1-4 years*, 4) *5-10 years and*, 5) *More than 10 years*. It was also asked in what arena the PA/exercise was performed. The respondents could choose more than one category: 1) *Fitness center*, 2) *Sports hall*, 3) *Sports team*, 4) *In the woods/country road/in a park*, 5) *Fitness room at work* 6) *Home/indoors and*, 7) *Other*. What type of PA/exercise was also investigated, the following questions were: *Are you doing endurance training/strength training?* They could answer "yes" or "no". If the answer was "yes" they were asked to elaborate and write for how many hours and minutes a week they engaged in the activity. Further they were asked what type of activity they would usually do. For endurance training the following alternatives were: 1) *Go for a walk*, 2) *Running/jogging*, 3) *Dancing*, 4) *Rowing*, 5) *Cycling*, 6) *Aerobic*, 7) *Swimming*, 8) *Cross country skiing and*, 9) *Other*.

For strength training the following alternatives were: 1) *Weight lifting*, 2) *Group fitness class*, 3) *CrossFit and*, 4) *Other*. It was possible to choose more than one alternative for both endurance and strength training. *Are you doing any other types of training?* The options were “yes” and “no”. If the answer was “yes” they were asked to elaborate and write for how many hours and minutes a week they engaged in the activity. They were also asked what type of activity they usually do: 1) *Team sports (ball sports)*, 2) *Yoga*, 3) *Gymnastics*, 4) *Pilates*, 5) *Martial arts and*, 6) *Other*. They could choose more than one alternative. Further the respondents were asked: *Do you do pelvic floor training?* The options were “yes” and “no”. If the health care providers answer was “yes” a follow-up-question was asked to investigate how many times a week this type of training was done. The next question was: *Which one of the following alternatives suits you best?* 1) *I do not exercise, and I do not intent to start*, 2) *I do not exercise, but I might start*, 3) *I exercise sometimes, but not on a regularly basis*, 4) *I exercise on a regularly basis, but just started and*, 5) *I exercise on regularly basis and has been for over 6 months*. If the health care providers were physically active on a regularly basis they were asked to choose the two most important reasons. 1) *It is fun/experience*, 2) *Better looks/body*, 3) *Training towards a big or small competition*, 4) *Better physical fitness/prevent health issues*, 5) *Mental surplus/wellbeing/happiness*, 6) *Weight control*, 7) *I feel I have too*, 8) *It is social*, 9) *Decoupling/relaxation*, 10) *Increases confidence/self esteem and*, 11) *Other*. If the health care provider was not physical active on a regularly basis he/she was asked to choose the two most important reasons. 1) *Not interested*, 2) *I get enough exercise through work/home*, 3) *It is too hard to get started*, 4) *Too time-consuming when taking care of children* 5) *No one to workout with*, 6) *Negative experience with being physical active*, 7) *I do not have time*, 8) *Illness/handicap*, 9) *I have never exercised before/no experience*, 10) *Lack of motivation*, 11) *Hard to combine with work and*, 12) *Other*. Finally it was asked “*On a scale from 0-10, with 0 being never and 10 being always... choose the number that suits your thoughts/behaviors when it comes to*”: *How common is it to be physical active in your group of friends/family? Do you workout together with someone?*

## *Diet*

Based on the health authorities recommendations the health care providers were asked in what degree they follow the advice. *“On a scale from 0-10, 0 is very bad and 10 very good, how is your adherence to these recommendations?”*. The next question investigated how bad or good the respondents would describe their eating habits/diet using the same scale. Further they were asked: *Do you buy products labeled with a keyhole?* The following options were: *1) Yes, always, 2) Often, 3) Sometimes and, 4) No, never. The Norwegian Directorate of Health recommends a certain amount of fruits and vegetables every day. How many units do you eat daily?* The health care providers were asked to write down the amount. The Norwegian Directorate of Health also recommends a certain amount of dairy products every day. They were asked if their daily diet contain the recommended amount and could choose between the following options: *1) Yes, 2) No and, 3) I do not know*. Further they were asked: *“How often during a regular week do you eat fish/meat?”* They were asked to write down how many times a week or choose between the alternatives; *1) I am a vegetarian, 2) I never eat fish and, 3) I never eat meat”*. The health care providers were also asked questions investigating how often during a regular week they eat fastfood/sweet food/candy/drink softdrinks etc. They could choose between answering how many times a week or “never”. Their coffee intake was also investigated by asking: *How many cups of coffee do you drink daily?* They were asked to write down how many cups a day or choose “never”. At last the respondents were asked if they consume alcohol. They could choose between “yes” and “no”. If their answer was “yes” they were asked to write down how many units consumed per week.

## *Advice on regular PA/exercise, GWG and nutrition*

The Health care providers were asked to answer “yes or “no” on giving advice to their pregnant patient on PA/exercise, GWG and nutrition. The respondents were asked to elaborate if their answer was “yes” and requested to state what they based their advices on. The categorical alternatives were: *1) Own experiences, 2) Recommendations from the health authorities, 3) Research articles, 4) Supplementary education and 5) Other*. It was possible to choose more than one of the categories. The respondents answering “no” were also asked to elaborate by choosing between the following categorical

alternatives: 1) *I do not have the time*, 2) *Physical activity/nutrition/weight gain is not an important topic in prenatal care*, 3) *I do not have sufficient knowledge regarding physical activity/nutrition/weight gain during pregnancy*, 4) *Physical activity/healthy nutrition/favorable weight gain is not essential for a good pregnancy*, 5) *Pregnant women are not interested in talking about physical activity/nutrition/weight gain*. In the end of this subcategory it was investigated how many times the health care providers gave advice to their pregnant patients on the topics. The following alternative categories were: 1) *First meeting*, 2) *First trimester*, 3) *Second trimester*, 4) *Third trimester*, 5) *Post partum and*, 6) *At all occasions*. The respondents could choose more than one category.

### *Advice consistent with recommendations*

Further, it was investigated if the advices given by the health care providers on regular PA/exercise, were in accordance with the ACOG recommendations (2015). The questions were: *Do you recommend pregnant women to participate in 1) Endurance training, 2) Strength training and 3) Pelvic floor exercises?* Recommended frequency, duration, intensity and type of activity were investigated further if the respondent's answer was "yes".

Health care providers were also asked if they would discourage some women to be physically active during pregnancy. They were asked to choose among the following categories: 1) *Women with placenta previa after 26 weeks of gestation*, 2) *Women at risk for premature labor*, 3) *Women with persistent second- or third-trimester bleeding*, 4) *Women with preeclampsia*, 5) *Women with pelvic/lower back pain*, 6) *Underweight women*, 7) *Overweight women*, 8) *Sedentary women*, 9) *Women with gestational diabetes mellitus* and, 10) *Women with urinary incontinence*. It was possible to choose more than one of the categories. Health care providers who chose option 1, 2, 3 and/or 4 was most likely to have knowledge of some of the contraindications to be regular PA/exercise during pregnancy.

It was also investigated if the providers gave advice on GWG in accordance with IOM recommendations (2009). The following alternatives were: *how much (total kg) would you recommend a woman to gain during pregnancy, based on their pre-pregnancy BMI category: 1) Underweight, 2) Normal weight, 3) Overweight and 4) Obese.*

Further the consistency of healthy eating advice and the recommendations from the Norwegian Directorate of Health (2016) was explored. Questions that were asked: *“On a scale from 0-10, with 0 being never and 10 being always, how often do you recommend pregnant women to: 1) Eat a varied diet that includes plenty of vegetables, fruits and berries? 2) Choose wholegrain products with high fiber content? 3) Eat lots of fish? 4) Choose lean milk and dairy products? 5) Choose products that are labeled with a keyhole? 6) Avoid a large quantity of foods like pizzas, kebabs, sausages and hamburgers? 7) Avoid a large quantity of foods like potato chips, candy bars, cakes, ice cream, etc.? 8) Limit the intake of processed meat, salt and sugar? 9) Limit the intake of coffee? 10) Not drink alcohol? and, 11) Not use meal replacements to lose weight?”*

### *Attitudes and beliefs*

The providers attitudes concerning giving health advice was investigated by asking them to rate three statements on an 11-item scale, 0 corresponding to completely disagree and 10 corresponding to completely agree: *1) For healthy pregnant women physical activity/a healthy diet/appropriate weight gain is beneficial/favorable, 2) To give pregnant women advice on physical activity/nutrition/weight gain is an important part of prenatal care, and 3) It is unpleasant to talk to pregnant women about physical activity/nutrition/weight gain.* These statements are based on results from similar studies (Chang et al., 2013; Bauer, Broman & Picarnik, 2010; Entin & Munhall, 2006).

In addition, the health care providers were asked to answer what they considered being the three biggest health benefits as well as the three biggest health risks of exercise during pregnancy. The options were: *1) May prevent gestational diabetes mellitus, 2) May shorten the birth process, 3) The mother returns to pre-pregnancy shape faster, 4) May prevent preeclampsia, 5) May prevent pelvic girdle pain, 6) May prevent back*

*pain, 7) May prevent premature labor, 8) May prevent miscarriage, 9) May prevent low birth weight and 10) May prevent urinary incontinence.* The categorical responses for health risks were: *1) Greater need for pain relief during birth, 2) Malformations in the fetus, 3) Low birth weight, 4) Hypoxia, 5) Insufficient nutrition, 6) Premature birth, 7) Urinary incontinence, 8) Hyperthermia, 9) Prolonged birth process and 10) Miscarriage.* Options for health benefits and health risks were both based on results from similar studies (Entin & Munhall, 2006), as well as ACOG's recommendations for PA (2015).

### **3.4 Statistical analysis**

All statistical analysis was conducted with SPSS Statistical Software version 24.0 for Windows. Results are presented as mean with standard deviations (SD), median and interquartile range (IQR), or frequencies (n) and percentages and p-values. Chi-square analysis was used to compare categorical data, whereas independent sample t-test and Mann-Whitney U test for continuous data. Adherence to recommendations for PA, GWG and nutrition was defined as a score  $\geq 7$  on an 11-point scale. The same 11-item scale was used on the importance of giving advice and importance for being healthy during pregnancy. Wilcoxon Matched Pairs tests were used to compare health care providers ratings of different statements regarding PA, GWG and nutrition.

### **3.5 Research group**

The present project was a master's project at The Norwegian School of Sport Sciences (NSSS), Department of Sports Medicine (SIM), Oslo, Norway, and inspired by Emilie M. Dalhaug's (Mass) study "Whom do they trust?" (Mass, 2016). Lene A. H. Haakstad, Ph.D., Associate professor, NSSS, SIM was the project leader and main supervisor. Emilie M. Dalhaug, M.Sc., was the project co-supervisor and a part of the project group. Julie M. F. Mjønerud (Master student) was the project manager and responsible for recruiting participants and data collection. The project was made in collaboration between all three parties.



## 4.0 RESULTS

In total, 83 health care providers participated and answered the questionnaire, with 65 (78.3%) practicing as midwives and 18 (21.7%) as family physicians.

### 4.1 Extent of provider counseling

As many as 98.8%, 92.8% and 92.8% health care providers reported giving advice on PA, GWG and nutrition to all pregnant patients at least once throughout gestation, respectively. The median of how many times the respondents gave advice on the three topics during pregnancy are shown in Table 4.

**Table 4:** The number of times midwives and family physicians gave advice on PA (n=60, n=15), GWG (n=44, n=11) and nutrition (n=53, n=15), respectively. Data are presented as median and IQR.

Advice	Midwives	Family physicians	All	p
Physical activity	2 (2)	2 (3)	2 (2)	.440
Gestational weight gain	2 (2)	3 (3)	2 (2)	.152
Nutrition	2 (2)	2 (2)	2 (2)	.601

On the first prenatal visit, more midwives than family physicians gave advice on PA (95.4% vs. 70.6%, p=.002) and GWG (75.0% vs. 43.8%, p=0.020), whereas for nutritional recommendations, no difference was found (81.5% vs. 83.3%, p=.131). Moreover, as shown in Table 5, a higher percentage of midwives reported that they follow up advice on all three topics, as well as handed out information pamphlets compared to family physicians.

**Table 5:** Providers' following up the advice on PA (n=80), GWG (n=70) and nutrition (n=76) and handing out pamphlets (n=83). Data are presented as frequency (n) and percentage (%).

	Midwives	Family physicians	All	p
<b>Follow up advice</b>				
Physical activity	55 (84.6)	5 (27.8)	60 (72.3)	<.001
Gestational weight gain	55 (84.6)	12 (66.7)	67 (80.7)	.039
Nutrition	56 (86.2)	8 (44.4)	64 (77.1)	<.001
<b>Handing out pamphlets</b>				
Physical activity	40 (61.5)	2 (11.1)	42 (50.6)	<.001
Gestational weight gain	26 (40)	1 (5.6)	27 (32.5)	.018
Nutrition	49 (75.4)	6 (33.3)	55 (66.3)	<.001

## 4.2 Advice consistent with guidelines

When viewing all three lifestyle factors as one, 94.9% of the midwives and 84.3% of the family physicians reported basing their advice on recommendations from the health authorities. Forty-five percent (45.6%) of the midwives and 24.5% of the family physicians' based their advice on scientific research. Between the midwives and family physicians there was a significant difference on basis for advice regarding PA on recommendations (96.9% vs. 64.7%,  $p < .001$ ), scientific research (56.9% vs. 23.5%,  $p = .009$ ) and supplementary education (9.2% vs. 23.5%,  $p = .046$ ).

In addition, advice based on own experiences was reported from many health care providers (40%) on PA. Family physicians seem to be the provider reporting highest on advice based on own experiences. There was a significant difference between midwives and family physicians for GWG (3.1% vs. 35.3%,  $p < .001$ ) and nutrition (12.3% vs. 41.2%,  $p = .004$ ) on basis for advice on own experiences. No significant difference was found between midwives and family physicians for PA (32.3% vs. 70.6%,  $p = .056$ ) (Table 6).

**Table 6:** Midwives ( $n=65$ ) and family physicians ( $n=17$ ) basis for advice for PA, GWG and nutrition. Data are presented in frequency ( $n$ ) and percentage (%).

Basis for advice	Midwives	Family physicians	All	p
<b>PA</b>				
Recommendations	63 (96.9)	11 (64.7)	74 (90.2)	<.001
Scientific research	37 (56.9)	4 (23.5)	41 (50)	.009
Supplementary education	6 (9.2)	4 (23.5)	10 (12.2)	.046
Own experiences	21 (32.3)	12 (70.6)	33 (40.2)	.056
<b>GWG</b>				
Recommendations	59 (90.8)	15 (88.2)	74 (90.2)	.153
Scientific research	23 (35.4)	4 (23.5)	27 (32.9)	.106
Supplementary education	7 (10.8)	6 (35.3)	13 (15.9)	.009
Own experiences	2 (3.1)	6 (35.3)	8 (9.8)	<.001
<b>Nutrition</b>				
Recommendations	63 (96.9)	17 (100)	80 (97.6)	.124
Scientific research	29 (44.6)	5 (29.4)	34 (41.4)	.086
Supplementary education	13 (20)	5 (29.4)	18 (22)	.115
Own experiences	8 (12.3)	7 (41.2)	15 (18.3)	.004

## Physical activity

Almost 70% of the respondents did not give advice consistent with the health authorities recommendations for PA (ACOG, 2015). There was not found a significant difference between midwives and family physicians on  $\geq 150$  min of PA with moderate intensity, weekly (33.8% vs. 27.8%,  $p=.627$ ) and pelvic floor training (58.5% vs. 44.4%,  $p=.290$ ). (ACOG, 2015). More details about the adherence to recommendations on PA are shown in Table 7.

**Table 7:** Advices from all health care providers ( $n=83$ ) on PA in accordance with the recommendations from the health authorities. Data are presented in frequency ( $n$ ) with percentage (%) and  $p$ -values.

Advice on PA	Midwives	Family physicians	All	$p$
$\geq 150$ min. moderate intensity	22 (33.8)	5 (27.8)	27 (32.5)	.627
$\geq 5$ days a week				
Endurance training	25 (38.5)	3 (16.7)	28 (33.8)	.084
Strength training	3 (4.6)	0 (0)	3 (3.6)	.353
Duration $\geq 30$				
Endurance training	45 (69.2)	10 (55.6)	55 (66.3)	.278
Strength training	29 (44.6)	4 (22.2)	33 (39.8)	.086
Pelvic floor training				
Every day	38 (58.5)	8 (44.4)	46 (55.4)	.290

On a list with different options, more than 80% of the providers identified premature birth during current pregnancy as one of the contraindication to exercise (81.5% midwives and 77.8% family physicians,  $p=.720$ ). The three other contraindications on the list were placenta previa after week 26 (61.5% midwives and 72.2% family physicians,  $p=.404$ ), persistent second- or third-trimester bleeding (58.5% midwives and 72.2% family physicians,  $p=.288$ ), and preeclampsia or pregnancy-induced hypertension (30.8% midwives and 50% family physicians,  $p=.130$ ). There was not shown any significantly differences between the most rated contraindications for midwives or family physicians.

## Gestational weight gain

With respect to advice on GWG, 50% of all the providers reported values discordant with the IOM recommendations (2009). The midwives recommended values on GWG in accordance with the IOM to a greater extent than the family physicians, on all the pre-pregnancy BMI categories (IOM, 2009) (Table 8).

**Table 8:** Recommended GWG by all the providers (n=83) in accordance with the IOM. Data are presented in frequency (n) with percentage (%) and p-values.

Advice on GWG	Midwives	Family physicians	All	p
Underweight	35 (53.8)	5 (27.8)	40 (48.2)	.050
Normal weight	39 (60)	5 (27.8)	44 (53)	.015
Overweight	42 (64.6)	4 (22.2)	46 (55.4)	.001
Obese	39 (60)	3 (16.7)	42 (50.6)	.001

\*Includes class I (30-34.9), II (35.39.9) and III (>40).

## Nutrition

Respondents giving out nutritional advice in accordance with the recommendations (Helsedirektoratet, n.db) are shown in Table 9. The only significant differences between the midwives and the family physicians on nutritional recommendations were the advices regarding consuming coffee (63.1% vs. 27.8%, p=.008) and products labeled with a keyhole (46.2% vs. 16.7%, p=.024). Alcohol consumption during pregnancy was discouraged by all of the responding providers, except for one.

**Table 9:** Providers' (n=83) advice on nutritional recommendation in accordance with the health authorities. Data are presented in frequency (n) with percentage (%) and p-values.

Advice on nutrition	Midwives	Family physicians	All	p
Vegetables/fruit/berries	56 (86.2)	16 (88.9)	72 (86.7)	.762
Wholegrain	56 (86.2)	15 (83.3)	71 (85.5)	.763
Candy	53 (81.5)	11 (61.1)	64 (77.1)	.068
Fish	49 (75.4)	10 (55.6)	59 (71.1)	.101
Processed meat, salt etc.	45 (69.2)	11 (61.1)	56 (67.5)	.515
Pizza, kebab, hotdogs etc.	43 (66.2)	10 (55.6)	53 (63.9)	.408
Coffee	41 (63.1)	5 (27.8)	46 (55.4)	.008
Low fat dairy products	34 (52.3)	7 (38.9)	41 (49.4)	.314
Products, keyhole	30 (46.2)	3 (16.7)	33 (39.8)	.024
Meal replacement	23 (35.4)	6 (33.3)	29 (34.9)	.872

### 4.3 Health care providers' beliefs and attitudes

As shown in Table 10, GWG was rated to be the most unpleasant topic to talk about, and more unpleasant to talk about compared to PA ( $p<.001$ ) and nutrition ( $p<.001$ ).

Concerning the importance of giving advice on PA, GWG and nutrition during prenatal care visits, the health care providers ranked PA ( $p<.001$ ) and nutrition ( $p<.001$ ) more preferable, compared to GWG.

**Table 10:** Midwives and family physicians' attitudes regarding statements on an 11-item scale (0=completely disagree, and 10=completely agree) for PA (n=63, n=18), GWG (n=59, n=17) and nutrition (n=60, n=18) respectively. Data are presented in median and IQR.

<b>Statements</b>	<b>Midwives</b>	<b>Family physicians</b>	<b>All</b>	<b>p</b>
<b>Physical activity</b>				
"It is unpleasant to talk about"	0 (1)	0 (1)	0 (1)	.322
"Giving advice is an important part of prenatal care"	10 (0)	10 (2)	10 (0)	.061
"PA is important for a healthy pregnancy"	10 (0)	10 (1)	10 (0)	.024
<b>Gestational weight gain</b>				
"It is unpleasant to talk about"	2 (5)	1 (8)	2 (5)	.497
"Giving advice is an important part of prenatal care"	9 (3)	7 (6)	9 (4)	.069
"GWG is important for a healthy pregnancy"	8 (5)	7 (5)	8 (5)	.903
<b>Nutrition</b>				
"It is unpleasant to talk about"	0 (1)	0 (1)	0 (1)	.861
"Giving advice is an important part of prenatal care"	10 (0)	9.5 (2)	10 (0)	<.001
"Nutrition is important for a healthy pregnancy"	10 (0)	10 (0)	10 (0)	.333

Table 11 shows what the health care providers perceived to be the biggest benefits and risks of PA in pregnancy. The most frequently reported benefits are “*The mother returns to pre-pregnancy shape faster*” and “*May prevent gestational diabetes mellitus*”, followed by “*May prevent pelvic girdle pain*”. “*Premature birth*” was reported as the biggest risk, followed by “*Hyperthermia*”.

**Table 11:** Recognized benefits and risks of regular physical activity exercise. The providers (n=83) were able to respond to more than one category. Data are presented in frequency (n) and percentage (%).

<b>Benefits and risks</b>	<b>Midwives</b>	<b>Family physicians</b>	<b>All</b>	<b>p</b>
<b>Benefits of regular PA</b>				
Faster return to pre-pregnancy shape	50 (76.9)	17 (94.4)	67 (80.7)	.095
May prevent gestational diabetes mellitus	51 (78.5)	13 (72.2)	64 (77.1)	.577
May prevent pelvic girdle pain	35 (53.8)	11 (61.1)	46 (55.4)	.583
May prevent back pain	31 (47.7)	10 (55.5)	41 (49.4)	.555
May shorten the birth process	19 (29.2)	6 (33.3)	25 (30.1)	.737
May prevent urinary incontinence	18 (27.7)	5 (27.8)	23 (27.7)	.994
May prevent preeclampsia	8 (12.3)	1 (5.6)	9 (10.8)	.415
May prevent premature labor	2 (3.1)	0 (0)	2 (2.4)	.451
May prevent low birth weight	0 (0)	1 (5.6)	1 (1.2)	.056
May prevent miscarriage	0 (0)	0 (0)	0 (0)	-
<b>Risks of regular PA</b>				
Premature birth	20 (30.8)	4 (22.2)	24 (28.9)	.479
Hyperthermia	15 (24.6)	1 (5.6)	16 (19.3)	.095
Urinary incontinence	11 (16.9)	1 (5.6)	12 (14.5)	.225
Miscarriage	10 (15.4)	2 (11.1)	12 (14.5)	.648
Insufficient nutrition	9 (13.8)	3 (16.7)	12 (14.5)	.763
Low birth weight	8 (12.3)	4 (22.2)	12 (14.5)	.303
Hypoxia	10 (15.4)	1 (5.6)	11 (13.3)	.276
Greater need for pain relief during birth	2 (3.1)	0 (0)	2 (2.4)	.451
Malformations in the fetus	0 (0)	1 (5.6)	1 (1.2)	.056
Prolonged birth process	1 (1.5)	0 (0)	1 (1.2)	.597

## **5.0 DISCUSSION**

### **5.1 Methodological considerations**

#### **5.1.1 Study design**

To be able to answer the aims of the study a cross-sectional survey was conducted. The survey was originally in paper, and made into an electronic version as well. Cross-sectional studies are economical, easy, as well as quick to conduct and there are no risks of loss of follow-ups because the participants answer one time (Sedgwick, 2014). Other benefits of cross-sectional studies are that they are easily standardized, and well suited to investigate prevalence. In addition, this type of study can show covariance for several variables at the same time (Sedgwick, 2014; Thelle & Laake, 2008). However, a cross-sectional study may have a low response rate because it may be disposed to non-response bias. Participant who do not choose to answer may differ from those who do (Sedgwick, 2014). Therefore, the result may not be representative for the population. Cross-sectional studies do not show incidence, and it is not suitable to find a direct reason of causality (Thelle & Laake, 2008). Hence, the health care providers in this study may not give a representative result of the population, at least not for family physicians because of poor response, and lack of respondents.

#### **5.1.2 Participants and recruitment**

As far as we know this is the second study investigating Norwegian health care providers lifestyle, beliefs, attitudes and practices regarding the recommendations for regular PA, GWG and nutrition during pregnancy. Dalhaug's (Mass, 2016) study, the first study investigating the Norwegian health care providers, reported poor response to postal surveys. Thus, this was one of the reasons the project manager aimed to recruit participants to answer an electronic survey. In addition, it is efficient, cheap and easy to analyze (McPeake, Bateson & O'Neill, 2014). However, it is reported lower adherence compared to postal surveys (McPeake et al., 2014).

When initiating the project power calculations was done to ensure the sample would be representative for the population. But not many family physicians wanted to be contacted, and few chose to respond compared to the midwives. Hence, it was difficult

to recruit the wanted number of family physicians during the time period of the data collection. Surveys were not sent by postal services, this might have increased the response from the family physicians (McPeake et al., 2014). When talking to the midwives and family physicians on the phone or e-mail they reported being too busy, as well as prioritizing other studies they already had involved themselves in. No form asking the reasons for not responding were sent since they were hard to contact in the first place. Further, the aim changed to focus on recruiting as many midwives as possible to ensure a representative group of midwives performing prenatal care. A disadvantage of a majority of midwives may be that family physicians in Norway are a big part of the Norwegian prenatal care (Backe, 2001). In addition the family physicians is more superior in prenatal care in Norway compared to the midwives.

The majority of the providers (94%), and all of the midwives were women. However, this may not be unusual considering women are practicing as midwives to a much greater extent than men (99.7% vs. 0.3%) (Hofstad, 2019).

### **5.1.3 Assessment procedures and outcome measures**

The questionnaire is the same used in the first study investigating Norwegian health care providers lifestyle, beliefs, attitudes and practices regarding PA, GWG and nutrition during pregnancy (Mass, 2016). Therefore, no further tests for validity were needed.

In addition, the data from Dalhuags' study (Mass, 2016) (n=15) was included in the same SPSS-file to add more data to the current project (n=59). The two datasets (n=83) were conducted three years apart by a different project manager, and one county was added. It is possible that during the three years there was for example more focus on PA in media and in the public, which may have had an effect on being updated on the recommendation. A greater amount of respondents could have something to do about the project manager. But most likely including Akershus which is very much alike Oslo, was the reason for recruiting more respondents. A bigger amount of midwives work in health clinics in Oslo today, compared to 2016. Another reason for more respondents



recruited may be because of using an electronic version of the survey reaching more health care providers, as well as being able to sending out third reminders easily.

There were no significant differences in background variables thus the health care providers were considered comparable. The significant difference in the amount of years working in prenatal care between the two groups could be a factor to investigate. But, it is questioned if it would make a difference, and if the providers should have the same knowledge regardless.

### Formulation of questions

The survey had a combination of open and closed questions, this is one of the factors for making a feasible questionnaires. The respondents were given the opportunity to answer more than yes and no (Hassmén & Hassmén, 2008). All of the questions are based on the health authorities recommendations, on all three topics (ACOG, 2015; IOM, 2009; WHO, 2010).

### Self-report and social desirability bias

All the questions in this study were self-reported. Reported behavior may differ from actually behavior. Thus, respondents could be following the recommendations for PA, GWG and nutrition when giving advice or over-report or under-report. Socially expected answers are for example one reason for over reporting given advices.

### Length of the questionnaire

According to Hassmén & Hassmén (2008) it is recommended to include 50-125 questions in a questionnaire, with a maximal duration of 45 min. The questionnaire in this project was 72, took approximately 10 min. to complete, thus it was within the recommended length (Hassmén & Hassmén, 2008).

## Feedback from the respondents

Some of the respondents from the current project gave feedback on the survey by sending e-mails. It was reported that respondents felt forced to answer some of the questions. Some even felt placed in a category they would not identify with. However, analysis of data may be difficult without closed questions (Hassmén & Hassmén, 2008). Few of the respondents described the question or category they disagreed with, however pre-pregnancy BMI categories were mentioned. It was not possible to answer more than one number on the electronic version of the survey on questions regarding BMI. This was a mistake made by the project manager when making the survey and was not intended. Every kg within the respective categories was accepted as giving advice in accordance with IOM (IOM, 2009).

Respondents were also unsatisfied with the length of the questionnaire, and reported using beyond the amount of time anticipated. Further, it was reported that during the survey several were “thrown” out of the site, thus they were annoyed and not eager to finish. In addition, the electronic version of the survey was also found in the “junk mail” folder and therefore not found by everyone. This may have led to fewer respondents

## **5.2 Results**

### **5.2.1 Extent of provider counseling**

The majority of the health care providers reported counseling pregnant women on the topics PA, GWG and nutrition, which is coherent with other studies (McGee et al.; 2018; Whitaker et al., 2016). However, pregnant women report not receiving this type of counseling (Mass, 2016; Nascimento et al., 2015; Stengel et al., 2012). The providers may report giving advice on these three topics because they are supposed to include in their counseling practices. Another explanation might be that the pregnant women might receive this type of information but have problems embracing it. The health care providers might also feel that PA, GWG and nutrition are very important and may exaggerate their own practice on giving advice.

Due to the health care providers' position it is important they give out good, accurate and adequate advice (Stengel, 2012). Most of the providers in the current study gave advice on the first meeting, midwives more than family physicians on PA and GWG. The providers did not give out advice more than approximately two times during the prenatal care visits. However, the three topics are competing between many other important topics like; antenatal tests, psychological health and family relations. Lack of time to give adequate advice on PA, GWG and nutrition has been reported in other studies (Whitaker et al., 2016; Stotland et al., 2010).

Midwives seem to report following up their advice to a greater extent than the family physicians on PA, GWG and nutrition, as well as handing out pamphlets. Maybe midwives education is different, and is more focused on following up their patients. However, the number of family physicians in this study is not representative for its population.

### **5.2.2 Advice consistent with guidelines**

The majority of the providers reported giving advice on PA, GWG and nutrition in accordance with the health authorities. However, all the given advices did not correspond with the guidelines. This trend is shown in other studies as well (McGee et al., 2018; Whitaker et al., 2016). Approximately 70% of the providers did not give advice in accordance to the recommendations on PA, and half of the providers gave advice regarding pelvic floor training, no differences was shown between the midwives and family physicians. In addition, half of the health care providers gave advice within the IOM, midwives to a greater extent than the family physicians. However, reported weight on the IOM may not be representative due to do the electronic version of the survey only allowed the respondents to answer one number.

Several other studies have reported knowledge being a barrier not to giving specific advice on topics like PA and GWG (Whitaker et al., 2016; Stotland et al., 2010). In one study using a survey investigating obstetricians and gynecologists, the majority of the respondents gave advice within the recommendations on PA. It is not known if the respondents had supplementary education (McGee et al., 2018). However, education regarding the recommendations regarding PA, GWG and nutrition may benefit health care providers.

Giving nutritional recommendations to their pregnant patients seem to be in accordance with the health authorities among many of the different advice. However, advice on reducing the coffee intake, increasing low fat dietary products, as well as encouraging products labeled with a keyhole and avoiding meal replacements was not prioritized when giving nutritional advice. Midwives and family physicians seem to give the same advice on all the advice, except for midwives giving more advice regarding coffee intake and products labeled with a keyhole. A systematic literature review also reported that the providers reported giving advice in accordance with the health authorities, and a need for supplementary education in general healthy eating (Lucas, Charlton & Yeatman, 2014).

Many of the health care providers identified premature birth, and a high amount reported the other contraindications as well. There were no significant differences between the providers. However, family physicians reported to a greater extent than the midwives on all the contraindications, except for premature birth. However, this result might indicate that not everyone knows all of the contraindications.

### **5.2.3 Health care providers' beliefs and attitudes**

GWG was reported the most sensitive topic to talk about compared to the PA and nutrition, this is in agreement with other studies (Chang et al., 2013; Stotland et al., 2010). However, GWG was not rated being unpleasant by many, but to a greater extent by the family physicians. Instead of giving treatment to patients with an inadequate and excessive weight gain, giving preventive advice is a healthier solution. Respondents giving feedback on the questionnaire by e-mail reported that giving advice on GWG differed from patients, due to varieties of the need of advice. However, GWG was reported important by most of the providers along with PA and nutrition. PA and nutrition was though considered more important compared to GWG. More education on GWG may be preferable since one of the biggest epidemics for women after giving birth is obesity (Mitchell & Shaw, 2015).

Not everyone in the general population fits the BMI categories (Szabo & Tolnay, 2014). Muscles is heavier than fat, and the total weight can put a healthy person in the wrong category, this is shown in other studies for people with high muscles mass and low fat mass (Szabo & Tolnay, 2014). Maybe, this also would be possible in among pregnant women. Hence, active pregnant women that are not within IOM recommendations are not necessarily unhealthy.

The attitudes regarding different statements were very similar between the midwives and family physicians. However, there was found differences in the importance of giving advice on nutrition PA being important for a healthy pregnancy. Both statements were reported higher from the midwives.

The biggest reported benefits for regular PA and exercise was faster return to pre-pregnancy shape and prevention of gestational diabetes mellitus. Half of the providers also reported back pain, and some of the providers claimed it might prevent urinary incontinence (da Silva et al., 2017; Di Mascio, 2016; Mørkved & Bø, 2014). Few reported preeclampsia even though all of them are reported being benefits from several studies (Magro-Malosso et al., 2017). Approximately 30% reported premature birth being the biggest risk of being regular PA and exercising, however a study decline this risk (Di Mascio et al., 2016). Supplementary education on benefits and risks is also needed, to reduce incorrect advice regarding pregnant women. No difference between midwives and family physicians.

### Midwives compared to family physicians

The family physicians are not representative because of lack of participants, therefore it is difficult to compare midwives and family physicians and draw conclusions. Larger samples more closely approximate the population. Because the primary goal of any statistics is to generalize from a sample to a population. So, if we have a small study population (as Mass 2016), it is a greater possibility of the small sample being unusual (e.g. give more or less advice on PA, GWG and nutrition) just by chance. Choosing just some (e.g. 18) to represent the entire population, even if they are chosen completely at random, will often result if a sample that is very unrepresentative of the population we want to say something about.

### **5.3 Practical implications**

Midwives and family physicians have a unique position to reach pregnant women during prenatal in Norway, this should be exploited. Supplementary education should be encouraged to help increase knowledge and awareness regarding recommendations on PA, GWG and nutrition among the providers (ACOG, 2015; IOM, 2009; Helsedirektoratet, n.da). Examples are to participate on national seminars focusing on recommendations on the respective topics, as well as updates on new research. Other helpful implications like workshops led by different instructors specialized in PA, GWG and nutrition during pregnancy can be organized in health care clinics and family physician offices. The workshops can include practicing how to give lifestyle

counseling regarding the three topics to pregnant women. Interdisciplinary collaborations between different health care workers can also be preferable, and will hopefully lead to provide coordinated counseling on PA, GWG and nutrition in the future.

According to Dalhaugs' study (2016) investigating information sources for pregnant women, Internet sources was frequently reported (Mass, 2016). Thus, it is important to be updated on educational sites regarding PA, GWG and nutrition that can be recommended to prevent misconceptions.

#### **5.4 Future research**

Some recommendations for future research on this subject is to determine family physicians beliefs, attitudes, and practices towards regular PA, GWG and nutrition during pregnancy, on a larger sample of the population.

Further, it is interesting to investigate if the health care providers lifestyle, including factors like BMI has any compliance with given advice for the three topics. Does a healthy lifestyle among the providers increase advice in accordance with the health authorities, or not.

It is not clear how much education midwives and family physicians in Norway receive about the current recommendations for regular PA, GWG and nutrition during pregnancy (ACOG, 2015; IOM, 2009; Helsedirektoratet, n.da). To this date we do not know the exact content of women's health in the curriculums for midwife and medicine students on the three respective topics. Training may be inadequate, and differences in knowledge and education may result in providing different advices and information for pregnant women based on attitudes and beliefs. Thus, further research on content of curriculums for midwife and medicine students is desirable.

## **5.5 Strengths and limitations**

This study is the second one providing information about the Norwegian health care providers beliefs, attitudes and practices towards PA, GWG and nutrition during pregnancy. The sample size of the midwives is large and represents almost half of the population of midwives in Oslo and Akershus, which is positive for the internal validity. In addition, the questions in the survey have been pilot-tested, and the same survey has been used in an earlier study. Hence, it is easier to optimize the functionality of the questionnaire.

One limitation of the study is the low number of family physicians recruited. The family physicians are not representative of its population, which may lower the ability to generalize the findings. This led to difficulties comparing midwives and family physicians and drawing conclusions that are valid for the respective health care providers. In addition, respondents reported the questionnaire being more time-consuming than anticipated because of the length and problems with the site for the electronic questionnaire. The respondents reported that the site “threw” them out of the survey. Some declined to participate due to an extremely busy work schedule and numerous requests of other research projects. On feedback received from the providers after answering the questionnaire some also felt forced to answer questions because they could not elaborate.



## 6.0 CONCLUSION

The most unpleasant topic to talk about according to the health care providers was GWG. Concerning the importance of giving advice, GWG was ranked lower compared to PA and nutrition. The biggest reported benefits were “*The mother returns to pre-pregnancy shape faster*” and “*May prevent gestational diabetes mellitus*”. While the biggest reported risk was “*Premature birth*”.

Over 90% of the health care providers reported giving advice on PA, GWG and nutrition to all pregnant patients. The majority reported that they gave out advice during the first prenatal visit, as well as following up the given advices. On the first prenatal visit, more midwives than family physicians gave advice on PA, whereas for nutritional recommendations, no difference was found. A higher percentage of midwives reported handing out information pamphlets compared to family physicians. However, almost 70% of the respondents did not give advice consistent with the health authorities recommendations for PA (ACOG, 2015). There was not found a significant difference between midwives and family physicians on  $\geq 150$  min of PA with moderate intensity, weekly and pelvic floor training (ACOG, 2015). With respect to advice on GWG, 50% of all the providers reported values discordant with the IOM recommendations (2009). The midwives recommended values on GWG in accordance with the IOM to a greater extent than the family physicians, on all the pre-pregnancy BMI categories (IOM, 2009). Nutritional advice given in accordance with ACOG (2015) was given by approximately 70-85% on the following food groups; vegetables and fruits, wholegrain products, candy, fish and processed meat.

In conclusion, supplementary education for Norwegian health care providers may be needed to improve the knowledge of recommendations regarding PA, GWG and nutrition.

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## APPENDIXES

### APPENDIX 1: QUESTIONNAIRE



Kode: \_\_\_\_\_

# A

## SPØRRESKJEMA OM SVANGERSKAP, FYSISK AKTIVITET, VEKTREGULERING OG KOSTHOLD

Vi vet for lite om helsepersonells kunnskap om anbefalingene for fysisk aktivitet, vektregulering og kosthold under svangerskapet. Ved å besvare dette spørreskjemaet bidrar du til å få frem nyttig kunnskap uansett om du anbefaler gravide å være i fysisk aktivitet eller ikke. En liten oppfordring før du starter – vær ærlig. Her er det ingen riktige eller gale svar.

Det tar ca 10 minutter å fylle ut skjemaet. Velg den svarkategorien som passer best for deg og sett kryss, ring rundt eller fyll ut på linje/boks.

På forhånd takk for at du tar deg tid til å fylle ut skjemaet!

## BAKGRUNNSOPPLYSNINGER

---

1. Alder: \_\_\_\_\_ år
2. Kjønn:
- Mann  Kvinne
3. Klinisk tittel:
- Jordmor  Fastlege
- Sykepleier  Annet helsepersonell: \_\_\_\_\_
4. Hvor stor andel av ditt arbeid består av svangerskapsomsorg?  
Angi ca. prosentandel: \_\_\_\_\_ %
5. Hvor mange år har du drevet med svangerskapsomsorg? \_\_\_\_\_ år
6. I hvilket fylke er du ansatt i?
- Oslo  Akershus
- Vest-Agder

## HELSE OG LIVSSTIL

---

- 7a) Røyker du daglig?
- Ja  Nei
- b) Dersom Ja, omtrent hvor mange sigaretter daglig? \_\_\_\_\_

## FYSISK AKTIVITET

---

8. Helsemyndighetene anbefaler fysisk aktivitet i minimum 30 minutter av moderat intensitet (lett svett og andpusten) 5 ganger i uken. Dette tilsvarer 150 minutter i uken, og inkluderer aktiviteter som å gå til jobb/butikken og andre fysisk anstrengende aktiviteter som feks. snømåking og vasking. I henhold til dette, vil du karakterisere deg selv som regelmessig fysisk aktiv?

Ja  Nei

9. Trening er det samme som fysisk aktivitet, men aktiviteten er planlagt og regelmessig, og inkluderer målsetting om å øke/vedlikeholde fysisk form, helse eller prestasjon.

I henhold til dette, hvor ofte trener du per uke?

	Antall økter	Aldri
	<input type="checkbox"/>	<input type="checkbox"/>

**Dersom du svarte Aldri på spørsmål 8, gå videre til spørsmål 15.**

10. Hvor lang tid bruker du vanligvis når du trener?
- |  | timer                    | min                      |
|--|--------------------------|--------------------------|
|  | <input type="checkbox"/> | <input type="checkbox"/> |
- (Ikke medregnet tid til skift, dusj og reisevei)*

11. Hvor lenge har du drevet regelmessig fysisk aktivitet?

Mindre enn 6 måneder  5-10 år  
 6 måneder-1 år  Mer enn 10 år  
 1-4 år

12. Ved hvilken arena utøver du trening/fysisk aktivitet? *(sett gjerne flere kryss)*

Treningssenter  Marka/landevei/parken  
 Idrettshall  Treningsrom på jobb  
 Idrettslag  Hjemme/innendørs  
 Annet: \_\_\_\_\_

- 13a) Driver du i dag med utholdenhetstrening?

Ja  Nei



**b)** Dersom Ja, hvor mange timer i uken? timer min

**c)** Dersom Ja, hvilken type aktivitet gjør du vanligvis? (sett gjerne flere kryss)

- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| <input type="checkbox"/> Gå tur       | <input type="checkbox"/> Sykling  |
| <input type="checkbox"/> Løp/jogg     | <input type="checkbox"/> Aerobic  |
| <input type="checkbox"/> Dans         | <input type="checkbox"/> Svømming |
| <input type="checkbox"/> Roing        | <input type="checkbox"/> Langrenn |
| <input type="checkbox"/> Annet: _____ |                                   |

**14a)** Driver du i dag med styrketrening?

- Ja  Nei

**b)** Dersom Ja, hvor mange timer i uken? timer min

**c)** Dersom Ja, hvilken type aktivitet gjør du vanligvis? (sett gjerne flere kryss)

- |  |                                       |
|--|---------------------------------------|
| <input type="checkbox"/> Løfte vekter        | <input type="checkbox"/> CrossFit     |
| <input type="checkbox"/> Gruppetrening i sal | <input type="checkbox"/> Annet: _____ |

**15a)** Driver du i dag med annen trening?

- Ja  Nei

**b)** Dersom Ja, hvor mange timer i uken? timer min

**c)** Dersom Ja, hvilken type aktivitet gjør du vanligvis? (sett gjerne flere kryss)

- |  |                                       |
|--|---------------------------------------|
| <input type="checkbox"/> Lagidrett (ballsport) | <input type="checkbox"/> Pilates      |
| <input type="checkbox"/> Yoga                  | <input type="checkbox"/> Kampsport    |
| <input type="checkbox"/> Turn                  | <input type="checkbox"/> Annet: _____ |

**16a)** Driver du i dag med bekkenbunnstrening?

Ja  Nei

**b)** Dersom Ja, hvor mange ganger per uke?

ganger

**17.** Hvilket av disse alternativene passer best for deg?

- Jeg trener ikke, og jeg har ikke tenkt å begynne
- Jeg trener ikke, men det er mulig jeg begynner
- Jeg trener noen ganger, men ikke regelmessig
- Jeg trener regelmessig, men har akkurat startet
- Jeg har trent regelmessig mer enn 6 måneder

**18.** Dersom du i dag er regelmessig fysisk aktiv, hva er de viktigste grunnene til dette?

*(Sett maksimalt to kryss)*

- |   |   |
|---|---|
| <input type="checkbox"/> Det er gøy/opplevelse                        | <input type="checkbox"/> Holde vekta nede               |
| <input type="checkbox"/> Gir bedre utseende/kropp                     | <input type="checkbox"/> Fordi jeg føler at jeg bør     |
| <input type="checkbox"/> Trener til større eller mindre konkurranser  | <input type="checkbox"/> Det er sosialt                 |
| <input type="checkbox"/> Gir bedre fysisk form/forebygger helseplager | <input type="checkbox"/> Avreagere/avkobling            |
| <input type="checkbox"/> Gir psykisk overskudd/velvære/glede          | <input type="checkbox"/> Øker selvtilliten/selvfølelsen |
| <input type="checkbox"/> Annet: _____                                 |   |

19. Dersom du i dag **ikke er** regelmessig fysisk aktiv, hva er de viktigste grunnene til dette?

(Sett maksimalt to kryss)

- |  |  |
|--|--|
| <input type="checkbox"/> Er ikke interessert                                   | <input type="checkbox"/> Dårlige treningsmuligheter      |
| <input type="checkbox"/> Får nok mosjon gjennom min jobb og/eller i hjemmet    | <input type="checkbox"/> Har ikke tid                    |
| <input type="checkbox"/> Det krever for mye å komme i gang                     | <input type="checkbox"/> Sykdom/handikap                 |
| <input type="checkbox"/> Passer ikke med barn/omsorg                           | <input type="checkbox"/> Har aldri trent, ingen erfaring |
| <input type="checkbox"/> Har ingen å trene sammen med                          | <input type="checkbox"/> Mangler motivasjon              |
| <input type="checkbox"/> Negativ opplevelse i forbindelse med fysisk aktivitet |  |
| <input type="checkbox"/> Vanskelig å kombinere med arbeid                      | <input type="checkbox"/> Annet: _____                    |

20. På en skala fra 0-10, hvor 0 tilsvarer **nei/aldri** og 10 tilsvarer **ja/alltid**, sett ring rundt det tallet som passer best til dine tanker/atferder når det kommer til de følgende utsagnene:

a) Hvor vanlig er det å drive fysisk aktivitet i din nærmeste omgangskrets?	0	1	2	3	4	5	6	7	8	9	10
b) Trener du sammen med noen?	0	1	2	3	4	5	6	7	8	9	10

## KOSTHOLD OG MATVANER

21. Helsedirektoratet anbefaler et variert kosthold som inneholder mye grønnsaker, frukt og bær, grove kornprodukter og fisk, samt et begrenset inntak av bearbeidet kjøtt, salt og sukker. På en skala fra 0-10, hvor 0 er svært dårlig og 10 er svært bra, hvordan vil du si at du følger disse anbefalingene?

0      1      2      3      4      5      6      7      8      9      10

22. På en skala fra 0-10, hvor 0 er svært dårlig og 10 er svært bra, hvordan vil du karakterisere egne matvaner/kosthold?

0      1      2      3      4      5      6      7      8      9      10

23. Velger du produkter som er nøkkelhullsmerket?

Ja, alltid       Ofte       Av og til       Nei, aldri

24. Helsedirektoratet anbefaler 5 enheter med frukt og grønnsaker daglig.

Hvor mange enheter får du i deg daglig?

	Frukt	Grønnsaker
	<input type="checkbox"/>	<input type="checkbox"/>

25.

Helsedirektoratet anbefaler inntak av 3 enheter kalsiumprodukter daglig. Det kan for eksempel være gulost på brødskeen, yoghurt, melk etc. Inneholder din daglige kost til sammen 3 eller flere enheter av nevnte?

Ja       Nei       Vet ikke

26. Hvor ofte i en vanlig uke spiser du (*Inkluder alle måltider*):

	Antall ganger	Aldri
Fisk	<input type="checkbox"/>	<input type="checkbox"/>
Kjøtt	<input type="checkbox"/>	<input type="checkbox"/>
Jeg er vegetarianer	<input type="checkbox"/>	

27. Hvor ofte i en vanlig uke spiser du mat som pizza, kebab, pølse, hamburger etc.?

	Antall ganger	Aldri
	<input type="checkbox"/>	<input type="checkbox"/>

28. Hvor ofte i en vanlig uke spiser du søte matvarer

som f.eks. syltetøy, nuggati, søt frokostblanding etc.

	Antall ganger	Aldri
	<input type="checkbox"/>	<input type="checkbox"/>

29. Hvor ofte i en vanlig uke spiser du mat som potetgull, sjokolade, smågodt, kaker, is etc.?

Antall ganger    Aldri

30. Hvor ofte i en vanlig uke drikker du søte drikkevarer som saft, fruktjuice, brus, energidrikk etc.?

Antall ganger    Aldri

31. Hvor mange kopper kaffe drikker du daglig?

Antall kopper    Aldri

32a) Drikker du alkohol?

Ja                       Nei

b) Dersom Ja, hvor mange enheter per uke?

(Én alkoholenhet = én flaske 33cl pils eller ett glass vin)

Enheter

## FYSISK AKTIVITET OG SVANGERSKAP

---

33a) Gir du råd/informasjon om regelmessig fysisk aktivitet/trening til dine gravide pasienter?

Ja                       Nei

**b)** **Dersom Ja**, hva baserer du rådene du gir til dine gravide pasienter om fysisk aktivitet på? (Sett gjerne flere kryss)

- Egne erfaringer
- Anbefalingene til Helsedirektoratet om trening under svangerskapet
- Faglitteratur/forskningsartikler
- Videreutdanning/kurs
- Annet, spesifiser: \_\_\_\_\_

**c)** **Dersom Nei**, hva er de **to** viktigste årsakene til at du ikke gir gravide kvinner råd/veiledning om fysisk aktivitet/trening? (Sett maks to kryss)

- Har ikke tid
- Fysisk aktivitet er ikke et viktig tema på svangerskapskontrollene
- Jeg har ikke nok kunnskap om fysisk aktivitet under svangerskapet
- Fysisk aktivitet og trening er ikke nødvendig for et godt svangerskap
- Kvinnene er ikke interessert i å snakke om fysisk aktivitet
- Annet: \_\_\_\_\_

**Dersom du svarte Nei på spørsmål 33a, vennligst gå videre til spørsmål 40a.**

**34.** Hvor ofte gir du råd/informasjon om regelmessig fysisk aktivitet/trening til dine gravide pasienter? (Fyll ut antall ganger du gir råd/informasjon om dette)

ganger i løpet av kvinnens svangerskap (oppsatte konsultasjoner)

35. Når i svangerskapet gir du råd/informasjon om fysisk aktivitet/trening? (Sett gjerne flere kryss)

- |   |   |
|---|---|
| <input type="checkbox"/> Første møte      | <input type="checkbox"/> Tredje trimester     |
| <input type="checkbox"/> Første trimester | <input type="checkbox"/> Post partum          |
| <input type="checkbox"/> Andre trimester  | <input type="checkbox"/> Ved alle anledninger |

36. Følger du opp rådene/informasjonen du gir om fysisk aktivitet/trening?

- Ja  Nei

37a) anbefaler du dine gravide pasienter å drive utholdenhetstrening?

- Ja  Nei

b) Dersom Ja, hvor mange ganger i uken anbefaler du å drive utholdenhetstrening, slik som svømming, sykling og turgåing?  ganger

c) Dersom Ja, hvor lenge anbefaler du å drive utholdenhetstrening per gang/økt?  timer  min

d) Dersom Ja, hvilken type aktivitet anbefaler du vanligvis? (sett gjerne flere kryss)

- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| <input type="checkbox"/> Gå tur       | <input type="checkbox"/> Sykling  |
| <input type="checkbox"/> Løp/jogg     | <input type="checkbox"/> Aerobic  |
| <input type="checkbox"/> Dans         | <input type="checkbox"/> Svømming |
| <input type="checkbox"/> Roing        | <input type="checkbox"/> Langrenn |
| <input type="checkbox"/> Annet: _____ |                                   |

38a) anbefaler du dine gravide pasienter å drive styrketrening?

- Ja  Nei

b) Dersom Ja, hvor mange ganger i uken anbefaler du å drive styrketrening?  ganger

timer      min

c) **Dersom Ja**, hvor lenge anbefaler du å drive styrketrening per gang/økt?

--	--

d) **Dersom Ja**, hvilken type aktivitet anbefaler du vanligvis? (sett gjerne flere kryss)

Løfte vekter

CrossFit

Gruppetrening i sal

Annet: \_\_\_\_\_

39. På en skala fra 6-20 (Borgs skala), hvor 6 regnes som hvilenivå, hvilken intensitet anbefaler du vanligvis dine gravide pasienter å trene på?

Sett ring rundt passende tall:

Borgs trinn	Opplevelse
6	Hvile
7 8 9 10	Det føles veldig lett
11 12 13	Du kan merke at du trener - men det er ikke hardt
14 15	Snakkegrensen - du kan snakke, men setningene blir avbrutt av åndedrag
16 17	Hyperventilering - du puster kraftig og kan kun svare med enkle ord
18 19 20	Utmattelse - få minutter eller sekunder til du må stoppe



**40a).** Gir du råd/informasjon om bekkenbunnstrening?

Ja  Nei

**b)** **Dersom Ja,** hvor mange ganger gjør du dette i løpet av kvinnens svangerskap (oppsatte konsultasjoner)?

ganger

**c)** **Dersom Ja,** hvor ofte anbefaler du at de gjennomfører bekkenbunnstrening?

Så ofte de kan  Hver dag  Ukentlig  Når de har tid

**41.** Føler du at kvinnene du er i kontakt med gjør bekkenbunnstrening?

Alltid  Ofte  Av og til

Sjelden  Aldri

**42.** Har du tatt noen videreutdanning/deltatt på kongresser hvor trening for gravide har vært tema?

Ja  Nei

**43.** Deler du ut informasjonsbrosjyrer om fysisk aktivitet til dine gravide pasienter?

Ja  Nei

**44.** Anbefaler du dine gravide pasienter å engasjere en personlig trener (PT) for å sikre riktig utøvelse av trening under svangerskapet?

Ja  Nei

**45.** På en skala fra 0-10, hvor 0 er aldri og 10 er alltid, i hvilken grad anbefaler du sedate kvinner med ukompliserte svangerskap å gradvis øke sin fysiske aktivitet?

0 1 2 3 4 5 6 7 8 9 10

- 46.** Hva vil du si er de **tre** største fordelene/helsegevinstene ved å være fysisk aktiv som gravid?
- |  |  |
|--|--|
| <input type="checkbox"/> Kan forebygge svangerskapsdiabetes              | <input type="checkbox"/> Kan forebygge ryggmerter      |
| <input type="checkbox"/> Kan gi raskere fødselsforløp                    | <input type="checkbox"/> Kan forebygge prematur fødsel |
| <input type="checkbox"/> Mor kommer forttere tilbake i form etter fødsel | <input type="checkbox"/> Kan forebygge spontanabort    |
| <input type="checkbox"/> Kan forebygge svangerskapsforgiftning           | <input type="checkbox"/> Kan forebygge lav fødselsvekt |
| <input type="checkbox"/> Kan forebygge bekkenplager                      | <input type="checkbox"/> Kan forebygge urinlekkasje    |
- 47.** Hva vil du si er de **tre** største risikoene med trening i svangerskapet?
- |  |  |
|--|--|
| <input type="checkbox"/> Økt behov for smertelindring under fødsel       | <input type="checkbox"/> Prematur fødsel         |
| <input type="checkbox"/> Misdannelse/skader hos fosteret                 | <input type="checkbox"/> Urinlekkasje            |
| <input type="checkbox"/> Lav fødselsvekt hos fosteret                    | <input type="checkbox"/> Hypertermia             |
| <input type="checkbox"/> Fosteret konkurrerer med mor om blod og oksygen | <input type="checkbox"/> Forlenget fødselsforløp |
| <input type="checkbox"/> Fosteret konkurrerer med mor om energi          | <input type="checkbox"/> Spontanabort            |
- 48.** Er det noen kvinner du vil stoppe eller fraråde å drive fysisk aktivitet/trening under svangerskapet? (Sett gjerne flere kryss)
- |   |  |
|---|--|
| <input type="checkbox"/> Kvinner med risiko for prematur fødsel           | <input type="checkbox"/> Kvinner med lav BMI                   |
| <input type="checkbox"/> Kvinner med placenta previa etter sv.uke 26      | <input type="checkbox"/> Kvinner med høy BMI                   |
| <input type="checkbox"/> Kvinner med svangerskapsforgiftning              | <input type="checkbox"/> Kvinner med sedat livsstil            |
| <input type="checkbox"/> Kvinner med bekken-/ryggmerter                   | <input type="checkbox"/> Kvinner med svangerskaps-<br>diabetes |
| <input type="checkbox"/> Kvinner med regelmessige blødninger etter uke 12 | <input type="checkbox"/> Kvinner med urinlekkasje              |

49. På en skala fra 0-10, hvor 0 er helt uenig og 10 er helt enig, sett ring rundt det tallet som passer best til dine tanker rundt de følgende utsagnene:

a)	For friske gravide kvinner er trening under graviditeten fordelaktig/gunstig.	0	1	2	3	4	5	6	7	8	9	10
b)	Å gi gravide kvinner råd om fysisk aktivitet under svangerskapet er en viktig del av svangerskapsomsorgen.	0	1	2	3	4	5	6	7	8	9	10
c)	Det er ubehagelig å snakke med gravide om fysisk aktivitet under svangerskapet.	0	1	2	3	4	5	6	7	8	9	10

## SVANGERSKAP OG KOSTHOLD

---

50a) Gir du råd/informasjon om ernæring/sunt kosthold til dine gravide pasienter?

- Ja                       Nei

b)

**Dersom Ja**, hva baserer du rådene du gir til dine gravide pasienter om ernæring/sunt kosthold på?

- Egne erfaringer
- Anbefalingene til Helsedirektoratet om ernæring/kosthold under svangerskapet
- Faglitteratur/forskningsartikler
- Videreutdanning/kurs
- Annet, spesifiser: \_\_\_\_\_

c) **Dersom Nei**, hva er de **to** viktigste årsakene til at du ikke gir gravide kvinner råd/veiledning om ernæring/sunt kosthold?(*Sett maks to kryss*)

- Har ikke tid
- Ernæring/sunt kosthold er ikke et viktig tema på svangerskapskontrollene
- Jeg har ikke nok kunnskap om ernæring/sunt kosthold under svangerskapet
- Ernæring/sunt kosthold er ikke nødvendig for et godt svangerskap
- Kvinnene er ikke interessert i å snakke om ernæring/sunt kosthold
- Annet: \_\_\_\_\_

**Dersom du svarte Nei på spørsmål 50a, vennligst gå videre til spørsmål 67.**

51. Hvor ofte gir du råd/informasjon om ernæring/sunt kosthold til dine gravide pasienter?

(*Fyll ut antall ganger du gir råd/informasjon om dette*)

ganger i løpet av kvinnens svangerskap (oppsatte konsultasjoner)

52. Når i svangerskapet gir du råd/informasjon om ernæring/sunt kosthold? (*Sett gjerne flere kryss*)

- Første møte
- Tredje trimester
- Første trimester
- Post partum
- Andre trimester
- Ved alle anledninger

53. Følger du opp rådene/informasjonen du gir om ernæring/sunt kosthold?

- Ja
- Nei

54. Deler du ut informasjonsbrosjyrer om ernæring/sunt kosthold til dine gravide pasienter?

- Ja
- Nei

På en skala fra 0-10, hvor 0 er aldri og 10 er alltid, hvor ofte anbefaler du gravide kvinner å... :

55.	... spise et variert kosthold som inneholder mye grønnsaker, frukt og bær?	0	1	2	3	4	5	6	7	8	9	10
56.	... velge grove kornprodukter med høyt fiberinnhold?	0	1	2	3	4	5	6	7	8	9	10
57.	... spise mye fisk?	0	1	2	3	4	5	6	7	8	9	10
58.	... velge magre melke- og meieriprodukter?	0	1	2	3	4	5	6	7	8	9	10
59.	... velge produkter som er nøkkelhullsmerket?	0	1	2	3	4	5	6	7	8	9	10
60.	... unngå store mengder mat som pizza, kebab, pølser og hamburger?	0	1	2	3	4	5	6	7	8	9	10
61.	... unngå store mengder mat som potetgull, sjokolade, smågodt, kaker, is, etc.?	0	1	2	3	4	5	6	7	8	9	10
62.	... begrense inntaket av bearbeidet kjøtt, salt og sukker?	0	1	2	3	4	5	6	7	8	9	10
63.	... begrense inntaket av kaffe?	0	1	2	3	4	5	6	7	8	9	10
64.	... ikke drikke alkohol?	0	1	2	3	4	5	6	7	8	9	10
65.	... ikke velge måltidserstattere for å kontrollere vekten?	0	1	2	3	4	5	6	7	8	9	10

66. På en skala fra 0-10, hvor 0 er helt uenig og 10 er helt enig, sett ring rundt det tallet som passer best til dine tanker rundt de følgende utsagnene:

a)	For friske gravide kvinner er sunt kosthold under graviditeten fordelaktig/gunstig.	0	1	2	3	4	5	6	7	8	9	10
b)	Å gi gravide kvinner råd om ernæring/kosthold under svangerskapet er en viktig del av svangerskapsomsorgen.	0	1	2	3	4	5	6	7	8	9	10
c)	Det er ubehagelig å snakke med gravide om ernæring/sunt kosthold under svangerskapet.	0	1	2	3	4	5	6	7	8	9	10

## SVANGERSKAP OG VEKTREGULERING

---

67a) Gir du gravide kvinner råd/informasjon om vektøkning under svangerskapet?

- Ja                       Nei

b) **Dersom Ja**, hva baserer du rådene du gir til dine gravide pasienter om vektøkning på?

- Egne erfaringer
- Anbefalingene til Helsedirektoratet om vektøkning under svangerskapet
- Faglitteratur/forskningsartikler
- Videreutdanning/kurs
- Annet, spesifiser: \_\_\_\_\_

c) **Dersom Nei**, hva er de to viktigste årsakene til at du ikke gir gravide kvinner råd/veiledning om fornuftig vektøkning?(Sett maks to kryss)

- Har ikke tid
- Gravides vektøkning er ikke et viktig tema på svangerskapskontrollene
- Jeg har ikke nok kunnskap om fornuftig vektøkning under svangerskapet
- Fornuftig vektøkning er ikke viktig for et godt svangerskap
- Kvinnene er ikke interessert i å snakke om vektøkning
- Annet: \_\_\_\_\_

d) **Dersom Ja**, hvor mye vil du anbefale en kvinne som var undervektig (KMI < 18,5) før svangerskapet å gå opp i vekt for å oppnå ønsket vektøkning?

Kg

- e) **Dersom Ja**, hvor mye vil du anbefale en kvinne som var normalvektig (KMI 18,5 – 24,9) før svangerskapet å gå opp i vekt for å oppnå ønsket vektøkning?

kg

- f) **Dersom Ja**, hvor mye vil du anbefale en kvinne som var overvektig (KMI 25,5 – 29,9) før svangerskapet å gå opp i vekt for å oppnå ønsket vektøkning?

kg

- g) **Dersom Ja**, hvor mye vil du anbefale en kvinne som led av fedme (KMI > 30) før svangerskapet å gå opp i vekt for å oppnå ønsket vektøkning?

kg

**Dersom du svarte Nei på spørsmål 67a, vennligst gå videre til spørsmål 72.**

68. Hvor ofte gir du råd/informasjon om vektregulering til dine gravide pasienter?

*(Fyll ut antall ganger du gir råd/informasjon om dette)*

ganger i løpet av kvinnens svangerskap (oppsatte konsultasjoner)

69. Når i svangerskapet gir du råd/informasjon om vektregulering? *(Sett gjerne flere kryss)*

- |   |   |
|---|---|
| <input type="checkbox"/> Første møte      | <input type="checkbox"/> Tredje trimester     |
| <input type="checkbox"/> Første trimester | <input type="checkbox"/> Post partum          |
| <input type="checkbox"/> Andre trimester  | <input type="checkbox"/> Ved alle anledninger |

70. Følger du opp rådene/informasjonen du gir om vektregulering?

Ja  Nei

71. Deler du ut informasjonsbrosjyrer om vektregulering til dine gravide pasienter?

Ja

Nei

72. På en skala fra 0-10, hvor 0 er helt uenig og 10 er helt enig, sett ring rundt det tallet som passer best til dine tanker rundt de følgende utsagnene:

a) For friske gravide kvinner er vektregulering under graviditeten fordelaktig/gunstig. 0 1 2 3 4 5 6 7 8 9 10

b) Å gi gravide kvinner råd om vektregulering under svangerskapet er en viktig del av svangerskapsomsorgen. 0 1 2 3 4 5 6 7 8 9 10

c) Det er ubehagelig å snakke med gravide om vektregulering under svangerskapet. 0 1 2 3 4 5 6 7 8 9 10

TUSEN TAKK FOR HJELPEN

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Norges idrettshøgskole, Seksjon for idrettsmedisinske fag

Førsteamanuensis Lene A. H. Haakstad



## APPENDIX 2: INFORMED CONSENT



### Vil du delta i forskningsprosjektet

### ”Graviditet og helseatferd”?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å kartlegge norske fastlegers og jordmødres livsstil og deres oppfatninger, holdninger og praksis rundt temaene fysisk aktivitet/trening, vektøkning og kosthold i svangerskapet. I dette skrevet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

#### Formål

Det er tidligere blitt gjennomført svært få undersøkelser på primærhelsetjenesten kunnskap om fysisk aktivitet, og om de gir informasjon i tillegg til veiledning til gravide. Denne spørreundersøkelsen har blitt gjennomført en gang tidligere i 2015/2016, og gjennomføres igjen for å rekruttere et enda større utvalg.

Del A inkluderer et tilfeldig utvalg av helsepersonell i Oslo, Akershus og Vest-Agder. Målet er å kartlegge norske fastlegers og jordmødres livsstil og deres oppfatninger, holdninger og praksis rundt temaene fysisk aktivitet/trening, vektøkning og kosthold under svangerskapet.

Del B skal med hjelp av et standardisert kartleggingskjema undersøke innhold av kvinnehelse i studieplaner til medisin- og jordmorstudenter rundt temaene fysisk aktivitet/trening, vektøkning og kosthold under svangerskapet og se om minstekravene for anbefalinger faktisk blir formidlet.

#### Hvem er ansvarlig for forskningsprosjektet?

Norges idrettshøgskole

## **Hvorfor får du spørsmål om å delta?**

Helsepersonell som fastleger og jordmødre er de som primært har svangerskapskontroller og har en unik mulighet til å fremme råd og opplyse gravide pasienter om anbefalt sunn atferd. I den generelle voksne populasjonen har det blant annet vist seg at rådgivning fra fastlegen har vært svært kosteffektiv og suksessfull måte å forbedre aktivitetsnivå på.

Inklusjonskriterier i denne studien er fastleger og jordmødre som jobber innenfor svangerskapsomsorgen i områdene Oslo, Akershus og Vest-Agder.

## **Hva innebærer det for deg å delta?**

Alt du trenger å gjøre er og fyller ut et spørreskjema som tar ca 10 minutter. Spørreskjemaet inneholder spørsmål om din bakgrunn (kjønn, alder, klinisk tittel osv.), helse og livsstil, fysisk aktivitet, kosthold og vektregulering under svangerskapet.

Dine svar fra spørreundersøkelsen blir registrert elektronisk.

## **Det er frivillig å delta**

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykke tilbake uten å oppgi noen grunn. Alle opplysninger om deg vil da bli anonymisert. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

## **Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger**

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrevet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket. Alle opplysninger vil bli behandlet slik at ingen kan identifisere deg. Navn blir byttet ut med koder slik at opplysninger ikke kan knyttes til deg.

Behandling av opplysninger og anonymisering blir gjort på en sikker måte av prosjektgruppen. Deltagerne vil ikke kunne gjenkjennes i publikasjon.

## **Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?**

Prosjektet skal etter planen avsluttes innen 31.01.20. All informasjon blir anonymisert, eller slettet innen 5 år etter endt prosjekt.

## **Dine rettigheter**

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg,
- å få rettet personopplysninger om deg,

- få slettet personopplysninger om deg,
- få utlevert en kopi av dine personopplysninger (dataportabilitet), og
- å sende klage til personvernombudet eller Datatilsynet om behandlingen av dine personopplysninger.

### **Hva gir oss rett til å behandle personopplysninger om deg?**

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Norges idrettshøgskole har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

### **Hvor kan jeg finne ut mer?**

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Norges idrettshøgskole ved Lene A. H. Haakstad, Associate professor, PhD.  
Seksjon for idrettsmedisinske fag.  
P.b 4014, Ullevål stadion 0806 Oslo  
e-post: [l.a.h.haakstad@nih.no](mailto:l.a.h.haakstad@nih.no)  
Tlf: 23262390/45489902
- Norges idrettshøgskole ved Emilie F. M. Dalhaug, Prosjektkoordinator, UngKan3  
Seksjon for idrettsmedisinske fag  
e-post: [emiliefm@nih.no](mailto:emiliefm@nih.no)  
Tlf: 91708426
- Norges idrettshøgskole ved Julie M. F. Mjønerud, Masterstudent  
Seksjon for idrettsmedisinske fag  
e-post: [jmmjonerud@student.nih.no](mailto:jmmjonerud@student.nih.no)  
Tlf: 99416269
- Vårt personvernombud: Karine Justad, personvernombud ved Norges idrettshøgskole
- NSD – Norsk senter for forskningsdata AS, på epost ([personvernombudet@nsd.no](mailto:personvernombudet@nsd.no)) eller telefon: 55 58 21 17.

Med vennlig hilsen

Lene A. H. Haakstad  
Associate professor, PhD

Julie M. F. Mjønerud  
Mastergradsstudent

## Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet ”Graviditet og helseatferd”, og har fått anledning til å stille spørsmål. Jeg samtykker til:

- å delta i en spørreundersøkelse for del A i denne studien
- at mine opplysninger behandles frem til prosjektet er avsluttet, ca. 31.01.20
- at mine personopplysninger lagres etter prosjektslutt, til bruk i forskningsformidling

# INFORMED CONSENT, ELECTRONIC SURVEY



## Vil du delta i forskningsprosjektet

### ”Graviditet og helseatferd”?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å kartlegge norske fastlegers og jordmødres livsstil og deres oppfatninger, holdninger og praksis rundt temaene fysisk aktivitet/trening, vektøkning og kosthold i svangerskapet. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

#### **Formål**

Det er tidligere blitt gjennomført svært få undersøkelser på primærhelsetjenesten kunnskap om fysisk aktivitet, og om de gir informasjon i tillegg til veiledning til gravide. Denne spørreundersøkelsen har blitt gjennomført en gang tidligere i 2015/2016, og gjennomføres igjen for å rekruttere et enda større utvalg.

Del A inkluderer et tilfeldig utvalg av helsepersonell i Oslo, Akershus og Vest-Agder. Målet er å kartlegge norske fastlegers og jordmødres livsstil og deres oppfatninger, holdninger og praksis rundt temaene fysisk aktivitet/trening, vektøkning og kosthold under svangerskapet.

Del B skal med hjelp av et standardisert kartleggings skjema undersøke innhold av kvinnehelse i studieplaner til medisins- og jordmorstudenter rundt temaene fysisk aktivitet/trening, vektøkning og kosthold under svangerskapet og se om minstekravene for anbefalinger faktisk blir formidlet.

#### **Hvem er ansvarlig for forskningsprosjektet?**

Norges idrettshøgskole

## **Hvorfor får du spørsmål om å delta?**

Helsepersonell som fastleger og jordmødre er de som primært har svangerskapskontroller og har en unik mulighet til å fremme råd og opplyse gravide pasienter om anbefalt sunn atferd. I den generelle voksne populasjonen har det blant annet vist seg at rådgivning fra fastlegen har vært svært kosteffektiv og suksessfull måte å forbedre aktivitetsnivå på.

Inklusjonskriterier i denne studien er fastleger og jordmødre som jobber innenfor svangerskapsomsorgen i områdene Oslo, Akershus og Vest-Agder.

## **Hva innebærer det for deg å delta?**

Alt du trenger å gjøre er og fylle ut et spørreskjema som tar ca 10 minutter. Spørreskjemaet inneholder spørsmål om din bakgrunn (kjønn, alder, klinisk tittel osv.), helse og livsstil, fysisk aktivitet, kosthold og vektregulering under svangerskapet.

Dine svar fra spørreundersøkelsen blir registrert elektronisk.

## **Det er frivillig å delta**

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## **Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger**

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrevet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket. Alle opplysninger vil bli behandlet slik at ingen kan identifisere deg. Navn blir byttet ut med koder slik at opplysninger ikke kan knyttes til deg.

Behandling av opplysninger og anonymisering blir gjort på en sikker måte av prosjektgruppen. Deltagerne vil ikke kunne gjenkjennes i publikasjon.

## **Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?**

Prosjektet skal etter planen avsluttes innen 31.01.20. All informasjon blir anonymisert, eller slettet innen 5 år etter endt prosjekt.

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- å få rettet personopplysninger om deg,
- få slettet personopplysninger om deg,

- få utlevert en kopi av dine personopplysninger (dataportabilitet), og
- å sende klage til personvernombudet eller Datatilsynet om behandlingen av dine personopplysninger.

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På oppdrag fra Norges idrettshøgskole har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

### **Hvor kan jeg finne ut mer?**

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Norges idrettshøgskole ved Lene A. H. Haakstad, Associate professor, PhD.  
Seksjon for idrettsmedisinske fag.  
P.b 4014, Ullevål stadion 0806 Oslo  
e-post: [l.a.h.haakstad@nih.no](mailto:l.a.h.haakstad@nih.no)  
Tlf: 23262390/45489902
- Norges idrettshøgskole ved Emilie F. M. Dalhaug, Prosjektkoordinator, UngKan3  
Seksjon for idrettsmedisinske fag  
e-post: [emiliefm@nih.no](mailto:emiliefm@nih.no)  
Tlf: 91708426
- Norges idrettshøgskole ved Julie M. F. Mjønerud, Masterstudent  
Seksjon for idrettsmedisinske fag  
e-post: [jmmjonerud@student.nih.no](mailto:jmmjonerud@student.nih.no)  
Tlf: 99416269
- Vårt personvernombud: Karine Justad, personvernombud ved Norges idrettshøgskole
- NSD – Norsk senter for forskningsdata AS, på epost ([personvernombudet@nsd.no](mailto:personvernombudet@nsd.no)) eller telefon: 55 58 21 17.

Med vennlig hilsen

Lene A. H. Haakstad  
Associate professor, PhD

Julie M. F. Mjønerud  
Mastergradsstudent

## Ønsker du å delta forskningsprosjektet?

- Ja, jeg ønsker å delta i forskningsprosjektet
- Nei, jeg ønsker ikke å delta i forskningsprosjektet

## Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet ”Graviditet og helseatferd”, og har fått anledning til å stille spørsmål. Jeg samtykker til:

- å delta i denne elektronisk spørreundersøkelse for denne studien
- at mine opplysninger behandles frem til prosjektet er avsluttet, ca. 31.01.20
- at mine personopplysninger lagres etter prosjektslutt, til bruk i forskningsformidling



# APPENDIX 3: APPROVAL LETTER FROM THE NORWEGIAN SOCIAL SCIENCE DATA SERVICES

Meldeskjema for behandling av personopplysninger

23.04.19, 22.47



## NSD sin vurdering

### Prosjekttittel

Pregnancy and health behaviors

### Referansenummer

560627

### Registrert

07.11.2018 av Julie Marie Flatvoll Mjønerud - jmmjonerud@student.nih.no

### Behandlingsansvarlig institusjon

Norges idrettshøgskole / Seksjon for idrettsmedisinske fag

### Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)

Lene A. H. Haakstad, l.a.h.haakstad@nih.no, tlf: 23262390

### Type prosjekt

Studentprosjekt, masterstudium

### Kontaktinformasjon, student

Julie Marie Flatvoll Mjønerud , jmmjonerud@student.nih.no, tlf: 99416269

### Prosjektperiode

01.01.2019 - 31.01.2020

### Status

18.01.2019 - Vurdert

### Vurdering (1)

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#### 18.01.2019 - Vurdert

Det er vår vurdering at behandlingen vil være i samsvar med personvernlovgivningen, så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet 18.01.2019 med vedlegg, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

## MELD ENDRINGER

Dersom behandlingen av personopplysninger endrer seg, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. På våre nettsider informerer vi om hvilke endringer som må meldes. Vent på svar før endringen gjennomføres.

## TYPE OPPLYSNINGER OG VARIGHET

Prosjektet vil behandle særlige kategorier av personopplysninger om helseforhold og alminnelige personopplysninger frem til 31.01.2020. Opplysningene lagres deretter inntil 5 år etter prosjektslutt, til 31.01.2025

## LOVLIG GRUNNLAG

Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 nr. 11 og art. 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse, som kan dokumenteres, og som den registrerte kan trekke tilbake.

Lovlig grunnlag for behandlingen vil dermed være den registrertes uttrykkelige samtykke, jf. personvernforordningen art. 6 nr. 1 a), jf. art. 9 nr. 2 bokstav a), jf. personopplysningsloven § 10, jf. § 9 (2).

## PERSONVERNPRINSIPPER

NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen:

- om lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen
- formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke viderebehandles til nye uforenlige formål
- dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet
- lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

## DE REGISTRERTES RETTIGHETER

Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19), og dataportabilitet (art. 20).

NSD vurderer at informasjonen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

## FØLG DIN INSTITUSJONS RETNINGSLINJER

NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og eventuelt rådføre dere

med behandlingsansvarlig institusjon.

**OPPFØLGING AV PROSJEKTET**

NSD vil følge opp underveis (hvert annet år) og ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet/pågår i tråd med den behandlingen som er dokumentert.

Lykke til med prosjektet!

Kontaktperson hos NSD: Lise Aasen Haveraen  
Tlf. Personverntjenester: 55 58 21 17 (tast 1)

