NORWEGIAN SCHOOL OF SPORT SCIENCES

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Whom do they trust?

A cross-sectional study investigating the association between pregnant women's information sources and their behaviours regarding physical activity, weight gain and nutrition, as well as health care providers' practices with respect to giving advice.

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SUMMARY

BACKGROUND: To date, there is limited evidence investigating pregnant women's information sources regarding physical activity (PA), gestational weight gain (GWG) and nutrition at late gestation. Further, no studies have examined the impact of different information sources on pregnant women's health behaviours. There is also a lack of data on whether health care providers in Norway give advice on these topics to their pregnant patients. Hence, this study were three folded: (1) investigate the main information sources among pregnant women regarding PA, GWG and nutrition, (2) evaluate how these information sources may affect their health behaviours and (3) examine the extent of provider advice on these topics.

METHODS: The project was a cross-sectional study conducted in Oslo, Norway, from February to August 2016. With respect to the different aims of the study, the data collection was divided into two parts. In part A, pregnant women (n=150) answered an electronic questionnaire investigating their health behaviours, as well as their information sources regarding PA, GWG and nutrition. In part B, health care providers (n=14) answered a postal survey with the aim to explore their beliefs and practices regarding maternal exercise, GWG and nutritional recommendations.

MAIN RESULTS: Media and Internet were the most frequently used sources of information, reported by 30% of the women. Stating media and Internet as their most important information source, was associated with increased odds of gaining weight below the IOM guidelines ($p = 0.02$) and higher adherence to nutritional recommendations ($p = 0.03$). Choosing friends and family was associated with gaining above the IOM guidelines ($p = 0.03$). No other associations were found between information sources and health behaviours. Twelve out of 14 providers reported giving advice on all three topics to their pregnant patients. Three out of 14 providers gave advice consistent with the ACOG PA and exercise recommendations and four out of 14 gave advice consistent with the IOM weight gain recommendations.

CONCLUSION: The majority of women reported retrieving health advice through media and Internet sources. Media and Internet sources seemed to have a positive impact on nutritional behaviour, however, they were also associated with gaining below the IOM guidelines. Receiving advice from friends and family was associated with gaining above the guidelines. Most providers gave health advice to their pregnant patients. However, few gave advice consistent with the guidelines for PA and GWG.

CONTENTS

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ABBREVIATIONS

ACOG	American College of Obstetricians and Gynecologists
BMI	Body Mass Index (kg/m^2)
CI	Confidence Interval
EGWG	Excessive Gestational Weight Gain
GDM	Gestational Diabetes Mellitus
GWG	Gestational Weight Gain
IOM	Institute of Medicine
MET	Metabolic Equivalent of Task
MoBa	Mother and Child Study
MPA	Moderate-intensity Physical Activity
OR	Odds Ratio
PA	Physical Activity
PACES	Physical Activity Enjoyment Scale
PAL	Physical Activity Level
PAPQ	Physical Activity and Pregnancy Questionnaire
RCT	Randomised Controlled Trial
SD	Standard Deviation
VPA	Vigorous-intensity Physical Activity
WHO	World Health Organization

1. INTRODUCTION

Having a baby is a major life event, and for many women, pregnancy is a time when they seek information to help them during the transition to parenthood (Shieh, Broome & Stump, 2010). Research show that pregnant women in the US and Australia retrieve health information from a variety of sources, including the Internet, family and friends, parenting magazines, blogs, Internet forums and health professionals (Willcox et al., 2015; Downs, Savage & Rauff, 2014; Grimes, Forster & Newton, 2014; McDonald et al., 2012; Stengel et al., 2012). Yet, it is still unclear how different information sources may affect pregnant women's health behaviours.

Regular physical activity (PA), gestational weight gain (GWG) and healthy eating may all directly influence pregnancy outcomes and the long-term health of both mother and child (IOM, 2009). Therefore, it is important that women are encouraged to adopt a healthy lifestyle. The American Collage of Obstetricians and Gynecologists (ACOG) (2013) recommend that health care providers counsel women on the benefits of PA, appropriate weight gain and nutrition during pregnancy. Still, research indicate that only a minority of pregnant women receive advice from their health care provider on these topics (Nascimento et al., 2015; Willcox et al., 2015; Downs et al., 2014; McDonald et al., 2012; Stengel et al., 2012; McDonald et al., 2011; Olander, Atkinson, Edmunds & French, 2011; Haakstad, Voldner, Henriksen & Bø, 2009; Clarke & Gross, 2004).

To date, there is a lack of data on Scandinavian women's information sources on PA, GWG and nutrition and how these information sources may affect their health behaviours during pregnancy. Furthermore, little is known about Norwegian health care providers' practices regarding recommendations for PA, GWG and nutrition in pregnancy. These research gaps, which are the focus of this Master's thesis, should be addressed in order to optimize antenatal care and help promote a healthy pregnancy.

2. LITERATURE REVIEW

2.1 Maternal adaptations to pregnancy

The female body goes through profound anatomical and physiological changes during pregnancy to accommodate the needs of the developing foetus and prepare the mother for delivery (Bø et al., 2016). Some of these adaptations may impact women's ability to be physically active (ibid). Figure 1 showes a brief summary of maternal changes associated with pregnancy, including respiratory, cardiovascular, musculoskeletal, metabolic, endocrine and emotional changes.

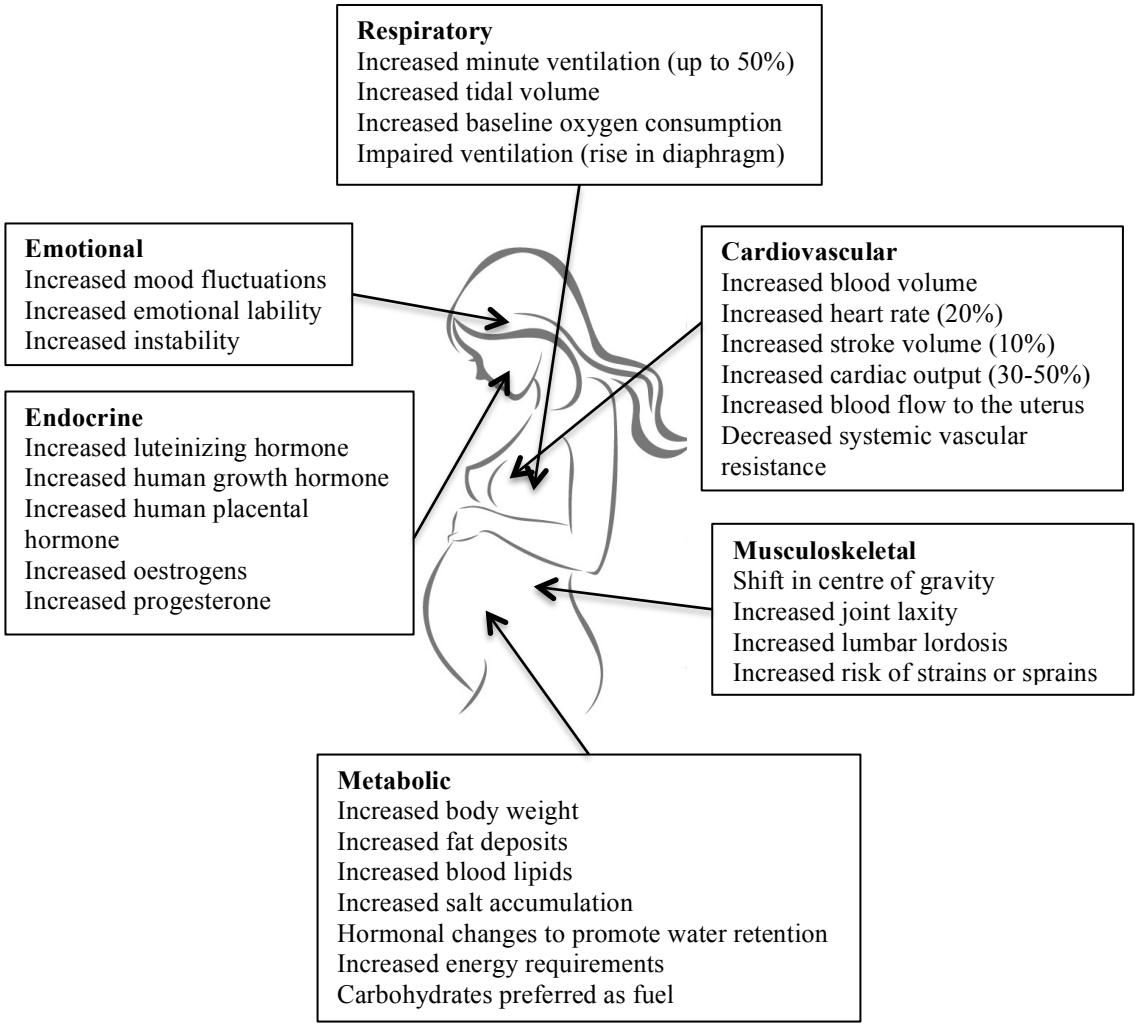


***Figure 1**: Physiological, anatomical and emotional adaptations to pregnancy. From Bø et al., 2016; ACOG, 2015; Barakat et al., 2015 and Artal & O´Toole, 2003.*

2.2 Common pregnancy complaints

According to Dørheim and colleagues (2013), one-third of all sick leaves for Norwegian women aged 20-39 years are related to pregnancy, and by 32 weeks of gestation 63% of women are on sick leave. Fatigue/sleep problems, pelvic girdle pain, nausea/vomiting and low back pain are the most frequently reported reasons for being on sick leave (Dørheim et al., 2013; Pennick & Liddle, 2013). Other reported physical symptoms of pregnancy are congestion and nosebleed, constipation and gas, leg cramps, frequent urination, haemorrhoids, headache, mouth and tooth changes, heartburn, lower abdominal pain, numbness and tingling and shortness of breath (ACOG, 2005).

2.3 Physical activity and exercise

Physical activity (PA) is a broad term, which in the literature is defined as *"any bodily movement produced by skeletal muscles that results in substantial energy expenditure above a basal level"* (Caspersen, Powell & Christenson, 1985). Exercise is a subcategory of PA; that is planned, structured and repetitive, with the purpose of maintaining or improving physical fitness (ibid.). As the terms are used interchangeably in the literature, they will be used according to the cited articles in the following text.

2.3.1 General physical activity and exercise recommendations

To promote and maintain health and reduce the risk of chronic disease and premature mortality, all healthy adults aged 18-64 years are recommended to perform moderate-intensity aerobic physical activity (MPA) for a minimum of 150 minutes per week or vigorous-intensity aerobic physical activity (VPA) for a minimum of 75 minutes per week, or a combination of MPA and VPA (WHO, 2010). According to Haskell and colleagues (2007) the MPA recommendation can be accumulated towards the 150-minute minimum from bouts lasting 10 minutes or more. A scientific consensus defines MPA as activities with an energy requirement of 3-6 metabolic equivalents (METs), corresponding to a brisk walk at 3 to 4 mph for most healthy adults, and VPA as activities requiring >6 METs, e.g. jogging or running at 5 mph or faster (Ainsworth et al., 2011). Further, adults are advised to perform activities that maintain or increase muscular strength and endurance at least two days a week, e.g. weight training or CrossFit (Haskell et al., 2007).

2.3.2 Physical activity and exercise recommendations during pregnancy

Due to concerns for the health of the mother and her foetus, pregnant women have previously been advised to limit PA and exercise (ACOG, 2002). As research has emerged, this conservative attitude has shifted. The most recent advice from ACOG (2015) is that all pregnant women with no medical or obstetrical contraindications should accumulate a minimum of 30 minutes of MPA on most or all days of the week, as well as perform activities to maintain or improve musculoskeletal fitness two days a week (ibid.). Previously sedentary women should start with 15 minutes of continuous exercise three times per week, progressively increasing the frequency and duration towards the recommended 30 minutes on most or all days of the week (ACOG, 2015). Women with a history of regular exercise should be encouraged to continue exercising as before, but refrain from exercises above 90% of VO_{2max} (Bø et al., 2016).

The ACOG's (2015) guidelines also list specific activities to avoid, including activities with a high potential for abdominal trauma, e.g. soccer and martial arts, and falls, e.g. horseback riding and downhill skiing. Scuba diving, motionless standing, "hot yoga" and "hot Pilates" should be avoided, as well as exertion at altitudes greater than 6000 feet (1800 meters). Also, exercises in the supine position are not recommended after the first trimester (ACOG, 2015; Artal & O´Toole, 2003).

According to Artal and O´Toole (2003) aerobic exercise should consist of moderate intensity activities, using large muscle groups in a continuous rhythm, e.g. walking, jogging, swimming and cycling. Musculoskeletal exercise should be performed using relatively low resistance with multiple dynamic repetitions, and repetitive static work and exercises resulting in a large pressor-effect should be avoided (Artal & O'Toole, 2003). The Norwegian health authorities recommend pregnant women to perform a full body strength-training program, emphasizing on core, back and pelvic floor muscles, two to three times per week (Norwegian Directorate of Health, 2013). Taking into consideration the increased mobility of the joints, flexibility exercises should focus on maintaining normal range of motion (Artal & O'Toole, 2003).

2.3.3 Potential risks of exercise during pregnancy

During pregnancy, exercise may cause a competitive situation between the growing foetus' physiological needs and the maternal body's physiological response to exercise (Artal & O´Toole, 2003). Potential risk factors associated with strenuous exercise during pregnancy include preterm labour, hyperthermia, hypoxia, early pregnancy loss and growth restrictions due to insufficient nutrition (ACOG, 2015). However, for uncomplicated pregnancies, these concerns have not been substantiated (Di Mascio et al., 2016; Barakat et al., 2014; de Oliveria Melo et al., 2012; Price, Amini & Kappeler, 2012; Szymanski & Satin, 2012; Juhl et al., 2010; Carmichael et al., 2002; Magann, Evans, Weitz & Newnham, 2002; Soultanakis, Artal & Wiswell, 1996). Hence, the benefits of exercise during pregnancy strongly outweigh the potential risks (ACOG, 2015). Table 1 provides an overview of absolute and relative contraindications and warning signs to terminate exercise while pregnant.

Table 1: *Contraindications and warning signs to terminate exercise while pregnant. From ACOG (2015*).

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

2.3.4 Benefits of maternal exercise

Although research on exercise during pregnancy has been conducted for several decades, the evidence on how it affects various pregnancy outcomes is still ambiguous (Barakat et al., 2015). One of the reasons for this may be the variety of methods used to collect PA data, ranging from questionnaires and activity recalls to accelerometry and pedometery. In addition, most studies use different criteria to classify women as inactive, moderately active or highly active, which makes comparison difficult. Below is a presentation of some of the reported benefits of exercise during pregnancy.

Maternal benefits

Women who exercise during pregnancy experience improved or maintained physical fitness (Szymanski & Satin, 2012; Fortner et al., 2011; Tobias, Zhang, van Dam, Bowers & Hu, 2011; Martin & Brenner Huber, 2010; Benton, Swan & Whyte, 2010; McAuley, Jensen, McGrath & Wolfe, 2005; Santos et al., 2005) and quality of life (Ji & Han, 2010; Rakhshani, Maharana, Raghuram, Nagendra & Venkatram, 2010; Granath, Hellgren & Gunnarsson, 2006). Further, evidence from systematic reviews and randomized controlled trials (RCT), indicate that regular exercise during the months of gestation may lower the incidence and severity of serious diseases associated with pregnancy, including pregnancy-induced hypertension (Haakstad, Edvardsen & Bø, 2016; Di Mascio et al., 2016), preeclampsia (Aune, Saugstad, Henriksen & Tonstad, 2014) and gestational diabetes mellitus (GDM) (Di Mascio et al., 2016; Russo, Nobles, Ertel, Chasan-Taber & Whitcomb, 2015). These results are substantiated by evidence from observational studies (Saftlas, Logsden-Sackett, Wang, Woolson & Braken, 2004; Sorensen et al., 2003).

Also, a beneficial effect of exercise during pregnancy in symptoms of urinary incontinence has been reported in several RCTs (Pelaez, Gonzalez-Cerron, Montejo & Barakat, 2014; Stafne, Salvesen, Romundstad, Torjusen & Mørkved, 2012; Mørkved, Bø, Schei & Salvesen, 2003) and a recent systematic review (Mørkved & Bø, 2014). Additional maternal benefits reported in RCTs and systematic reviews include a reduced incidence of caesarean section and instrumental delivery (Di Mascio et al., 2016; Barakat, Pelaez, Lopez, Montejo & Coteron, 2012; Tinloy et al., 2014; Price et al., 2012), shorter hospitalisation (Price et al., 2012), shorter duration of active labour (Melzer et al., 2010), prevention of excessive weight gain (Ruchat et al., 2012; Stuebe,

Oken & Gillmn, 2009) and reduced depression (Perales, Refoyo, Coteron, Bacchi & Barakat, 2015; Demissie et al., 2011). Also, lower back pain and functional disability are reduced in exercising women (Bandpei et al., 2010; Garshabi & Zadeah, 2005).

Foetal benefits

Findings reported in RCTs, controlled trials and high quality observational studies indicate that maternal exercise decreases resting foetal heart rate (Gustafson, May, Yeh, Million & Allen, 2012; May, Suminski, Langaker, Yeh & Gustafson, 2012; May, Glaros, Yeh, Clapp & Gustafson, 2010; Clapp, Kim, Burciu & Lopez, 2000), increases the surface area, volume and functional capacity of the placenta (May et al., 2010; Bergmann, Zygmunt & Clapp, 2004; Clapp et al., 2002; Clapp et al., 2000), increases amniotic fluid levels (San Juan Dertkigil et al., 2007) and reduces the risk of having newborns with macrosomia (Barakat et al., 2013; Ruiz et al., 2013). Two recent RCTs reported that the differences in birth weight and gestational age were minimal to none in infants of exercising mothers, compared with controls (Barakat et al., 2013; Price et al., 2012). Also, Apgar scores have been found to be higher in infants born to exercising mothers (Haakstad & Bø, 2011).

2.3.5 Physical activity patterns and factors related to exercise

Despite the numerous benefits and the consensus that PA in a normal pregnancy holds minimal risk (ACOG, 2015), the literature indicates that most pregnant women do not practice any form of exercise and that those who do tend to decrease their physical activity level (PAL) while pregnant (Nascimento et al., 2015; Duncombe, Wertheim, Skouteris, Paxton & Kelly, 2009). In Norway, the ABC study investigated women´s exercise behaviours during gestation week 17-21, and found that only 14.6% met the current exercise recommendations (Gjestland, Bø, Owe & Eberhard-Gran, 2012). Another Norwegian study found that the proportion of women exercising regularly (≥ 3 times weekly) before pregnancy was 46.4%, decreasing to 28% in gestation week 17 and 20% in gestation week 30 (Owe, Nystad & Bø, 2009). The most common type of activity performed during pregnancy is walking (Nascimento et al., 2015; Symons Downs & Ulbrecht, 2006).

Women report enjoyment, staying fit, improving energy and mood, relieving stress, controlling blood glucose and weight gain, making labour easier and shorter, and improving the health of the neonate as motives for being physically active in pregnancy (Duncombe et al., 2009; Haakstad et al., 2009; Symons Downs & Ulbrecht, 2006; Krans et al., 2005). Frequently reported barriers include fatigue, lack of time and motivation, nausea, shortness of breath, musculoskeletal problems e.g. back pain and soreness, lack of childcare and concern that exercise might hurt their baby (Nascimento et al., 2015; Duncombe et al., 2009; Haakstad et al., 2009; Mudd et al., 2009; Symons Downs & Ulbrecht, 2006; Clarke & Gross, 2004). Moreover, pregnant women rate rest and relaxation as more important than exercise during pregnancy (Clarke & Gross, 2004).

2.4 Gestational weight gain

The initial Institute of Medicine (IOM) gestational weight gain (GWG) recommendation was developed to prevent premature births and small-for-gestational-age neonates (IOM, 1990). However, as a consequence of the increasing prevalence of overweight and obesity among women of reproductive age, the focus has shifted towards reducing postpartum weight retention and childhood adiposity (IOM, 2009).

2.4.1 IOM recommendations for gestational weight gain

The Norwegian Directorate of Health has adopted the IOM guidelines, recommending that weight gain during pregnancy should be relative to the woman's pre-pregnancy body mass index (BMI) (kg/m^2) (IOM, 2009). The optimal total weight gain range in singleton pregnancies, by pre-pregnancy BMI, is shown in Table 2.

Table 2: *IOM recommendations for GWG relative to pre-pregnancy BMI. From IOM (2009).*

Category	Pre-pregnancy BMI range (kg/m^2)	Total weight gain range (kg)
Underweight	<18,5	12.7 – 18.2
Normal weight	18.5 – 24.9	11.4 – 15.9
Overweight	25.0 – 29.9	6.8 – 11.4
Obese*	≥ 30	5.0 – 9.1

*Includes class I (30-34.9), II (35-39.9) and III (>40).

Gestational weight gain outside these recommendations may directly influence pregnancy outcomes and the long-term health of both mother and child (IOM, 2009; Viswanathan et al., 2008). One systematic review (Viswanathan et al., 2008) and two high quality prospective cohort studies (Haugen et al., 2014; Chung et al., 2013) found that inadequate GWG was associated with higher risk of infant mortality, preterm birth, low birth weight and small-for-gestational-age neonates. Weight gain in excess of the IOM guidelines, termed 'excessive gestational weight gain' (EGWG), have in systematic reviews, RCTs and high quality cohort studies been associated with impaired glucose tolerance, GDM, hypertension and pre-eclampsia (Restall et al., 2014; Haugen et al., 2014; Johnson et al., 2013; Chasan-Taber, 2012; Carreno et al., 2012; Hedderson, Gunderson & Ferrara, 2010), higher risk for non-elective caesarean delivery (Restall et al., 2014; Haugen et al., 2014; Johnson et al., 2013; Margerison Zilko, Rehkopf & Abrams, 2010), microsomia (Haugen et al., 2014; Ludwig & Currie, 2010; Hillier et al., 2008), large-for-gestational-age infants (Restall et al., 2014; Viswanathan et al., 2008) and long-term obesity in the offspring (Fraser et al., 2010; Oken et al., 2008; Viswanathan et al., 2008). EGWG is also a major determinant of high postpartum weight retention and long-term obesity in women (Rong et al., 2014; Nehring et al., 2011; Amorim et al., 2007).

2.4.2 Adherence to gestational weight gain recommendations

Research indicates that gaining outside the IOM guidelines is more common than gaining within the recommended range (Yeo, Crandell & Jones-Vessey, 2016; Deputy, Sharma, Kim & Hinkle, 2015; Restall et al., 2014). A recently published study among 191 083 US women, reported that 30.5% met the current recommendations, while 49.6% exceeded the guidelines and 20.0% gained insufficient weight (Yeo et al., 2016). This is consistent with another recent study from the US (Deputy et al., 2015). To date, research investigating this pattern among pregnant women in Norway is lacking, but there is no indication that the pattern would be any different than in other western countries.

2.4.3 Preventing excessive gestational weight gain

Preventing EGWG may potentially improve both maternal and neonatal outcomes (Hui et al., 2014). Some recent reviews have found high-quality evidence that women receiving an antenatal exercise or diet interventions, or a combination of the two, are less likely to exceed the IOM guidelines, and may have a reduced risk of caesarean section and maternal hypertension (O´Brien, Grivell and Dodd, 2016; Muktabhant, Lawrie, Lumbiganon & Laopaiboon, 2015). The Norwegian Fit for Delivery lifestyle intervention resulted in a lower GWG among pregnant women receiving dietary counselling and participating in twice-weekly exercise groups, compared with those in the standard prenatal care group (Sagedal et al., 2016). These findings are consistent with other trials combining dietary counselling and supervised group training among obese pregnant women (Poston et al., 2015; Vinter et al., 2011).

2.5 Nutrition during pregnancy

Mounting evidence from scientific and epidemiological research suggests that proper prenatal nutrition is necessary to maintain maternal health and support optimal foetal growth and brain development (Morton et al., 2014). Also, good nutrition during the periconceptional period may affect the timing of parturition, the foetus' ability to respond to acute and chronic stressors and foetal, postnatal and adult cardiovascular and metabolic health (MacLaughlin & McMillen, 2007). Hence, it is important to limit overconsumption for the mother and prevent under nutrition for the foetus, both before and during pregnancy (Shapira, 2008).

2.5.1 Nutritional recommendations during pregnancy

In large, the nutritional recommendations for the general population also apply to women in pregnancy (Norwegian Directorate of Health, 2016). Thus, pregnant women should be eating a balanced and varied diet, comprised of whole grain products, vegetables, fruits and berries, lean dairy products, fish, legumes and nuts, while also limiting the amount of processed meats, red meat and foods high in saturated fat, sugar and salt (ibid.). However, additional energy intake is necessary to further support the growth and development of the foetus, placenta and the increased mass of metabolic active tissue (IOM, 1990). During the first trimester the added energy demand is

approximately 100 kcal daily, increasing to 300 and 500 kcal/day during the second and third trimester, respectively (Norwegian Directorate of Health, 2016; IOM, 1990).

Due to the preventive effect folic acid has on neural tube defects such as spina bifida (Academy of Nutrition and Dietetics, 2014), The Norwegian Directorate of Health (2016) advises women to take a supplement of 400 µg folic acid daily during the first trimester, preferably initiating the supplementation when planning to get pregnant. For women living in the Nordic countries it may be necessary to increase the intake of vitamin D, either through diet or supplements (ibid.). A spoon of cod liver oil per day will provide the woman with both Vitamin D and the omega-fatty acid DHA, and is therefore recommended by the Norwegian Directorate of Health (2016). The daily iron demand increases in pregnancy, and iron-deficiency anemia during the first two trimesters increases the risk of preterm labour, low-birth-weight and infant mortality (Gautam, Saha, Sekhri & Saha, 2008). This added iron requirement may be met through a diet rich in iron containing foods, however, for some women an iron supplement may be necessary (ibid.).

Consumption of alcohol in pregnancy may result in behavioural or neurological defects in the foetus, and should therefore be completely avoided (Academy of Nutrition and Dietetics, 2014). Even though research indicates that moderate or high caffeine intake do not increase the risk of congenital malformations, miscarriage, preterm birth or growth retardation (Brent, Christian & Diener, 2011), the Academy of Nutrition and Dietetics (2014) advises pregnant women to consume no more than 200 mg of caffeine daily, corresponding to approximately 3.5 dl of coffee. Also, the avoidance of energy drinks during pregnancy is advised (ibid.).

2.5.2 Nutrition's impact on maternal and foetal health

Apart from influencing GWG, diet may also directly influence the risk of pregnancy complications (Meltzer et al., 2011). Findings reported in systematic reviews and high quality observational studies, indicate that nutritional status both prior to conception and during pregnancy may affect the risk of postpartum depression (Shapiro, Fraser & Séguin, 2012), postpartum weight retention (Siega-Riz et al., 2010), GDM (Shin, Lee & Song, 2015), birth size (Knudsen et al., 2008) and preterm delivery (Grieger, Grzeskowiak & Clifton, 2014; Englund-Ögge et al., 2014). Also, research shows that

inadequate levels of key nutrients may predispose the infant to chronic conditions, including obesity, cardiovascular disease and diabetes, as well as impaired bone health, cognition and immune function later in life (Hanley et al., 2010).

2.5.3 Adherence to nutritional recommendations

Most pregnant women are not meeting the guidelines for healthy eating (United States Department of Agriculture, 2015; Fowles, 2002). An observational study among pregnant women in New Zealand showed that one in four failed to meet any of the recommendations for the four food groups, and only 3% met the recommendations for all food groups (Morton et al., 2014). Similarly, none of the pregnant women in an Australian cohort achieved the recommendations for all food groups (Blumfield et al., 2011). Even though pregnant women in both New Zealand and Australia reported a greater daily intake of both fruit and dairy products compared to non-pregnant women, 82% in the Australian cohort failed to meet the recommended fruit intake for pregnancy (Morton et al., 2014; Blumfield et al., 2011). Also, the majority of pregnant women report an inadequate intake of dietary fibre, vitamin D, folic acid, iron, calcium and zinc (Abu-Saad et al., 2012; Blumfield et al., 2011).

2.6 The health care provider's role in lifestyle change

2.6.1 A teachable moment

Since the late 1940s organized antenatal care has been a part of the community based primary health care in Norway (Backe, 1992). Prenatal care is free of charge and is often provided through alternating visits with midwives and doctors (Backe, Pay, Klovning & Sand, 2014). For pregnant women in Norway, the average number of antenatal consultations is 12.2, with only a slight difference between primiparous (x=12.5) and multiparous women (x=10.7) (Backe, 2001). The frequent appointments with health care professionals, and the fact that women may be more receptive and motivated to make changes for the sake of their baby (Phelan, 2010), makes pregnancy an opportune time to facilitate a change in lifestyle (ACOG, 2015; Nascimento et al., 2015). Pregnant women generally perceive advice given to them by their health care provider to be medically informed and trust this advice to be correct (Stengel et al., 2012). Therefore, health care professionals are ideally positioned to advise women on a

healthy lifestyle. ACOG (2013) recently released guidelines recommending health care providers to council pregnant women on the benefits of PA, appropriate weight gain and nutrition, emphasizing the need to limit EGWG to achieve optimal pregnancy outcomes.

2.6.2 Practices of the health care provider and quality of advice

Although the majority of health care providers report counselling pregnant patients on PA, GWG and nutrition (Whitaker et al., 2016; Power, Cogswell & Schulkin, 2006; Entin & Munhall, 2006), less than half of pregnant women report receiving advice on PA from their health care provider (Nascimento et al., 2015; Stengel et al., 2012; Haakstad et al., 2009; Clarke & Gross, 2004), and only a minority of women have received advice on GWG (Willcox et al., 2015; Downs et al., 2014; McDonald et al., 2012; Stengel et al., 2012; McDonald et al., 2011; Olander et al., 2011). Further, studies show that most health care providers, regardless of medical training, lack knowledge and awareness of the current ACOG PA and exercise guidelines (Whitaker et al., 2016; Stengel et al., 2012; Bauer, Broman & Picarnik, 2010; Entin & Munhall, 2006).

The majority of pregnant women being counselled about weight gain report that the advice is generally discordant with the current IOM guidelines (Willcox et al., 2015; Wang et al., 2015; McDonald et al., 2012; Stengel et al., 2012; McDonald et al., 2011). Moreover, health care professionals often report that they are not familiar with the recommendations (Whitaker et al., 2016; Wilkinson, Poad & Stapleton, 2013; Chang, Llanes, Gold & Fetters, 2013; Herring et al., 2010). In a survey of 900 U.S. obstetricians only 65% modified their recommendations for GWG based on pre-pregnancy BMI (Power et al., 2006).

Evidence on whether or not health care professionals are giving advice on nutrition to their pregnant patients is scarce, and studies have largely been conducted on small samples (Whitaker et al., 2016; Wang et al., 2015; Downs et al., 2014). Women report being encouraged to increase consumption of fruits and vegetables, consume plenty of water and eat less fried food and sugar (Whitaker et al., 2016; Wang et al., 2015). However, only a minority of pregnant women are recommended to eat a specific range of additional calories per day (McDonald et al., 2011). According to Whitaker and colleagues (2016) health care providers consider their own counselling to be inadequate; emphasizing that nutrition counselling often is limited to the first prenatal visit.

2.6.3 Impact of advice

Several studies demonstrate that pregnant women receiving targeted counselling on PA and nutrition improve activity levels and diet, compared to those not receiving such advice (Nascimento et al., 2015; Aittasalo et al., 2012; Jackson, Stotland, Caughey & Gerbert, 2011; Aittasalo et al., 2008).

A few studies have examined the impact of provider recommendations on GWG, reporting associations between provider advice and actual GWG (Herring et al., 2012; Brawarsky et al., 2005). Brawarsky and colleagues (2005) found that women who receive physician advice to gain below or above the IOM guidelines are more likely to have an inadequate or excessive GWG, respectively. A more recent study by Herring and colleagues (2012) found that advice above the IOM recommendations was a significant predictor of EGWG among African American women. These results, although limited, suggest that provider recommendations influence GWG.

Women often report that they would have benefited from receiving more information on PA, GWG and nutrition during antenatal consultations (Downs et al., 2014; de Jersey, Nicholson, Callaway & Daniels, 2013).

2.6.4 Beliefs and barriers to offering lifestyle advice

Although providers report PA, GWG and nutrition as important topics with great impact on the health of the mother and her foetus (Wilkinson et al., 2013; Stotland et al., 2010; Herring et al., 2010), research indicates that counselling women on these topics is given a low priority (Willcox et al., 2012).

Health care providers' barriers to giving pregnant women advice on PA, GWG and nutrition include lack of time (Whitaker et al., 2016; Wilkinson et al., 2013; Willcox et al., 2012; Olander et al., 2011; Herring et al., 2010), not perceiving it as important or not prioritizing it (Whitaker et al., 2016; Chang et al., 2013; Willcox et al., 2012), having insufficient knowledge and training (Whitaker et al., 2016; Wilkinson et al., 2013; Willcox et al., 2012; Olander et al., 2011; Stotland et al., 2010; Herring et al., 2010), experiencing a lack of positive patient interest and lack of success (Whitaker et al., 2016; Chang et al., 2013; Wilkinson et al., 2013; Herring et al., 2010; Stotland et al., 2010), perceiving it not to be their job to give such advice (Wilkinson et al., 2013) and

not wanting to provide women with excessive amounts of information (Willcox et al., 2012; Olander et al., 2011). Also, the lack of a well functioning referral system hampers the provision of advice (Chang et al., 2013; Willcox et al., 2012; Herring et al., 2010).

Another commonly reported barrier is the concern for the sensitivity of the topics (Whitaker et al., 2016; Chang et al., 2013; Wilkinson et al., 2013; Olander et al., 2011; Stotland et al., 2010). Providers report feeling uncomfortable when talking to women about lifestyle changes, knowing that some women may feel offended (Whitaker et al., 2016; Chang et al., 2013; Wilkinson et al., 2013; Olander et al., 2011; Stotland et al., 2010). However, in a study by McDonald and colleagues (2012) the majority of women felt either "comfortable" or "very comfortable" discussing weight-related issues with their care provider.

Moreover, midwives have expressed concern for the trend that many women are inappropriately worried about putting on too much weight, and in order not to make women more anxious about their weight gain, midwives choose to avoid the topic (Willcox et al., 2012).

2.6.5 Ideal counselling

In order to increase the number of pregnant women receiving advice on PA, GWG and nutrition, health care professionals should be given the opportunity to improve their knowledge, as well as learn successful behaviour changing techniques (Joy, Mottola & Chambliss, 2013). The ACOG (2015) considers the motivational counselling technique "the Five A's" (Ask, Advise, Assess, Assist and Arrange) to be a suitable approach. Although originally developed for smoking cessation (ACOG, 2015), it has also proven successful for diet and exercise counselling (Alexander et al., 2011). When using this technique, providers should *ask* the patient about their PA, GWG and nutritional behaviour, give *advice* by specifically linking current recommendations to the patient's own health concerns, *assess* whether or not the patient is willing to make a change in lifestyle*, assist* the patient with goal-setting and develop a specific and individualized action plan and *arrange* follow up to monitor progress, provide feedback and adjust goals (Whitlock, Orleans, Pender & Allan, 2002). This technique is feasible and time efficient, and therefore aids the provider in overcoming some of the barriers to offering lifestyle advice (ibid.).

2.6.6 Women's perceptions of provider advice

Studies on pregnant women´s perceptions of provider advice on PA, GWG and nutrition, show that women often perceive advice to be limited, overwhelming, not individualized, confusing, vague, contradictory and frequently changing (Downs et al., 2014; Ferrari et al., 2013; Stengel et al., 2012; Clarke & Gross, 2004). Also, women report receiving different advice from nurses and doctors (Ferrari et al., 2013; Clarke & Gross, 2004). Despite feeling frustrated and confused by their providers' advice, women report following the advice because they want to have a healthy pregnancy and baby (Ferrari et al., 2013). This further demonstrates the potential role of the health care provider in facilitating a change in lifestyle.

2.6.7 Alternative information sources

Research show that women turn to other information sources in response to receiving what they feel to be inadequate information on PA, GWG and nutrition from their health care providers (Downs et al., 2014; Stengel et al., 2012; Lagan, Sinclair & Kernohan, 2011). Commonly accessed sources include the Internet, commercial books, parenting magazines, discussion forums, leaflets and family and friends (Willcox et al., 2015; Downs et al., 2014; Grimes et al., 2014; McDonald et al., 2012; Stengel et al., 2012; Clarke and Gross, 2004). Of these, the Internet and books, together with discussions with a midwife, are often cited as the most helpful and informative sources of information (Willcox et al., 2015; Grimes et al., 2014; Olander et al., 2011). Recent literature on information seeking in pregnancy has focused on the growing importance of electronic media. Many women utilize the Internet to gather information prior to meeting with a health professional and afterwards to obtain more information (Sayakhot & Carolan-Olah, 2016; Huberty, Dinkel, Beets & Coleman, 2013). Also, women seek social support from other pregnant women and mothers online (Sayakhot & Carolan-Olah, 2016). The increasing use of the Internet for information seeking has been driven by ease of access (Sayakhot & Carolan-Olah, 2016), and women also state anonymity and the scope of current and updated information available, as reasons why they prefer the Internet to other information sources (Lagan et al., 2011). Although a meta-analysis of health website evaluations concluded that low quality was a problem on the Internet (Eysenbach, Powell, Kuss & Sa, 2002), studies show that most pregnant women consider the information they find online to be reliable (Gao, Larsson & Luo, 2013;

Lagan et al., 2011; Larsson, 2009). To date, there is still limited evidence showing how alternative information sources, such as the Internet, parenting magazines, blogs, family and friends etc., affect PA, GWG and nutritional behaviour among pregnant women, and whether or not these information sources encourage a healthy lifestyle.

3. AIMS OF THIS STUDY

Search on PubMed in October 2016 revealed eleven studies investigating pregnant women's information sources on PA, GWG and/or nutrition (Ledoux, Van Den Berg, Leung & Berens, 2015; Willcox et al., 2015; Downs et al., 2014; Kraschnewski et al., 2014; Grimes et al., 2014; Stengel et al., 2012; Lima-Pereira, Bermúdez-Tamayo & Jasienska, 2012; McDonald et al., 2012; Cannella, Lobel & Monheit, 2010; Szwajcer, Hiddink, Koelen & van Woerkum, 2005; Clarke & Gross, 2004). However, the population sizes were generally small (n=17-60) (Kraschnewski et al., 2014; Downs et al., 2014; Stengel et al., 2012; Szwajcer et al., 2005; Clarke & Gross, 2004) and information sources were rarely the main outcome (Ledoux et al., 2015; Kraschnewski et al., 2014; Downs et al., 2014; Lima-Pereira et al., 2012; Stengel et al., 2012; McDonald et al., 2012; Cannella et al., 2010; Szwajcer et al., 2005). Only two studies were of good methodological quality and with adequate population sizes (Willcox et al., 2015; Grimes et al., 2014). However, Grimes and colleagues (2014) recruited women four months post partum; limiting the results to the women's memory. The second study by Willcox and colleagues (2015) investigated women with a mean gestation length of 20.8 week, and found that only one in ten women had received advice from their health care provider on GWG. As antenatal consultations are more frequent towards the end of pregnancy, this number may be artificially low. Hence, there is limited evidence investigating pregnant women's information sources regarding PA, GWG and nutrition at late gestation. To our knowledge, the present study is also the first to evaluate how different information sources affect PA, GWG and nutritional practices among pregnant women in Scandinavia.

Researchers have called for a more in-depth investigation into the knowledge, beliefs and practices among health care providers in Norway regarding recommendations for PA, GWG and nutrition in pregnancy (Haakstad, 2010). No previous studies with this aim were identified.

Hence, the current study were three folded: (1) investigate the main information sources among pregnant women regarding PA, GWG and nutrition, (2) evaluate how these information sources may affect their health behaviour and (3) examine to what extent health care providers advise pregnant women on these topics.

4. METHOD

4.1 Study design

The present project was a cross-sectional study conducted in Oslo, Norway, from February to August 2016. With respect to the different aims of the study, data collection was divided into two parts. In part A, pregnant women were asked to fill in an electronic questionnaire investigating their health behaviours, as well as their information sources regarding PA, GWG and nutrition (Appendix 1). In part B, midwives and family physicians answered a postal survey with the aim to explore their beliefs and practices with respect to giving advice on PA and exercise, GWG and nutrition to their pregnant patients (Appendix 2).

According to the Regional Committee for Medical and Health Research Ethics, South East Norway (REC), the project fell outside the Health Research Act of 2008 (Appendix 5). The project was then approved by the Norwegian Social Science Data Services (Appendix 6). In accordance with the Declaration of Helsinki all participants received written information about the project´s purpose and procedures and gave consent to participate (Appendixes 3 and 4). Further, it was emphasized that participation was voluntary and that the participants could withdraw from the project at any time with no explanation required. The collected data was coded, and thus anonymous, and kept confidential in accordance with the guidelines. No economic compensation was given.

4.2 Part A

4.2.1 Participants

Enrolment in part A of the project was limited to women living in Oslo, ≥ 18 years, ≥ 20 weeks gestation and being able to read and write Norwegian. Approximately 60 000 children are born in Norway every year, with ca. 17% being born in the capital city of Oslo (Norwegian Institute of Public Health, 2015). As nearly all pregnant women attend antenatal care regularly (Backe, 2001), antenatal clinics were deemed suitable places to recruit participants for the present study. To ensure a representative sample with respect to different ethnicities, age groups and socioeconomic backgrounds, all antenatal clinics in Oslo (n=18), both urban and rural, were in January 2016 invited to participate. However, only two agreed to distribute questionnaires to their pregnant patients. The

data collection at these two clinics took place between March 15th and April 30th, and 31 women answered the questionnaire.

As a consequence of the low number of participating antenatal clinics, we also recruited women from other arenas, such as pregnancy-related chat forums and social media, e.g. Facebook and Instagram. A research assistant also recruited women via in-person contact. The advertisement on Facebook was not limited to pregnant women, but targeted all women living in Oslo in the age group 20 – 40 years. The internet-based survey, using SurveyXact, was active between June 1th and August 15th. The web-link was accessed 1078 times. Of the 244 women answering the electronic questionnaire, 119 (11%) completed the survey, while 125 (11.5%) were excluded due to insufficient answers.

The total response rate was 150 participants, and women from all fifteen boroughs of Oslo participated in the study.

4.2.2 The questionnaire

The electronic questionnaire contained 101 questions, and addressed women's information sources, PA and nutritional behaviour, GWG, social support and motives and barriers for being physically active. We also investigated women's pregnancy related complaints and quality of life. The questionnaire was developed on the basis of validated questions used in previous studies (Sagedal et al., 2013; Haakstad, Gundersen & Bø, 2010; Owe et al., 2009), and consisted mostly of closed questions, with some questions giving the option to elaborate. The questionnaire required 15-20 minutes to complete.

Below is a presentation of the questions used to answer our research questions; a complete questionnaire can be found in Appendix 1.

4.2.3 Outcome measures

The questionnaire was divided into six subcategories:

1. Participant's demographics

Section one addressed the participant's age, pregnancy week, parity, marital status, place of residence, country of birth, educational level, occupation and number of antenatal consultations. Participants were also asked whether they currently were on sick leave. If respondents answered "yes" to this question, the reasons for sick leave were investigated. Categorical options for pregnancy related sick leave were: 1) *Back pain*, 2) *Pelvic girdle pain*, 3) *Nausea,* 4) *Braxton Hicks contractions,* 5) *Gestational diabetes mellitus*, 6) *Fatigue*, 7) *Persistent bleeding*, 8) *Preeclampsia*, 9) *Hypertension,* 10) *Incontinence* and 11) *Other, please specify.*

2. Health, lifestyle, body image and quality of life

Questions addressing pregnancy complaints were retrieved from a Norwegian RCT (Haakstad & Bø, 2011). The respondent were asked whether or not they in the current pregnancy week were experiencing back pain, pelvic girdle pain and/or urinary incontinence. Respondents answering "yes" to back pain or pelvic girdle pain, were asked to rate their pain on an 11-item scale, 0 being "no pain" and 10 being "worst possible pain". Also, pain localization was investigated. The categorical alternatives for back pain were: 1) *Upper back*, 2) *Lower back with pain radiating to the legs* and 3) *Lower back not radiating to the legs.* Categorical options for the location of pelvic girdle pain were: 1) *In front (symphysis)*, 2) *Back (one side)*, 3) *Back (two sides)*, 4) *Back and in front (one side)* and 5) *Back and in front (two sides)*. Respondents answering "yes" to urinary incontinence, were asked to rate their problems on an 11-item scale, 0 being "no problems" and 10 being "worst possible problems". Also, at what time they experienced the urinary incontinence was explored, with the following categorical responses: 1) *When physically active*, 2) *With strong urination*, 3) *When coughing and/or sneezing* and 4) *When laughing*.

This section also included questions about smoking habits and self-reported GWG. Pre-pregnancy height and weight were used to calculate pre-pregnancy BMI. BMI categories and GWG ranges were consistent with the World Health Organization's (WHO) guidelines (2000) and the recommendations from the IOM (2009).

When investigating body image and quality of life, the respondents were asked to rate their "feeling" regarding four different statements on an 11-item scale, 0 being negative and 10 being positive. The statements were: 1) *How satisfied were you with your body weight pre pregnancy?* 2) *How satisfied are you with your body weight today?* 3) *How satisfied were you with your body shape pre pregnancy?* 4) *How satisfied are you with your body shape today?*

3. Physical activity level

To gain information about total physical activity level (PAL) women were asked if they in the current pregnancy week were physically active, as well as how many times a week they were exercising. These questions were based on the ACOG's recommendation for PA (2015) and Caspersen and colleagues' (1985) definition of exercise, respectively. The questions were also asked retrospectively.

4. Barriers and motivation

The Physical Activity Enjoyment Scale (PACES) was used to investigate the participants' feelings regarding participation in PA on an 11-item scale: 1) *I hate physical activity* (0) to *I love physical activity* (10), 2) *Physical activity is not fun* (0) to *Physical activity is fun* (10) and 3) *Physical activity is tiring* (0) to *Physical activity is energizing* (10) (Kendzierski & DeCarlo, 1991). The scale was modified from the original 7-item scale to the same 11-item scale used in other questions. Consistent use of the same scale makes it easier for the respondents to answer the questionnaire.

When assessing barriers and motives, respondents were asked to choose three reasons why they were exercising or three reasons why they were not exercising (Haakstad et al., 2010). Categorical reasons for exercising included: 1) *It is fun,* 2) *It improves my appearance,* 3) *I´m exercising to participate in larger or smaller competitions,* 4) *It is pleasurable/gives me energy,* 5) *It improves fitness/prevents health problems,* 6) *It controls my weight gain during pregnancy,* 7) *It increases my self-confidence / self-esteem,* 8) *I feel like I have to,* 9) *It´s social,* 10) *It reduces pregnancy complaints,* 11) *It prevents anxiety and depression and 12) It relaxes me.* Categorical reasons for not exercising included: 1) *I don´t have time,* 2) *I'm not interested,* 3) *I get enough exercise*

through my work and/or at home, 4) *I lack motivation,* 5) *It takes too much to get started,* 6) *I have a handicap,* 7) *I have negative experiences associated with physical activity,* 8) *It does not fit with my family duties,* 9) *I don't have anyone to exercise with,* 10) *Health care professionals have advised me not to be physically active,* 11) *It is difficult to combine with work/education,* 12) *I lack experience*, 13) *There are few exercise alternatives,* 14) *I fear for my unborn child* and 15) *Pregnancy complaints.*

5. Nutritional behaviour

Women were asked to characterize their diet on a scale from 0-10, 0 being very poor and 10 being very good. We asked the same question retrospectively and in the current pregnancy week. Women were also asked to specify the number of fruits, vegetables and calcium-containing food servings they consumed per day, as well as how often they consumed fish, meat, sugary foods, such as cereal, chips, chocolate, soda etc. and fast food such as pizza, hamburger, kebab etc. The questions were based on the questions used in the MoBa study (Owe et al., 2009) and the "Fit for delivery" study (Sagedal et al., 2013), as well as the Norwegian Directorate of Health's (2016) recommendations.

6. Information sources

To gain data about possible information sources, we asked where the participants had received or retrieved information on PA, GWG and nutrition, and which of these information sources that had the greatest impact on their health behaviour. Categorical options were: 1) *Midwife,* 2) *Family physician,* 3) *Blogs and Internet forums,* 4) *Parenting magazines*, 5) *Books and information pamphlets,* 6) *Family and friend,* 7) *I have not received/retrieved information/advice and* 8) *Other.* If the respondents answered "Other", they were asked to elaborate. For the purpose of analysis the women were divided into three groups: women stating 1) health professionals (midwife or family physician), 2) family and friends and 3) media and Internet (blogs and Internet forums, books and information pamphlets and parenting magazines) as the source with the most impact on their health behaviour. Also, women were asked about the content of the advice, how much the information sources had influenced their health behaviour and how often they had received advice on these topics during their antenatal consultations.

Further, women were asked whether or not they felt they had received sufficient advice on each of the topics from their health care provider. Respondents answering "no" were asked to elaborate on the reasons why. The categorical responses were: 1) *Physical activity/nutrition/weight gain was never a topic,* 2) *The health care provider seemed uninterested in physical activity/nutrition/weight gain,* 3) *The health care provider wanted to use the available time on other topics,* 4) *The health care provider seemed academically uncertain* and/or 5) *Other, please specify.*

4.3 Part B

4.3.1 Participants

All antenatal clinics in Oslo were requested to specify the number of midwives they had working in prenatal care. The provided number of midwives was 30. We wanted to invite an equal number of family physicians to partake in the project. Hence, 30 midwives from all 18 health care clinics in Oslo and 30 family physicians randomly obtained from "Helsenorge"'s database, were invited to participate in part B of the study. Health care providers were considered eligible to participate if they were seeing prenatal patients at the time of recruitment. The questionnaire was distributed in June 2016. Participants who did not wish to answer the questionnaire, were asked to return a form investigating reasons for refusal. The categorical responses were: *"I do not have the time", "I do not have pregnant patients", "The aim of the study is not relevant to me", "I receive many surveys and am therefore not able to answer"* and *"Other"*. Respondents answering "Other" were asked to elaborate.

Of the 60 health care providers invited to participate, eight family physicians and six midwives completed the survey. In addition, nine health care providers declined participation, but returned the form investigating reasons for not wanting to participate.

4.3.2 The questionnaire

The questionnaire in part B consisted mostly of closed questions, with some questions giving the option to elaborate. Below is a presentation of the questions used to answer our research questions; a complete questionnaire can be found in Appendix 2. The questionnaire required 10 minutes to complete.

4.3.3 Outcome measures

This fourteen-page questionnaire contained 71 items, divided into seven subcategories:

1. Participant's demographics

This section comprised five questions addressing the participant's age, gender, clinical title, number of years practicing antenatal care and percentage of workload consisting of antenatal care.

Health care providers' health and lifestyle (2), physical activity (3) and diet (4)

Using the same questions as in part A, these subcategories addressed the providers' personal practices regarding PA and diet, as well as their smoking habits and social support, barriers and motives concerning PA and exercise.

Physical activity (5), nutrition (6) and weight control (7) in pregnancy

Extent of advice on PA, GWG and nutrition

Whether or not the health care providers gave advice to their pregnant patients on PA, GWG and nutrition, was assessed using simple yes or no questions. Providers answering "yes", were asked to elaborate on what they based their advice on. The categorical alternatives were: 1) *Own experiences,* 2) *Recommendations from the health authorities,* 3) *Research articles* and 4) *Supplementary education.* Respondents had the opportunity to choose more than one category. If respondents answered no, the reasons why were investigated. The categorical responses were: 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/favourable weight gain is not essential for a good pregnancy* and 5) *Pregnant women are not interested in talking about physical activity/nutrition/weight gain.* Further, providers were asked the number of times and at what time they gave advice to their pregnant patients on these topics. Categorical options were: 1) *first meeting,* 2) *first trimester,* 3) *second trimester,* 4) *third trimester,* 5) *post partum and/or* 6) *at all occasions*. Respondents were able to choose more than one category.

Advice consistent with recommendations

When investigating whether or not the providers gave PA advice consistent with the ACOG recommendations (2015), we asked: *Do you recommend pregnant women to participate in 1) Endurance training, 2) Strength training and 3) Pelvic floor exercises?* If the respondent answered "yes" to any of these questions, the frequency, duration, intensity and type of activity they recommended were investigated.

Health care providers were also asked if they would discourage certain women from being physically active in pregnancy, with the following response options: 1) *Women with placenta previa after 26 weeks of gestation*, 2) *Women at risk for premature labour,* 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.* Providers had the opportunity to choose more than one category. Responding to this question with option 1, 2, 3 and/or 4 indicated that the provider had knowledge of some of the contraindication to exercise during pregnancy.

To explore if the advice providers gave to their pregnant patients on weight gain was coherent with the IOM recommendations (2009), we asked the following questions: *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.*

The questions investigating the consistency of healthy eating advice with respect to the recommendations from the Norwegian Directorate of Health (2016), were as follows: *"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 fibre content?* 3) *Eat lots of fish?* 4) *Choose lean milk and dairy products?* 5) *Choose products that are labelled 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

To assess attitudes regarding giving health advice, providers were asked 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/favourable,* 2) *To give pregnant women advice on physical activity/nutrition/weight gain is an important part of antenatal care,* and 3) *It is unpleasant to talk to pregnant women about physical activity/nutrition/weight gain*. These statements were based on results from similar studies (Chang et al., 2013; Bauer et al., 2010; Entin & Munhall, 2006).

Health care providers were also asked what they believed to be the three biggest health benefits and three biggest health risks of exercise during pregnancy. The categorical options for benefits 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 labour,* 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 foetus*, 3) *Low birth weight*, 4) *Hypoxia,* 5) *Insufficient nutrition,* 6) *Premature birth,* 7) *Urinary incontinence,* 8) *Hyperthermia,* 9) *Prolonged birth process* and 10) *Miscarriage.* The categorical alternatives for both health benefits and health risks were based on results from similar studies (Entin & Munhall, 2006), as well as ACOG's recommendations for PA (2015).

4.4 Pilot study

Questionnaire A was pre-tested among 23 pregnant women and questionnaire B among six health care providers, from February to May 2015. Two bachelor students conducted this preliminary study. The pilot test revealed that a substantial number of questions remained unanswered. As a consequence we chose to restructure the questionnaires, and introduced the option to proceed to the next category if the answer was "no" to the first

question. Due to these changes, we chose not to include these participants in the main study.

4.5 Statistical analysis

All statistical analyses were performed using SPSS Statistical Software version 21.0 for Windows. Background variables are presented as frequencies, percentages and means with standard deviation (SD). High satisfaction with body shape and body weight was defined as a score ≥ 7 on an 11-item scale. To address the association between reported information sources and self-reported adherence to PA (yes/no), GWG and nutritional recommendations, we used the three groups of women stating 1) health professionals, 2) family and friends and 3) media and Internet as their most important source of information. Whether a woman had gained weight below, within or above the guidelines was calculated using mean recommended weight gain in first trimester (1.5kg) (IOM, 2009), adding the mean recommended number of grams per week multiplied by the number of weeks the woman was pregnant above the first trimester. Adherence to nutritional guidelines was defined as a score ≥ 7 on an 11-point scale. The relationship between information sources and selected variables, including health behaviour and descriptive variables, were assessed by logistic regression, linear regression or X^2 as appropriate. Great influence of the information sources on women's health behaviours was defined as a score ≥7 on an 11-item scale. Paired sample t-tests were used to compare health care professionals' ratings of different statements regarding PA, GWG and nutrition. Level of statistical significance was set at $p < 0.05$.

4.6 Research group

Master student on this project was Emilie Mass and main supervisor was Associate Professor, PhD, Lene A. H. Haakstad. This project was organized under the Department of Sports Medicine at the Norwegian School of Sport Sciences (NSSS).

5. RESULTS

5.1 Part A

5.1.1 Health and background variables

Participant characteristics are shown in Table 3. Age ranged from 19 to 45 with a mean of 31.1 (± 4.3) years. Mean gestation week was 30.6 (± 5.9) and mean pre-pregnancy BMI was 24.2 (± 4.2) kg/m^2. Thirty-seven (24.7%) women were sick listed due to pregnancy complaints, with the highest prevalence in pelvic girdle pain (12%), fatigue (8.7%) and nausea (6.7%).

The mean number of antenatal consultations was 5.2 (± 2.7) (range: 1-15).

Forty-four percent of women were highly satisfied with their body weight during pregnancy, and 42.7% reported being highly satisfied with their maternal body shape.

Almost 90% of women characterized themselves as physically active prior to pregnancy, decreasing to less than

Table 3: *Participant characteristics (n=150). Data are presented in frequency (n) and percentage (%).*

Characteristics	n	%
Age		
19-24 years	10	6.7
25-29 years	39	26.0
30-34 years	72	48.0
≥ 35 years	29	19.3
Gestation week		
20-25	35	23.3
26-30	34	22.7
31-35	45	30.0
≥ 36	36	24.0
Parity		
Primiparous	91	60.7
Multiparous	59	39.3
Physically active		
Pre-pregnancy	132	88.0
During pregnancy	73	48.7
Pre-pregnancy BMI category		
Underweight	2	1.3
Normal weight	102	68.4
Overweight	28	18.7
Obese	17	11.4
Smoking in pregnancy		
No	149	99.3
Yes	1	0.7
Marital status		
Married/living together	147	98.0
Other	3	2
Country of birth		
Norway	130	86.7
Other	20	13.3
Education		
< 4 years	54	36.0
≥ 4 years	96	64.0
Employment status		
Employed/student	144	96.0
Not employed	6	4.0
Prenatal care provider		
Family physician	25	16.7
Midwife	43	28.7
Shared care*	75	50.0
Other	7	4.7
Pregnancy complaints		
Pelvic girdle pain	69	46.0
Back pain	67	44.7
Urinary incontinence	30	20.0
On sick leave	39	26.0
Antenatal visits		
≤ 4 visits	63	42.0
> 4 visits	87	58.0

* Antenatal care shared between midwife and family physician.

50% in their current pregnancy week (range: 20-41 weeks gestation). Moreover, women exercised, on average, 2.42 (± 1.7) times per week before pregnancy, decreasing to 1.1 (± 1.5) times in their current pregnancy week.

Table 4 shows that the most common reason for exercising during pregnancy was *"It improves fitness/prevents health problems",* followed by *"It is pleasurable/gives me energy"* and *"It improves my appearance".* The most common barriers were *"Pregnancy complaints", "Lack of motivation"* and *"I don't have the time"* (Table 4).

Table 4: *Motives and barriers for exercising (n=150). Data are presented in frequency (n) and percentage (%).*

Motives	**n (%)**	**Barriers**	**n (%)**
Fitness/prevents health problems	77 (51.3)	Pregnancy complaints	38 (25.3)
It is pleasurable/gives me energy	75 (50.0)	Lack of motivation	29 (19.3)
Improves appearance	29 (19.3)	I don't have time	20 (13.3)
It is fun	28 (18.7)	Does not fit with family duties	14 (9.3)
Controls GWG	26 (17.3)	Requires too much to get started	13 (8.7)
Increases self-confidence/self-esteem	23 (15.3)	Discouraged by health professional	13 (8.7)
It reduces pregnancy complaints	22 (14.7)	Enough exercise through work/home	11 (7.3)
I feel like I have to	17 (11.3)	Difficult to combine with occupation	9 (6.0)
It relaxes me	9 (6.0)	Fear for the unborn child	5 (3.3)
It's social	3 (2.0)	I have a handicap	5 (3.3)
It prevents anxiety and depression	3 (2.0)	Negative experiences with PA	4 (2.7)
Participation in competitions	2 (1.3)	Few exercise alternatives	4 (2.7)
		I'm not interested	4 (2.7)
		I don't have anyone to exercise with	3 (2.0)
		Lack of experience	0 (0)

Note: Women were asked to respond the three most important reasons.

As shown in Table 5, nearly 65% of women had gained weight outside the IOM recommendations. Women with EGWG gained on average 3.0 (± 2.4) kg above the guidelines, while women with inadequate GWG gained on average 2.6 (± 2.2) kg below the guidelines. About half the respondents (50.7%) were familiar with the IOM table for recommended weight gain. Familiarity with the IOM recommendations was not associated with gaining within (p = 0.8), below (p = 0.1) or above (p = 0.8) the guidelines.

Table 5: *Women gaining within, below or above the IOM recommendations. Data are presented in frequency (n) and percentage (%).*

	n	**%**
Below recommendations	37	26.7
Within recommendations	51	36.7
Above recommendations	51	36.7

Nearly two thirds (65.3%) of women answered the question regarding nutritional recommendations with ≥ 7 on the 11-item scale, indicating adherence to the guidelines. Following the nutritional recommendations was not associated with adherence to PA (p = 0.3) or GWG recommendations (p = 0.4).

5.1.2 Information sources

Most women reported multiple sources of information on PA, GWG and nutrition (Table 6). When viewing all three lifestyle factors as one, blogs and Internet forums were the most frequently used information source, followed by books and information pamphlets. Less than one third of women had received advice from a midwife or family physician. Parenting magazines and friends and family were the leased used information sources (Table 6). Across all three topics, significantly more women reported media and Internet sources than health professionals ($p < 0.001$ for PA, $p < 0.001$ for nutrition and $p < 0.001$ for GWG), as the source mostly impacting their health behaviour (Table 7).

Table 6: *Pregnant women's information sources on PA, GWG and nutrition. Data are presented in percentage (%).*

	Physical activity	Gestational weight gain	Nutrition
Blogs and Internet forums	42.7	32.0	40.7
Books and information pamphlets	32.0	22.0	48.0
Parenting magazines	20.7	10.0	20.7
Friends and family	27.3	7.3	22.7
Midwife	30.7	18.0	35.3
Family physician	28.7	14.0	34.0
Other	10.0	2.7	7.3
I have not received/retrieved information	19.3	46.0	11.3

Almost half the women reported not receiving or retrieving information on GWG, while less than 20% reported not receiving/retrieving advice on PA and less than 12% on nutrition (Table 6). There were significantly more multiparous women not receiving/retrieving advice on PA compared to primiparous women (30.5% vs. 12.1%, p = 0.005). Similar, but not significant, tendencies were found for nutrition (16.9% vs. 7.7%, p = 0.08) and GWG (50.8% vs 42.9%, p = 0.34).

Nearly 70% of women reported media and Internet as their most important source on nutritional information. Less than 20% stated that health professionals had the most impact on their PA behaviour (Table 7).

Table 7: *Information sources with the most impact on health behaviour. Data are presented in percentage (%).*

	Physical activity	Gestational weight gain	Nutrition
Media and Internet sources	50	61.7	69.9
Friends and family	29.5	14.8	15.8
Health professionals	19.7	33.3	30.0

To explore possible associations with the choice of information sources, binary logistic regressions on all background variables, including body dissatisfaction, pregnancy complaints, motives and barriers, were performed. Three associations were significant. First, age was associated with decreasing odds of reporting friends and family as the most important information source on PA (OR = 0.9, CI 0.8 – 0.9, p = 0.03). Second, being highly educated (≥ 4 years of college/university) was associated with decreasing odds of stating friends and family as the most important source on nutrition (OR = 0.3, CI 0.1 – 0.8, p = 0.02). Last, number of children was associated with decreasing odds of choosing media and Internet as the most important sources on nutrition (OR = 0.5, CI 0.3 – 0.9, p = 0.04). When all covariates were entered into the same model, the only association that remained significant was between high education and not stating friends and family as their main information source on nutrition (p = 0.04).
Nearly forty-five percent (44.7%) of women reported not receiving advice on PA during their antenatal consultations, and 37.3% had not received advice on nutrition.

Fifty-eight women (38.7%) found the information they had received on PA during their antenatal consultations to be insufficient. The corresponding numbers for GWG and nutrition were 48% and 36.7%, respectively. Across all three topics, the most common reason for perceiving advice as insufficient was '*The health care provider wanted to use the available time on other topics'*.

5.1.3 Impact on women's health behaviours

Advice consistent with recommendations

Consistent with the ACOG recommendations, 72.7% of women were advised to maintain their PAL throughout pregnancy. Moreover, almost all (91.7%) women stating friends and family as the source with the most impact on PA, received advice consistent with the recommendations. Among the women reporting media and Internet as their most important source, 77.1% received consistent advice, and similarly, 75% of the

women choosing health professionals received advice consistent with the ACOG guidelines.

Regardless of the information source, 67.2% of women received advice consistent with the IOM recommendations, while 19.6% were advised to gain above the guidelines and 11.5% were advised to gain below. Twenty women (13.3%) reported receiving advice on how much weight to gain during pregnancy from their health care provider. Of these, ten (6.7%) had received advice in compliance with the IOM recommendations.

Impact of advice

We found no significant associations between the three groups of information sources and the odds of being physically active in pregnancy (Table 8).

Table 8: *Associations between information sources and adherence to PA recommendations.*

	OR	**95% CI**	**p**
Media and Internet sources	0.7	0.3 – 1.5	0.4
Friends and family	1.5	0.7 – 3.2	0.6
Health professionals	0.7	0.3 – 1.8	0.4

Binary logistic regressions on the impact of information sources on GWG showed that choosing media and Internet as the most important source on GWG information, significantly increased the odds of gaining below the guidelines. The category friends and family was significantly associated with gaining above the guidelines (Table 9).

Table 9*: Association between information sources and gaining below and above IOM guidelines.*

	Gaining below guidelines			**Gaining above guidelines**		
	OR	95% CI	p	OR	95% CI	p
Media and Internet sources	15.5	1.4 – 167.4	0.02	2.3	0.6 – 8.8	0.2
Friends and family	5.0	0.1 – 207.9	0.4	12.0	1.3 – 111.7	0.03
Health professionals	7.9	0.7 – 83.8	0.08	2.0	0.5 – 8.7	0.3

Women choosing media and Internet as their primary source on nutrition, reported higher adherence to nutritional recommendations compared to other groups (Table 10). This association remained significant after controlling for self-reported diet before

pregnancy (p = 0.03). Also, a significant association was found between consumption of at least five portions of fruits and vegetables each day and choosing media and Internet as the source with the most impact on nutrition (p = 0.04). Choosing friends and family or health professionals was associated with a lower adherence, although not significant (Table 10).

***Table 10**: Associations between information sources and adherence to nutritional recommendations.*

	B	95% CI	p
Media and Internet sources	0.7	0.1 – 1.3	0.03
Friends and family	-0.5	-1.3 – 0.2	0.2
Health professionals	-0.3	-0.9 – 0.3	0.4

Regardless of the information sources, 41.0% of women reported that they had been highly motivated to be physically active, while 5.7% reported that they had been highly discouraged. Also, 33% of women reported that the information sources had a great influence on their diet, and 19.7% reported that they had a great influence on GWG.

5.2 Part B

5.2.1 Participant characteristics

Of the 14 health care professionals participating in the study, 12 were women and two were men. Of these, eight were family physicians and six were midwives. For simplicity, the term "health care provider" is used to group all survey respondents.

Mean age was 50.9 (± 8.6) and mean years practicing antenatal care was 17.1 (± 8.0). All participants characterized themselves as physically active and exercising, with 12 out of 14 having exercised for more than 10 years. Twelve out of 14 participants reported high adherence to nutritional recommendations.

Among the nine health care providers declining to answer the questionnaire, the most common reasons were *"I receive too many surveys and am therefore not able to answer"* (n=6) and *"I do not have the time"* (n=3).

5.2.2 Extent of provider counselling

Twelve out of 14 health care providers reported giving advice on all three topics, while one reported not giving advice on PA and nutrition, and one not giving advice on GWG. Both health care providers stated *"I do not have the time"* as the main reason for not giving such advice.

The mean number of times the health care providers gave advice throughout pregnancy was 2.3 (± 1.1), 2.5 (± 1.7) and 2.3 (± 1.2) for PA, GWG and nutrition, respectively. Across all three topics, most health care providers gave advice on the first meeting. Six providers reported that they follow up advice on PA, 11 on GWG and eight on nutrition. Half of providers handed out information pamphlets on PA, four on GWG and 11 on nutrition.

5.2.3 Advice consistent with guidelines

When viewing all three lifestyle factors as one, the vast majority of providers reported basing their advice on recommendations from the health authorities. An even proportion of providers based their advice on own experiences, scientific research and supplementary education (Table 11).

Table 11: *Providers' basis for giving advice. Data are presented in frequency (n)*

	Physical activity	**Gestational weight gain**	**Nutrition**
Recommendations	11	12	13
Own experiences	8	4	6
Scientific research	5	4	7
Supplementary education	2	7	6

Physical activity

Eleven out of 14 health care providers did not give advice consistent with the ACOG recommendations (2015). Five providers recommended women to perform pelvic floor exercises every day, which is consistent with the recommendations from the Norwegian health authorities (2013).

When asked if they would discourage certain women from being physically active in pregnancy, two out of 14 providers correctly identified all four contraindications to exercise included in this survey.

Gestational weight gain

As for GWG, 10 out of 14 providers reported values discordant with the IOM recommendations (2009) for at least one pre-pregnancy BMI category. The proportion of providers giving advice consistent with the guidelines did not differ between the pre-pregnancy BMI categories.

Nutrition

Eleven providers gave advice consistent with the nutritional recommendations (Norwegian Directorate of Health, 2016) to their pregnant patients. All providers recommended women to avoid alcohol.

5.2.4 Health care providers' beliefs and attitudes

As shown in Table 12, attitudes were rated positively regarding PA and nutrition in pregnancy. On an 11-item scale where 0 corresponded to completely disagree and 10 to completely agree, providers rated GWG as significantly more unpleasant to talk about, compared to PA ($p = 0.01$) and nutrition ($p = 0.007$). Regarding the importance of giving advice on PA, GWG and nutrition during antenatal consultations, providers rated PA ($p = 0.018$) and nutrition ($p = 0.004$) as more important subjects to give advice on, compared with GWG. Providers also rated PA ($p = 0.005$) and a nutritious diet ($p = 0.002$) as significantly more important for a healthy pregnancy compared to favourable GWG.

Table 12: *Health care providers' attitudes regarding different statements on an 11-item scale. Data are presented as means with SD.*

	Physical activity	Gestational weight gain	Nutrition
"It is unpleasant to talk about"	0.6 (± 1.0)	2.2 (± 2.6)	0.9 (± 1.9)
"Giving advice is an important part of prenatal care"	9.1 (± 1.8)	6.9 (± 2.6)	9.0 (± 1.4)
"PA/GWG/nutrition is important for a healthy pregnancy"	9.5 (± 0.9)	7.1 (± 2.8)	9.6 (± 1.1)

Table 13 and 14 shows what the health care providers perceived to be the biggest benefits and risks of PA in pregnancy, respectively. *"May prevent gestational diabetes mellitus"* was the most frequent response for health benefits, followed by *"the mother returns to pre-pregnancy shape faster"* and *"may shorten the birth process"*. The

biggest risks of exercise were perceived to be *"premature birth", "hyperthermia" and "miscarriage"*.

Table 13: *Perceived benefits of physical activity in pregnancy. Data are presented in frequency (n) and percentage (%).*

Benefits of physical activity	**n**	**%**
May prevent gestational diabetes mellitus	12	85.7
The mother returns to pre-pregnancy shape faster	10	71.4
May shorten the birth process	6	42.9
May prevent pelvic girdle pain	6	42.9
May prevent back pain	5	35.7
May prevent preeclampsia	2	14.3
May prevent low birth weight	1	7.1
May prevent urinary incontinence	1	7.1
May prevent premature labour	0	0
May prevent miscarriage	0	0

Note: The providers were asked to respond the three most important categories.

Table 14: *Perceived risks of physical activity in pregnancy. Data are presented in frequency (n) and percentage (%).*

Risks of physical activity	**n**	**%**
Premature birth	7	50.0
Hyperthermia	5	35.7
Miscarriage	4	28.6
Insufficient nutrition	3	21.4
Hypoxia	2	14.3
Urinary incontinence	2	14.3
Greater need for pain relief during birth	0	0
Malformations in the foetus	0	0
Low birth weight	0	0
Prolonged birth process	0	0

Note: The providers were asked to respond the three most important categories.

6. DISCUSSION

6.1 Methodological considerations

6.1.1 Study design

In order to answer our research questions, we conducted two cross-sectional surveys; one electronic in part A and one paper-based in part B. Cross-sectional studies are time efficient, cost effective and useful for measuring a wide variety of outcomes and risk factors (Thomas, Nelson & Silverman, 2011). In addition, the method is well suited for describing covariance between two or more variables at a given time (Halvorsen, 2008). However, the latter is also the main challenge using a cross-sectional study design. As both exposure and outcome are identified at one time point, the temporal sequence is often impossible to determine, and we are therefore unable to address the topic of causality (Lu, 2009; Halvorsen, 2008). Hence, we could not assess if specific information sources prospectively predicted women's health behaviours, nor were we able to determine the direction of the covariance. Still, high quality cross-sectional studies offer a good basis for future intervention studies and for public health planning (Lu, 2009).

6.1.2 Participants

To our knowledge, this is the first study investigating the potential relationship between pregnant women's information sources and their health behaviours. Hence, no power calculation was conducted. Still, the population size in part A of our study (n=150) was larger than several other studies investigating pregnant women's information sources on PA, GWG and/or nutrition (n=17-60) (Kraschnewski et al., 2014; Downs et al., 2014; Stengel et al., 2012; Szwajcer et al., 2005; Clarke & Gross, 2004). In order to

Our initial approach was to recruit participants through both urban and rural antenatal clinics in Oslo; thus being able to generalize our results to the pregnant population of Oslo. However, most clinics had on-going research projects, making it difficult for us to gain access. As an alternative approach we created an Internet-based survey, and spread the link via social media, pregnancy-related chat forums, the university website etc. Even though electronic surveys do not always give the best response rates (Sinclair et al., 2012), it enabled us to reach a large number of potential participants. According to

Statistics Norway (2016a) 87% of the Norwegian population aged 9-79 years use the Internet on a daily basis. As respondents were recruited through advertisement they may represent a highly selected sample, thus introducing the problem of selection bias and impacting the generalizability of the results. Even though women from all fifteen boroughs of Oslo participated in the study, most participants were Nordic Caucasians, had stable partners, were non-smokers, college/university educated, employed and physically active prior to pregnancy. In order to generalize our results, replication in a more diverse sample may be required.

Understanding and measuring health care professionals' knowledge, beliefs and practices are essential in improving the quality of health care (Pit, Vo & Pyakurel, 2014). However, recruitment of health care professionals may be difficult (ibid.). A systematic review found that response rate was higher using postal surveys than fax and online surveys (VanGeest, Johnson & Welch, 2007). Also, enclosed stamped envelopes increased the response rate among physicians (ibid.). Hence, we chose to send the surveys by mail, enclosing a prepaid envelope when recruiting participants for part B of the study. Despite this, only 14 out of 60 invited providers answered the survey.

One of the factors that may have contributed to the low response rate was that no second requests or reminders were mailed. Despite our initial intention to do this, reminding health professional turned out to be challenging. The reason was that instead of coding the return-envelope, the questionnaire was coded. Consequently, we had no record of who had returned the form investigating reasons for not participating in the study. This made it difficult to identify which providers to remind and which had already sent us their replies.

Of the providers participating in this study, only two were men. This may be due to the predominance of women employed in antenatal care. According to Statistics Norway (2016b), more than 99% of midwives are women. Hence, a higher response rate among women is to be expected.

Also, all providers reported being physically active, which is a much higher proportion than in the general population (Norwegian Directorate of Health, 2015). Hence,

replication of the present study in a larger, more gender balanced sample, is warranted.

6.1.3 Assessment procedures and outcome measures

To our knowledge, no validated questionnaires on information sources and health behaviours, or practices of the health care provider existed when we initiated the data collection for the pre-testing in February 2015. Therefore, we developed new questionnaires based on previously validated questions and questions used in similar studies (Sagedal et al., 2013; Chang et al., 2013; Haakstad & Bø, 2011; Bauer et al., 2010; Haakstad et al., 2010; Owe et al., 2009; Entin & Munhall, 2006).

In part A we explored women's behaviours on three distinct, but importantly related, topics: PA, GWG and nutrition. This study also investigated women's information sources in pregnancy. This breadth fills an existing gap in the literature, as no studies have examined the relationship between pregnant women's information sources and their health behaviours.

We also obtained detailed information on motivational factors, barriers and social modelling, as well as demographic and pregnancy related health variables. All these factors are associated with PA, GWG and diet (Nascimento et al., 2015; Mudd et al., 2009; Schmidt et al., 2006; Petersen, Leet & Brownson, 2005; Yeo et al., 2016; Restall et al., 2014; Koleilat & Whaley, 2013; Deputy et al., 2015), and may therefore have affected women's health behaviours.

We used the ACOG's (2015) recommendations for PA and the IOM's (2009) recommendations for GWG, when examining women's health behaviours. Both recommendations are frequently used when examining PA and GWG among pregnant women (Deputy et al., 2015; Harris et al., 2015; Haugen et al., 2014; Chung et al., 2013; Aittasalo et al., 2012; Mudd et al., 2009). Using the same criteria as other studies when classifying women as physically active and gaining below, within or above the guidelines, eases comparison of the results (Carlson et al., 2009).

Formulation of questions

According to Hassmén and Hassmén (2008) it is beneficial to combine closed questions with open options. Closed questions ease the analysis and provide a better basis for

comparing answers between respondents (ibid.). Open questions allow the respondent to give answers outside the given categories, thus making the answers more precise and not guided in a specific direction (Hassmén & Hassmén, 2008; Griffith, Cook, Guyatt & Charles, 1999). Both questionnaires in our study consisted mostly of closed questions, with some questions providing an open option. Hence, participants were able to elaborate on some of their replies, providing us with useful information beyond the alternatives provided.

The majority of questions in questionnaire A referred to the woman's current pregnancy week, with only a few retrospective questions referring to everyday behaviours before pregnancy. The questions regarding information sources referred to the full pregnancy. Still, retrospective questions are subjective to recall bias, thus affecting the reliability of the answers (Hassmén & Hassmén, 2008). However, as pregnancy is a major event in women's lives, they are more likely to pay attention to small details and therefore remember more clearly (ibid.). In part B, all questions, with the exception of two retrospective questions, referred to the present.

Self-report and social desirability bias

A limitation of cross-sectional surveys is that the results consist solely of the participants' reported behaviours, and do not directly measure their actual behaviours. In the present study, all information was self-reported and therefore subjective to social desirability bias. We attempted to counteract this by guaranteeing anonymity, and by emphasizing that there were no right or wrong answers.

PA, weight and eating behaviours are topics that often are subjective to social desirability bias (Adams et al., 2005; Larson, 2000; Hebert et al., 1995). Hence, we cannot rule out that over-reporting of PA and nutritious eating and under-reporting of pre-pregnancy weight and GWG may have occurred. More detailed assessments of PA, GWG and nutrition were not considered feasible.

Although objective methods are considered to be more accurate compared to subjective methods for assessing and quantifying PA, self-report is the only way to assess all four dimensions of PA: i.e. type, duration, frequency and intensity (Sallis & Saelens, 2000). We adapted questions regarding PA from PAPQ (Haakstad et al., 2010) and the

questionnaire used in MoBa (Owe et al., 2009). Both questionnaires have previously been validated against the motion monitor ActiReg with acceptable results (Haakstad et al., 2010; Brantsæter et al., 2010).

Also, the questions investigating nutritional behaviour were retrieved from previously validated questionnaires used in similar populations (Sagedal et al., 2013; Owe et al., 2009). This increases the internal validity of the study (Grimes & Schulz, 2002).

Health professionals may have perceived the study to be a test of whether they follow the policies set by the health authorities, rather than a survey of their actual practices. This may have led them to give socially acceptable answers; hence, over-reporting of the proportion of providers giving advice on PA, GWG and nutrition is not unlikely.

Length of questionnaire

According to Hassmén and Hassmén (2008) the recommended length of a questionnaire varies between 50 and 125 questions, depending on the respondent's interest in the topic. Also, they claim that 45 minutes is the upper limit for the duration of the data collection. Both our questionnaires were within these limits, with 101 questions and duration of 15-20 minutes in part A and 71 questions and duration of 10 minutes in part B. Jepson and colleagues (2005) found a threshold of approximately 1,000 words when investigating response rate among physicians. Although other studies have found that questionnaire length had no significant effect on response rate (Cottrell et al., 2015), the low response rate among health professionals in our study, comprising approximately 3000 words, may indicate that the questionnaire were too long. Also, the high number of pregnant women only responding to parts of the questionnaire (n=125) might suggest that questionnaire A contained too many questions.

Although the length of the questionnaires may have affected the response rate, a major strength of the present study was the inclusion of detailed information on health, lifestyle and other potentially confounding variables.

6.2 Results

6.2.1 Information sources

Media and Internet

Consistent with previous research (Willcox et al., 2015; Huberty et al., 2013), we found that the majority of women retrieved health information through media and Internet sources. These were also the sources with the most impact on women's health behaviours. The wide variety of accessible, affordable and updated media and Internet sources available, may in part explain women's preference for them. Moreover, it has been suggested that since the first prenatal consultation usually occurs no earlier than eight weeks gestation, women may turn to media and Internet sources to provide them with information in early pregnancy (Kraschnewski et al., 2014). It is important to note that the women in our study were, in large, recruited through social media, university website and parenting chat forums. This may be the main reason for the large proportion of women using media and Internet sources for information seeking.

While this study does not provide an insight into the quality of the advice given by media and Internet sources, previous research suggests that the information on the Internet is varied and often lacks an evidence base (Eysenbach et al., 2002). It is concerning that the majority of women in our study retrieved information from blogs and Internet forums, as there is often no control of the quality of the information on such sources. Further, a recent systematic review found that women did not discuss information they had retrieved on the Internet with their health care provider (Sayakhot & Carolan-Olah, 2016). Without proper guidance on how to search for accurate and reliable information on the Internet, the information may have the opposite effect, and make women more confused and overwhelmed (Sayakhot & Carolan-Olah, 2016).

It has been suggested that women may turn to alternative information sources in response to inadequate information provision by their health care provider (Garnweidner, Pettersen & Mosdøl, 2013; Lagan et al., 2011). Hence, one possible explanation for the large proportion of women using media and Internet sources in this study may be the lower number of women receiving information from a health professional.

Health care providers

It is possible that the small number of women receiving advice from their health care provider, can be partially explained by the cross sectional study design. As health professionals often raise issues when a problem is identified (Szwajcer et al., 2008), surveying women at various time points in pregnancy may have produced different results. However, the Norwegian guidelines for antenatal care encourages health professionals to talk to women about their lifestyle at the first prenatal visit (The Norwegian Directorate of Health and Social Affaires, 2005). It is concerning that only a minority of women, all having attended a minimum of one visit with their health care provider, recalled having received advice on PA, GWG and nutrition. This signals a lack of focus on lifestyle in pregnancy among health care providers.

Friends and family

Only a minority of the pregnant women in part A received advice on PA, GWG and nutrition from friends and family. This was also the information source with the least impact on women's health behaviours. Garnweidner and colleagues (2013) found that pregnant women in Oslo perceived the advice they received from social surroundings to be of lower quality than that of the health care provider. This may be one of the reasons for the small proportion of women seeking advice from friends and family.

Information seeking

We found that almost half the women had not received or retrieved advice on GWG. However, the proportion of women not receiving or retrieving advice on PA and nutrition was much smaller. This may indicate that pregnant women are more concerned with PA and nutrition in pregnancy, and may lack knowledge of the importance of proper GWG.

Also, our results indicate that multiparous women may be less likely to receive/retrieve advice on PA, GWG and nutrition compared to first-time mothers. Szwajcer and colleagues (2005) found that multiparous women often rely on their own experiences, and only turn to other information sources for specific questions. As first-time mothers, in particular, seek lifestyle information during pregnancy, this phase offers

opportunities to influence their future health and health behaviours.

6.2.2 Quality of advice

Contrary to the findings of Clarke and Gross (2004), showing that friends and family largely discouraged participation in PA, we found that more than 90% of women choosing friends and family as their most important information source, received advice to maintain or increase their PA, which is consistent with the ACOG recommendations. Also, three out of four women reporting media and Internet or health care professionals as their main source, received advice consistent with the guidelines. Almost 50% of the women were physically active in their current pregnancy week. This is a much higher proportion than previously reported among pregnant women in Norway (Gjestland et al., 2012; Owe et al., 2009). Thus, our results suggest that receiving advice in compliance with the ACOG recommendations may have a positive impact on women's PA participation.

Even though two thirds of the women received advice consistent with the IOM recommendations for GWG, more than 60% had gained outside the recommendations for their current pregnancy week. Gaining within the recommendations was not associated with knowledge of the IOM guidelines. Moreover, women stated that the information sources had limited influence on their GWG. These results imply that women may not perceive weight gain during pregnancy as important or they lack awareness of the consequences of inadequate and excessive GWG. Concentrated efforts to increase and/or correct women's knowledge of the health impacts of unfavourable GWG, should be implemented in order to prevent weight gain outside the recommendations.

The small number (6.7%) of women receiving evidence-based guidelines from their health care provider was consistent with figures reported in similar studies (Willcox et al., 2015; McDonald et al., 2011). While it must be acknowledged that reported provision of GWG guidelines from the women's own providers was unavailable to us, it is concerning that only a few women report receiving advice consistent with the recommendations. As evidence suggest that receiving advice from a health professional increases the likelihood of a woman setting a concordant GWG goal and gaining weight within the guidelines (Stotland et al., 2005), it is important to increase the proportion of

women receiving evidence-based and current advice from their health care provider.

6.2.3 Impact on women's health behaviours

Physical activity

We found no significant impact of the three groups of information sources on participation in PA. This may be related to the sample size, but other factors may also have contributed. Consistent with previous studies (Nascimento et al., 2015; Duncombe et al., 2009; Haakstad et al., 2009; Mudd et al., 2009; Symons Downs & Ulbrecht, 2006; Clarke & Gross, 2004), women in our study reported pregnancy complaints, lack of motivation and lack of time as the most common barriers for participation in PA. This indicates that PA may not be a priority among pregnant women.

Our results suggest that PA might not be a priority among health care providers either. Nearly 45% of women reported not having received advice on PA during antenatal consultations. Also, among women perceiving the advice they had received as insufficient, the majority cited *"the health care provider wanted to use the available time on other topics"* as the reason. This lack of focus on PA during antenatal consultations may be the reason why we found that choosing health professionals as the most important source on PA information decreased the odds of being physically active in pregnancy. This tendency, although not significant, is supported by the results from Whitaker and colleagues (2016), who found that counselling did not change women's exercise habits.

We also found an indication that receiving advice from media and Internet sources may decrease the odds of being physically active in pregnancy. This is concerning as the majority of women used media and Internet sources when seeking PA information. However, Zach and Lissitsa (2016) found higher odds of engaging in PA among Internet users compared to non-users. Hence, further studies investigating this association are needed.

Social support from significant others have been identified as an important determinant of PA (Trost et al., 2002). This is in agreement with our results, suggesting that choosing friends and family as the most important source on PA information, may actually increase the odds of the pregnant woman being physically active.

Gestational weight gain

We found that choosing media and Internet as the most important source on GWG information significantly increased the odds of gaining below the guidelines. Hicks and Brown (2016) found that increasing time on social media was associated with body dissatisfaction among pregnant women. Negative body image during pregnancy has also been associated with attempts to loose weight, unhealthy eating patterns and an unhealthy diet (Conti, Abraham & Taylor, 1998). Even though we found no association between negative body image and choosing media and Internet as the most important source of information, the way media and social media idealises the image of the 'yummy mummy', a very slender woman with a neat bump (Hicks and Brown, 2016), may have impacted women's GWG goal. Hicks and Brown (2016) also found that women accessing social media had concerns about how their bodies would look postnatally, and felt that media encouraged them to restrict their eating so as to have less to loose after birth.

Although only borderline significant, we found that reporting health professionals as the most important source on GWG information increased the odds of gaining below the guidelines. If true, this may have a severe impact on women's GWG, as studies have shown that women trust the advice they receive from their health care provider (Stengel et al., 2012). Thus, it is important to further explore this trend.

On the other end of the spectrum, most women gain too much in pregnancy (Yeo et al., 2016; Deputy et al., 2015; Restall et al., 2014). Haakstad, Voldner and Bø (2015) found a discrepancy between the proportion of women perceiving they had gained excessively during pregnancy (22%) and the proportion of women actually exceeding the recommendations (69.9%). This suggests that pregnant women may not have sufficient knowledge of the weight gain recommendations in pregnancy. The women misperceiving the IOM recommendations might also constitute other pregnant women's social environment. This may be the reason why we found that reporting friends and family as the main information source on GWG, was associated with gaining above the guidelines. On the other hand, due to the cross sectional nature of this study, this association may also indicate that women who gain above the guidelines more often turn to friends and family for information on GWG. Regardless of the direction of the association, only ten women considered friends and family to have the most impact on

GWG, and of these, nine women had gained above the guidelines. Hence, this statistic is based on very few data, which should be taken into consideration when interpreting the association.

Nutrition

Women choosing media and Internet as the source with the most impact on their diet were found to have higher adherence to nutritional recommendations. Also, these women had a higher adherence to the "five a day"- principle (consuming at least five portions of fruits and vegetables each day). The fact that nearly half the women reported retrieving advice on nutrition from books and information pamphlets, underlines the importance of this media for nutritional information in pregnancy. The Norwegian Directorate of Health (2016) distributes an information pamphlet that contains accurate and updated nutritional recommendations. This can be obtained at all antenatal clinics and online, and are, as shown in part B of our study, often handed out by antenatal care providers. Hence, this finding might suggest that receiving accurate and updated advice from media and Internet sources may positively impact pregnant women's nutritional behaviour.

Our findings hint at a link between reporting the category friends and family or the category health professionals as the main source on nutritional information and lower adherence to nutritional recommendations. According to Jackson and colleagues (2011) pregnant women who receive targeted counselling on nutrition, improve their diet compared to those not receiving such advice. Hence, a possible explanation for the tendencies found in our study, is that women may not have received sufficient and/or updated nutritional information from their health care provider or from their social surroundings.

6.2.4 The extent of provider counselling

Consistent with previous research (Whitaker et al., 2016; Power et al., 2006; Entin & Munhall, 2006), we found that the majority of health care providers counselled women on PA, GWG and nutrition. This is a much higher rate of guideline provision than reported by pregnant women (Nascimento et al., 2015; Willcox et al., 2015; Downs et

al., 2014; McDonald et al., 2012; Stengel et al., 2012; McDonald et al., 2011; Olander et al., 2011; Haakstad et al., 2009; Clarke & Gross, 2004). This discrepancy may be due to the health care providers giving socially desirable responses, or the pregnant women not recalling having received advice from their health care provider. Also, health professionals who view PA, favourable weight gain and nutrition positively, would be more likely to respond to a survey related to these topics. Therefore, it is possible that the figures obtained in this study overestimate the true means with respect to giving advice.

Because health care providers may have great influence on pregnant women's health behaviours (Stengel et al., 2012), it is crucial that they give accurate and sufficient advice to their pregnant patients. Stengel and colleagues (2012) found that pregnant women often only received advice on PA from their provider at the initial prenatal visit, and that it sometimes was limited to written patient education. Encouragingly, providers in our study gave, on average, advice on PA, GWG and nutrition more than two times. Also, the majority followed up the advice they gave to their pregnant patients on GWG and nutrition. However, less than half of providers followed up advice on PA. One reason for this may be that there are many competing interests during antenatal consultations. Providers are required to assess medical, familial, pregnancy and psychological history as well as provide information, antenatal tests, procedures and bookings (Willcox et al., 2012). Similar to previous findings (Whitaker et al., 2016; Willcox et al., 2012), the respondents in part B identified a lack of time as the key barrier to advising women on PA, GWG and nutrition during antenatal consultations. Integrating other health professionals, such as nutritionists, health educators and PA specialists into the existing prenatal care setting, through referral systems or models of integrated care, may present a solution to the time constraints. Also, training in feasible and time efficient behaviour changing techniques, such as "the Five A's" (Ask, Advise, Assess, Assist and Arrange), may prove helpful.

6.2.5 Advice consistent with guidelines

Although the majority of providers stated that they gave guidance on PA, GWG and nutrition based on recommendations from the health authorities, the advice did not always concur with current guidelines. This reflects the results from similar studies

(Whitaker et al., 2016; Herring et al., 2010; Entin & Munhall, 2006). We found that only three out of 14 health professionals gave advice consistent with the ACOG's (2015) recommendations for PA and exercise, and only four reported values consistent with the IOM weight gain recommendations (2009). As insufficient knowledge has been identified as a barrier to giving advice (Whitaker et al., 2016; Wilkinson et al., 2013; Willcox et al., 2012; Olander et al., 2011; Stotland et al., 2010; Herring et al., 2010), these findings lend support for greater education regarding the recommendations for PA and GWG in pregnancy. However, it seems that the providers, in large, follow the nutritional recommendations when giving advice to their pregnant patients. This is encouraging, considering the influence diet has on GWG and the risk of pregnancy complications (Meltzer et al., 2011).

The fact that only two out of 14 providers correctly identified the four contraindications to exercise included in this survey, underlines the need for more awareness among health professionals. It is vital that women with pre-existing or developing medical and obstetrical conditions receive proper counselling on PA, to avoid adverse outcomes for both the mother and foetus (ACOG, 2015). Also, as women prescribed prolonged bed rest or restricted PA are at risk of deconditioning, bone demineralization and venous thrombosis (ACOG, 2015), it is important that women, in the absence of obstetric or medical complications or contraindications, are encouraged to be physically active. Hence, adequate knowledge among health care providers is necessary so that individualized and accurate advice can be delivered.

6.2.6 Health care providers' beliefs and attitudes

Consistent with previous research (Chang et al., 2013; Stotland et al., 2010), health care providers in our study reported GWG as a sensitive topic. Providers in Stotland and colleagues' (2010) study avoided or delayed weight gain counselling for fear of embarrassing, stigmatizing or causing anxiety in the patient. Instead they waited to broach the topic until they observed excessive or inadequate weight gain or until the patient addressed the topic. This "reactive" approach was also found to be common in Chang and colleagues' study (2013). Unfortunately, once excessive or inadequate weight gain has been identified, the mother's and her foetus' health may already be affected. Therefore, prevention of excessive and inadequate weight gain, using a "proactive" approach, is preferable.

On the other hand, McDonald and colleagues (2011) found that the majority of women felt either “comfortable” or “very comfortable” discussing weight-related issues with their provider. Also, they found that providers identifying themselves as overweight had almost four times as much difficulty counselling women about weight gain as average weight providers. This suggests that the hesitancy providers feel about speaking to women about weight gain, not only is affected by their fear of offending the patient, but also their own insecurities. In order to minimise stress for both parties, offering antenatal care providers additional training in GWG counselling, to ensure that advice is provided in a non-judgemental way, may prove useful.

Providers in our study rated PA and nutrition as more important for a healthy pregnancy than favourable weight gain. Also, PA and nutrition was perceived as more important subjects, compared to GWG, to give advice on during antenatal consultations. These results concur with the studies of Willcox and colleagues (2012) and Chang and colleagues (2013), both showing that although management of weight gain in pregnancy was given a low priority, most providers recognized the importance of diet and exercise. Studies have concluded that higher levels of cardio respiratory fitness attenuate the adverse effects overweight has on all-cause mortality (Barry et al., 2014). Hence, it is possible that the harmful effects of weight gain above the IOM guidelines may be reduced if the woman is physically active. Also, antenatal exercise and diet interventions have resulted in lower GWG in the intervention group, compared to the control group (O´Brien et al., 2016; Sagedal et al., 2016; Muktabhant et al., 2015; Poston et al., 2015; Vinter et al., 2011). It is therefore encouraging that the majority of providers in part B recognize the importance of PA and nutrition in pregnancy. Still, increased awareness, among health professionals, of the impact unfavourable weight gain has on pregnancy outcomes, may be useful for reducing the proportion of women gaining outside the guidelines**.**

The majority of providers believed that regular exercise and PA in pregnancy could prevent GDM and facilitate a faster return to pre-pregnancy shape for the mother. Fewer believed that exercise in pregnancy could prevent back pain and preeclampsia and that pelvic floor muscle exercises could prevent urinary incontinence, even though this is supported by the literature (Aune et al., 2014; Pelaez et al., 2014; Mørkved & Bø, 2014; Stafne et al., 2012; Bandpei et al., 2010; Garshabi & Zadeah, 2005; Mørkved et al.,

2003). Further, half the providers perceived premature birth to be the biggest risk of exercise in pregnancy. However, a recent systematic review concluded that exercise during pregnancy was not associated with increased risk of preterm birth (Di Mascio et al., 2016). Therefore, better understanding of the benefits and risks of exercise in pregnancy is needed.

6.3 Practical implications

If we are to increase the percentage of women meeting the recommendations for PA, GWG and nutrition in pregnancy, it is vital that providers have adequate knowledge about the guidelines and discuss these with their patients. Offering continuing medical education opportunities to learn more about PA, GWG and nutrition in pregnancy, as well as developing tools to facilitate comprehensive counselling, may be useful. In addition, a multidisciplinary collaboration between midwives, family physicians, dieticians and PA experts, either through greater use of referral systems or models of integrated care, may increase the likelihood of women receiving accurate and current advice on PA, GWG and nutrition.

Given the large proportion of pregnant women retrieving health information through media and Internet sources, it is important that health care providers guide women towards reputable websites for information and teach them how to assess their credibility. Considering that women often utilize the Internet before their first antenatal consultation (Kraschnewski et al., 2014; Larsson, 2009; Gao et al., 2013), it may be useful to connect women with reliable and reputable online resources when they call to schedule their first appointment.

This extensive use of media and Internet sources also presents an opportunity for information and communication technologies to modernise antenatal care. By integrating evidence-based information from scientific research into the technology already available, e.g. applications to track pregnancy, accurate and current information may become more accessible for women, possibly resulting in a healthier lifestyle.

6.4 Future research

More research is needed to determine the effectiveness of different intervention approaches to increase the number of women who are accurately and effectively counselled on PA, GWG and nutrition during pregnancy. For example, studies investigating whether improved knowledge among health professionals or integration of evidence based media and Internet sources into antenatal care, increases the percentage of women receiving accurate and current advice, are required. Also, further exploration of the associations between information sources and pregnant women's health behaviours is warranted.

6.5 Strengths and limitations

This first of a kind study provides new knowledge about the impact of different information sources on pregnant women's health behaviours. Also, the sample size in part A, was larger than several other studies on information sources in pregnancy. Furthermore, we explored women's behaviours on three distinct, but importantly related, topics: PA, GWG and nutrition, as well as obtained detailed information on health, lifestyle and other potentially confounding variables. For use in both questionnaires, we adapted already validated questions and questions used in similar populations. This increases the internal validity of the study.

This study also has some limitations that should be noted. Respondents in part A were recruited through advertisement and may therefore represent a highly selected sample. Also, the response rate in part B was lower than preferred and the providers were primarily women. This may limit the generalizability of study findings. In order to increase the response rate, the questionnaire could have been shortened, and second requests or reminders should have been mailed. In addition, all information was self-reported and therefore subject to recall and social desirability bias.

7. CONCLUSION

To our knowledge, this is the first study to investigate the potential relationship between pregnant women's information sources and their health behaviours. The majority of the women reported to have retrieved health information through media and Internet sources. Even though media and Internet sources seemed to have a positive impact on nutritional behaviour, they were also associated with gaining below the IOM weight gain guidelines. Receiving advice from friends and family was associated with gaining above the guidelines. In part B, we found that most health care providers gave advice on PA, GWG and nutrition to their pregnant patients. However, only a few gave advice consistent with the ACOG recommendations (2015) for PA and exercise and the IOM weight gain recommendations (2009). The small number of providers giving evidence-based advice, and the extensive use of media and Internet based information sources, highlight the need to reconsider how antenatal care is provided. Considering that low quality is a problem on the Internet (Eysenbach et al., 2002), it is important that pregnant women are guided towards reputable sources of information. Therefore, offering health care providers continuing education to learn more about the recommendations for PA, GWG and nutrition in pregnancy, as well as which media and Internet sources that communicate these guidelines in a comprehensible way, may prove useful. Implementation of a multidisciplinary collaboration between midwives, family physicians, dieticians and PA experts, may also increase the likelihood of women receiving accurate and current advice on PA, GWG and nutrition.

REFERENCES

Abu-Saad, K., Shahar, D.R., Fraser, D., Vardi, H., Friger, M., Bolotin, A. & Freedman, L.S. (2012). Adequacy of usual dietary intake and nutritional status among pregnant women in the context of nutrition transition: the DEPOSIT Study. *British Journal of Nutrition*, 108: 1874–1883

Academy of Nutrition and Dietetics (2014). Position of the Academy of Nutrition and Dietetics: Nutrition and Lifestyle for a Healthy Pregnancy Outcome. *Journal of the Academy of Nutrition and Dietetics*, 114(7): 1099-1103.

Adams, S.A., Matthews, C.E., Ebbeling, C.B., Moore, C.G., Cunningham, J.E., Fulton, J. & Herbert, J.R. (2005). The Effect of Social Desirability and Social Approval on Self-Reports of Physical Activity. *Am J Epidemiol,* 161:389–398

Ainsworth, B.E., Haskell, W.L., Herrmann, S.D., Mecknes, N., Bassett, D.R. jr., Tudor-Locke, C., … Leon, A.S. (2011). 2011 Compendium of Physical Activities: a second update of codes and MET values.. *Med. Sci. Sports Exerc*. 43(8):1575-1581.

Aittasalo, M., Pasanen, M., Fogelholm, M., Kinnunen, T.I., Ojala, K. & Luoto, R. (2008). Physical activity counseling in maternity and child health care – a controlled trial. *BMC Women's health*, 8:14 doi: 10.1186/1472-6874-8-14.

Aittasalo, M., Raitanen, J., Kinnunen, T.I., Ojala, K., Kolu, P. & Luoto, R. (2012). Is intensive counseling in maternity care feasible and effective in promoting physical activity among women at risk for gestational diabetes? Secondary analysis of a cluster randomized NELLI study in Finland. *International Journal of Behavioral Nutrition and Physical Activity,* 9:14.

Alexander, S.C., Cox, M.E., Boling Turer, C.L., Lyna, P., Østbye, T., Tulsky, J.A… Pollak, K.I. (2011). Do the five A's work when physicians counsel about weight loss? *Fam Med*, 43:179–84.

American College of Obstetricians and Gynecologists (ACOG) (2002). Exercise during pregnancy and the postpartum period. ACOG Committee Opinion No. 267. *Obstet Gynecol* 99:171–3.

American College of Obstetricians and Gynecologists (ACOG) (2005). Changes during pregnancy. In: The American College of Obstetricians and Gynecologists (ed.). *Your pregnancy and birth (4. edition).* Washington: American College of Obstetricians and Gynecologists.

American College of Obstetricians and Gynecologists (ACOG). (2013). ACOG Committee opinion no. 548: Weight gain during pregnancy. *Obstetrics and Gynecology*, 121(1), 210–212.

American College of Obstetricians and Gynecologists (ACOG) (2015). *Exercise during pregnancy and the postpartum period.* ACOG Committee Opinion No. 650.

Amorim, A.R., Rossner, S., Neovius, M., Lourenco, P.M. & Linne, Y. (2007). Does excess pregnancy weight gain constitute a major risk for increasing long-term BMI? *Obesity*, 15:1278–86.

Artal, R. & O'Toole, M. (2003). Guidelines of the American College of Obstetricians and Gynecologists for exercise during pregnancy and the postpartum period. *Br J Sports Med*, 37:6-12.

Aune, D., Saugstad, O.D., Henriksen, T. & Tonstad, S. (2014). Physical activity and the risk of preeclampsia: a systematic review and meta-analysis. *Epidemiology*, 25(3):331-43.

Backe B. (1992). Norwegian experiences. Competence of the providers and compliance to the treatment program for antenatal care in Norway. *Int J Technol Assess Health Care* 8: 13- 19.

Backe, B (2001). Overutilization of antenatal care in Norway. *Scand J Public Health*, 29: 129-132

Backe, B., Pay, A.S., Klovning, A. & Sand, S. (2014). Svangerskapsomsorg. I: P. Øian, A.F. Jacobsen & J. Kessler (Red.), *Veileder i fødselshjelp 2014.* Norsk gynekologisk forening.

Bandpei, M.A.M., Ahmadshirvani, M., Fakhri, M. & Rahmani, N. (2010). The effect of an exercise program and ergonomic advices on treatment of pregnancy-related low back pain: a randomized controlled clinical trial. *Journal of Mazandaran University of Medical Sciences,* 20(77):10–9.

Barakat, R., Pelaez, M., Lopez, C., Montejo, R. & Coteron, J. (2012). Exercise during pregnancy reduces the rate of cesarean and instrumental deliveries: results of a randomized controlled trial. *J Matern Fetal Neonatal Med*., 25(11):2372-6

Barakat, R., Pelaez, M., Lopez, C., Lucia, A. & Ruiz JR (2013). Exercise during pregnancy and gestational diabetes-related adverse effects: a randomised controlled trial. *Br J Sports Med*, 47(10):630–6.

Barakat, R., Pelaez, M., Montejo, R., Refoyo, I. & Coteron, J. (2014). Exercise throughout pregnancy does not cause preterm delivery: a randomized controlled trial. *J Phys Act Health*, 11: 1012–7.

Barakat, R., Perales, M., Garatachea, N., Ruiz, J.R. & Lucia, A. (2015). Exercise during pregnancy. A narrative review asking: what do we know? *Br J Sports Med*, 0:1-7

Barry, V.W., Baruth, M., Beets, M.W., Durstine, J.L., Liu, J. & Blair, S.N. (2014). Fitness vs. Fatness on All-Cause Mortality: A Meta-Analysis. *Progress in Cardiovascular Diseases*, 55(4): 382–390

Bauer, P.W., Broman, C.L. & Picarnik, J.M. (2010). Exercise and Pregnancy Knowledge Among Healthcare Providers. *Journal Of Women's Health* 19(2): 335-341.

Benton, M.J., Swan, P.D. & Whyte, M. (2010). Progressive resistance training during pregnancy: A case study. *PM R*, 2(7):681-684.

Bergmann, A., Zygmunt, M. & Clapp, J.F. 3rd (2004). Running throughout pregnancy: Effect on placental villous vascular volume and cell proliferation. *Placenta,* 25(8-9):694-698.

Blumfield, M.L., Hure, A.J., MacDonald-Wicks, L.K., Patterson, A.J., Smith, R. & Collins, C.E. (2011). Disparities exist between National food group recommendations and the dietary intakes of women. *BMC Women's Health*, 11:37.

Brantsæter, A.L., Owe, K.M., Haugen, M., Alexander, J., Meltzer, H.M. & Longnecker, M.P. (2010). Validation of self-reported recreational exercise in pregnant women in the Norwegian Mother and Child Cohort Study. *Scand J Med Sci Sports*, 20(1):e48-55

Brawarsky, P., Stotland, N.E., Jackson, R.A., Fuentes-Afflick, E., Escobar, G.J., Rubashkin, N. & Haas, J.S. (2005). Pre-pregnancy and pregnancy-related factors and the risk of excessive or inadequate gestational weight gain. *Int J Gynaecol Obstet,* 91(2):125-31

Brent, R.L., Christian, M.S. & Diener, R.M. (2011). Evaluation of the reproductive and developmental risks of caffeine. *Birth Defects Res (Part B).,* 92(2):152-187.

Bø, K., Artal, R., Barakat, R., Brown, W., Davies, G.A.L., Dooley, M. … Khan, K.M. (2016). Exercise and pregnancy in recreational and elite athletes: 2016 evidence summary from the IOC expert group meeting, Lausanne. Part 1—exercise in women planning pregnancy and those who are pregnant. *Br J Sports Med*, 50:571–589. doi:10.1136/bjsports-2016-096218

Cannella, D., Lobel, M. & Monheit, A. (2010). Knowing is believing: information and attitudes towards physical activity during pregnancy. *Journal of Psychosomatic Obstetrics and Gynecology,* 31(4): 236-242.

Carlson, S.A., Densmore, D., Fulton, J.E., Yore, M.M. & Kohl, H.W. (2009). Differences in physical activity prevalence and trends from 3 U.S. surveillance systems: NHIS, NHANES, and BRFSS. *J Phys Act Health*, 6 Suppl 1:18-27.

Carmichael, S.L., Shaw, G.M., Neri, E., Schaffer, D.M. & Selvin, S. (2002). Physical activity and risk of neural tube defects. *Matern Child Health J*, 6:151–7.

Carreno, C.A., Clifton, R.G., Hauth, J.C., Myatt, L., Roberts, J.M., Spong, C.Y… Sorokin, Y. (2012). Excessive early gestational weight gain and risk of gestational diabetes mellitus in nulliparous women. *Obstet Gynecol,* 119:1227–33.

Caspersen, C.J., Powell, K.E. & Christenson, G.M. (1985). Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. *Public Health Rep.* 100(2): 126–131.

Chang, T., Llanes, M., Gold, K.J. & Fetters, M.D. (2013). Perspectives about and approaches to weight gain in pregnancy: a qualitative study of physicians and nurse midwives. *BMC Pregnancy and Childbirth,* 13:47

Chasan-Taber, L. (2012). Physical activity and dietary behaviors associated with weight gain and impaired glucose tolerance among pregnant Latinas. *Adv Nutr*, 3:108-118.

Chung, J.G.Y., Taylor, R.S., Thompson, J.M.D., Anderson, N.H., Dekker, G.A., Kenny, L.C. & McCrowan, L.M.E. (2013). Gestational weight gain and adverse pregnancy outcomes in a nulliparous cohort. *European journal of obstetrics & gynecology and reproductive biology,* 167: 149-153.

Clapp, J.F. 3rd, Kim, H., Burciu, B. & Lopez, B. (2000). Beginning regular exercise in early pregnancy: Effect on fetoplacental growth. *Am J Obstet Gynecol*, 183:1484-1488.

Clapp, J.F. 3rd, Kim, H., Burciu, B., Schmidt, S., Petry, K. & Lopez, B. (2002). Continuing regular exercise during pregnancy: Effect of exercise volume on fetoplacental growth. *Am J Obstet Gynecol*, 186:142-147.

Clarke, P.E. & Gross, H. (2004). Women's behaviour, beliefs and information sources about physical exercise in pregnancy. *Midwifery* 20(2), 133–141.

Conti, J., Abraham, S. & Taylor, A. (1998). Eating behaviour and pregnancy outcome. *Journal of Psychosomatic Research* 44, 465–477.

Cottrell, E., Roddy, E., Rathod, T., Thomas, E., Porcheret, M. & Foster, N.E. (2015). Maximising response from GPs to questionnaire surveys: do length or incentives make a difference? *BMC Medical Research Methodology,* 15:3

de Jersey, S.J., Nicholson, J.M., Callaway, L.K. & Daniels, L.A. (2013). An observational study of nutrition and physical activity behaviours, knowledge, and advice in pregnancy. *BMC Pregnancy Childbirth*., 13:115.

de Oliveria Melo, A.S., Silva, J.L., Tavares, J.S., Barros, V.O., Leite, D.F. & Amorim, M.M.R. (2012). Effect of a physical exercise program during pregnancy on uteroplacental and fetal blood flow and fetal growth: a randomized controlled trial. *Obstet Gynecol,* 120:302 –10.

Demissie, Z., Siega-Riz, A.M., Evenson, K.R., Herring, A.H., Dole, N. & Gaynes, B.N. (2011). Physical activity and depressive symptoms among pregnant women: the PIN3 study. *Arch Womens Ment Health*, 14(2): 145-57.

Deputy, N.P., Sharma, A.J., Kim, S.Y. & Hinkle, S.N. (2015). Prevalence and characteristics associated with gestational weight gain adequacy. *Obstetrics and Gynecology,* 125(4): 773-781.

Di Mascio, D., Magro-Malosso, E.R., Saccone, G., Marhefka, G.D. & Berghella, V. (2016). Exercise during pregnancy in normal-weight women and risk of preterm birth: a systematic review and meta-analysis of randomized controlled trials. *Am J Obstet Gynecol.* doi: 10.1016/j.ajog.2016.06.014

Downs, D.S., Savage, J.S. & Rauff, E.L. (2014). Falling short of Guidelines? Nutrition and Weight Gain Knowledge in Pregnancy. *J Womens Health Care,* 3: 1000184.

Duncombe, D., Wertheim, E.H., Skouteris, H., Paxton, A.J. & Kelly, L. (2009). Factors related to exercise over the course of pregnancy including women's beliefs about the safety of exercise during pregnancy. *Midwifery*, 25:430-438.

Dørheim, S.K., Bjorvatn, B. & Eberhard-Gran, M. (2013). Sick leave during pregnancy: a longitudinal study of rates and risk factors in a Norwegian population. *BJOG*; 120: 521-530.

Englund-Ögge, L., Brantsæter, A.L., Sengpiel, V., Haugen, M., Birgisdottir, B.E., Myhre, R., Meltzer, H.M. & Jacobsen, B. (2014). Maternal dietary patterns and preterm delivery: Results from large prospective cohort study. *BMJ, 348*, g1446.

Entin, P.L. & Munhall, K.M. (2006). Recommendations regarding exercise during pregnancy made by private/small group practice obstetricians in the USA. *Journal of Sports Science and Medicine,* 5: 449-458

Eysenbach, G., Powell, J., Kuss, O. & Sa, E.R. (2002). Empirical studies assessing the quality of health information for consumers on the World Wide Web: a systematic review. *JAMA: The Journal of the American Medical Association* 287(20), 2691–2700.

Ferrari, R.M., Siega-Riz, A.M., Evenson, K.R., Moos, M-K. & Carrier, K.S. (2013). A qualitative study of women's perceptions of provider advice about diet and physical activity during pregnancy. *Patient Educ Couns*., 91(3): 372–377

Fortner, R.T., Pekow, P.S., Whitcomb, B.W., Sievert, L.L., Markenson, G. & Chasan-Taber, L. (2011). Physical activity and hypertensive disorders of pregnancy among Hispanic women. *Med Sci Sports Exerc*, 43:639- 646.

Fowles, E.R. (2002). Comparing pregnant women's nutritional knowledge to their actual dietary intake. *MCN Am J Matern Child Nurs*., 27:171–177.

Fraser, A., Tilling, K., Macdonald-Wallis, C., Sattar, N., Brion, M.J., Benfield, L… Lawlor, D.A. (2010). Association of maternal weight gain in pregnancy with offspring obesity and metabolic and vascular traits in childhood. *Circulation,* 121(23):2557–64.

Gao, L.-L., Larsson, M. & Luo, S.-y. (2013). Internet use by Chinese women seeking pregnancy-related information. *Midwifery,* 29:730–735

Garnweidner, L.M., Pettersen, K.S. & Mosdøl, A. (2013). Experiences with nutrition-related information during antenatal care of pregnant women of different ethnic backgrounds residing in the area of Oslo, Norway. *Midwifery,* 29:e130–e137

Garshabi, A. & Zadeah, S.F. (2005). The effect of exercise on the intensity of low back pain in pregnant women. *J Gynaecol Obstet*., 88(33):271-275.

Gautam, C.S., Saha, L., Sekhri, K. & Saha, P.K. (2008). Iron deficiency in pregnancy and the rationality of iron supplements prescribed during pregnancy. *Medscape J Med*., 10(12):283-288.

Gjestland, K., Bø, K., Owe, K.M. & Eberhard-Gran, M. (2012). Do pregnant women follow exercise guidelines? Prevalence data among 3482 women, and prediction of low-back pain, pelvic girdle pain and depression. *Br J Sports Med* 0:1–6.

Granath, A.B., Hellgren, M.S. & Gunnarsson, R.K. (2006). Water aerobics reduces sick leave due to low back pain during pregnancy. *J Obstet Gynecol Neonatal Nurs*, 35:465-471.

Grieger, J.A., Grzeskowiak, L.E. & Clifton, V.L. (2014). Preconception Dietary Patterns in Human Pregnancies Are Associated with Preterm Delivery. *J. Nutr.*, doi:10.3945/jn.114.190686.

Griffith, L.E., Cook, D.J., Guyatt, G.H. & Charles, C.A. (1999). Comparison of open and closed questionnaire formats in obtaining demographic information from Canadian general internists. *J Clin Epidemiol*, 52(10): 997-1005.

Grimes, D.A. & Schulz, K.F. (2002). Bias and causal associations in observational research. *The Lancet,* 359: 248-252.

Grimes, H.A., Forster, D.A. & Newton, M.S. (2014). Sources of information used by women during pregnancy to meet their information needs. *Midwifery,* 30(1):e26-33

Gustafson, K.M., May, L.E., Yeh, H.W., Million, S.K. & Allen, J.J. (2012). Fetal cardiac autonomic control during breathing and non-breathing epochs: The effect of maternal exercise. *Early Hum Dev*, 88:539-546.

Haakstad, L.A.H., Voldner, N., Henriksen, T. & Bø, K. (2009). Why do pregnant women stop exercising in the third trimester? *Acta Obstetricia et Gynecologica*., 88: 1267–1275

Haakstad, L.A.H. (2010). *Physical activity and weight gain during pregnancy.* Dissertation from the Norwegian School of Sport Sciences. ISBN nr: 978-82-502-0443-0

Haakstad, L.A., Gundersen, I. & Bø, K. (2010). Self-reporting compared to motion monitor in the measurement of physical activity during pregnancy. *Acta Obstet Gynecol Scand*., 89(6):749-56.

Haakstad, L.A.H. & Bø, K. (2011). Exercise in pregnant women and birth weight: a randomized controlled trial. *BMC Pregnancy and Childbirth,* 11:66

Haakstad, L.A.H., Voldner, N. & Bø, K. (2015). Attitudes and awareness towards weight gain among normal weight and overweight pregnant women. *J Matern Fetal Neonatal Med,* 28(13): 1569–1574

Haakstad, L.A.H., Edvardsen, E. & Bø, K. (2016). Effect of regular exercise on blood pressure in normotensive pregnant women. A randomized controlled trial. *Hypertension in Pregnancy,* 35(2):170-180, DOI: 10.3109/10641955.2015.1122036

Halvorsen, K. (2008). *Å forske på samfunnet. En innføring i samfunnsvitenskapelig metode* (5. Utg). Cappelens Forlag as, Oslo.

Hanley, B., Dijane, J., Fewtrell, M., Grunberg, A., Hummel, S., Junien, C. … van Der Beek, E.M. (2010). Metabolic imprinting, programming and epigenetics - a review of present priorities and future opportunities. *Br J Nutr.*, 104 Suppl 1:S1-25.

Harris, S.T., Liu, J., Wilcox, S., Moran, R. & Gallagher, A. (2015). Exercise During Pregnancy and its Association with Gestational Weight Gain. *Matern Child Health J,* 19:528–537

Haskell, W.L., Lee, I-M., Pate, R.R., Powell, K.E., Blair, S.N., Franklin, B.A., Macera, C.A., Heath, G.W., Thompson, P.D. & Bauman, A. (2007). Physical Activity and Public Health: Updated Recommendation for Adults From the American College of Sports Medicine and the American Heart Association. *Circulation,* 116(9): 1081-1093.

Hassmén, N. & Hassmén, P. (2008). *Idrottsvetenskapliga forskningsmetoder*. Stockholm: SISU Idrottsböcker.

Haugen, M., Brantsæter, A.L., Winkvist, A., Lissner, L., Alexander, J., Oftedal, B., Magnus, P. & Meltzer, H.E. (2014). Associations of pre-pregnancy body mass index and gestational weight gain with pregnancy outcome and postpartum weight retention: a prospective observational cohort study. *BMC Pregnancy and Childbirth,* 14:201.

Hebert, J.R., Clemow, L., Pbert, L., Ockene, I.S. & Ockene, J.K. (1995). Social Desirability Bias in Dietary Self-Report May Compromise the Validity of Dietary Intake Measures. *Int. J. Epidemiol*., 24 (2): 389-398.

Hedderson, M.M., Gunderson, E.P. & Ferrara, A. (2010). Gestational weight gain and risk of gestational diabetes mellitus. *Obstet Gynecol,* 115:597–604.

Herring, S.J., Platek, D.N., Elliott, P., Riley, L.E., Stuebe, A.M. & Oken, E. (2010). Addressing Obesity in Pregnancy: What Do Obstetric Providers Recommend? *Journal Of Women's Health*, 19(1): 65-70

Herring, S.J., Nelson, D.B., Davey, A., Klotz, A.A., Dibble, L.V., Oken, E. & Foster, G.D. (2012). Determinants of excessive gestational weight gain in urban, low-income women. *Womens Health Issues*, 22(5), e439-446.

Hicks, S. & Brown, A. (2016). Higher Facebook use predicts greater body image dissatisfaction during pregnancy: The role of self-comparison. *Midwifery,* 40: 132–140

Hillier, T.A., Pedula, K.L., Vesco, K.K., Schmidt, M.M., Mullen, J.A., LeBlanc, E.S. & Pettitt, D.J. (2008). Excess gestational weight gain: modifying fetal macrosomia risk associated with maternal glucose. *Obstet Gynecol,* 112(5):1007–14.

Huberty, J., Dinkel, D., Beets, M.W. & Coleman, J. (2013). Describing the Use of the Internet for Health, Physical Activity, and Nutrition Information in Pregnant Women. *Matern Child Health J*, 17:1363–1372

Hui, A.L., Back, L., Ludwig, S., Gardiner, P., Sevenhuysen, G., Dean, H.J., Sellers, E., McGavock, J., Morris, M., Jiang, D. & Shen, G.X. (2014). Effects of lifestyle intervention on dietary intake, physical activity level, and gestational weight gain in pregnant women with different pre-pregnancy Body Mass Index in a randomized control trial. *BMC Pregnancy and Childbirth,* 14:331

Institute of Medicine (1990). *Nutrition during pregnancy, Part 1, Weight gain*. Washington, DC: National Academy Press.

Institute of Medicine and National Research Council (2009). *Weight gain during pregnancy: reexamining the guidelines.* Washington, DC: The National Academies Press.

Jackson, R.A., Stotland, N.E., Caughey, A.B. & Gerbert, B. (2011). Improving diet and exercise in pregnancy with Video Doctor counseling: A randomized trial. *Patient Educ Couns.,* 83:203–209.

Jepson, C., Asch, D.A., Hershey, J.C. & Ubel, P.A. (2005). In a mailed physician survey, questionnaire length had a threshold effect on response rate. *Journal of Clinical Epidemiology,* 58: 103–105

Ji, E.S. & Han, H.R. (2010). The effects of Qi exercise on maternal/fetal interaction and maternal well-being during pregnancy. *J Obstet Gynecol Neonatal Nurs*, 39:310-318

Johnson, J., Clifton, R.G., Roberts, J.M., Myatt, L., Hauth, J.C., Spong, C.Y…. & Sorokin, Y. (2013). Pregnancy outcomes with weight gain above or below the 2009 Institute of Medicine guidelines. *Obstet Gynecol,* 121:969–75.

Joy, E.A., Mottola, M.F. & Chambliss, H. (2013). Integrating Exercise Is Medicine into the Care of Pregnant Women. *Current Sports Medicine Reports* , 245-247.

Juhl, M., Olsen, J., Andersen, P., Nohr, E. Andersen, A. (2010). Physical exercise during pregnancy and fetal growth measures: a study within the Danish National Birth Cohort. *Obstet. Gynecol*, 202(1): 63.e1-63.e8.

Kendzierski, D. & DeCarlo, K.J. (1991). Physical Activity Enjoyment Scale: Two Validation Studies. *Journal of Sport & Exercise Psychology*, 13(1):50-64.

Knudsen, V.K., Orozova-Bekkevold, I.M., Mikkelsen, T.B., Wolff, S. & Olsen, S.F. (2008). Major dietary patterns in pregnancy and fetal growth. *Eur. J. Clin. Nutr.,* 62, 463–470.

Koleilat, M. & Whaley, S.E. (2013). Trends and Predictors of Excessive Gestational Weight Gain Among Hispanic WIC Participants in Southern California. *Matern Child Health J,* 17:1399–1404

Krans, E.E., Gearhart, J.G., Dubbert, P.M., Klar, P.M., Miller, A.L. & Replogle, W.H. (2005). Pregnant women's beliefs and influences regarding exercise during pregnancy. *J. Miss. State Med. Assoc*. 46, 67–73.

Kraschnewski, J.L., Chuang, C.H., Poole, E.S., Peyton, T., Blubaugh, I. Pauli, J., Feher, A. & Reddy, M. (2014). Paging "Dr. Google": Does Technology Fill the Gap Created by the Prenatal Care Visit Structure? Qualitative Focus Group Study With Pregnant Women. *J Med Internet Res.,*16(6): e147.

Lagan, B.M., Sinclair, M. & Kernohan, W.G. (2011). A web-based survey of midwives' perceptions of women using the Internet in pregnancy: a global phenomenon. *Midwifery*, 27:273–281

Larson, M.R. (2000). Social desirability and self-reported weight and height. *Int J of Obesity & Related Metabolic Disorders*. 24(5), 663-665.

Larsson, M. (2009). A descriptive study of the use of the Internet by women seeking pregnancy-related information. *Midwifery*, 25:14–20

Ledoux, T., Van Den Berg, P., Leung, P. & Berens, P.D. (2015). Factors associated with knowledge of personal gestational weight gain recommendations. *BMC Res Notes,* 8:349. doi: 10.1186/s13104-015-1306-6.

Lima-Pereira, P., Bermúdez-Tamayo, C. & Jasienska, G. (2012). Use of the Internet as a source of health information amongst participants of antenatal classes. *J Clin Nurs,* 21(3-4):322-30.

Lu, C.Y. (2009). Observational studies: a review of study designs, challenges and strategies to reduce confounding. *Int J Clin Pract*, 63(5): 691-697.

Ludwig, D.S. & Currie, J. (2010). The association between pregnancy weight gain and birthweight: a within-family comparison. *Lancet*, 376:984–90.

MacLaughlin, S.M. & McMillen, I.C. (2007). Impact of periconceptional undernutrition on the development of the hypothalamopituitary– adrenal axis: does the timing of parturition start at conception? *Curr. Drug Targets* 8(8), 880–887.

Magann, E.F., Evans, S.F., Weitz, B. & Newnham, J. (2002). Antepartum, Intrapartum, and Neonatal Significance of Exercise on Healthy Low-Risk Pregnant Working Women. *The American College of Obstetricians and Gynecologists*, 99(3): 466-472.

Margerison Zilko, C.E., Rehkopf, D. & Abrams, B. (2010). Association of maternal gestational weight gain with short- and long-term maternal and child health outcomes. *Am J Obstet Gynecol,* 202:574.e1–8.

Martin, C.L. & Brunner Huber, L.R. (2010). Physical activity and hypertensive complications during pregnancy: Findings from 2004 to 2006 North Carolina Pregnancy Risk Assessment Monitoring System. *Birth,* 37:202-210.

May, L.E., Glaros, A., Yeh, H.W., Clapp, J.F. 3rd & Gustafson, K.M. (2010). Aerobic exercise during pregnancy influences fetal cardiac autonomic control of heart rate and heart rate variability. *Early Hum Dev*, 86:213-217.

May, L.E., Suminski, R.R., Langaker, M.D., Yeh, H.W. & Gustafson, K.M. (2012). Regular maternal exercise dose and fetal heart outcome. *Med Sci Sports Exerc*, 44:1252-1258.

McAuley, S.E., Jensen, D., McGrath, M.J. & Wolfe, L.A. (2005). Effects of human pregnancy and aerobic conditioning on alveolar gas exchange during exercise. *Can J Physiol Pharmacol*, 83:625-633.

McDonald, S.D., Pullenayegum, E., Taylor, V.H., Lutsiv, O., Bracken, K., Good, C., Hutton, E. & Sword, W. (2011). Despite 2009 guidelines, few women report being counseled correctly about weight gain during pregnancy. *American Journal of Obstetrics & Gynecology*, 333: e1-6.

McDonald, S.D., Pullenayegum, E., Bracken, K., Chen, A.M., McDonald, H., Malott, A., Hutchison, R., Haley, S., Lutsiv, O., Taylor, V.H., Good, C., Hutton, E. & Sword, W. (2012). Comparison of Midwifery, Family Medicine, and Obstetric Patients' Understanding of Weight Gain During Pregnancy: A Minority of Women Report Correct Counselling. *J Obstet Gynaecol Can*, 34(2):129–135

Meltzer, H.M., Brantsæter, A.L., Nilsen, R.M., Magnus, P., Alexander, J. & Haugen, M. (2011). Effect of dietary factors in pregnancy on risk of pregnancy complications: results from the Norwegian Mother and Child Cohort Study. *The American Journal of Clinical Nutrition,* 94: 1970S–1974S.

Melzer, K., Schuts, Y., Soehnchen, N., Othenin-Girard, V., Martines de Tejada, B., Irion, O., Boulvain, M. & Kayser, B. (2010). Effects of recommended levels of physical activity on pregnancy outcomes. *Am J Obstet Gynecol*, 202(3):266.e1-6.

Morton, S.M.B., Grant, C.C., Wall, C.R., Atatoan Carr, P.E., Bandara, D.K., Schmidt, J.M., Ivory, V., Inskip, H.M. & Camargo Jr, C.A. (2014). Adherence to nutritional guidelines in pregnancy: evidence from the Growing Up in New Zealand birth cohort study. *Public Health Nutrition*: 17(9), 1919–1929

Mudd, L.M., Nechuta, S., Pivarnik, J.M., Paneth, N. & the Michigan Alliance for the National Children's Study. (2009). Factors associated with women's perceptions of physical activity safety during pregnancy. *Preventive Medicine* 49:194–199

Muktabhant, B., Lawrie, T.A., Lumbiganon, P. & Laopaiboon, M. (2015). Diet or exercise, or both, for preventing excessive weight gain in pregnancy. *Cochrane Database Syst Rev,* 6:Cd007145.

Mørkved, S., Bø, K., Schei, B. & Salvesen, K.Å. (2003). Pelvic floor muscle training during pregnancy to prevent urinary incontinence: a single-blind randomized controlled trial. *Obstet Gynecol,* 101:313-19.

Mørkved, S. & Bø, K. (2014). Effect of pelvic floor muscle training during pregnancy and after childbirth on prevention and treatment of urinary incontinence: a systematic review. *Br J Sports Med*, 48(4):299-310.

Nascimento, S.L., Surita, F.G., Godoy, A.C., Kasawara, K.T. & Morais, S.S. (2015). Physical activity patterns and factors related to exercise during pregnancy: a cross sectional study. *PLoS ONE* 10(6): e0128953.

Nehring, I., Schmoll, S., Beyerlein, A., Hauner, H. & von Kries, R. (2011). Gestational weight gain and long-term postpartum weight retention: a meta-analysis. *Am J Clin Nutr*, 94:1225–31.

Norwegian Directorate of Health (2013). *Gravid.* Oslo: Norwegian Directorate of Health.

Norwegian Directorate of Health (2015). *Fysisk aktivitet og sedat tid blant voksne og eldre i Norge - Nasjonal kartlegging 2014-2015*. Oslo: Norwegian Directorate of Health.

Norwegian Directorate of Health (2016). *Gode levevaner før og i svangerskapet*. Oslo: Norwegian Directorate of Health.

Norwegian Directorate of Health and Social Affaires (2005). *Retningslinjer for svangerskapsomsorgen.* Oslo: Directorate for Health and Social Affaires. Accessed October 13th 2016 on: https://helsedirektoratet.no/retningslinjer/nasjonal-faglig-retningslinje-for-svangerskapsomsorgen

Norwegian Institute of Public Health (2015). *Medisinsk fødselsregister (MFR) og Abortregisteret.* Accessed August 16th 2016 on: http://statistikk.fhi.no/mfr/

O´Brien, C.M., Grivell, R.M. & Dodd, J.M. (2016). Systematic review of antenatal dietary and lifestyle interventions in women with a normal body mass index. *Acta Obstet Gynecol Scand,* DOI: 10.1111/ aogs.12829

Oken, E., Rifas-Shiman, S.L., Field, A.E., Frazier, A.L. & Gillman, M.W. (2008). Maternal gestational weight gain and offspring weight in adolescence. *Obstet Gynecol,* 112:999–1006.

Olander, E., Atkinson, L., Edmunds, J.K. & French, D.P. (2011). The views of pre- and post-natal women and health professionals regarding gestational weight gain: An exploratory study. *Sexual & Reproductive Healthcare,* 2: 43–48

Owe, K.M., Nystad, W. & Bø, K. (2009). Correlates of regular exercise during pregnancy: the Norwegian Mother and Child Cohort Study. *Scand J Med Sci Sports,* 19(5):637-45.

Pelaez, M., Gonzalez-Cerron, S., Montejo, R. & Barakat, R. (2014). Pelvic floor muscle training included in a pregnancy exercise program is effective in primary prevention of urinary incontinence: a randomized controlled trial. *Neurourol Urodyn*, 33: 67-71.

Pennick, V. & Liddle, S.D. (2013). Interventions for preventing and treating pelvic and back pain in pregnancy. *Cochrane Database syst Rev*, 8: CD001139.

Perales, M., Refoyo, I., Coteron, J., Bacchi, M. & Barakat, R. (2015). Exercise during pregnancy attenuates prenatal depression: a randomized controlled trial. *Eval Health Prof.*, 38(1):59-72.

Petersen, A.M., Leet, T.L. & Brownson, R.C. (2005). Correlates of physical activity among pregnant women in the United States. *Med. Sci. Sports Exerc*. 37, 1748–1753.

Phelan, S. (2010). Pregnancy: A "teachable moment" for weight control and obesity prevention. *American Journal of Obstetrics and Gynecology*, 202(2), 135.e1–135.e8.

Pit, S., Vo, T. & Pyakurel, S. (2014). The effectiveness of recruitment strategies on general practitioner's survey response rates – a systematic review. *BMC Medical Research Methodology*, 14:76

Poston, L., Bell, R., Croker, H., Flynn, A.C., Godfrey, K.M., Goff, L… Briley, A.L. (2015). Effect of a behavioural intervention in obese pregnant women (the UPBEAT study): a multicentre, randomised controlled trial. *Lancet Diabetes Endocrinol,* 10:767–77.

Power, M.L., Cogswell, M.E. & Schulkin, J. (2006). Obesity prevention and treatment practices of U.S. obstetrician-gynecologists. *Obstet Gynecol*, 108:961–968.

Price, B.B., Amini, S.B. & Kappeler, K. (2012). Exercise in pregnancy: effect on fitness and obstetric outcomes-a randomized trial. *Med Sci Sports Exerc*. 44(12): 226-229

Rakhshani, A., Maharana, S., Raghuram, N., Nagendra, H.R. & Venkatram, P. (2010). Effects of integrated yoga on quality of life and interpersonal relationship of pregnant women. *Qual Life Res*, 19:1447-1455.

Restall, A., Taylor, R.S., Thompson, J.M.D., Flower, D., Dekker, G.A., Kenny, L.C., Poston, L. & McCrowan, L.M.E. (2014). Risk factors for Excessive Gestational Weight Gain in a Healthy, Nulliparous Cohort. *Journal of obesity,* Article ID 148391

Rong, K., Yu, K., Han, X., Szeto, I.M., Qin, X., Wang, J., Ning, Y., Wang, P. & Ma, D. (2014). Pre-pregnancy BMI, gestational weight gain and postpartum weight retention: a meta-analysis of observational studies. *Public Health Nutr.,* 18:2172–82.

Ruchat, S.M., Davenport, M.H., Giroux, I., Hillier, M., Batada, A., Sopper, M.M., Hammond, J.M & Mottola, M.F. (2012). Nutrition and exercise reduce excessive weight gain in normal-weight pregnant women. *Med Sci Sports Exerc*, 44:1419-1426.

Ruiz, J.R., Perales, M., Pelaez, M., Lopez, C., Lucia, A. & Barakat, R. (2013). Supervised exercise-based intervention to prevent excessive gestational weight gain: a randomized controlled trial. *Mayo Clin Proc,* 88(12):1388–97.

Russo, L.M., Nobles, C., Ertel, K.A., Chasan-Taber, L. & Whitcomb, B.W. (2015). Physical Activity Interventions in Pregnancy and Risk of Gestational Diabetes Mellitus: A Systematic Review and Meta-analysis. *Obstet Gynecol,* 125(3):576-82.

Saftlas, A.F., Logsden-Sackett, N., Wang, W., Woolson, R. & Braken, M.B. (2004). Work, leisure-time physical activity, and risk of preeclampsia and gestational hypertension. *Am J Epidemiol.*, 160(8):758-765.

Sagedal, L.R., Øverby, N.C., Lohne-Seiler, H., Bere, E., Torstveit, M.K., Henriksen, T. & Vistad, I. (2013). Study protocol: fit for delivery - can a lifestyle intervention in pregnancy result in measurable health benefits for mothers and newborns? A randomized controlled trial. *BMC Public Health*, 13:132

Sagedal, L.R., Øverby, N.C., Bere, E., Torstveit, M.K., Lohne-Seiler, H., Småstuen, M… Vistad, I. (2016). Lifestyle intervention to limit gestational weight gain: the Norwegian Fit for Delivery randomised controlled trial . *BJOG*. doi: 10.1111/1471-0528.13862.

Sallis, J.F. & Saelens, B.E. (2000). Assessment of physical activity by self-report: status, limitations, and future directions. *Res Q Exerc Sport*., 71(2 Suppl):1-14.

San Juan Dertkigil, M., Cecatti, J.G., Sarno, M.A., Cavalcante, S.R. & Marussi, E.F. (2007). Variation in the amniotic fluid index following moderate physical activity in water during pregnancy. *Acta Obstet Gynecol Scand*. 86:547-552.

Santos, I.A., Stein, R., Fuchs, S.C., Duncan, B.B., Ribeiro, J.P., Kroeff, L.R., Carballo, M.T. & Schmidt, M.I. (2005). Aerobic exercise and submaximal functional capacity in overweight pregnant women: A randomized trial. *Obstet Gynecol,* 106(2): 243-249.

Sayakhot, P. & Carolan-Olah, M. (2016). Internet use by pregnant women seeking pregnancy-related information: a systematic review. *BMC Pregnancy and Childbirth,* 16:65

Schmidt, M.D., Pekow, P., Freedson, P.S., Markenson, G. & Chasan-Taber, L. (2006). Physical activity patterns during pregnancy in a diverse population of women. *J. Womens Health (Larchmt*). 15(8): 909–918.

Shapira, N. (2008). Prenatal nutrition: a critical window of opportunity for mother and child. *Women's Health*, 4(6), 639–656

Shapiro, G.D., Fraser, W.D. & Séguin, J.R. (2012). Emerging risk factors for postpartum depression: Serotonin transporter genotype and omega-3 fatty acid status. *Can J Psychiatry*., 57(11): 704-712.

Shieh, C., Broome, M.E. & Stump, T.E. (2010). Factors associated with health information-seeking in low-income pregnant women. *Womens Health*, 50:426-42.

Shin, D., Lee, K.W. & Song, W.O. (2015). Dietary Patterns during Pregnancy Are Associated with Risk of Gestational Diabetes Mellitus. *Nutrients,* 7, 9369–9382.

Siega-Riz, A.M., Herring, A.H., Carrier, K., Evenson, K.R., Dole, N. & Deierlein, A. (2010). Sociodemographic, perinatal, behavioral and psychosocial predictors of weight retention at 3 and 12 months postpartum. *Obesity*, 18:1996-2003.

Sinclair, M., O´Toole, J., Malawaraarachchi, M. & Leder, K. (2012). Comparison of response rates and cost-effectiveness for a community-based survey: postal, internet and telephone modes with generic or personalised recruitment approaches. *BMC Medical Research Methodology*, 12:132.

Sorensen, T.K., Williams, M.A., Lee, I., Dashow, E.C., Thompson, M.L. & Luthy, D.A. (2003). Recreational physical activity during pregnancy and the risk of preeclampsia. *Hypertension*., 41(6):1273-1280.

Soultanakis, H.N., Artal, R. & Wiswell, R.A. (1996). Prolonged exercise in pregnancy: glucose homeostasis, ventilatory and cardiovascular responses. *Semin Perinatol*, 20:315–27.

Stafne, S.N., Salvesen, K.Å., Romundstad, P.R., Torjusen I.H. & Mørkved, S. (2012). Does regular exercise including pelvic floor muscle training prevent urinary and anal incontinence during pregnancy? A randomised controlled trial. *BJOG*, 119:1270-80.

Statistics Norway (2016a). *Norwegian media barometer, 2015.* Located on: http://www.ssb.no/en/kultur-og-fritid/statistikker/medie

Statistics Norway (2016b). *Health care personnel, 2015, 4th quarter.* Located on: http://www.ssb.no/en/arbeid-og-lonn/statistikker/hesospers/aar

Stengel, M.R., Kraschnewski, J.L., Hwang, S.W., Kjerulff, K.H. & Chuang, C.H. (2012). "What My Doctor Didn't Tell Me": Examining Health Care Provider Advice to Overweight and Obese Pregnant Women on Gestational Weight Gain and Physical Activity. *Women's Health Issues* 22-6, e535–e540

Stotland, N.E., Haas, J.S., Brawarsky, P., Jackson, R.A., Fuentes-Afflick, E. & Escobar, G.J. (2005). Body mass index, provider advice and target gestational weight gain. *Obstet Gynecol*, 105(3):633-638.

Stotland, N.E., Gilbert, P., Bogetz, A., Harper, C.C., Abrams, B. & Gerbert, B. (2010). Preventing excessive weight gain in pregnancy: how do prenatal care providers approach counseling? *J Womens Health*, 19:807–814.

Stuebe, A.M., Oken, E. & Gillman, M.W. (2009). Associations of diet and physical activity during pregnancy with risk for excessive gestational weight gain. *Am J Obstet Gynecol,* 201: 58.e1-8.

Symons Downs, D. & Ulbrecht, J.S. (2006). Understanding exercise beliefs and behavours in women with gestational diabetes mellitus. *Diabetes care*, 29(2): 236- 240.

Szwajcer, E.M., Hiddink, G.J., Koelen, M.A. & van Woerkum, C.M. (2005). Nutrition-related information-seeking behaviours before and throughout the course of pregnancy: consequences for nutrition communication. *Eur J Clin Nutr*. 59 Suppl 1:S57-65.

Szwajcer, E.M., Hiddink, G.J., Maas, L., Koelen, M.A. & van Woerkum, C.M. (2008). Nutrition-related information-seeking behaviours of women trying to conceive and pregnant women: evidence for the life course perspective. *Fam Pract*., 25, Suppl 1:i99-i104.

Szymanski, L.M. & Satin, A.J. (2012). Exercise during pregnancy: Fetal responses to current public health guidelines. *Obstet Gynecol*, 119:603-610.

Tinloy, J., Chuang, C.H., Zhu, J., Pauli, J., Kraschnewski, J.L. & Kjerulff, K.H. (2014). Exercise during pregnancy and risk of late preterm birth, cesarean delivery, and hospitalizations. *Womens Health Issues*., 24(1):e99-e104.

Thomas, R.J., Nelson, J.K. & Silverman, S.J. (2011). *Research methods in physical activity* (6. Ed.) Human Kinetics, Stanningley.

Tobias, D.K., Zhang, C., van Dam, R.M., Bowers, K. & Hu, F.B. (2011). Physical activity before and during pregnancy and risk of gestational diabetes mellitus: A meta-analysis. *Diabetes Care*, 34:223-229.

Trost, S.G., Owen, N., Bauman, A.E., Sallis, J.F. & Brown, W. (2002). Correlates of adults' participation in physical activity: review and update. *Med Sci Sports Exerc,*12:1996-2001.

United States Department of Agriculture (2015). *Dietary guidelines for Americans 2015-2020 (8. Edition).* Washington: United States Department of Agriculture.

VanGeest, J.B., Johnson, T.P. & Welch, V.L. (2007). Methodologies for improving response rates in surveys of physicians: a systematic review. *Eval Health Prof*, 30(4):303–321.

Vinter, C.A., Jensen, D.M., Ovesen, P., Beck-Nielsen, H. & Jorgensen, J.S. (2011). The LiP (Lifestyle in Pregnancy) Study: a randomized controlled trial of lifestyle intervention in 360 obese pregnant women. *Diabetes Care*, 34:2502–7.

Viswanathan, M., Siega-Riz, A.M., Moos, M.K., Dierlein, A., Mumford, S., Knaack, J., Thieda, P., Lux, L.J & Lohr, K.N (2008). Outcomes of maternal weight gain. *Evid Rep Technol Assess*, 168:1-223.

Wang, M.L., Arroyo, J., Druker, S., Sankey, H.Z. & Rosal, M.C. (2015). Knowledge, Attitudes and Provider Advice by Pre- Pregnancy Weight Status: A Qualitative Study of Pregnant Latinas With Excessive Gestational Weight Gain. *Women & Health*, 55(7): 805-828.

Wilkinson, S.A., Poad, D. & Stapleton, H. (2013). Maternal overweight and obesity: a survey of clinicians' characteristics and attitudes, and their responses to their pregnant clients. *BMC Pregnancy and Childbirth* 13:117.

Willcox, J.C., Campbell, K.J., van der Pligt, P., Hoban, E., Pidd, D. & Wilkinson, S. (2012). Excess gestational weight gain: an exploration of midwives' views and practice. *BMC Pregnancy and Childbirth*, 12:102

Willcox, J.C., Campbell, K.J., McCarthy, E.A., Lappas, M., Ball, K., Crawford, D., Shub, A. & Wilkinson, S.A. (2015). Gestational weight gain information: seeking and sources among pregnant women. *BMC Pregnancy and Childbirth*, 15:164. DOI 10.1186/s12884-015-0600-6

Whitaker, K.M., Wilcox, S., Liu, J., Blair, S.N. & Pate, R.R. (2016). Patient and Provider Perceptions of Weight Gain, Physical Activity, and Nutrition Counseling during Pregnancy: A Qualitative Study. *Women's Health Issues,* 26-1: 116–122

Whitlock, E.P., Orleans, C.T., Pender, N. & Allan, J. (2002). Evaluating primary care behavioral counseling interventions: an evidence-based approach. *Am J Prev Med*, 22(4): 267–284.

World Health Organization (2000). *Obesity: preventing and managing the global epidemic. Report of a WHO Consultation.* World Health Organization: Geneva WHO

World Health Organization (2010). *Global recommendations on physical activity for health.* World Health Organization: Geneva WHO

Yeo, S., Crandell, J.L., & Jones-Vessey, K. (2016). Adequacy of Prenatal Care and Gestational Weight Gain. *Journal of women's health*, 25(2): doi:10.1089/jwh.2015.5468

Zach, S. & Lissitsa, S. (2016). Internet use and leisure time physical activity of adults - A nationwide survey. *Computers in Human Behavior,* 60: 483-491.

LIST OF TABLES

LIST OF FIGURES

APPENDIX 1: QUESTIONNAIRE PART A

NORGES IDRETTSHØGSKOLE

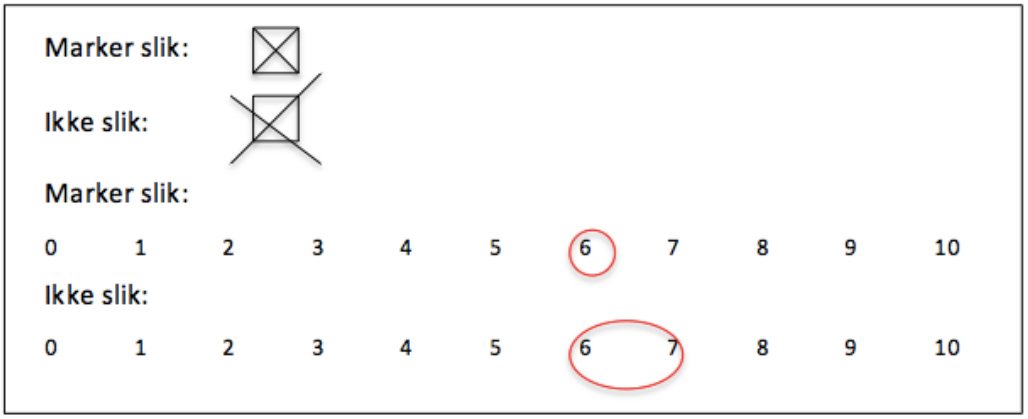
Kode: _____

A

SPØRRESKJEMA OM GRAVIDITET, INFORMASJONSKILDER, FYSISK AKTIVITET OG VEKTREGULERING

Vi vet for lite i dag om gravide kvinners informasjonskilder når det kommer til fysisk aktivitet, vektregulering og kosthold. Ved å besvare dette spørreskjemaet bidrar du til å få frem nyttig kunnskap uansett om du er fysisk aktiv eller ikke. En liten oppfordring før du starter – vær ærlig. Her er det ingen riktige eller gale svar.

Det tar ca 20 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. Svangerskapsuke: _____

3a) ☐ Førstegangsfødende ☐ Flergangsfødende

b) Dersom flergangsfødende, hvor mange barn har du født? _____

4. Sivilstatus:

☐ Gift ☐ Skilt/separert

☐ Samboer ☐ Enke

☐ Enslig ☐ Annet

5. Fødeland: _____

6. Hva er din høyeste fullførte utdanning?

☐ Grunnskole ☐ Høyskole/universitet mindre enn 4 år

☐ Videregående yrkesfaglig ☐ Høyskole/universitet 4 år eller mer

☐ Videregående allmennfaglig ☐ Annen utdannelse: _____

7. Hva er arbeidssituasjonen din?

☐ Skoleelev/student ☐ Hjemmeværende

☐ Lærling/yrkespraksis ☐ Arbeidssøkende/permittert

☐ Attføring/ufør ☐ Ansatt i offentlig virksomhet

☐ Ansatt i privat virksomhet ☐ Selvstendig næringsdrivende

☐ I familiebedrift (gårdsbruk etc.) ☐ Annet

8. Dersom du er i arbeid utenfor hjemmet,
hvor stor stillingsprosent har du? _____ %

9a) Er du for tiden fraværende fra ditt vanlige arbeid?

☐ Ja ☐ Nei

b) **Dersom Ja**, hva er årsaken til fraværet? *(Sett eventuelt flere kryss)*

☐ Sykemelding

☐ Permisjon

☐ Sykt barn

☐ Annet _____

10a) **Dersom du er sykemeldt**, hvor stor prosentandel er du sykemeldt? _____ %

b) **Dersom du er sykmeldt**, er dette på grunn av svangerskapsrelaterte årsaker?

☐ Ja ☐ Nei

c) **Dersom du er sykemeldt på grunn av svangerskapsrelaterte plager**, hva er årsaken til sykemeldingen? (sett gjerne flere kryss)

☐ Ryggsmerter
☐ Bekkensmerter
☐ Kvalme/oppkast
☐ Kynnere
☐ Svangerskapsdiabetes
☐ Uvanlig tretthet/sliten
☐ Blødning
☐ Pre-eclampsia (Svangerskapsforgiftning)
☐ Hypertensjon (Høyt blodtrykk)
☐ Inkontinens
☐ Annet: _____

11. Hvem utfører dine svangerskapskontroller?

☐ Fastlege
☐ Jordmor
☐ Både fastlege og jordmor
☐ Andre: _____

12. Hvilken bydel er du tilknyttet:

☐ Alna
☐ Bjerke
☐ Frogner
☐ Gamle Oslo
☐ Grorud
☐ Grünerløkka
☐ Nordre Aker
☐ Nordstrand
☐ Sagene
☐ St. Hanshaugen
☐ Stovner
☐ Søndre Nordstrand
☐ Ullern
☐ Vestre Aker
☐ Østensjø

13. Hvor mange svangerskapskontroller har du til nå vært på? _____ kontroller
(Fra starten av graviditeten og fram til i dag)

HELSE OG LIVSSTIL

14a) Røyker du daglig?

☐ Ja ☐ Nei

b) **Dersom Ja**, omtrent hvor mange sigaretter daglig? _____ stk

c) **Dersom Nei,** sluttet du i forbindelse med graviditeten?

☐ Ja ☐ Nei

15. Høyde: _____ cm

16. Vekt før graviditet (ved siste menstruasjon): _____ kg

17. Hvor mye veier du i dag? _____ kg

På en skala fra 0-10, hvor 0 er negativt ladet og 10 er positivt ladet, sett ring rundt det tallet som passer best til dine tanker rundt de følgende utsagnene:

18.	Hvor tilfreds var du med egen kroppsvekt før graviditeten?	0	1	2	3	4	5	6	7	8	9	10
19.	Hvor tilfreds er du med egen kroppsvekt i dag?	0	1	2	3	4	5	6	7	8	9	10
20.	Hvor tilfreds var du med egen kroppsform og –utseende før graviditeten?	0	1	2	3	4	5	6	7	8	9	10
21.	Hvor tilfreds er du med egen kroppsform og –utseende i dag?	0	1	2	3	4	5	6	7	8	9	10
22.	Har du som gravid nok energi gjennom hele dagen til daglige gjøremål?	0	1	2	3	4	5	6	7	8	9	10
23.	Alt i alt, hvor tilfreds er du som gravid med din egen helse?	0	1	2	3	4	5	6	7	8	9	10
24.	Alt i alt, hvor tilfreds er du som gravid med din egen mentale/psykiske helse?	0	1	2	3	4	5	6	7	8	9	10
25.	Alt i alt, hvor tilfreds er du som gravid med din fysiske form?	0	1	2	3	4	5	6	7	8	9	10

26. Har du i nåværende svangerskapsuke noen svangerskapskomplikasjoner?

☐ Ja ☐ Nei

27a) Er du plaget med smerter i ryggen?

☐ Ja ☐ Nei

b) **Dersom Ja,** hvor er smertene lokalisert?

☐ Øvre del av rygg

☐ I korsrygg uten utstråling til ben

☐ I korsrygg med utstråling til ben

c) **Dersom ja,** på en skala fra 0-10, hvor 0 tilsvarer ingen smerte og 10 tilsvarer verst tenkelige smerte, hvor sterke smerter har du i dag?

0 1 2 3 4 5 6 7 8 9 10

28a) Er du plaget med smerter i bekkenområdet?

☐ Ja ☐ Nei

b) **Dersom Ja,** hvor er smertene lokalisert?

☐ Foran (symfysen)

☐ Bak, en side

☐ Bak, to sider

☐ Både foran og bak (en side)

☐ Både foran og bak (to sider)

c) **Dersom ja,** på en skala fra 0-10, hvor 0 tilsvarer ingen smerte og 10 tilsvarer verst tenkelige smerte, hvor sterke smerter har du generelt?

0 1 2 3 4 5 6 7 8 9 10

29a) Har du problemer med urinlekkasje?

☐ Ja ☐ Nei

b) **Dersom Ja,** når skjer dette?

☐ Når jeg er fysisk aktiv

☐ Ved sterk vannlating

☐ Når jeg hoster og/eller nyser

☐ Når jeg ler

c) **Dersom Ja,** på en skala fra 0-10, hvor 0 tilsvarer ingen plager og 10 tilsvarer verst tenkelige plager, hvor plaget er du av denne urinlekkasjen?

0 1 2 3 4 5 6 7 8 9 10

30. Har du i nåværende svangerskapsuke søvnproblemer?

☐ Ja ☐ Nei

31. Er du i nåværende svangerskapsuke plaget med uvanlig tretthet?

☐ Ja ☐ Nei

32. Har du i nåværende svangerskapsuke problemer med leggkramper?

☐ Ja ☐ Nei

33. Har du i nåværende svangerskapsuke problemer med halsbrann/sure oppstøt?

☐ Ja ☐ Nei

34. Har du i nåværende svangerskapsuke problemer med kvalme/oppkast?

☐ Ja ☐ Nei

35. Har du i nåværende svangerskapsuke koordinasjons- og/eller balanseproblemer?

☐ Ja ☐ Nei

36. Har du i nåværende svangerskapsuke problemer med hovne bein/ødem?

☐ Ja ☐ Nei

37. Er du i nåværende svangerskapsuke plaget med hodepine/migrene?

☐ Ja ☐ Nei

38. Har du i nåværende svangerskapsuke problemer med åreknuter, hemoroider og/eller brokk?

☐ Ja ☐ Nei

39. Har du i nåværende svangerskapsuke problemer med mage/tarmfunksjonen?

☐ Ja ☐ Nei

40. Har du i nåværende svangerskapsuke høyt blodtrykk?

☐ Ja ☐ Nei

41. Har du i nåværende svangerskapsuke problemer med høyt sukkerinnhold i urinen?

☐ Ja ☐ Nei

42. Har du i nåværende svangerskapsuke problemer med eggehvite/protein i urinen?

☐ Ja ☐ Nei

TOTALE FYSISKE AKTIVITETSNIVÅ

TRANSPORTAKTIVITETER

43. Kan du angi hvor mye du i nåværende svangerskapsuke totalt **går** (bruker beina) i løpet av en dag?
(Her inkluderes all aktivitet, f.eks. til og fra arbeid og butikken, hente/bringe barn, på jobb, turer, trening osv.)

min ☐

44. Kan du angi hvor mye du i nåværende svangerskapsuke totalt **går** (bruker beina) i løpet av en dag hvor du blir lett svett og andpusten?
(moderat intensitet)

min ☐

JOBBAKTIVITETER

45. Vil du karakterisere jobben din som fysisk krevende?

☐ Ja ☐ Nei ☐ Av og til

46. Hvor mye tid bruker du i nåværende svangerskapsuke på stillesittende aktiviteter på jobb daglig ?

timer ☐ min ☐

47. Hvor mye tid bruker du i nåværende svangerskapsuke i aktivitet på jobb daglig? (går/står)

timer ☐ min ☐

AKTIVITET I HJEM OG NÆRMILJØ

timer min

48. Hvor lang tid bruker du på **lett til middels anstrengende** arbeid i hjemmet daglig? *(F.eks. støvsuge, vaske gulv, lek med barn, innkjøp av mat, pleie og omsorgsoppgaver)* ☐ ☐

49. På en skala fra 0-10, hvor 0 er svært lett og 10 er svært anstrengende, hvor fysisk anstrengende er dine daglige omsorgsoppgaver og gjøremål i og rundt hjemmet?

0 1 2 3 4 5 6 7 8 9 10

FRITIDSAKTIVITETER; SPORT OG REKREASJON

50. 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 f.eks. snømåking og vasking.

a) I henhold til dette, vil du karakterisere deg selv som regelmessig fysisk aktiv før graviditeten?

☐ Ja ☐ Nei ☐ Vet ikke

b) I henhold til dette, vil du i nåværende svangerskapsuke karakterisere deg selv som fysisk aktiv?

☐ Ja ☐ Nei ☐ Vet ikke

51. 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.

Antall økter Aldri

a) I henhold til dette, hvor mange økter trente du per uke før graviditeten? ☐ ☐

Antall økter Aldri

b) I henhold til dette, hvor mange økter trener du per uke i nåværende svangerskapsuke? ☐ ☐

Dersom du har svart Aldri på spørsmål 51b, vennligst gå videre til spørsmål 61.

52. På en skala fra 6-20 (Borgs skala), hvor 6 regnes som hvilenivå, på hvilken intensitet trener du vanligvis i nåværende svangerskapsuke?
Velg et tall og sett ring rundt dette tallet.

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

53. Hvor lang tid bruker du vanligvis når du trener?
(Ikke medregnet tid til skift, dusj og reisevei)

timer ☐ min ☐

54. Hvor lenge har du drevet med regelmessig fysisk aktivitet?

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

55. Ved hvilken arena utøver du trening/fysisk aktivitet?
(Sett gjerne flere kryss)

☐ Treningssenter
☐ Idrettshall
☐ Idrettslag
☐ Annet: _____
☐ Marka/landevei/parken
☐ Treningsrom på jobb
☐ Hjemme/innendørs

56a) Driver du med utholdenhetstrening i nåværende svangerskapsuke?

☐ 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)*

- ☐ Gå tur
- ☐ Løp/jogg
- ☐ Dans
- ☐ Roing
- ☐ Annet: _____
- ☐ Sykling
- ☐ Aerobic
- ☐ Svømming
- ☐ Langrenn

57a) Driver du med styrketrening i nåværende svangerskapsuke?

☐ 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)*

- ☐ Løfte vekter
- ☐ Gruppetrening i sal
- ☐ CrossFit
- ☐ Annet: _____

58a) Driver du med annen trening i nåværende svangerskapsuke?

☐ 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)*

- ☐ Lagidrett (ballsport)
- ☐ Yoga
- ☐ Turn
- ☐ Pilates
- ☐ Kampsport
- ☐ Annet: _____

59a) Driver du bekkenbunnstrening i nåværende svangerskapsuke?

☐ Ja ☐ Nei

b) **Dersom Ja,** hvor mange ganger i uken? ☐ ganger

60. Har du tidligere og/eller i nåværende svangerskapsuke benyttet deg av personlig trener (PT) for å nå dine treningsmål? *(Sett gjerne flere kryss)*

	Ja	**Nei**
Før svangerskapet:		
1. trimester		
2. trimester		
3. trimester		

ROLIGE AKTIVITETER

61. Hvor mange timer bruker du totalt på stillesittende aktiviteter i nåværende svangerskapsuke? (både i arbeid og fritid)? *(f.eks. se TV, slappe av, internett, PC, høre på musikk, kontorarbeid m.m.)*

Hverdag: ☐ timer **Helg:** ☐ timer

62. Hvor mange timer sover du vanligvis i løpet av et døgn?

Hverdag: ☐ timer **Helg:** ☐ timer

SOSIAL STØTTE, BARRIERER OG MOTIVASJON

63. På en skala fra 0-10, sett ring rundt det tallet som passer best til dine tanker om fysisk aktivitet:

a)	Jeg hater fysisk aktivitet	0	1	2	3	4	5	6	7	8	9	10	Jeg elsker fysisk aktivitet
b)	Fysisk aktivitet er ikke gøy	0	1	2	3	4	5	6	7	8	9	10	Fysisk aktivitet er gøy
c)	Fysisk aktivitet tapper meg for energi	0	1	2	3	4	5	6	7	8	9	10	Fysisk aktivitet gir meg energi

64. 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 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
c)	Har du støtte fra familie/samboer i forhold til fysisk aktivitet?	0	1	2	3	4	5	6	7	8	9	10

65. 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

66. Dersom du i dag **er** regelmessig fysisk aktiv, hva er de tre viktigste grunnene til dette?
(Sett maksimalt tre kryss)

- ☐ Det er gøy/opplevelse
- ☐ Gir bedre utseende/kropp
- ☐ Gir psykisk overskudd/velvære/glede
- ☐ Trener til større eller mindre konkurranser
- ☐ Gir bedre fysisk form/forebygger helseplager
- ☐ Kontrollere vekten under graviditeten
- ☐ Øker selvtilliten/selvfølelsen
- ☐ Fordi jeg føler at jeg bør
- ☐ Avreagere/avkobling
- ☐ Det er sosialt
- ☐ Reduserer svangerskapsplager
- ☐ Motvirker angst og depresjon

67. Dersom du i dag **ikke er** regelmessig fysisk aktiv, hva er de tre viktigste grunnene til dette?
(Sett maksimalt tre kryss)

- ☐ Har ikke tid
- ☐ Får nok mosjon gjennom min jobb og/eller i hjemmet
- ☐ Det krever for mye å komme i gang
- ☐ Negativ opplevelse i forbindelse med fysisk aktivitet
- ☐ Helsepersonell råder meg til ikke å være fysisk aktiv
- ☐ Vanskelig å kombinere med arbeid/utdanning
- ☐ Dårlige treningsmuligheter
- ☐ Er ikke interessert
- ☐ Mangler motivasjon
- ☐ Sykdom/handikap
- ☐ Passer ikke med barn/omsorg
- ☐ Har ingen å trene sammen med
- ☐ Har aldri trent, ingen erfaring
- ☐ Frykt/redsel for mitt ufødte barn
- ☐ Svangerskapskomplikasjoner, spesifiser: _____

68. På en skala fra 0-10, hvor 0 er ikke i det hele tatt og 10 er svært mye, hvor mye bekymrer du deg for fosteret når du driver med fysisk aktivitet?

0 1 2 3 4 5 6 7 8 9 10

69a) Har du i løpet av svangerskapet endret vaner for å stabilisere/redusere ytterligere vektoppgang?

☐ Ja ☐ Nei

b) **Dersom Ja,** på hvilken måte: *(Sett gjerne flere kryss)*

- ☐ Økt antall økter med trening
- ☐ Økt intensiteten på treningen
- ☐ Hoppet over frokosten
- ☐ Bevisst utelatt mat som inneholder store mengder sukker og fett
- ☐ Spist mindre enn du pleier
- ☐ Annet, spesifiser: _____

KOSTHOLD OG MATVANER

70. 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

71. Hvordan vil du karakterisere egne matvaner/kosthold før graviditeten? På en skala fra 0-10, hvor 0 er svært dårlig og 10 er svært bra

0 1 2 3 4 5 6 7 8 9 10

72. Hvordan vil du karakterisere egne matvaner/kosthold i dag? På en skala fra 0-10, hvor 0 er svært dårlig og 10 er svært bra

0 1 2 3 4 5 6 7 8 9 10

73. Velger du produkter som er nøkkelhullsmerket?

☐ Ja, alltid ☐ Ofte ☐ Av og til ☐ Nei, aldri

74. Helsedirektoratet anbefaler 5 enheter med frukt og grønnsaker daglig.
Hvor mange enheter får du i deg daglig?

Frukt	Grønnsaker
☐	☐

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

☐ Ja ☐ Nei ☐ Vet ikke

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

	Antall ganger	Aldri
Fisk	☐	☐
Kjøtt	☐	☐
Jeg er vegetarianer	☐	

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

Antall ganger	Aldri
☐	☐

78. Hvor ofte i en vanlig uke spiser du søte matvarer som f.eks. syltetøy, nuggati, søt frokostblanding etc.

Antall ganger	Aldri
☐	☐

		Antall ganger	Aldri
79.	Hvor ofte i en vanlig uke spiser du mat som potetgull, sjokolade, smågodt, kaker, is etc.?	☐	☐
80.	Hvor ofte i en vanlig uke drikker du søte drikkevarer som saft, fruktjuice, brus, energidrikk etc.?	☐	☐
81.	Hvor mange kopper kaffe drikker du daglig?	Antall kopper ☐	Aldri ☐

82a) Drikker du alkohol i nåværende svangerskapsuke?

☐ Ja ☐ Nei

b) **Dersom Ja**, hvor mange enheter per uke? ☐
(Én alkoholenhet = én flaske 33cl pils eller ett glass vin)

83a) Bruker du i nåværende svangerskapsuke vitaminer, mineraler eller annet kosttilskudd?

☐ Ja ☐ Nei

b) **Dersom Ja,** hvilken type?

☐ Multivitamin-/mineraltilskudd ☐ Jerntabletter

☐ Tran/fiskeolje ☐ Kalsiumtilskudd

☐ Proteintilskudd ☐ Folat (folsyre)

☐ Annet: _____

INFORMASJONSKILDER

FYSISK AKTIVITET

84. Har du fått/hentet informasjon/råd om fysisk aktivitet under svangerskapet fra noen av de følgende informasjonskildene?*(Sett gjerne flere kryss)*

☐ Blogger/internettforum ☐ Venner/familie

☐ Foreldremagasiner/ukeblader ☐ Jordmor

☐ Faglitteratur/brosjyrer ☐ Lege

☐ Annet: _____ ☐ Har ikke fått/hentet informasjon/råd

Dersom du krysset av for *Har ikke fått/hentet informasjon/råd*, vennligst gå videre til spørsmål 89.

85a) Hvilke av alternativene har hatt størst betydning for din motivasjon for å drive fysisk aktivitet? *(Sett maks to kryss)*

☐ Blogger/internettforum
☐ Foreldremagasiner/ukeblader
☐ Faglitteratur/brosjyrer
☐ Annet: _____
☐ Venner/familie
☐ Jordmor
☐ Lege

b) Hvilke råd om fysisk aktivitet har du fått?

☐ Opprettholde samme fysiske aktivitet som før graviditeten
☐ Øke fysisk aktivitet/trening
☐ Redusere fysisk aktivitet/trening
☐ Unngå fysisk aktivitet/trening
☐ Annet: _____

c) På en skala fra 0-10, hvor 0 er ikke i det hele tatt og 10 er svært mye, hvor mye har informasjonskildene i a) oppmuntret/motivert deg til å være fysisk aktiv?

0 1 2 3 4 5 6 7 8 9 10

d) På en skala fra 0-10, hvor 0 er ikke i det hele tatt og 10 er svært mye, hvor mye har informasjonskildene i a) frarådet deg å være fysisk aktiv?

0 1 2 3 4 5 6 7 8 9 10

86a) Hvor ofte har du fått informasjon om fysisk aktivitet/trening på dine svangerskapskontroller?

☐ Aldri
☐ Kun på første kontroll
☐ Kun i første trimester
☐ Kun i andre trimester
☐ Kun i tredje trimester
☐ Hver kontroll

87. På bakgrunn av informasjonen du har fått om fysisk aktivitet/trening på dine svangerskapskontroller, føler du at du kan være fysisk aktiv uten redsel for din eller ditt ufødte barns helse?

☐ Ja ☐ Nei

88. Føler du at informasjonen du har fått fra helsepersonell om fysisk aktivitet/trening har virket oppklarende?

☐ Ja
☐ Nei
☐ Har fått motstridende råd fra lege og jordmor
☐ Har ikke fått informasjon/råd fra helsepersonell

89a) Føler du at du har fått tilstrekkelig informasjon om fysisk aktivitet/trening på dine svangerskapskontroller?

☐ Ja ☐ Nei ☐ Vet ikke

b) **Dersom Nei,** hvorfor ikke? *(Sett gjerne flere kryss)*

☐ Fysisk aktivitet var aldri et tema

☐ Jordmor/lege virket ikke interessert i fysisk aktivitet/trening

☐ Jordmor/lege ønsket å bruke tiden på andre tema

☐ Jordmor/lege virket faglig usikker

☐ Annet: _____

KOSTHOLD

90. Har du fått/hentet informasjon/råd om kosthold under svangerskapet fra noen av de følgende informasjonskildene? *(Sett gjerne flere kryss)*

☐ Blogger/internettforum

☐ Foreldremagasiner/ukeblader

☐ Faglitteratur/brosjyrer

☐ Annet: _____

☐ Venner/familie

☐ Jordmor

☐ Lege

☐ Har ikke fått/hentet informasjon/råd

Dersom du krysset av for *Har ikke fått/hentet informasjon/råd*, vennligst gå videre til spørsmål 94.

91a) Hvilke av alternativene har hatt størst betydning for ditt kosthold under graviditeten? *(Sett maks to kryss)*

☐ Blogger/internettforum

☐ Foreldremagasiner/ukeblader

☐ Faglitteratur/brosjyrer

☐ Annet: _____

☐ Venner/familie

☐ Jordmor

☐ Lege

b) På en skala fra 0-10, hvor 0 er ikke i det hele tatt og 10 er svært mye, hvor mye har informasjonskildene i a) påvirket ditt kosthold under graviditeten?

0 1 2 3 4 5 6 7 8 9 10

92. Hvor ofte har du fått informasjon om kosthold på dine svangerskapskontroller?

☐ Aldri

☐ Kun på første kontroll

☐ Kun i første trimester

☐ Kun i andre trimester

☐ Kun i tredje trimester

☐ Hver kontroll

93. Føler du at informasjonen du har fått fra helsepersonell om kosthold har virket oppklarende?

☐ Ja

☐ Nei

☐ Har fått motstridende råd fra lege og jordmor

☐ Har ikke fått informasjon/råd fra helsepersonell

94a) Føler du at du har fått tilstrekkelig informasjon om kosthold på dine svangerskapskontroller?

☐ Ja ☐ Nei

b) **Dersom Nei,** hvorfor ikke?

☐ Kosthold var aldri et tema

☐ Jordmor/lege virket ikke interessert i kosthold

☐ Jordmor/lege ønsket å bruke tiden på andre tema

☐ Jordmor/lege virket faglig usikker

☐ Annet_____

VEKTREGULERING

95. Har du fått/hentet informasjon/råd om vektregulering under svangerskapet fra noen av de følgende informasjonskildene? *(Sett gjerne flere kryss)*

☐ Blogger/internettforum ☐ Venner/familie

☐ Foreldremagasiner/ukeblader ☐ Jordmor

☐ Faglitteratur/brosjyrer ☐ Lege

☐ Annet: _____ ☐ Har ikke fått/hentet informasjon/råd

Dersom du krysset av for *Har ikke fått/hentet informasjon/råd*, vennligst gå videre til spørsmål 99.

96a) Hvilke av alternativene har hatt størst betydning for din vektregulering under graviditeten? *(Sett maks to kryss)*

☐ Blogger/internettforum ☐ Venner/familie

☐ Foreldremagasiner/ukeblader ☐ Jordmor

☐ Faglitteratur/brosjyrer ☐ Lege

☐ Annet: _____

b) På en skala fra 0-10, hvor 0 er ikke i det hele tatt og 10 er svært mye, hvor mye har informasjonskildene i a) påvirket din vektregulering under graviditeten?

0 1 2 3 4 5 6 7 8 9 10

c) Har informasjonskildene i a) angitt hvor mye du burde øke din vekt under graviditeten?

☐ Ja ☐ Nei

d) **Dersom Ja**, hvor mye har informasjonskildene i a) angitt at du burde øke din vekt under graviditeten? ☐ Kg ☐ Vet ikke

97. **Dersom du har fått råd om vektregulering av lege/jordmor,**

hvor mye har han/hun angitt at du burde øke din vekt under graviditeten?

☐ kg ☐ Vet ikke

98. Føler du at informasjonen du har fått fra helsepersonell om vektregulering har virket oppklarende?

☐ Ja ☐ Har fått motstridende råd fra lege og jordmor

☐ Nei ☐ Har ikke fått informasjon/råd fra helsepersonell

99. Har lege/jordmor snakket om vektøkning i henhold til din BMI før graviditet?

☐ Ja ☐ Nei ☐ Vet ikke

100. Er du kjent med denne tabellen for anbefalt vektøkning under graviditet?

☐ Ja ☐ Nei ☐ Vet ikke

BMI før graviditet	Anbefalt vektøkning (kg)
< 18,5	12,7 – 18,2
18,5 – 24,9	11,4 – 15,9
25,0 – 29,9	6,8 – 11,3
≥ 30	5,0 – 9,1

101a) Føler du at du har fått tilstrekkelig informasjon om vektregulering på dine svangerskapskontroller?

☐ Ja ☐ Nei

b) **Dersom Nei,** hvorfor ikke?

☐ Vektregulering var aldri et tema

☐ Jordmor/lege virket ikke interessert i vektregulering

☐ Jordmor/lege ønsket å bruke tiden på andre tema

☐ Jordmor/lege virket faglig usikker

☐ Annet: _____

TUSEN TAKK FOR HJELPEN

APPENDIX 2: QUESTIONNAIRE PART B

NORGES IDRETTSHØGSKOLE

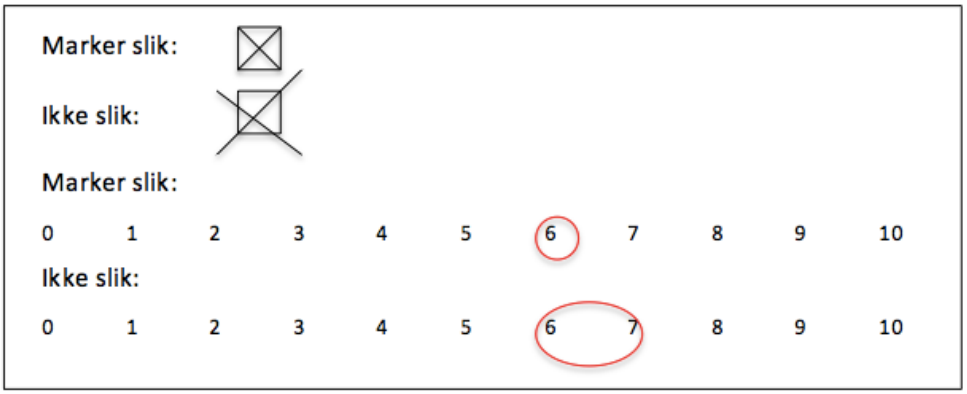
Kode: _____

B

SPØRRESKJEMA OM SVANGERSKAP, FYSISK AKTIVITET OG VEKTREGULERING

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

HELSE OG LIVSSTIL

6a) Røyker du daglig?

☐ Ja ☐ Nei

b) **Dersom Ja,** omtrent hvor mange sigaretter daglig? _____

FYSISK AKTIVITET

7. 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

8. 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.

	Antall økter	Aldri
I henhold til dette, hvor ofte trener du per uke?	☐	☐

Dersom du svarte <u>Aldri</u> på spørsmål 8, gå videre til <u>spørsmål 15.</u>

	timer	min
9. Hvor lang tid bruker du vanligvis når du trener? *(Ikke medregnet tid til skift, dusj og reisevei)*	☐	☐

10. Hvor lenge har du drevet regelmessig fysisk aktivitet?

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

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

☐ Treningssenter
☐ Idrettshall
☐ Idrettslag
☐ Annet: _____
☐ Marka/landevei/parken
☐ Treningsrom på jobb
☐ Hjemme/innendørs

12a) 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)*

☐ Gå tur
☐ Løp/jogg
☐ Dans
☐ Roing
☐ Annet: _____
☐ Sykling
☐ Aerobic
☐ Svømming
☐ Langrenn

13a) 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)*

☐ Løfte vekter
☐ Gruppetrening i sal
☐ CrossFit
☐ Annet: _____

14a) 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)*

- ☐ Lagidrett (ballsport)
- ☐ Pilates
- ☐ Yoga
- ☐ Kampsport
- ☐ Turn
- ☐ Annet: _____

15a) Driver du i dag med bekkenbunnstrening?

☐ Ja ☐ Nei

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

16. 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

17. Dersom du i dag **er** regelmessig fysisk aktiv, hva er de viktigste grunnene til dette?
(Sett maksimalt to kryss)

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

18. Dersom du i dag **ikke er** regelmessig fysisk aktiv, hva er de viktigste grunnene til dette?
(Sett maksimalt to kryss)

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

19.	**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

20. 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

21. 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

22. Velger du produkter som er nøkkelhullsmerket?

☐ Ja, alltid ☐ Ofte ☐ Av og til ☐ Nei, aldri

23. Helsedirektoratet anbefaler 5 enheter med frukt og grønnsaker daglig.
Hvor mange enheter får du i deg daglig?

Frukt ☐ Grønnsaker ☐

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

☐ Ja ☐ Nei ☐ Vet ikke

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

	Antall ganger	Aldri
Fisk	☐	☐
Kjøtt	☐	☐
Jeg er vegetarianer	☐	

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

Antall ganger ☐ Aldri ☐

		Antall ganger	Aldri
27.	Hvor ofte i en vanlig uke spiser du søte matvarer som f.eks. syltetøy, nuggati, søt frokostblanding etc.	☐	☐
28.	Hvor ofte i en vanlig uke spiser du mat som potetgull, sjokolade, smågodt, kaker, is etc.?	☐	☐
29.	Hvor ofte i en vanlig uke drikker du søte drikkevarer som saft, fruktjuice, brus, energidrikk etc.?	☐	☐
		Antall kopper	Aldri
30.	Hvor mange kopper kaffe drikker du daglig?	☐	☐

31a) Drikker du alkohol?

☐ Ja ☐ Nei

		Enheter
b)	**Dersom Ja**, hvor mange enheter per uke? *(Én alkoholenhet = én flaske 33cl pils eller ett glass vin)*	☐

FYSISK AKTIVITET OG SVANGERSKAP

32a) 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 32a, vennligst gå videre til spørsmål 39a.

33. 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)

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

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

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

☐ Ja ☐ Nei

36a) 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)*

- ☐ Gå tur
- ☐ Løp/jogg
- ☐ Dans
- ☐ Roing
- ☐ Sykling
- ☐ Aerobic
- ☐ Svømming
- ☐ Langrenn
- ☐ Annet: _____

37a) Anbefaler du dine gravide pasienter å drive styrketrening?

☐ Ja ☐ Nei

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

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

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

☐ Løfte vekter ☐ CrossFit

☐ Gruppetrening i sal ☐ Annet: _____

38. 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

39a). 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

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

☐ Alltid ☐ Ofte ☐ Av og til

☐ Sjelden ☐ Aldri

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

☐ Ja ☐ Nei

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

☐ Ja ☐ Nei

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

☐ Ja ☐ Nei

44. 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

45. Hva vil du si er de **tre** største fordelene/helsegevinstene ved å være fysisk aktiv som gravid?

☐ Kan forebygge svangerskapsdiabetes
☐ Kan forebygge ryggsmerter
☐ Kan gi raskere fødselsforløp
☐ Kan forebygge prematur fødsel
☐ Mor kommer fortere tilbake i form etter fødsel
☐ Kan forebygge spontanabort
☐ Kan forebygge svangerskapsforgiftning
☐ Kan forebygge lav fødselsvekt
☐ Kan forebygge bekkenplager
☐ Kan forebygge urinlekkasje

46. Hva vil du si er de **tre** største risikoene med trening i svangerskapet?

☐ Økt behov for smertelindring under fødsel
☐ Prematur fødsel
☐ Misdannelser/skader hos fosteret
☐ Urinlekkasje
☐ Lav fødselsvekt hos fosteret
☐ Hypertermia
☐ Fosteret konkurrerer med mor om blod og oksygen
☐ Forlenget fødselsforløp
☐ Fosteret konkurrerer med mor om energi
☐ Spontanabort

47. Er det noen kvinner du vil stoppe eller fraråde å drive fysisk aktivitet/trening under svangerskapet? *(Sett gjerne flere kryss)*

☐ Kvinner med risiko for prematur fødsel
☐ Kvinner med lav BMI
☐ Kvinner med placenta previa etter sv.uke 26
☐ Kvinner med høy BMI
☐ Kvinner med svangerskapsforgiftning
☐ Kvinner med sedat livsstil
☐ Kvinner med bekken-/ryggsmerter
☐ Kvinner med svangerskapsdiabetes
☐ Kvinner med regelmessige blødninger etter uke 12
☐ Kvinner med urinlekkasje

48.	**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

49a) 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 49a, vennligst gå videre til spørsmål 66.

50. 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)

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

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

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

☐ Ja ☐ Nei

53. 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… :											
54.	… spise et variert kosthold som inneholder mye grønnsaker, frukt og bær?	0	1	2	3	4	5	6	7	8	9	10
55.	… velge grove kornprodukter med høyt fiberinnhold?	0	1	2	3	4	5	6	7	8	9	10
56.	… spise mye fisk?	0	1	2	3	4	5	6	7	8	9	10
57.	… velge magre melke- og meieriprodukter?	0	1	2	3	4	5	6	7	8	9	10
58.	… velge produkter som er nøkkelhullsmerket?	0	1	2	3	4	5	6	7	8	9	10
59.	… unngå store mengder mat som pizza, kebab, pølser og hamburger?	0	1	2	3	4	5	6	7	8	9	10
60.	… unngå store mengder mat som potetgull, sjokolade, smågodt, kaker, is, etc.?	0	1	2	3	4	5	6	7	8	9	10
61.	… begrense inntaket av bearbeidet kjøtt, salt og sukker?	0	1	2	3	4	5	6	7	8	9	10
62.	… begrense inntaket av kaffe?	0	1	2	3	4	5	6	7	8	9	10
63.	… ikke drikke alkohol?	0	1	2	3	4	5	6	7	8	9	10
64.	… ikke velge måltidserstattere for å kontrollere vekten?	0	1	2	3	4	5	6	7	8	9	10

65.	**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

66a) 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 <u>Nei</u> på spørsmål <u>66a</u>, vennligst gå videre til spørsmål <u>71.</u>

67. 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)

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

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

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

☐ Ja ☐ Nei

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

☐ Ja ☐ Nei

71.	**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

APPENDIX 3: INFORMED CONSENT PART A

NORGES IDRETTSHØGSKOLE

FORESPØRSEL OM DELTAKELSE I FORSKNINGSPROSJEKTET

TIL DEG SOM ER GRAVID I OSLO-OMRÅDET

Dette er en forespørsel til deg om å delta i et forskningsprosjekt med hensikt å kartlegge hvor flertallet av gravide kvinner i Norge henter informasjon om fysisk aktivitet, vektøkning og kosthold.

BAKGRUNN FOR PROSJEKTET

Svangerskapet er i dag ansett som en viktig periode for å påvirke og endre atferd. Gravide kvinner er ofte opptatt av god helse for seg selv og det ufødte barnet, i tillegg til at nær alle møter helsevesenet i denne perioden.

I lang tid har leger, jordmødre og øvrig helsepersonell gitt råd om å redusere tobakksbruk og unngå alkohol for å optimalisere fosterets vekst og utviklingsforhold. Vi vet imidlertid lite om gravide blir veiledet i forhold til fysisk aktivitet og trening, til tross for økende dokumentasjon på positive effekter både for mor og barn. I dag er anbefalingen både i Norge og internasjonalt at graviditet ikke bør resultere i en stillesittende livsstil, med mindre medisinske forhold ligger til grunn for det.

HVA INNEBÆRER PROSJEKTET?

Det er ikke tidligere i Norge gjennomført noen undersøkelse på primærhelsetjenestens kunnskap om fysisk aktivitet, og hvorvidt de gir råd og veiledning om dette til sine gravide pasienter. Etter et vellykket pilotprosjekt våren 2015, igangsetter Norges idrettshøgskole nå et stort todelt forskningsprosjekt.
Del 1 innbefatter en undersøkelse av hvor gravide kvinner får/innhenter informasjon om trening, vektøkning og kosthold, samt hvordan disse informasjonskildene eventuelt påvirker deres helseatferd.
Del 2 skal gjennomføres parallelt og inkluderer et tilfeldig utvalg av helsepersonell i Oslo. Målet er å kartlegge legers og jordmødres bevissthet rundt egen livsstil, samt i hvilken grad de er kjent med anbefalingene om fysisk aktivitet/trening, vektøkning og kosthold i svangerskapet og om disse anbefalingene ligger til grunn når det gis råd og veiledning.

HVA INNEBÆRER DET FOR DEG Å DELTA?

Du trenger kun å fylle ut et spørreskjema som tar ca. 20 minutter. Ved spørsmål kontakt prosjektleder Lene A. H. Haakstad eller Emilie Mass. Kontaktinformasjon finner du på neste side.

FRIVILLIG DELTAKELSE OG MULIGHET FOR Å TREKKE SITT SAMTYKKE

Det er frivillig å delta i prosjektet. Dersom du ønsker å delta, undertegner du samtykkeerklæringen på siste side. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke.

HVA SKJER MED INFORMASJONEN OM DEG?

Informasjonen som registreres om deg skal kun brukes slik som beskrevet i hensikten med studien. Alle opplysningene vil bli behandlet uten navn eller andre direkte gjenkjennende opplysninger. En kode knytter deg til dine opplysninger gjennom en navneliste.

Prosjektleder har ansvar for den daglige driften av forskningsprosjektet og at opplysninger om deg blir behandlet på en sikker måte. Informasjon om deg vil bli anonymisert eller slettet senest fem år etter prosjektslutt.

ETIKK

Prosjektet er meldt til personvernombudet for forskning, NSD.

KONTAKTPERSONER

Lene A. H. Haakstad
Associate professor, PhD
Seksjon for idrettsmedisinske fag
Norges idrettshøgskole
P.b 4014, Ullevål stadion
0806 OSLO
e-post: lene.haakstad@nih.no
tlf: 23262390/45489902

Emilie Mass
Mastergradsstudent
Seksjon for idrettsmedisinske fag
Norges idrettshøgskole
e-post: emiliefm@student.nih.no
Tlf: 917 08 426

På forhånd takk for hjelpen!

Lene A. H. Haakstad,
Associate professor, PhD

Emilie Mass,
Mastergradsstudent

Norges idrettshøgskole, Seksjon for idrettsmedisinske fag

SAMTYKKE TIL DELTAKELSE I PROSJEKTET

JEG ER VILLIG TIL Å DELTA I PROSJEKTET

Sted og dato

Deltakers signatur

Deltakers navn med trykte bokstaver

INFORMED CONSENT PART A, ELECTRONIC SURVEY

NORGES IDRETTSHØGSKOLE

FORESPØRSEL OM DELTAKELSE I FORSKNINGSPROSJEKTET

TIL DEG SOM ER GRAVID I OSLO-OMRÅDET

Dette er en forespørsel til deg om å delta i et forskningsprosjekt med hensikt å kartlegge hvor flertallet av gravide kvinner i Norge henter informasjon om fysisk aktivitet, vektøkning og kosthold.

BAKGRUNN FOR PROSJEKTET

Svangerskapet er i dag ansett som en viktig periode for å påvirke og endre atferd. Gravide kvinner er ofte opptatt av god helse for seg selv og det ufødte barnet, i tillegg til at nær alle møter helsevesenet i denne perioden.

I lang tid har leger, jordmødre og øvrig helsepersonell gitt råd om å redusere tobakksbruk og unngå alkohol for å optimalisere fosterets vekst og utviklingsforhold. Vi vet imidlertid lite om gravide blir veiledet i forhold til fysisk aktivitet og trening, til tross for økende dokumentasjon på positive effekter både for mor og barn. I dag er anbefalingen både i Norge og internasjonalt at graviditet ikke bør resultere i en stillesittende livsstil, med mindre medisinske forhold ligger til grunn for det.

HVA INNEBÆRER PROSJEKTET?

Det er ikke tidligere i Norge gjennomført noen undersøkelse på primærhelsetjenestens kunnskap om fysisk aktivitet, og hvorvidt de gir råd og veiledning om dette til sine gravide pasienter. Etter et vellykket pilotprosjekt våren 2015, igangsetter Norges idrettshøgskole nå et stort todelt forskningsprosjekt.
Del 1 innbefatter en undersøkelse av hvor gravide kvinner får/innhenter informasjon om trening, vektøkning og kosthold, samt hvordan disse informasjonskildene eventuelt påvirker deres helseatferd.
Del 2 skal gjennomføres parallelt og inkluderer et tilfeldig utvalg av helsepersonell i Oslo. Målet er å kartlegge legers og jordmødres bevissthet rundt egen livsstil, samt i hvilken grad de er kjent med anbefalingene om fysisk aktivitet/trening, vektøkning og kosthold i svangerskapet og om disse anbefalingene ligger til grunn når det gis råd og veiledning.

HVA INNEBÆRER DET FOR DEG Å DELTA?

Du trenger kun å fylle ut et spørreskjema som tar ca. 20 minutter. Ved spørsmål kontakt prosjektleder Lene A. H. Haakstad eller Emilie Mass. Kontaktinformasjon finner du under.

FRIVILLIG DELTAKELSE OG MULIGHET FOR Å TREKKE SITT SAMTYKKE

Det er frivillig å delta i prosjektet. Dersom du ønsker å delta, svarer du på undersøkelsen. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke.

HVA SKJER MED INFORMASJONEN OM DEG?

Informasjonen som registreres om deg skal kun brukes slik som beskrevet i hensikten med studien. Alle opplysningene vil bli behandlet uten direkte gjenkjennende opplysninger. Opplysningene innhentes og behandles ved hjelp av SurveyXact.

Prosjektleder har ansvar for den daglige driften av forskningsprosjektet og at opplysninger om deg blir behandlet på en sikker måte. Informasjon om deg vil bli anonymisert eller slettet senest fem år etter prosjektslutt.

ETIKK

Prosjektet er meldt til personvernombudet for forskning, NSD.

KONTAKTPERSONER

Lene A. H. Haakstad
Associate professor, PhD
Seksjon for idrettsmedisinske fag
Norges idrettshøgskole
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Emilie Mass
Mastergradsstudent
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Norges idrettshøgskole
e-post: emiliefm@student.nih.no
Tlf: 917 08 426

På forhånd takk for hjelpen!

Lene A. H. Haakstad,
Associate professor, PhD

Emilie Mass,
Mastergradsstudent

Norges idrettshøgskole, Seksjon for idrettsmedisinske fag

APPENDIX 4: INFORMED CONSENT PART B

NORGES IDRETTSHØGSKOLE

FORESPØRSEL OM DELTAKELSE I FORSKNINGSPROSJEKTET

TIL HELSEPERSONELL I SVANGERSKAPSOMSORGEN I OSLO

Dette er en forespørsel til deg om å delta i et forskningsprosjekt med hensikt å kartlegge legers og jordmødres bevissthet rundt egen livsstil, samt i hvilken grad de er kjent med anbefalingene om fysisk aktivitet/trening, vektøkning og kosthold i svangerskapet og om disse anbefalingene ligger til grunn når det gis råd og veiledning.

BAKGRUNN FOR PROSJEKTET

Svangerskapet er i dag ansett som en viktig periode for å påvirke og endre atferd. Gravide kvinner er ofte opptatt av god helse for seg selv og det ufødte barnet, i tillegg til at nær alle møter helsevesenet i denne perioden.

I lang tid har leger, jordmødre og øvrig helsepersonell gitt råd om å redusere tobakksbruk og unngå alkohol for å optimalisere fosterets vekst og utviklingsforhold. Vi vet imidlertid lite om gravide blir veiledet i forhold til fysisk aktivitet og trening, til tross for økende dokumentasjon på positive effekter både for mor og barn. I dag er anbefalingen både i Norge og internasjonalt at graviditet ikke bør resultere i en stillesittende livsstil, med mindre medisinske forhold ligger til grunn for det.

HVA INNEBÆRER PROSJEKTET?

Det er ikke tidligere i Norge gjennomført noen undersøkelse på primærhelsetjenestens kunnskap om fysisk aktivitet, og hvorvidt de gir råd og veiledning om dette til sine gravide pasienter. Etter et vellykket pilotprosjekt våren 2015, igangsetter Norges idrettshøgskole nå et stort todelt forskningsprosjekt.
Del 1 innbefatter en undersøkelse av hvor gravide kvinner får/innhenter informasjon om trening, vektøkning og kosthold, samt hvordan disse informasjonskildene eventuelt påvirker deres helseatferd.
Del 2 skal gjennomføres parallelt og inkluderer et tilfeldig utvalg av helsepersonell i Oslo. Målet er å kartlegge legers og jordmødres bevissthet rundt egen livsstil, samt i hvilken grad de er kjent med anbefalingene om fysisk aktivitet/trening, vektøkning og kosthold i svangerskapet og om disse anbefalingene ligger til grunn når det gis råd og veiledning.

HVA INNEBÆRER DET FOR DEG Å DELTA?

Du trenger kun å fylle ut et spørreskjema som tar ca. 15 minutter. Ved spørsmål kontakt prosjektleder Lene A. H. Haakstad eller Emilie Mass. Kontaktinformasjon finner du på neste side.

FRIVILLIG DELTAKELSE OG MULIGHET FOR Å TREKKE SITT SAMTYKKE

Det er frivillig å delta i prosjektet. Dersom du ønsker å delta, undertegner du samtykkeerklæringen på siste side. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke.

HVA SKJER MED INFORMASJONEN OM DEG?

Informasjonen som registreres om deg skal kun brukes slik som beskrevet i hensikten med studien. Alle opplysningene vil bli behandlet uten navn eller andre direkte gjenkjennende opplysninger. En kode knytter deg til dine opplysninger gjennom en navneliste.

Prosjektleder har ansvar for den daglige driften av forskningsprosjektet og at opplysninger om deg blir behandlet på en sikker måte. Informasjon om deg vil bli anonymisert eller slettet senest fem år etter prosjektslutt.

ETIKK

Prosjektet er meldt til personvernombudet for forskning, NSD.

KONTAKTPERSONER

Lene A. H. Haakstad
Associate professor, PhD
Seksjon for idrettsmedisinske fag
Norges idrettshøgskole
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På forhånd takk for hjelpen!

Lene A. H. Haakstad,
Associate professor, PhD

Emilie Mass,
Mastergradsstudent

Norges idrettshøgskole, Seksjon for idrettsmedisinske fag

SAMTYKKE TIL DELTAKELSE I PROSJEKTET

JEG ER VILLIG TIL Å DELTA I PROSJEKTET

Sted og dato

Deltakers signatur

Deltakers navn med trykte bokstaver

APPENDIX 5: APPROVAL LETTER FROM REGIONAL COMMITTEE FOR MEDICAL AND HEALTH RESEARCH ETHICS, SOUTH EAST NORWAY (REC)

Emne: Sv: Kul på magen - hva nå?
Fra: post@helseforskning.etikkom.no
Dato: 09.10.2015 10:10
Til: emiliefm@student.nih.no
Kopi:

Vår ref.nr.: 2015/1941 A

Vi viser til skjema for framleggingsvurdering mottatt 02.10.2015 angående prosjektet «Kul på magen – hva nå?». Fremleggingsvurderingen er vurdert av komiteens leder på fullmakt.

Formålet med prosjektet, slik det fremkommer av fremleggingsvurderingen, er å undersøke hvordan kvinner innhenter informasjon om trening, vektøkning og kosthold under graviditet samt hvordan denne informasjon og bruk av kilder på virker adferd under graviditeten. I prosjektet planlegges det å rekruttere 200 kvinner fra helsestasjoner i Oslo, som så skal besvare spørreskjema knyttet til forskningsspørsmålene. Det skal ikke innsamles helseopplysninger i prosjektet.

Etter REKs vurdering faller prosjektet, slik det er beskrevet utenfor virkeområdet til helseforskningsloven. Helseforskningsloven gjelder for medisinsk og helsefaglig forskning, i loven definert som forskning på mennesker, humant biologisk materiale og helseopplysninger, som har som formål å frambringe ny kunnskap om helse og sykdom, jf. helseforskningsloven §§ 2 og 4a. Formålet er avgjørende, ikke om forskningen utføres av helsepersonell eller på pasienter eller benytter helseopplysninger.

Prosjektet er etter REKs vurdering et prosjekt som ikke har som formål å skaffe til veie ny kunnskap om helse og sykdom.

Prosjekter som faller utenfor helseforskningslovens virkeområde kan gjennomføres uten godkjenning av REK. Det er institusjonens ansvar på å sørge for at prosjektet gjennomføres på en forsvarlig måte med hensyn til for eksempel regler for taushetsplikt og personvern.

Vi gjør oppmerksom på at vurderingen og konklusjonen er å anse som veiledende jf. forvaltningsloven § 11.
Med vennlig hilsen
Anette Solli Karlsen
Komitesekretær
post@helseforskning.etikkom.no
T: 22845522

Regional komité for medisinsk og helsefaglig forskningsetikk REK sør-øst-Norge (REK sør-øst)
http://helseforskning.etikkom.no

APPENDIX 6: APPROVAL LETTERS FORM THE NORWEGIAN SOCIAL SCIENCE DATA SERVICES

Norsk samfunnsvitenskapelig datatjeneste AS
NORWEGIAN SOCIAL SCIENCE DATA SERVICES

Harald Hårfagres gate 29
N-5007 Bergen
Norway
Tel: +47-55 58 21 17
Fax: +47-55 58 96 50
nsd@nsd.uib.no
www.nsd.uib.no
Org.nr. 985 321 884

Lene A.H. Haakstad
Seksjon for idrettsmedisinske fag Norges idrettshøgskole
Postboks 4014 Ullevål Stadion
0806 OSLO

Vår dato: 09.12.2015 Vår ref: 45111 / 3 / MSS Deres dato: Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 11.10.2015. Meldingen gjelder prosjektet:

45111	*Baby bump - what now? A cross-sectional study investigating the knowledge, beliefs and practices among healthcare providers, as well as pregnant women's information sources and behaviours regarding exercise, weight gain and nutrition*
Behandlingsansvarlig	*Norges idrettshøgskole, ved institusjonens øverste leder*
Daglig ansvarlig	*Lene A.H. Haakstad*
Student	*Emilie Mass*

Personvernombudet har vurdert prosjektet, og finner at behandlingen av personopplysninger vil være regulert av § 7-27 i personopplysningsforskriften. Personvernombudet tilrår at prosjektet gjennomføres.

Personvernombudets tilråding forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, http://www.nsd.uib.no/personvern/meldeplikt/skjema.html. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, http://pvo.nsd.no/prosjekt.

Personvernombudet vil ved prosjektets avslutning, 30.06.2016, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Katrine Utaaker Segadal

Marie Strand Schildmann

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Marie Schildmann <marie.schildmann@nsd.no>
to 26.05.2016 10:49

Til: Emilie Frederikke Mass;

Vedrørende endring

Jeg viser til e-post mottatt den 13.05.2016 vedrørende behovet for å endre rekrutteringsmetode i prosjektet. En ønsker nå å kunne rekruttere en del av utvalget via sosiale medier og gjennomføre spørreundersøkelsen elektronisk. Dette er helt kurant, forutsatt at det utformes et nytt informasjonsskriv i tråd med endringen. Ved bruk av elektronisk spørreundersøkelse må utvalget få informasjon om hvem som håndterer denne (databehandler), hvem som vil få tilgang til besvarelsen og hva som skjer med disse opplysningene ved prosjektslutt. Informasjonsskrivet for øvrig skal være i tråd med kravene i personopplysningsloven. For mal til informasjonsskriv som må tilpasses ditt prosjekt, se vår nettside:
http://www.nsd.uib.no/personvern/meldeplikt/samtykke.html

Jeg ber også om en tilbakemelding på hvorvidt du benytter en databehnadler for gjennomføring av den elektroniske spørreundersøkelsen (hvilken databehandler).

Informasjonsskriv sendes oss for arkivering i saken. Dersom du er usikker på om informasjonsskrivet er tilfredsstillende utformet, ber vi deg om å gjøre oss oppmerksom på at du ønsker en tilbakemelding/vurdering av det innsendte skrivet.

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Marie Strand Schildmann
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