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Women's experiences of physical activity during pregnancy: an interpretative phenomenological analysis. "just listen to your body"

Jade Megan Dormer

A thesis submitted to the University of Huddersfield in partial fulfilment of the requirements for the degree of Msc by Research

The University of Huddersfield

February 2019

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Abstract

Background: Pregnant women are currently being encouraged to meet the physical activity guideline of engaging in at least 150 minutes of physical activity per week, subject to their pregnancy being classified as healthy. However - irrespective of health status - research suggests a minority of pregnant women are choosing to participate in physical activity during pregnancy, and those participating are not physically active enough. Some pregnant women appear to have a lack of understanding about being active in pregnancy. The lack of research exploring women's lived experiences of being physically active during pregnancy appears to be contributing to this. Accordingly, this study aimed to address this gap in the literature by exploring the lived experiences of five women who were regularly physically active during their pregnancies, and by obtaining a critical analysis of the women's accounts. The objective of this research was to contribute to the knowledge base regarding women's real-life experiences of being physically active during pregnancy.

Method: In-depth semi-structured telephone interviews were conducted with five women; these women were recruited through social media and met inclusion, exclusion criteria confirming their eligibility to participate. Each interview was recorded using a dictaphone and fully transcribed verbatim. All interviews were analysed using interpretive phenomenological analysis (IPA) in order to identify major superordinate and subordinate themes, and to establish an overarching theme regarding the participants' experiences of physical activity during pregnancy.

Findings: An overarching theme of 'maintaining a sense of control over the body whilst balancing this with the responsibility for their baby and their own well-being' along with three major superordinate themes and seven subordinate themes emerged from the analysis. These were: (1) Listening to my body to know what to do: listening to their pregnant bodies; modifying themselves and their activities to accommodate their pregnant bodies; feeling better. (2) Experience of control over my pregnant body: Feeling like they were preparing their body for labour; having a sense of control on how their bodies performed during labour; controlling the way they felt about themselves (3) Feeling judged for being active in pregnancy: managing the judgement.

Conclusion: This study contributes to the knowledge base surrounding women's real-life experiences of being physically active during pregnancy. The findings of this study present various accounts of why five women chose to participate in physical activity during their pregnancy, and how they successfully maintained their activity participation irrespective of any underlying tensions and challenges they encountered. This study is concluded by discussing the strength and limitations of the study and how it could be improved, along with future research opportunities.

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Chapter 1 Background

The purpose of this chapter is to provide a general overview of the issues pertaining to general physical activity participation, women's physical activity participation and women's physical activity participation during pregnancy.

1.1 General physical activity

According to the World Health Organisation (WHO) (2018) - and for the purpose of this study - "physical activity is any bodily movement resulting in energy expenditure" such as swimming, walking, cycling and gardening (Hurkmans et al., 2011, p. 1603). The opposite of physical activity is physical inactivity. A person is considered physically inactive if they do not move enough to meet physical activity recommendations, they do not physically move at all, or they spend more time sitting than standing (Hamilton, Healy, Dunstan, Zderic, & Owen, 2008). The term 'physical activity' should not be confused with the term 'exercise' (WHO, 2018): thus it is important to distinguish the differences between them (Caspersen, Powell, & Christenson, 1985). In accordance, exercise is a sub-category of physical activity, which is structured, planned and repetitive (such as following a fitness DVD). Physical activity, on the other hand, includes exercise as well as unstructured activities - which may also be done spontaneously - such as household chores and recreational activities (WHO, 2004). In summary, whilst physical activity is any form of bodily movement, exercise is structured and premeditated.

Research suggests reducing the prevalence of physical inactivity is important. WHO (2018), for instance, state being physically inactive is a leading cause of death and disability worldwide with approximately two million deaths per year attributed to it: this is two million deaths per year that could potentially be prevented by increasing physical activity participation (WHO, 2018a). Ding et al. (2016) and others have previously deemed physical inactivity responsible for a substantial amount of economic burdens – some examples include obesity, cardiovascular disease, asthma, musculoskeletal conditions and diabetes (Kohl et al., 2012; WHO, 2010). In support of Ding et al. (2016), regular physical activity has been shown by previous research to have the opposite effect of physical inactivity on economic burdens, such as

reducing a person's risk of developing them (Vanhees et al., 2012; WHO et al., 2004). For example, it is suggested that the risk of coronary heart disease and stroke can be reduced by as much as 35%, and the risk of early death by as much as 30% (British Heart Foundation, 2017).

Reducing the prevalence of physical inactivity is also considered important as previous research suggests that it increases health care costs. Scarborough et al. (2011), for example, explained that in 2006/2007 physical inactivity cost the National Health Service (NHS) an estimated £0.9 billion directly: they also pointed out that economic burdens caused by inactivity costs additional millions of pounds. A study by Garrett, Brasure, Schmitz, Schultz, and Huber (2004), in support of Scarborough et al. (2011), further demonstrated the burden of physical inactivity on health care costs and the economy: they estimated the cost expenditures attributable to physical inactivity amongst the members of one large health care plan to be \$83.6 million - £59 million in the United Kingdom (UK). Ding et al. (2016) also estimated the cost of physical inactivity globally in 2013 to be £53.8 billion.

Scarborough et al. (2011), Garrett et al. (2004) and Ding et al. (2016) have highlighted the cost of physical inactivity to health services: in contrast, a study by Jarrett et al. (2012) has looked at how much becoming physically active would save health services. Jarrett et al. (2012) explained that if people simply walked to work or cycled - used 'active' transport - instead of taking a bus or car - using 'passive' transport - within 20 years it would save the NHS at least £17 billion alone. These findings did not include other forms of physical activity, and other health services that would likely increase the amount of money saved. Notably, WHO (2018b) suggests that passive transport is one of the main reasons physical activity levels are reducing. In conclusion, participating in physical activity can reduce health care costs (Jarrett et al., 2012) and promote good physical health (Addy, 2012; Vanhees et al., 2012; Wójcicki et al., 2013) with physical inactivity appearing to deteriorate it (Haskell, Blair, & Hill, 2009).

Whilst being physically active is important for physical health, Knopf (2017) explains that it is just as important for mental health. In support, previous research suggests physical activity can assist in the prevention of mental health problems (Zschucke, Gaudlitz, & Ströhle, 2013) as well as improving the quality of life for people who already have them (Alexandratos, Barnett, & Thomas, 2012). For instance,

physical activity has been suggested to alleviate anxiety and depression (Vanhees et al., 2012) and reduce the symptom severity of serious mental health illnesses. Some examples of these include schizophrenia, eating disorders and bipolar disorder (Vancampfort, Stubbs, Venigalla, & Probst, 2015). There is also evidence suggesting that being physically active improves emotional well-being (Hogan, Catalino, Mata, & Fredrickson, 2015; Matz-Costa, Carr, McNamara, & James, 2016; Moljord, Moksnes, Espnes, Hjemdal, & Eriksen, 2014; Yeh et al., 2016); the development of psychosocial resources (Hogan et al., 2015); cognitive activity; and positive social interaction (Matz-Costa et al., 2016). One reason for the positive effect physical activity has on mental health is the release of endorphins. These are hormones secreted within the brain and nervous system and during physical activity, they are released. Endorphins can interact with the receptors of the brain which can reduce a perception of pain and trigger a positive feeling in the body; thus potentially explaining why mental health symptoms can be alleviated (or prevented) following regular physical activity (Dishman & O'Connor, 2009; Goldfarb & Jamurtas, 1997; Harber, Harber, Sutton, & Sutton, 1984).

Physical activity appears to impact positively on both mental and physical health components: therefore, it is considered important that people are aware of the amount they should be undertaking to experience its benefits. In the UK, Chief Medical Officers - the most senior advisors on health matters in the government - alongside physical activity guidelines recommend people on what level of physical activity they should be undertaking. Children (5-18 years of age) are recommended to be physically active for at least 60 minutes every day at a moderate to vigorous intensity, and every adult (19-64 years of age) for at least 150 minutes each week (Department Of Health, 2011b). Further guidance around physical activity participation in the UK can be found on the government website under 'UK physical activity guidelines' (Department Of Health, 2011b).

Whilst guidelines inform, interventions and schemes encourage physical activity, providing support and incentives to fulfil those guidelines. There are national schemes such as 'Start active, stay active' (Department Of Health, 2011a), 'Get Active to Get Healthy' (Department Of Health, 2013), 'Get Fit For Free' (NHS, 2017a) and 'Getting Everybody Active, Every Day' (Public Health England, 2017). There are also global schemes: 'Global Strategy on Diet, Physical Activity and Health', which has been created by

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the WHO (2004), has been designed to increase physical activity levels and better dietary habits worldwide. Schemes and interventions have also been developed focusing on specific individuals who find participating in physical activity more difficult than others do (Bryan et al., 2011; Kilpatrick, Hebert, & Bartholomew, 2005; Smith, 2005; Voils et al., 2014). Sport England (2016), for instance, have created a strategy named 'Towards an Active Nation' (2016-2021) focusing upon multiple under-represented and vulnerable groups including lower socioeconomic groups, older people, disabled people and women and girls (Mechanic & Tanner, 2007).

Despite the number of guidelines, schemes, interventions and different ways in which physical activity has been promoted, physical activity levels have remained low (Health and Social Care Information Centre, 2012; Wilk et al., 2018). According to previous research, failure to increase the prevalence of physical activity may be correlated to guideline, scheme and intervention inadequacy (Allender, Cowburn, & Foster, 2006; Bauman & Craig, 2005). Moreover, the failure to increase the prevalence of physical activity has been reflected by multiple researchers. For instance, National Health Survey for England (2015) reflected children's physical activity levels; only 23% of boys and 20% of girls (aged 5 to 15 years) were reported to be meeting the guideline of physical activity at that time. This totals only 22% of children altogether, and thus 78% of children were deemed not to be meeting activity guidelines (NHS, 2018). Children meeting physical activity guidelines, however, has increased from the findings of the National Health Survey for England in 2012 when only 21% of boys and 16% of girls met UK physical activity guidelines (NHS, 2012). Nevertheless, children's physical activity was still reflected to be markedly low (NHS, 2012; 2015) and children are currently not participating in sufficient levels of physical activity (Wilk et al., 2018). In the same way, adult's physical activity levels are low. 80% of the adult population do not meet the minimum physical activity guidelines, which accounts for 1 in 4 adults (WHO, 2017). The Department Of Health (2017) also found that only 40% of men, and 28% of women in their research had self-reported meeting the minimum recommendation of participating in physical activity in the UK: 60% of men and 72% of women were therefore physically inactive or not active enough.

However, the level of physical activity found by Department of Health (2017) & the National Health Survey for England (2012) was self-reported. According to Prince et al. (2008), when health behaviours are self-

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reported, sometimes an individual will not reflect the truth about that behaviour; an individual, for example, could have reported participating in 60 minutes of physical activity per week when really they only participated in 20. Regardless of the confounding effect of self-report, the NHS et al. (2012) who reported boys and girl's physical activity levels, and the Department of Health et al. (2017) who reported men and women's physical activity levels both found similar findings; they both showed how people within their research were more physically inactive or not active enough (over 50%) than physically active. Females were also reported as more inactive than males. Sport England (2016) & Sport England (2018) suggests that women appear to have low physical activity levels relative to men. Stefani, Mascherini, and Galanti (2017) thus suggests a new way of promoting physical activity for women is required: reducing women's prejudices and promoting physical activity effectively has not yet been structured (Ferraro, Gaudet, & Adamo, 2012). Davis, Campbell, Hildon, Hobbs, and Michie (2015) suggests that physical activity should be promoted in a way that is sensitive to social, cultural, contextual and economic factors - including gender: "we must endeavour if we want to increase physical activity levels in women" (Sport England, 2018).

1.2 Women's physical activity levels

Women's physical activity levels have been reflected as low (Lee et al., 2009) relative to men (Sport England, 2018) - not only in the UK (Department Of Health, 2017; Mindell et al., 2012), but at international and global levels too. Bauman et al. (2009), for example, looked at the international prevalence of adults physical activity participation analysing 20 different countries. It was found that males were more active than females in 17 of the 20 countries they investigated. The study concluded that physical activity is a "gendered issue": they found physical inactivity was far more likely amongst women. 3 of the countries they investigated - Argentina, Portugal and Saudi Arabia - did indicate females were more active than men. Accordingly, it can be suggested that their country-specific data could be used to better the efforts made at increasing women's physical activity levels. Furthermore, Dumith, Hallal, Reis, and Kohl (2011) investigated physical inactivity levels at a global level analysing 76 countries. Their pooled results of three studies (Bauman et al., 2009; Guthold, Ono, Strong, Chatterji, & Morabia, 2008; Sjöström, Oja, Hagströmer, Smith, & Bauman, 2006) gave the most global estimate of physical inactivity at that time.

The research demonstrated that one fifth of the world population was physically inactive and physical inactivity was demonstrated, again, to be higher amongst women.

However, Dumith et al's. (2011) study is limited by a low response rate in some countries. Physical activity levels reported within each country may have been higher or lower if more people had responded. The three studies, which were reported by Dumith et al. (2011), also investigated physical activity levels differently and their results had been pooled together: this may weaken the validity of the findings. Despite these methodological weaknesses, their findings are confirmed by Hallal et al. (2012). Hallal et al. (2012) investigated activity levels worldwide amongst adults (15 years or older) analysing 122 different countries, and also amongst adolescents (13-15 years) analysing 105 countries and still found males were more physically active than females, they also added that worldwide 31.1% of people were physically inactive, which rose with age.

It can be suggested that physical inactivity has been reflected a problem within the UK (Haskell et al., 2009) and within different countries around the world (Dumith et al., 2011). In particular, women appear to be markedly physically inactive - as exemplified by extensive research - relative to men (Bauman et al., 2009; Department of Health et al., 2017; Dumith et al., 2011; Haskell et al., 2009; Hallal et al., (2012); Mindell et al., 2012; NHS et al., 2012; Sports England et al., 2016). This poses the question: why? According to Womens Health Victoria (2010), one reason why women are more likely to be physically inactive is the circumstances, context, and life events they find themselves in. One crucial example is pregnancy (Obrowski, Obrowski, & Starski, 2016).

1.3 Women's physical activity levels during pregnancy

This subsection provides the reader with the background information regarding physical activity during pregnancy. It begins with the history of it and ends with the case for participating in physical activity during pregnancy.

1.3.1 History

During the 19th century, pregnant women were expected to stay indoors and remain there; their pregnancy was viewed as an illness and they were recommended to 'just relax'. They were advised to avoid anything that involved strenuous exertion - due to fear that it would harm the unborn baby - and warned about other adverse outcomes if to become physically active (Sternfeld, 1997). Throughout the 20th century, this view shifted and the idea of a pregnant woman physically moving more often became more acceptable (Halpert, Wilson, & Hickman, 1993). Research indicates that this shift in viewpoint occurred as a result of women's entry into the workforce (Nuss, Denti, & Viry, 1989). Pregnant women who worked – and therefore physically moved more often - reported easier labours and pregnancy experiences (Montgomery, 1969).

As physical activity during pregnancy became more acceptable, advice emerged about the form of activity to take. Pregnant women were verbally informed to go about their normal physical activities including working, household chores and gardening. They were, however, strictly prohibited to undertake any vigorous physical activity such as dancing, horseback riding and heavy lifting - these activities were still perceived as unacceptable (Kerr, Johnstone, & Phillips, 1955). Conversely, Vertinsky (1998) reported that regardless of the emerging advice recommending physical activity during pregnancy, pregnancy in western culture was still perceived as an illness or disability and thus physical activity was still prohibited. It can be suggested that the behaviours pregnant women exhibited in the 19th and 20th century were influenced by their cultural and social expectations - this explains the acceptance of physical activity in pregnancy differing between cultures (Guelfi et al., 2015).

The need to conform to social and cultural norms has been reflected within the 21st century too. Two studies by Evans, Walters, Walters, Liechty, and LeFevour (2016) and Lee et al. (2009), for example, researched Chinese women's physical activity levels during pregnancy. Both studies suggested Chinese women felt obliged to comply with their cultural expectations regarding pregnancy - 'not lift heavy stuff' (Evans et al., 2016), 'not walking too often' or 'not walking too fast' (Lee et al., 2009). Their health behaviour habits also appeared to be influenced by their social norms, which were reinforced by their family members (Evans et al., 2016; Lee et al., 2009). Similarly, pregnant women from different cultures,

such as Latino (Jurkowski, Mosquera, & Ramos, 2010) have also reported adjusting their health behaviours during pregnancy in order to meet their cultural and social norms (Marshall & Woollett, 2000).

Additionally, whilst some pregnant women may see their social and cultural norms as obligatory adjusting their health behaviours accordingly to meet them (Evans et al., 2016; Lee et al., 2009; Marshall & Woollett, 2000), others may have no choice but to abide to their cultural and social norms. To elaborate, cultural and social norms can be reinforced by sanctioning (Evans et al., 2016; Marshall & Woollett, 2000; Neiterman, 2012) which can take form as a reward - for abiding to cultural rules - or punishment - for not obeying cultural rules. Pregnant women are reportedly not exempt from sanctioning which may explain why some women do not deviate from their cultural and social expectations (Gross & Pattison, 2007). Andrews, Boyle, and Carr (2003) provides the suggestion that many cultures view pregnancy as a special transition period, and therefore the expectation that pregnant women abide to their cultural rules is amplified and reinforced more vigorously - sanctioning is used to retain and protect their cultural identity. Bondas and Eriksson (2001) suggest that a pregnant women's culture determines what they will and will not experience.

The above research suggests that cultural and social expectation can be a determinant upon whether a woman does or does not exhibit physical activity throughout pregnancy. On the other hand, it is important to acknowledge that physical activity advice during pregnancy in the 19th and 20th century largely reflected social and cultural norms, which were transferred by 'word of mouth'. This was - to knowledge - the only source of information available to pregnant women (Hammer, Perkins, & Parr, 2000). It is therefore likely that pregnant women acted judiciously and did not go against the advice they had received. However, in the later 20th century and within the 21st century, formal recommendations regarding physical activity during pregnancy were established (Downs, Chasan-Taber, Evenson, Leiferman, & Yeo, 2012; Kerr et al., 1955). Thus, whilst pregnant women are still subject to cultural and social expectations, decisions about physical activity during pregnancy can also be based upon access to a wider range of knowledge including formal guidelines.

1.3.2 Physical activity guidelines

In 1985, the American College of Obstetricians and Gynecologists (ACOG) published the first formal physical activity guidelines for pregnant women. These guidelines stated that pregnant women should participate in no more than 15 minutes physical activity at one time, and that they should limit their heart rate to 140 beats per minute (ACOG, 1985). Prompted by these guidelines, physical activity during pregnancy was subject to further research. In 1996, research showed heavy lifting, standing for long periods of time, and being around loud noises and strong vibrations was harmful to a pregnant woman. Similarly, Camporesi (1996) & Depken and Zelasko (1996) urged pregnant women to avoid strenuous activity because the baby was unprotected and at risk. Controversially, a later study by Clapp (1998) stated pregnant women can participate in strenuous activity, but it should be limited: for example, diving limited to a specific water depth. In 1999, research suggested physically active pregnant women had fewer spontaneous miscarriages and that physical activity did not cause harm to mother nor baby (Latka, Kline, & Hatch, 1999). As research began to emerge around physical activity during pregnancy (Clapp et al., 1998; Depken et al., 1996; Latka et al., 1999) the ACOG 1985 guidelines were criticised.

The ACOG were criticised because they were perceived to utilise a lack of information to support the recommendations they proposed. Activity was seen to be very restrictive and arbitrary such as limiting heart rate and providing duration cut-offs; there was also no clear recommendation on physical activity intensity (other than to avoid strenuous physical activity). Therefore, there appeared to be no valid reasoning for proposing the guidelines they gave. Women and health practitioners also viewed the ACOG 1985 guidelines as a cause of frustration rather than a source of guidance (Hammer et al., 2000). All these emerging criticisms put pressure on the ACOG to revise the guidelines they had proposed (Clapp, 1990; Gauthier, 1986). Accordingly, the ACOG updated the 1985 guideline in 2002 (ACOG, 2002), and again in 2015. The new ACOG guidelines propose that: pregnant women can participate in 20-30 minutes of moderate intense activity daily; participating in a wide-range of recreational physical activities is safe for pregnant women, and that they should seek medical advice prior to activity. The ACOG guidelines

also highlight activities that are safe to initiate and continue and activities that should be avoided during pregnancy (ACOG, 2015).

Alongside ACOG guidelines are others that also recommend physical activity for pregnant women, according to the following principles they should: complete 150 minutes of activity per week, in 10-minute bouts or more and at a moderate intensity. If women have not been active before pregnancy they should only complete 15 minutes continuously, and increase to 30 gradually (Centre for Disease Control and Prevention, 2015; National Institute Of Health Care Excellence, 2015; UK Chief Medical Officers, 2017). However, Evenson et al. (2014) suggests there is also existing guidelines that indicate ceasing physical activity during pregnancy, and that activity guidelines regarding pregnancy are unclear: the authors compared 11 physical activity guidelines during pregnancy from nine different countries (Australia, Canada, Denmark, France, Japan, Norway, Spain, United Kingdom & United States) and the content of the guidelines varied depending on the date of publication and target audience. 6 provided indication to stop physical activity during pregnancy. All guidelines Evenson et al. (2014) reported, did however, agree that healthy pregnant women have an ability to participate in physical activity and thus they are encouraged to do so. Moreover, Choi, Lee, Vittinghoff, and Fukuoka (2016) recently stated that innovative strategies are urgently needed to promote physical activity during pregnancy. In accordance, further encouragement to help women become active during pregnancy is currently being provided by the creation of activity programs (Active Mum, 2016a, 2016b; Coventry City Council, 2016; Institute of Health Visiting Excellence, 2016). A campaign has also recently been launched in 2017 named “pregnant not powerless” which hopes to encourage pregnant women to be active and support those who choose to be (Fitta Mamma, 2017).

1.3.3 Physical inactivity during pregnancy

Despite the creation of guidelines and other interventions aimed at increasing and better informing pregnant women about their physical activity decisions, more than half of all pregnant women still choose not to be active (Owe, Nystad, & Bø, 2009; Poudevigne & O'Connor, 2006) and 15% of those who are

active do not meet activity recommendations (Evenson et al., 2014). According to a variety of research recreational, occupational and overall physical activity levels appear to decline during pregnancy (Borodulin, Evenson, & Herring, 2009; Clarke, Rousham, Gross, Halligan, & Bosio, 2005; Hinton, 2001; Mottola & Campbell, 2003; Ning et al., 2003; Rousham, Clarke, & Gross, 2006; Schmidt, Pekow, Freedson, Markenson, & Chasan-Taber, 2006). More recent studies also support physical activity decline in pregnancy: Melzer, Schutz, Boulvain, and Kayser (2010) found a large proportion of women ceased physical activity for the full duration of their pregnancy. Similarly, Gaston and Cramp (2011) presented a literature review and demonstrated how pregnant women are less active than non-pregnant women, and that pregnancy leads to a decline in physical activity. Choi and Fukuoka (2018) also state that the prevalence of pregnant women who meet physical activity guidelines is low; the amount of pregnant women who are physically inactive is high.

Research suggests it is necessary to reduce the decline of physical activity during pregnancy. For example, it is suggested that women who are not physically active during pregnancy are more likely to remain physically inactive throughout the postpartum period (Artal & O'Toole, 2003; Evenson et al., 2014; Owe et al., 2009; Poudevigne & O'Connor, 2006; Rousham et al., 2006). Notably, Gilinsky, Hughes, and McInnes (2012) emphasise the importance of physical activity postpartum stating it helps to prevent mortality, improves morbidity, and quality of life through the prevention - or postponement - of psychological and physiological health conditions. Women who are inactive during pregnancy are also likely to be less physically active throughout their entire life (Borodulin et al., 2009; Symons Downs & Hausenblas, 2004). Similarly, the behavioural economic theory suggests spending more time on an undesirable behaviour - being physically inactive - means spending less time on a desirable behaviour – being active (Davis et al., 2015; Epstein, Saelens, & O'Brien, 1995).

Life transition research also supports that the decline in physical activity during pregnancy should be reduced. Pregnancy is reportedly a major life transition (Bost, Cox, Burchinal, & Payne, 2002; Choi & Fukuoka, 2018): participating in physical activity during a major life transition can dictate the adherence to undertake activity thereafter (UK Active, 2017; Vrazel, Saunders, & Wilcox, 2008). For instance, when children become adults they complete a life transition, transferring from their childhood to their adulthood.

Research reports that an individual who is active during their childhood has a heightened likelihood of being active in their adulthood (UK Active, 2017; Vrazel et al., 2008). As pregnant women also complete a life transition - of what can be described as womanhood to motherhood (Bost et al., 2002) - the same outcome is considered an eventuality.

Further research has also placed emphasis upon the need to reduce physical activity decline in pregnancy by focussing upon the associated health behaviour choices being active may impact upon. This research has provided indication that being active during pregnancy can positively affect other health behavioural decisions (Haakstad & Bø, 2011; Pereira et al., 2007; Stefani et al., 2017) and thus help promote positive behaviour change (Thompson, Vamos, & Daley, 2017). For instance, according to Blair, Jacobs, and Powell (1985) being active in pregnancy can increase the probability of meeting: the recommendation to stop smoking (Orton, Coleman, Lewis, Cooper, & Jones, 2016); the recommendation to abstain from alcohol (O'Leary, 2012); and the recommendation to consume a specific amount of folic acid and nutrients during pregnancy (Greenberg, Bell, Guan, & Yu, 2011; Ramakrishnan, 2010).

The above research provides a general consensus: healthy pregnant women should undertake physical activity during pregnancy (Nascimento, Surita, Godoy, Kasawara, & Morais, 2015). It demonstrates how inactivity may result in unfavourable effects - thus reducing activity decline in pregnancy is important (Haakstad et al., 2007; Sanabria-Martinez et al., 2015; Stuebe et al., 2009). However, there is an existing small body of research and guidelines representing opposing viewpoints and therefore must be acknowledged. For instance, some guidelines hint that physical activity should be avoided during pregnancy (Evenson et al., 2014). Other research suggests that women should not be physically active in pregnancy because it can affect health negatively (Madsen et al., 2007; McDonald et al., 1988; Nascimento, Surita, & Cecatti, 2012; Nascimento et al., 2015; Vladutiu et al., 2010). Moreover, the cumulative effect of the history of social and cultural norms, the ACOG guidelines, and continuing disagreement in research findings is that there remains a general lack of clarity about whether women should or should not be active in pregnancy.

1.3.4 The case for physical activity during pregnancy?

Research suggests physical activity during pregnancy can have favourable outcomes on physical health and mental health. For instance, physical activity during pregnancy can: help prevent postpartum negative mood or depression (Abraham, Taylor, & Conti, 2001; Daley, Macarthur, & Winter, 2007); reduce the risk of gestational diabetes (Chu et al., 2007a; Sanabria-Martinez et al., 2015) reduce anxiety and increase body image satisfaction and self-esteem; reduce the risk of pre-eclampsia (Heslehurst et al., 2008; Melzer et al., 2010); decrease health care costs (Morgan et al., 2014); lower the risk of caesarean section (NICE, 2011) and enhance maternal-infant relationship (Poudevigne & O'Connor, 2006). There is also some evidence to suggest less maternal weight gain if women participate in physical activity during pregnancy (Haakstad, Voldner, Henriksen, & Bø, 2007; Sanabria-Martinez et al., 2015; Stuebe, Oken, & Gillman, 2009); insufficient levels of physical activity during pregnancy appear to contribute to an increase of women classified as overweight or obese, known as maternal obesity (Currie et al., 2013; Rousham et al., 2006).

The prevalence of maternal obesity has been increasing around the world over many years (Heslehurst, Rankin, Wilkinson, & Summerbell, 2010; Kanagalingam, Forouhi, Greer, & Sattar, 2005; Usha Kiran, Hemmadi, Bethel, & Evans, 2005), and has been predicted to rise even further over the next 30 years (PHE, 2015). This suggests that more women will become obese during pregnancy, which is also more likely to occur if they are physically inactive (Currie et al., 2013; Rousham et al., 2006). Women who gain a large amount of weight during pregnancy - irrespective of pre-pregnancy weight - or are obese are susceptible to a heightened risk of adverse outcomes such as gestational hypertension (Cedergren, 2006; Crane, White, Murphy, Burrage, & Hutchens, 2009). According to Chu et al. (2007b), an adverse effect also associated to maternal obesity is the increased risk of stillbirth: although it remains unclear whether this adverse outcome is from the comorbidities associated to obesity in pregnancy or the independent effect of obesity, it can be suggested that developing maternal obesity in pregnancy can negatively affect babies' health. Furthermore, Marshall (2014) has expressed the need to be healthy in

general during pregnancy, suggesting what happens during pregnancy can have a profound effect on the baby's life thereafter - such as affecting the baby's physical and emotional well-being, cognitive ability and their quality of life. In addition, Stefani et al. (2017) and NICE et al. (2015) suggest pregnant women should be physically active during pregnancy because it can lead to favourable health outcomes for both themselves and their babies.

On the other hand, some research suggests that participating in physical activity during pregnancy may bring harm to a pregnant woman and her baby; therefore, it should not be undertaken. Findings include: an increased possibility of miscarriage (Madsen, 2007; McDonald et al., 1988); an increased risk of injury (Murphy & Quinlan, 2014; Vladutiu, Evenson, & Marshall, 2010) such as falling (Nascimento et al., 2015; Vladutiu et al., 2010); and a reduced amount of oxygen supplied to the baby (Mullinax & Dale, 1986). Although some of this research may be considered outdated as it is over 20 years old, it is impacting upon pregnant women's decisions of whether to be active or not. For example, a pregnant woman in a recent study reported being speculative of participating in activity because they feared that in doing so it would diminish their baby's oxygen supply in order to supply it to their own working muscles (Evans et al., 2016). Pregnant women have also reported being concerned that physical activity will bring harm to their baby and that they do "not want to overdo it" (Evenson, Moos, Carrier, & Siega-Riz, 2009, p. 16).

Notwithstanding, further research has contradicted the findings proposed above (Madsen, 2007; Mullinax & Dale, 1986; Murphy & Quinlan, 2014; Vladutiu et al., 2010). Firstly, for example, research has disputed the suggestion that being physically active affects the supply of oxygen to a baby and suggests that it does not (Barakat, Lucia, & Ruiz, 2009; Brenner, Wolfe, Monga, & McGrath, 1999; Platt, Artal, Semel, Sipos, & Kammula, 1983). According to Winter (2015) Paula Radcliffe successfully ran 10 kilometres whilst 7 months pregnant, and Amber Miller completed a marathon run and gave birth to a healthy baby girl 7 hours later: although they undertook vigorous aerobic activity, no signs of adverse outcome were noted. It must be acknowledged, nonetheless, that the type of evidence reported by Winter (2015) was anecdotal. This means it was collected in a casual or informal manner and relies heavily on personal testimony, thus the research has methodological weaknesses.

Secondly, Hammer et al. (2000) has provided counterargument regarding physical activity as the cause of injury during pregnancy. Hammer et al. (2000) has discussed how a pregnant woman will encounter bodily changes: these bodily changes increase the risk of injury regardless of whether a woman is physically active or not. In support, a variety of literature explains how there are hormonal, anatomical and physiological adaptations attached to pregnancy (Fitzgerald & Segal, 2015; Hayman, Reaburn, Brown, Vandelanotte, & Short, 2017; Okanishi, Kito, Akiyama, & Yamamoto, 2012; Soma-Pillay, Nelson-Piercy, Tolppanen, & Mebazaa, 2016) increasing injury risk (Hanson, 2004). An example is a change of postural balance: a change in postural balance can alter a pregnant woman's centre of gravity and increases the likelihood of falling and thus becoming injured - again regardless of whether the woman engages in physical activity or not (Cakmak, Ribeiro, & Inanir, 2016). Cakmak et al. (2016) provide the suggestion that through muscular strengthening and other physiological adaptations, physical activity is a preventative strategy to injury during pregnancy not an activity that causes them.

Given the conflicting research above, pregnant women are left with unclear physical activity advice and expectations. In fact, women are advised clearly about other health behavioural habits to exhibit during pregnancy – such as smoking, nutrition and alcohol consumption (Greenberg et al., 2011; O'Leary, 2012; Orton et al., 2016; Ramakrishnan, 2010) – yet advice regarding physical activity during pregnancy appears to be ambiguous (Hammer et al., 2000; Pivarnik et al., 2006). There appears to be no clear understanding about being physically active during pregnancy (Hammer et al., 2000; Pivarnik et al., 2006) and the lack of research exploring women's lived experiences of being physically active during pregnancy appears to be contributing to this (Evenson, Savitz, & Huston, 2004; Owe et al., 2009; Poudevigne & O'Connor, 2006). This study therefore aimed to evoke and explore the lived experiences of women who were regularly physically active during their pregnancies, and to obtain a critical analysis of these women's accounts. The research objective was to contribute to the knowledge base about lived experiences of being physically active during pregnancy.

Chapter 2 Literature Review

This chapter examines five key papers (Bennett, 2017; Bennett, McEwen, Clarke, Tamminen, & Crocker, 2013; Currie, Gray, Shepherd, & McInnes, 2016; Evans et al., 2016; Hegaard, Kjaergaard, Damm, Petersson, & Dykes, 2010) that have studied women's experiences of physical activity during pregnancy - these were discovered using a systematic approach (see appendix 1). The five key papers identified from the search were then summarised (see appendix 2) and analysed using a theoretical/conceptual framework. The aim of this literature review was to uncover the concepts that play a significant role in women's experiences of being physically active during pregnancy. The underlying concepts extracted from the five papers were explored alongside wider literature and a summary of how the five key papers reflect each concept is provided at the end of each section. The uncovered concepts were: women's experiences of their changing body during pregnancy; the concern that undertaking physical activity during pregnancy will harm the baby; the influence of information on pregnant women's physical activity decisions and women's experiences of bodily symptoms during pregnancy.

2.1 Womens' experiences of their changing body during pregnancy

Pregnancy is described as a stressful life event for a woman (Levy-Shiff, Dimitrovsky, Shulman, & Har-Even, 1998; Obel, Hedegaard, Henriksen, Secher, & Olsen, 2003). It is stressful because a woman will make a major life transition, one that requires a woman to begin to adapt to her 'new role' as an expectant mother (Bost et al., 2002). The experience of pregnancy is described by Lundgren and Wahlberg (1999) as a "transition to the unknown" in which women are unaware of what the experience will involve. The transition to motherhood is considered a time when a woman's self-identity may encounter significant changes (Bailey, 1999) as pregnant women become aware of the changes that are happening to their bodies (Clark, Skouteris, Wertheim, Paxton, & Milgrom, 2009; Nash, 2012). The awareness of these bodily changes can lead to body dissatisfaction; a positive embracement of the pregnancy (Bergbom, Modh, Lundgren, & Lindwall, 2017; Bondas & Eriksson, 2001; Lundgren & Wahlberg, 1999); or the feeling of not being in control of their own body (Hodgkinson, Smith, & Wittkowski, 2014; Johnson, Burrows, &

Williamson, 2004). Pregnant women in previous research have experienced their bodies becoming “alien” (Bergbom et al., 2017), “foreign” (Warren & Brewis, 2004) or “unusual” to themselves. The body changes that occur during pregnancy can therefore shape a woman’s body image, and can have an impact on self-image (Earle, 2000).

In addition to the impact of bodily changes, Upton and Han (2003) suggest women experience a loss of body control because their ‘pregnant body’ is subject to control by society. Pregnant women are frequently subject to value judgements influencing their choices such as the food they consume, what they wear, what they say and the activities they do (Chuang, Velott, & Weisman, 2010). Thus, pregnant women may view their body as an object that is judged by others (Fredrickson & Roberts, 1997). Furthermore, in some cultures there is a norm that a woman’s body should be thin with unmarked skin (Clark et al., 2009; Nash, 2012). Pregnancy, however, may result in a woman’s body changing to the opposite of this desirable body shape. Although some women acknowledge that the way their body changes is an inevitable part of pregnancy (Earle, 2003) others are concerned about their body not meeting the social ideal. Some pregnant women develop a fear of being perceived as “fat” and they may even worry that individuals will not recognise they are pregnant (Fox & Yamaguchi, 1997). Thus, the literature reflects a strong connection between pregnancy and a woman’s body image, bodily awareness and consciousness through the interplay between individual and social constructs (Bergbom et al., 2017; Clark et al., 2009; Nash et al., 2012).

The acknowledgement of bodily changes and the perceived pressure to meet the social constructions of female beauty are often controlled by initiating strategies to overcome them, such as physical activity (Hodgkinson et al., 2014). The Royal College of Obstetricians and Gynecologists (RCOG) (2006) advocate physical activity as a way of adjusting and controlling body changes that women encounter during pregnancy. This can increase a woman’s overall well-being. Physical activity can increase mental health by provoking a release of endorphins into the brain which in turn helps improve mood and a sense of calmness (Miles, 2007). Higher levels of self-esteem, often incorporating a more positive view of oneself, can also be achieved through physical activity participation (McDonald, McDonald, Thompson, & Thompson, 1992).

In pregnancy, higher levels of self-esteem have been found to be both a predictor and mediator of self-image. Firstly, by increasing the perceived attractiveness that women feel; secondly, by presenting an opportunity to have control - such as over the weight they gain or the shape of their body - due to the numerous physiological changes they are encountering (Kamysheva, Skouteris, Wertheim, Paxton, & Milgrom, 2008). Bailey (2001) & Young (1990) suggest being physically active during pregnancy also shifts the focus of what the body looks like and how it is changing, to how the body is functioning to support the growing baby. Thus, pregnant women who are physically active may have a reduced concern of meeting their social ideals and potentially experience higher levels of body satisfaction and bodily control (Rubin & Steinburg et al., 2011).

The five key papers (Bennett et al., 2013; Hegaard et al., 2010; Currie et al., 2016; Evans et al., 2016; Bennett et al., 2017) indicated the concepts of bodily changes, control, perceptions and consciousness to all play a significant role in women's experiences of physical activity during pregnancy. Bennett et al. (2013) found that women who were physically active during pregnancy experienced increased body satisfaction in that it helped them to maintain self-identity, have bodily control and thus a sense of normality. Nevertheless, women still experienced a consciousness of what their body looked like according to others. Furthermore, Evans et al. (2016) found the pregnant women they studied often encountered a loss of control over their bodies, they had issues with self-identity and referred to the earlier stages of pregnancy as "awkward" - they were unsure if people knew they were pregnant and feared they did not. In contrast, Bennett (2013) expressed that women felt better about their body if they were "visibly pregnant" but pregnancy then became an excuse to gain weight: they felt their pregnancy was more visible the more weight they gained. Hegaard et al. (2010), on the other hand, stated physical activity was a method used to avoid excess weight gain and thus increased the women's positivity towards their body image and bodily control. Currie et al. (2016) also discussed how the women in their study had a boost of confidence following physical activity participation, and they reported generally feeling better within themselves.

2.2 The concern that physical activity during pregnancy will harm the baby

Amongst the top priorities during a woman's pregnancy is having a healthy baby and avoiding the outcome of involuntary pregnancy termination (Harrison, Kushner, Benzies, Rempel, & Kimak, 2003; Li, Chandrasekharan, & Allyse, 2017). Pregnant women can feel directly responsible for their baby's safety - they are the "caretakers" of their babies (Wetterberg, 2004) - so if their baby's safety is jeopardised in any way they are likely to blame themselves for it (Gold, Sen, & Leon, 2018; Séjourné, Callahan, & Chabrol, 2011). This feeling of added responsibility may place pregnant women in a vulnerable state (Biaggi, Conroy, Pawlby, & Pariante, 2016; Birtwell, Hammond, & Puckering, 2015; Briscoe, Lavender, & McGowan, 2016). For instance, a concept of vulnerability is evolved around the uncertainty of life (Jacobs, 2014): pregnant women often fear that harm will occur to their baby - or has potential to occur - even if it has no known reason to (Scholtz, 2000).

Given that a baby's safety is often the main focal point of pregnancy, and given that the baby's safety cannot be definitively guaranteed, pregnant women are often subject to psychological distress or psychological issues (Rallis, Skouteris, McCabe, & Milgrom, 2014). To elaborate, during pregnancy women have no given certainty on how their pregnancy will end - and thus women are receptive to fears regarding their pregnancy outcome (Homer, Farrell, & Davis, 2002; Ohman, Grunewald, & Waldenstrom, 2003): women can be fearful of spontaneous abortion (miscarriage), still birth and other adverse outcome (Quagliata, 2013). Pregnant women who worry about their baby's safety also have a heightened likelihood of developing pregnancy-specific anxiety (Huizink, Mulder, Robles de Medina, Visser, & Buitelaar, 2004) and they often adapt their life style to prevent or control it (Atkinson, Shaw, & French, 2016; van Mulken, McAllister, & Lowe, 2016). Pregnant women have also been found to adapt their life style with recognition that their own behaviours will directly affect the health of their baby as they put pressure upon themselves to ensure the safety of their baby is at its optimum (Newham, 2012).

Hanghoj (2013) suggests that physical activity is a health behaviour that causes concern for some pregnant women because they perceive physical activity as posing a risk to their baby, similar to that

posed by tobacco and alcohol consumption. It was evident in a study by Hanghoj et al's. (2013) that women feared involuntary pregnancy termination due to the bodily symptoms they experienced whilst being active - "when it hurts I think: now the baby is dying". Evenson et al. (2009) also discussed how some women voiced being afraid of physically exerting themselves beyond their capability during pregnancy - they feared being too physically active would induce premature labour or put the baby in jeopardy. Therefore, because of such apprehension, these women either ceased their activity or undertook activity with caution. Furthermore, Ogle, Tyner, and Schofield-Tomschin (2011) described how some pregnant women in their study physically moved more slowly whilst climbing the stairs, they were also adamant not to perform any form of activity they perceived to be too risky with fear of jeopardising the baby's health and well-being. Ritchie (2004) suggests that because pregnant women can feel threatened or fearful that physical activity participation will bring harm to their baby, they often incur altered or reduced self-esteem. This often leads to negative coping responses: they either cease the activity or develop anxiety whilst performing physical tasks (Ritchie, 2004).

The above literature suggests many women may be fearful about being physically active during their pregnancy; they do not want to provide opportunity in which their baby's safety, health or well-being is compromised. In addition to the impact on levels of physical activity, this is significant because it is becoming increasingly evident that an overload of stress - such as the fear of harm occurring to the baby - during the prenatal phase can affect the physiological and psychological well-being of the pregnant woman, and the development of their baby (Dunkel Schetter, 2011; Mulder et al., 2002). Thus, it is important to alleviate the worries of pregnant women and clarify the truth in preconceptions regarding the safety of a baby whilst undertaking physical activity (Bost et al., 2002).

The concern that physical activity would bring harm to the baby was a consistent theme in the five key papers (Bennett et al. 2013; Bennett et al. 2017; Currie et al. 2016; Evans et al. 2016; Heegaard et al. 2010); however, the papers reflect slight differences in how women reported these fears. Bennett et al. (2017) found pregnant women experienced a feeling of added responsibility regarding their baby, and they were the ones in control of ensuring their protection. Bennett et al. (2017) also highlighted the perceived delicacy of pregnancy: one woman described their bicycle as a "wheel chair enabling

movement". Similarly, Evans et al. (2016) reported the perception that a woman's body is in a fragile state during pregnancy: one woman obtained a disability badge on her car to avoid being physically active with fear of jeopardising the baby's safety. Evans et al. (2016) concluded that pregnant women are lacking information on how best to maintain the health of their unborn baby, and therefore how their actions will affect them. Hegaard et al., (2010) and Currie et al., (2016) both found that pregnant women are concerned about the safety of their baby when participating in physical activity. Additionally, Currie et al., (2016) & Hegaard et al., (2010) also explained that the women in their studies often dealt with concerns for the baby by modifying their existing activity regimes: this included 'knowing their body' or 'listening to their bodies'. Listening to their own body provided them with an inner sense of security - they could make their own judgement whether physical activity was jeopardising their baby's safety and adapt it accordingly.

2.3 The influence of information on pregnant women's physical activity decisions

During pregnancy, many women can feel isolated, confused or uneducated because their knowledge of everyday life is suspended in this new context (Teres, 2002). They struggle to manage their pregnant body as all their intuitions are associated with a non-pregnant self, particularly if they have not been pregnant before (Lou et al., 2017). Thus pregnant women will attempt to retrieve pregnancy-specific information (Teres, 2002) and then utilise the information obtained to make decisions regarding their pregnancy (Hans, 2013; Lupton, 2013) - specifically, the behaviours they ought to exhibit or cease (Almalik & Mosleh, 2016; Armstrong & Pooley, 2005; Lou et al., 2017; Wessberg, Lundgren, & Elden, 2017).

Many pregnant women have the opportunity to obtain information from numerous sources - such as health care professionals, the social environment, or the internet - and this can confuse them (Lou et al., 2017; Sayakhot & Carolan-Olah, 2016). It confuses them because the information they receive from these sources can be conflicting (Leiferman, Sinatra, & Huberty, 2014); unclear (Cannella, Lobel, & Monheit, 2010; Kraschnewski & Chuang, 2014; Weir et al., 2010); derived from untrustworthy sources (Strelan,

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Mehaffey, & Tiggemann, 2003); or not necessarily up-to-date, reliable or trustworthy (Impicciatore, Pandolfini, Casella, & Bonati, 1997; Kunst, Groot, Latthe, Latthe, & Khan, 2002). Accordingly, this often leaves women feeling overwhelmed because they do not know what information to base their pregnancy decisions on (Hans, 2013; Lupton, 2013). Pregnant women have also suggested that some pregnancy-specific information does not provide adequate detail (Heaman, Gupton, & Gregory, 2004; Lerman et al., 2007) and therefore requires improvement (Heaman et al., 2004; Lerman et al., 2007).

Pregnant women highlight information regarding physical activity during pregnancy as an example of how pregnancy-specific information needs to be improved (Stengel, Kraschnewski, Hwang, Kjerulff, & Chuang, 2012). Information regarding physical activity in pregnancy, for instance, has been described by pregnant women as unclear (Clarke & Gross, 2004; Ferrari, Siega-Riz, Evenson, Moos, & Carrier, 2013) or non-existent (Der Ananian, Wilcox, Saunders, Watkins, & Evans, 2006; Leiferman et al., 2014): this perception contrasts with the clearer information associated with other health behaviours such as nutrition consumption (Smedley et al., 2014; Stengel et al., 2012). Furthermore, the information pregnant women receive regarding physical activity can be discouraging and ambiguous (Krans & Chang, 2012; Mullinax & Dale, 1986) and sometimes dismisses the idea of being physically active during pregnancy completely (Evans et al., 2016; Lee et al., 2009). This is opposed to alternative informational sources that may encourage it (ACOG, 2015). It can be suggested that there is no clear understanding about physical activity during pregnancy and the information pregnant women do receive reflects a lack of consistency and clarity (Hammer et al., 2000; Pivarnik et al., 2006) - accordingly, chief medical officers in the UK have recently tasked an expert committee in physical activity and pregnancy to review the available information (Reid, Smith, Calderwood, & Foster, 2017).

The five key papers (Bennett et al., 2013; Hegaard et al., 2010; Currie et al., 2016; Evans et al. 2016; Bennett et al., 2017) demonstrate that the physical activity information the pregnant women received affected their experiences. Within Bennett et al's. (2013) study the information the pregnant women were provided with evidently discouraged them from participating in physical activity, this lead to uncertainty about their activity participation. Currie et al. (2016) highlighted the information pregnant women were provided with in their study focused too much upon "a very, kind of, can't nature": this possibly provided a

negative framework upon their thoughts and understanding about physical activity within the context of pregnancy. A woman in Bennett et al's. (2017) study stated that in the UK there is a view that pregnant women should take it easy and put their feet up (Bennett et al, 2017). Hegaard et al., (2010) & Evans et al., (2016) also expressed how there appears to be a lack of knowledge and information regarding physical activity during pregnancy. Suggestively, this potentially leads to interpretations that are more likely to be based upon speculation than evidence – this lends itself to a disproportionate emphasis on the risks of physical activity in pregnancy. Bennett et al. (2017) concluded that the information pregnant women receive is a potential deterrent: information affects women's decisions of whether to continue and desist physical activity in pregnancy, regardless of the source and nature of that information – online, socially or professionally.

2.4 Womens' experiences of bodily symptoms during pregnancy

Pregnancy is a time when many women can suffer from a variety of different bodily symptoms - such as tiredness, fatigue, nausea, sore and swollen breasts and sleep deprivation - which can differentiate in severity day-by-day (Bergbom et al., 2017). These symptoms can also be so severe that they are debilitating for some pregnant women (Chien & Ko, 2004) placing a prodigious amount of physiological and psychological stress on their bodies (Bungum, Peaslee, Jackson, & Perez, 2000). Thus pregnant women's physiological and psychological functioning can be compromised (Callahan & Caughey, 2013): nausea and vomiting, for instance, can impact on physical and psychosocial functioning leaving pregnant women feeling exhausted, irritable and miserable (Colodro-Conde et al., 2016). Tiredness in pregnancy is also reported to limit many pregnant women's capacity to engage in self-care and control their emotions (Giallo, Gartland, Woolhouse, & Brown, 2016). It is evident that many women view bodily symptoms as normative experiences during pregnancy, and therefore accept they will experience them, they do not learn how to manage or control them rather 'cope' with the ones they experience (Marcus, 2009). However, it is considered important that pregnant women learn how to manage and control their bodily symptoms as they are likely to be bothersome or intrude upon daily activities (Rodriguez, Bohlin, & Lindmark, 2001).

In accordance, pregnancy symptoms such as lack of energy (Evenson et al., 2009), tiredness, fatigue (Symons Downs & Hausenblas, 2004), pains and nausea (Goodrich, Cregger, Wilcox, & Liu, 2013) have all been suggested to be alleviated following physical activity participation during pregnancy (ACOG, 2002; Thompson et al., 2017). Muscle-strengthening exercises, for example, have been associated with increased physical and mental energy levels and fatigue reduction (Ward-Ritacco, Poudevigne, & O'Connor, 2016). Similarly, Choi et al. (2016) report that general forms of physical activity can improve pregnant women's overall mood and assist with the management of their bodily symptoms - such as enhancing their energy levels. However, Choi et al. (2016) further explain that whilst some pregnant women view physical activity as a method to replenish their energy levels and manage their bodily symptoms, other pregnant women view their lack of energy and their bodily symptoms as physical activity barriers. In support, Coll, Domingues, Gonçalves, and Bertoldi (2017) also reports that pregnant women in their study explained that nausea, tiredness, sleepiness, shortness of breath and back/pelvic pain all formed physical activity barriers. In summary, Poudevigne and O'Connor (2006) state although the symptoms experienced during pregnancy can act as a barrier to physical activity, the symptoms have been shown to be attenuated following activity participation. Warren and Brewis (2004) provide the suggestion that dealing with pregnancy symptoms is thus "matter over mind": pregnant women need to understand how to manage and control their body symptoms rather than 'cope' with them - this can be achieved through physical activity participation (ACOG, 2002; Thompson et al., 2017).

The five key papers (Bennett et al., 2013; Hegaard et al., 2010; Currie et al., 2016; Evans et al., 2016; Bennett et al., 2017) highlight that the bodily symptoms attached to pregnancy - such as nausea, tiredness, fatigue and energy level reduction - can affect women's physical activity experiences. Currie et al., (2016) & Evans et al., (2016), for instance, state that bodily symptoms can act as physical activity barriers during pregnancy. A specific example explained by Bennett, et al. (2013) is that pregnant women often report feeling a lack of energy. When pregnant women feel like they have a lack of energy they often avoid energy expenditure in order to save the energy supply that they have. As physical activity exerts energy it is an activity that may be avoided, or an activity that the women view themselves incapable of. Alternatively, Bennett et al. (2013) reflected that participating in physical activity during

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pregnancy can alleviate bodily symptoms: they found that participating in physical activity enhanced their energy levels and positively affected their level of control they felt they had over their bodily symptoms. Hegaard et al. (2010) also reflects that physical activity alleviates a variety of pregnancy symptoms, provides bodily comfort, and enhances energy levels. Finally, Bennett et al. (2017) found that pregnant women can incur “body obstacles” such as shortness of breath and niggling pains affecting the perception of their physical activity capability. However, the study also identifies ways in which women overcome their “body obstacles” - persevering with them during activity, pausing, adapting or abandoning the activity as they knew personally when to continue and desist.

2.5 Rationale for further study on Womens’ experiences of physical activity during pregnancy

Recent research reports that only few studies have focused upon the experience of physical activity during pregnancy, they suggest that such subject matter warrants further investigation to broaden the knowledge about it (Cioffi et al., 2010; Murtezani, Pacarada, Ibraimi, Nevzati, & Abazi, 2014). In the context of ambiguous, unclear, insufficient, conflicting and negative information, real-life experiences may provide a better source of knowledge, clarity and provide justification regarding the physical activity decisions pregnant women make (Teres, 2002) and notably, retrieving information through shared experiences has been found to be a useful learning source for pregnant women (Evenson & Bradley, 2009; McDaniel, Coyne, & Holmes, 2012; Yu, Taverner, & Madden, 2011). The present literature review demonstrates that women may be concerned for the health of their baby during pregnancy and therefore are anxious to participate in physical activity. Studying the experience of physical activity during pregnancy further can help women distinguish between myths and facts that are associated to their babies’ health and safety (Artal, 2017; Brunk, 2017; Guggino et al., 2016). It also may provide an indication as to how other women have ensured the safety of their baby whilst remaining physically active (Artal, 2017; Brunk, 2017; Guggino et al., 2016). Conclusively, this study will add to the knowledge base around the experience of physical activity during pregnancy and provide women with a voice that can be shared with others.

Chapter 3 Methodology

This chapter discusses the methodology (the principles that guide this study's research practices) and then the methods (the strategies of inquiry utilised to conduct this study). It begins with discussing the research methodology: the researcher's own philosophical position, the rationale for a qualitative enquiry, and the use of a phenomenological approach. Methods such as data collection and analysis procedures are then explained and ethical considerations are discussed to ensure scientific rigour.

3.1 Philosophical position

It is important when conducting research that the researcher makes their philosophical position clear regarding the way they know things (epistemology) and their understanding of what it means to be in the world (ontology) (Carson, Gilmore, Perry, & Gronhaug, 2001; Dillon & Wals, 2006; Ramey & Grubb, 2009). The two dominant philosophical positions or ideologies are positivism and interpretivism (Hesse-Biber & Leavy, 2004). Positivists believe in objective truth and do not believe in subjective opinions as the basis of knowledge - accordingly, the approach measures relationships and looks for facts and causality. A positivist will usually formulate hypotheses and then test them before drawing a conclusion. An interpretivist approach, however, rejects the concept of objective truth and focuses upon experience, interpretation and opinion: conclusions are drawn from the interpretations of participants rather than the theories of a researcher or scientist (Carson et al., 2001; Howe, 1998). Research suggests an interpretivist approach should be implemented when the researcher is aiming to understand and explain experiences (Barbour, 2008; Carter & Little, 2007; Hesse-Biber & Leavy, 2004; Merriam & Tisdell, 2016). This is because the goal of interpretivist research is to understand and interpret the meanings in human behaviour (Neuman, 2000; Hudson and Ozanne, 1988). For an interpretivist researcher it is important to understand motives, meanings, reasons and other subjective experiences, which are time and context-bound (Hudson & Ozanne, 1988; Neuman, 2000). As the researcher in this study aimed to understand 'lived experiences' – a term used to describe first-hand accounts, subjective perceptions and personal

knowledge of living as a member of a minority or oppressed group - they are considered to be an interpretivist.

3.2 Rationale for a qualitative inquiry

Interpretivist researchers utilise qualitative rather than quantitative methodology to investigate social inquiry because it aims to provide insight and an in-depth understanding into a phenomena (Cohen, Manion, Morrison, & Bell, 2011; Tharakan, 2006). Qualitative research is concerned with understanding human being's experiences and behaviours (Jackson, Drummond, & Camara, 2007) whereas quantitative research investigates phenomenon by collecting and analysing numerical data (Balnaves & Caputi, 2001; Curtis & Drennan, 2013). As the purpose of this study was to investigate women's 'lived experiences' of being physically active during pregnancy – and qualitative research is stated to be a central part of advancing the knowledge of sport and exercises sciences (Smith & McGannon, 2018) - a qualitative approach was adopted.

There are many different types of qualitative approaches to inquiry that the researcher in this study could have adopted (Creswell, Hanson, Clark Plano, & Morales, 2007; Denzin & Lincoln, 2011). One example is Ethnography. Ethnography emphasises the importance of studying at 'first hand'. Its prime objective is to interpret a cultural or social group: there may be opportunity for the researcher to immerse themselves within the group being studied (Fetterman, 2010). It lends itself to the study of direct participant observation (Dyson, 2007), having contact with individuals over a lengthy period of time (Denzin & Lincoln, 2011; Reeves, Kuper, & Hodges, 2008). However, because the researcher observes a participant whilst experiencing a phenomena it can cause a participant to behave abnormally (Goodson & Vassar, 2011). Ethnographic research does provide an opportunity to gain an in-depth understanding about experiences, however, this study aimed to investigate the lived experiences of being physically active during pregnancy, and not to interpret pregnant women as a cultural or social group as they experience physical activity (Liamputtong Rice, 2009). Thus the approach was not adopted within this study.

Another example of a qualitative approach is Grounded Theory, created by Glaser and Strauss (1967). Grounded Theory (containing both inductive and deductive thinking) is an approach that systematically generates theory from data (Walsh et al., 2015) and aims to discover and provide explanations about a given phenomenon by formulating hypotheses based on conceptual ideas (Creswell, 2013). Previous research has used a grounded theory approach to explore the experiences of physical activity during pregnancy which highlights that this approach could have been used in this study (Currie et al., 2016). In accordance, it is useful for understanding how people resolve problems through uncovering their social processes (Adolph, Hall, & Kruchten, 2011). It is an approach that involves collecting data through a variety of means including interviews, documentation, memoirs, letters and any source that is deemed to contribute to understanding by the researcher (Corbin, 2017). However, because of this a large amount of data is produced, often being difficult to manage (Bryant & Charmaz, 2007; Wolfswinkel, Furtmueller-Ettinger, & Wilderom, 2013). The researcher in this study decided not to use Grounded Theory as grounded theorists often aim to construct theory, this research does not aim to do this (Bryant & Charmaz, 2007; Corbin, 2017). This research aims to understand and provide in-depth insight into a phenomenon (women's lived experienced of being physically active during pregnancy) and therefore it was not utilised in this study (Urquhart, 2013).

Phenomenology – initially articulated by Edmund Husserl – aims to identify important elements of a phenomenon or experience that makes them unique (Pietkiewicz & Smith, 2014). It has an objective of producing an account of lived experience rather than being prescribed by pre-existing theoretical preconceptions (Littlejohn & Foss, 2009; Willig, 2008) and is the qualitative approach adopted in this study. It is the philosophical study of the structures of experience and consciousness and is often considered central to the interpretive paradigm (Racher, Robinson, Caelli, & Romyn, 2003).

Phenomenology rejects the concept of objective truth: it involves collecting data from individuals who have lived through an experience, and provides others with an understanding about that experience (Detmer, 2012; Englander, 2016; Moran, 2000; Van Manen, 2014). According to Maxwell (2013) and Patton (2002) a limitation of phenomenological research is that it depends upon the articulate skills of the participants: they are the only ones who provide the study's data so if they reflect poor articulate skills -

such as embarrassment regarding the discussion of their experience - this may result in poor data quality. The conclusions drawn from phenomenological research data also depends upon the particular participants chosen for the study (Maxwell, 2013; Patton, 2002).

However, phenomenologists seek to understand the universal nature of an experience and provide an in-depth understanding, they do not aim to statistically generalise but give voice to the people who are reporting the experience (Starks & Brown Trinidad, 2007). Moreover, Pickard, Rodriguez, and Lewis (2017) indicate the value of phenomenological research suggesting it can provide researchers with research that is collaborative, person-centred focus, and can also provide insight into lived experiences. The authors also emphasise its originality stating that only a few studies have adopted the methodological approach. Accordingly, the researcher decided to utilise phenomenology because it provided an ability to obtain knowledge and insight into the women's lived experiences of physical activity during pregnancy, through broad and open-ended inquiry (Maxwell, 2013; Patton, 2002).

3.2.1 Interpretative phenomenology

Researchers who use a phenomenological approach to understand experiences are often required to consider the difference that exists between descriptive and interpretative phenomenology: these are the two approaches that guide the majority of phenomenological investigations (Danuta & Kristen, 2007). Descriptive (transcendental constitutive) phenomenology aims to identify the main core structures of a given experience through a process of methodological 'reduction' (Finlay, 2012; Harper & Thompson, 2011). Interpretative (hermeneutic) phenomenology is concerned with interpreting an experience and intends to clarify the conditions that led to the participants' understanding of the experience (Holroyd, 2007). The researcher in this study chose interpretative phenomenology as it includes aspects of both description and interpretation, whereas descriptive phenomenology aims to provide a description of the essence or essential structure of an experience and does not understand the meaning of it (Lopez & Willis, 2004; Matua & Van Der Wal, 2015).

Given that the researcher chose interpretative phenomenology they also chose an interpretative phenomenological analysis method - Interpretative phenomenological analysis (IPA). IPA is a qualitative analysis method to research in psychology and the human and health sciences and was developed by Jonathan Smith in the 1990's (Smith & Osborn, 2015). It was formed with the belief that an understanding of the world requires an understanding of experience (Harper & Thompson, 2011) and was created to provide researchers with an ability to obtain detailed explanations about individual experiences and social cognition (Smith, Flowers, & Larkin, 2009). The researcher in this study used IPA because it is recommended to researchers who seek an in-depth understanding on how people experience a phenomenon from a particular perspective within a particular context (Harper & Thompson, 2011). The current study concerned itself with understanding women's lived experiences of being physically active during pregnancy - therefore IPA was a suitable analytical method for this particular research orientation (Johnson et al., 2004). IPA is suggested to have three key theoretical underpinnings - phenomenology, hermeneutics (interpretation) and ideography (Smith, 2004, 2007; Smith et al., 2009).

Phenomenology as previously discussed is the philosophical study of the structures of experience and consciousness (Rachner et al., 2003) and it aims to explore and understand lived experiences in its own terms rather than test pre-existing theoretical conceptions. IPA acknowledges this is an interpretative endeavour because people are sense-making organisms (Smith & Osborn, 2015).

In accordance, Reid, Flowers, and Larkin (2005) state that exploring lived experiences using IPA is also accompanied by a subjective and reflective process of interpretation: IPA aims to identify how people make sense of their experiences and attach meaning to their life events (Smith et al., 2009) from a first-person perspective, and believes in the value of subjective knowledge for psychological understanding. For example, IPA believes that the researcher's own beliefs are necessary in making sense of people's experiences (Fadde, 2004): therefore connections are made between the researcher, their data, and psychological knowledge (Larkin, Watts, & Clifton, 2006; Smith et al., 2009). Accordingly, an IPA researcher is required to 'give voice' to participants but an IPA researcher is also required to contextualise and try to understand the information gathered from a psychological perspective (Pringle, Drummond, McLafferty, & Hendry, 2011; Wagstaff & Williams, 2014) - the researcher is trying to make

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sense of the participant trying to make sense of what is happening to them and is engaged in a 'double hermeneutic' (Smith & Osborn, 2015).

It is suggested that IPA also has an ideographic focus (Smith, 2017) due to the concern it has with particular or unique events and its commitment to examine the experience of each case in turn prior to looking at all cases together (Shinebourne, 2011). Similarly, IPA is described to have an ideographic mode of inquiry – a method that highlights the unique concepts of an individual phenomenon - as opposed to a nomothetic approach - a concern with establishing general laws based on the study of a large group of people using quantitative techniques. Smith et al. (2017) explain IPA aims to understand something in detail – meaning based - rather than prematurely make statistical general claims. IPA, however, is not opposed to more general claims, it is just committed to evoking and exploring something in detail rather than jumping to statistic generalisation. A theoretical rather than empirical generalisability is produced when using IPA whereby readers can make links between the findings and their personal experiences (Smith & Osborn, 2003).

Accordingly, IPA provides the opportunity for researchers to stand in the persons shoes whom is experiencing the phenomenon and identify their perceptions of their social world - an "insiders perspective" (Antoine & Smith, 2017) - and not just simply describe the phenomenon from an outsiders perspective (Smith, 2011). Achieving high-quality IPA therefore requires the involvement of a small sample size. This is because IPA aims to facilitate a more enriched investigation about an experience (Smith, 2011; Smith et al., 2009) and believes the experiences of a few participants examined at a greater level of depth is more sufficient than simply describing the experiences of many individuals (Reid et al., 2005). Sample sizes, however, are contextual so can be different for every IPA study. A rough guide is three to six participants for undergraduate and masters level research, and four to ten participants for professional doctorates (Smith et al., 2009).

3.3 Methods

3.3.1 Participants and recruitment

Purposive sampling is suggested to be used by a wide range of qualitative researchers (Patton, 2002) and is the sampling method utilised in this study. It is a non-probability sampling technique that allows researchers to purposefully select participants based upon their characteristics, accessibility and their relevance to the study's objective (Liamputtong Rice, 2009). Accordingly, the use of purposive sampling allowed the researcher to recruit women who had recently experienced the phenomenon of interest (a physically active pregnancy) (Cresswell & Plano-Clark, 2011). Purposive samples are also appropriate when the researcher is trying to recruit hard-to-reach populations (Barratt, Ferris, & Lenton, 2015) and as research suggests not many women are physically active during pregnancy (Owe et al., 2009; Poudevigne & O'Connor, 2006) they are considered a 'hard-to-reach population' - thus by purposeful selection physically active pregnant women were made easier to reach.

Whilst women were purposefully selected, they were also recruited through social media forums that either targeted or involved pregnant women. According to Fenner et al. (2012) a limitation of recruiting through social media is bias: the time individuals spend on social media potentially determines their exposure to studies advertisement, the opportunity to participate was thus not the same for each social media user. Similarly, the women in this study had to have shared knowledge about their physically active pregnancy or shown interest in such phenomenon on their social media accounts in order to be considered for the study. The use of social media recruitment also raises ethical concern because personal and sensitive information may be collected from individuals without their knowledge or consent (Bender, Cyr, Arbuckle, & Ferris, 2017; Lewis, Kaufman, & Christakis, 2008). Nevertheless, the researcher ensured the protection of privacy by ensuring any personal information about any of the research participants was not shared amongst others and only known to the researcher. Privacy was also respected as the researcher only contacted women if they had contacted the researcher themselves, or if they had shown interest in physical activity during pregnancy publicly (Australian Government, 2007).

Alternatively, the researcher could have recruited women through the NHS or hospital settings; this would have helped to provide better access to pregnant women and reduce bias. However, it takes time, collaboration and flexibility on the researcher's behalf and the health professionals at the recruitment site to successfully conduct the study in this way (Sullivan-Bolyai et al., 2007). Ethical approval would have also been time-consuming as approval may have been required from the University Ethics committee, as well as receiving NHS Ethics Approval and Research Governance Approval - ethical approval could have taken longer than the researcher had to conduct the study (NHS, 2017b). It may also be difficult for busy health professionals to add to the responsibilities and busy work schedules they already have (Butterfield, Yates, Rogers, & Healow, 2003).

In accordance, recruiting through social media does have its benefits. Firstly, it is suggested to be a useful facilitator when researchers are recruiting hard-to-reach populations (Sikkens, San, Sieckelink, Boeije, & Winter, 2017). It is also likely to yield a demographically representative sample (Fenner et al., 2012) and Bennett et al. (2013) & Bennett (2017) suggest that there is a need for the experience of physical activity during pregnancy to be studied in more diverse populations. Allmark (2004) also suggests that researchers should respect the diversity of human culture and conditions: there are many people in this world, and they require equal entitlement to be involved within research.

Ten women showed interest and volunteered to participate in this study and were sent a detailed information sheet (see appendix 3). They all received this information sheet through email explaining the aims of the study: "to explore the lived experiences of physically active women during pregnancy"; and what they were being asked to do: "participate in a telephone or video-call interview". The women who responded to the email took part in a discussion to establish whether they met inclusion exclusion criteria (see table 1 below). Those who were eligible to participate and also gave written consent were interviewed. Those who were not eligible were thanked for their time and interest in the study. They were provided with the reasons they did not meet the inclusion, exclusion criteria and why they could not participate. They were also provided with an opportunity to ask questions. Notably, one woman did not respond to the written consent form, one was excluded due to having known complications during

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pregnancy, two could not commit to an interview due to time constraints and one woman had given birth over 6 months ago – accordingly, five women participated in this study.

Table 1 inclusion, exclusion criteria

Inclusion	Exclusion
Fluently English	A non-fluent English speaker
A healthy pregnancy classified by a professional and qualified health practitioner (midwife or doctor) with no known complications	Known complications during pregnancy such as preeclampsia, gestational diabetes, placenta preemie (low placenta level), and high blood pressure (gestational hypertension) or a pregnancy classified as unhealthy or high risk
Over 30 weeks pregnant or have given birth within the last 6 months	Given birth more than 6 months ago
Over 18 years of age	Under 18 years of age
Have been physically active during pregnancy on average at least once per week or more throughout pregnancy for at least 12 weeks	Have been physically active less than 12 weeks of pregnancy
Participated in any informal or unstructured physical activity such as swimming, housework and cycling, and formalised/competitive sport such as tennis, running and kickboxing, and/or structured classes such as attending a specific exercise class or gym facility.	A communication disability that would limit participation in an interview such as a speech and/or hearing impairment.
No known health contraindications	Known health contraindications

3.3.2 Data generation – semi-structured telephone interviews

Five women participated in this study and each took part in in-depth semi-structured interviews. Semi-structured interviewing is a common data collection procedure in qualitative research (Adams, 2010) and is recommended to be used within phenomenological studies (Smith et al., 2009). Alternatively, the researcher could have used narrative interviewing. During narrative interviewing participants are asked to tell a story about a significant event in their life and social context (Bauer & Gaskell, 2000; Jovchelovitch & Bauer, 2000). According to Anderson and Kirkpatrick (2016) a benefit of narrative interviewing is that the participant guides the interview and may provide information that was not predicted to be mentioned. However, narrative interviews can become difficult to analyse because they are unstructured and provide

an opportunity for very different and complex themes to develop. Moreover, because narrative interviews are unstructured sometimes questions that may have been seen as important to ask may be missed as the interview progresses.

The semi-structured interviews in this study were all conducted through the telephone but all five women were given the opportunity to conduct their interviews through video-call. A disadvantage of conducting the interviews through telephone was that participants reactions were limited to their voice (Opdenakker, 2006). Social cues (such as body language and signs of discomfort) were not visible in the telephone interviews which conducting face-to-face interviews could have identified (Barratt, 2012). It has been stated how a lack of social cues can also lead to increased ambiguity and misinterpretation of what is being said, defined as an interpretation bias (Heinrichs & Hofmann, 2001). On the other hand, Society for Psychophysiological Research (2017) explains that cues can be identified through listening to peoples voices. For example, there is emotional information (is this person angry? does this person sound upset?) and a tone of voice (does this person want to answer this question? how did they respond to the question?).

Moreover, Mann and Stewart (2000) support the utilisation of telephone interviews stating that it provides high geographical access, the research thus had the potential to include national as well as international participants. Personal issues or experiences that are sensitive to an individual also had the potential to be discussed in the telephone interviews - an individual may be reluctant to do so during face-to-face interviews. Mann et al. (2000) also discussed how telephone interviews are preferred when social cues are less important, when recruiting through social media, and when travelling to the participants may be difficult. Accordingly, the researcher was not interested in social cues rather the experience the women would be verbally reporting, the researcher did recruit through social media, and as the women recruited were from different areas around the world the researcher encountered difficulty in travelling to conduct face-to-face interviews. Importantly, conducting semi-structured telephone interviews proposed less danger to both interviewee and researcher: no highly confidential information was disclosed (Novick, 2008; Sturges & Hanrahan, 2004) and interviews were conducted in a place appearing safe to both of them.

The researcher also produced a flexible open-ended interview topic guide including open-ended questions, this included planned prompting to help elicit the experiences being reported (see appendix 6). This allowed enough flexibility for pre-planned as well as unexpected topics to be discussed and the establishment of enriched and appropriate response's (Thomas, Nelson, & Silverman, 2015). It is referred to as a 'guide' because the interviewee could respond openly in any way they wanted to, and the questions on the guide did not have to be asked or strictly followed (Denzin & Lincoln, 2011; Reeves et al., 2008). A limitation to the open-ended questions used in the interview, however, is that there was a possibility to gather irrelevant data (AbuSabha, 2013). The researcher, nonetheless, acknowledged this limitation and reduced its occurrence by using active listening.

Active listening is where the researcher deliberately searches within a person's response to a question and then asks them to expand upon something that is considered relevant in their answer (Hassan, 2012). This was achieved by the researcher engaging in the use of verbal probes such as "can you explain what you mean by this?", "can you give me an example?". The researcher also took notes of any key phrases or words that the interviewee had said that appeared relevant to the study, they were asked to expand upon them where possible. Additionally, the researcher also ensured the interviewees could answer the questions they were asked within their own time and at their own pace: any silences were seen by the researcher as a thought process and thus was not disturbed until it had been prolonged long enough to ask a new question. Whilst these attributions helped to elicit further information about their experience it also reinforced that any information appearing to be discomforting to the women was not probed upon and no information was omitted (Liamputtong Rice, 2009).

3.3.2.1 The interview process

Prior to each semi-structured telephone interview, the women were asked to be in a comfortable environment with an ability to talk openly about their individual experiences. In order to achieve professional rapport between the researcher and interviewee, the researcher asked the women if they had any questions about the interview and what the interview involved before the interview was recorded.

This helped to create a level of trust and therefore the likelihood of enriched conversation (Lune & Berg, 2017). The women were informed, again, about their ethical rights and gave verbal consent before the interview proceeded. The interviews were all digitally recorded using a dictaphone recorder and the question "is there anything you want to share about your experience that may have not been mentioned?" was utilised within each interview to ensure the experiences reported were realistic as possible and did not omit information deemed important to the women. The details of the women's individual characteristics such as their age and socioeconomic backgrounds were identified after the interviewee felt they had nothing left to share about their experience - this reduced the researcher forming preconceptions about them.

After each interview, all participants were informed, again, regarding their ethical rights and how their interview would be used within the study; the researcher also provided gratitude towards their contribution to the research. This was important in minimising any distress the women may have possibly incurred as they had just revealed information about their pregnancies. The women were also informed that they could still ask the researcher questions about the present study even though the interview had just been conducted. The interview data that had been collected was anonymised immediately by removing any material that could identify them this included: the audio recording being immediately stored on the researcher's personal computer - being only accessible to the researcher - and removing the audio recording from the dictaphone recorder; the use of use of pseudonym to protect identity was effective immediately as the audio recording was placed under a different name (for example Jade would be referred to as Naomi).

3.3.3 Interpretative phenomenological analysis (IPA)

Larkin et al. (2006) suggest IPA researchers must approach a data set with two aims in mind. The first aim is to try to understand their participant's world and to describe 'what it is like'; it is a psychologically informed description that is coherent and closest to the person's view as possible. The second aim is 'sense-making' in that the research shows how that person made sense of the experience they had. This often involves the researcher asking themselves what does this mean to that person - and not just basing their views on their interpretation alone (Smith, 2011). Notably, these aims were referred to constantly

whilst analysing the interview data in this study. A description of how the researcher utilised IPA is as follows.

The five interviews were transcribed verbatim producing five individual interview transcripts. These transcripts were anonymised, formatted with numbered lines and pages, and margins were widened. The analytical procedure was guided by the work of Smith et al. (2009) who describes how researchers should effectively utilise interpretative phenomenological analysis (IPA) when investigating social inquiry. The specific steps of IPA followed are summarised below. It is important to acknowledge that IPA involves a case-by-case approach (Larkin et al., 2006) meaning the procedure reported from step one to four below was undertaken with each transcript individually before analysing the transcripts as one individual case as explained in step five. This IPA procedure has also been simplified thus further reading is required to fully understand the analytical method (Alase, 2017; Fade, 2004; Harper & Thompson, 2011; Smith, 2017).

Step one – Familiarisation: The researcher read and reread transcripts several times and also listened to the audio-recordings of the interviews to enable oneself to become immersed and familiar with the experience's that had been reported (Liamputtong Rice, 2009).

Step two - Forming notes: Utilising line-by-line coding the researcher highlighted and/or circled information in the transcripts that were repetitive - such as phrases and comments – and appeared of significance – such as small sections of the transcript that distinctly captured the women's experiences or appeared meaningful to the women. This highlighted information was then utilised by the researcher to make comments and form interpretations. The researcher's interpretative notes were located on the left-hand margin of each transcript (Larkin et al., 2006).

Step three - Identifying themes: This stage involved converting the researcher's interpretative notes and highlighted information such as the keywords and phrases (Larkin et al., 2006) into emergent themes. This meant not only did the emergent themes capture the essence of what the women had said -

with the correct method use of IPA (Smith et al., 2009). The emerged themes were noted on the right-hand margin of the transcripts as they occurred chronologically.

Step four - Clustering themes: This stage involved searching for consistencies across emergent themes and forming clustered themes according to their interconnections and identifying convergences and divergences. Superordinate (major) themes and subordinate (sub) themes were identified and less rich or unimportant themes were disregarded to ensure optimum analytical quality (Smith et al., 2009).

Step five - Identifying patterns across all five cases: Once all five transcripts had been analysed individually using steps one to four, and emergent themes had been identified within each, the researcher searched for consistency and significances across all five cases. This process involved the establishment of new superordinate and subordinate themes and also the reconfiguration of themes (Smith et al., 2009). This stage of analysis allowed the researcher to make sense of the participants' experiences collectively but also maintained the integrity of the participants' own individual experiences (Smith, 2017).

3.3.4 Reflexivity

According to Sandelowski and Barroso (2002), excellent qualitative research involves researcher reflexivity. They state that research reflexivity is where the researcher has an ability and a willingness to acknowledge that they have a potential to influence their research findings - such as identifying that their own beliefs, experiences, perceptions and history may have an impact upon the process and outcomes of their research inquiry (Etherington, 2004). Researchers who are reflexive are suggested to increase transparency and enhance the rhetorical power of their study's (Brocki & Wearden, 2006). In accordance, the researcher in this study had previously been physically active during pregnancy and this experience may have affected the way in which they viewed the subject matter. For example, the researcher had preconceptions that being active during pregnancy was: beneficial to mother and baby; would provide women with positive experiences of pregnancy; that it has a positive impact on labour – such as reducing duration - and that being active during pregnancy would increase the likely hood of

vaginal delivery of the baby with less or no pain relief and medical assistance. These preconceptions formed by the researcher were based upon their own experience.

Given the fact the researcher had formed these preconceptions, it was considered important to minimise the effect of these preconceptions or biases the researcher had so the findings of this study reflected what the women were saying and experienced, and not the researchers own experience or views (Allen-Collinson, 2009). It is important to acknowledge that researchers cannot completely set aside their beliefs and pre-understandings (Tuohy, Cooney, Dowling, Murphy, & Sixsmith, 2013), however, they can minimise the effects they have on their research.

Bracketing is a method used by qualitative researchers to minimise the potential effect their preconceptions could have on their research process (Tufford & Newman, 2012). A researcher can achieve bracketing by adopting an open mind whilst at the same time reflexively restraining their preconceptions (Finlay, 2008). However, according to McConnell-Henry, Chapman, and Francis (2009) bracketing cannot be established in interpretative phenomenological research - such as this study - as the researcher forms part of the research, in other words, the researchers own views and interpretations contributes to the research findings and outcome. Alternatively, Tuohy et al. (2013) suggest bracketing can be used in interpretative phenomenological research because, firstly, nobody can avoid being influenced by their own beliefs and understandings completely, and secondly, the aim of bracketing is to be aware of preconceptions and recognise how they may influence our understandings of a phenomenon and thus how we interpret something. Accordingly, the researcher in this study acknowledged that her own beliefs, experiences and preconceptions could have potentially impacted upon the study - regardless of the interpretative element IPA entails. The researcher therefore attempted to be reflexive by: firstly, writing memos throughout data collection and reflecting upon their own engagement with their data (Cutcliffe, 2003); secondly, inviting other researchers to validate their interpretation and uncover any potential preconceptions and biases which could then be reassessed or assembled if necessary (Rolls & Relf, 2006; Rowley, 2012); finally, the systematic use of a field journal was used by the researcher to record their impressions during data-collection (positively and negatively) which encouraged reflexive

practice. It was also an effort to 'bracket' the researcher's preconceptions and any apparent subjectivity they may have had (Mantzoukas, 2005).

In summary, the reader should acknowledge that the women in this study were not aware of the researcher's previous experience of being physically active during pregnancy. This ensured that there was no opportunity for the researcher's own experience of the phenomenon to be discussed within data collection. In addition, because the women were unaware of the researcher's previous experience of the phenomenon, the women in this study took the role of a teacher and therefore the researcher took the role as their student. To explain, the five women in this study were provided with the idea that the researcher had not experienced physical activity during pregnancy and wanted to learn about it, and their job was to teach the researcher about it (Flick, 2014). Alternatively, the research could have informed the women that they had also experienced physical activity during pregnancy, which possibly could have encouraged more open answers to questions. However, had the researcher have told the women, this may have caused them to become hesitant in how they answered questions – such as worrying that they may contradict the researchers own experience. The researcher would have also risked the interview content evoking and exploring their experience rather than the women's. In summary, the researcher decided not to tell the women so the interview data only evoked and explored their experiences and so the women could speak freely without hesitation.

3.3.5 Ethics

It is now a commonplace for all research plans to be approved by a research ethics committee. These committees will assess the research being proposed providing clarifications, modifications and in some cases prevent the research from being conducted (WHO, 2011). This study received ethical approval on the 21st March 2017 from the University of Huddersfield School of Human and Health Sciences Ethics Panel. This study was conducted ethically according to the following principles: the women were anonymised by the use of pseudonym to protect identity; they all provided written and informal consent; they could withdraw from the study immediately without any given reason - including before, during and

after the interview; the researcher aimed to do no harm and maximise the benefits and minimise the possible risks; the researcher ensured that all women understood their contribution to the research was entirely voluntary and were not obliged in any way to participate (WHO, 2011). All women were also provided with an information sheet (see appendix 3) and completed and signed a consent form (see appendix 4). The researcher also had to have a risk assessment/safety protocol in place before the present study was ethically approved (see appendix 5).

3.3.6 Research participants

The five women who volunteered, were eligible and provided written consent participated in the current study. These women ranged in age from 24 to 36 (Mean = 31.6, SD = 5.1). Two women were primiparous and three were multiparous. Two women were teachers and three were self-employed. Their countries of birth ranged from New York (1) to Canada (1) and the UK (3) and all women were physically active prior to pregnancy. The Individual women's biographies are described below in table 2.

Table 2 Biographies

The five women's individual biographies

- Clare:** Clare is a 36-years-old woman who lives in Atherton in America but was born in New York [United States of America]. She mentioned taking part in a variety of exercise activities including rock climbing, cardiovascular activity and yoga throughout her pregnancy. She described her experience in detail providing explicit examples. She discussed her passion for rock climbing describing the activity as something important to her; she also shared her knowledge about physical activity in general. Clare's job role at the time of interview was teaching within a technology department of a school, she was 2 weeks postpartum from having her first child [a baby girl] and her interview lasted 40 minutes in length.
- Lillie:** Lillie is a 24-year-old health and fitness coach online. At the time of the interview, she was 3 weeks postpartum from having her first child [a baby boy]. Lillie lived in the UK and emigrated to the United States of America (USA) a few years ago. During the interview, Lillie stated how being physically active was important to her. At the beginning of the interview, Lillie spoke with a nervous tone but as the interview progressed, she spoke more confidently as her nervous tone reduced and disappeared. She took part in a variety of exercise activities in her pregnancy including cardiovascular activity, yoga, gymnasium, home-based workouts and physical activities such as outdoor walking. Her interview lasted 35 minutes in length.
- Chloe:** Chloe is a 33-year-old woman who lives in West Yorkshire [UK] and has 2 children (2 girls – aged 2 years and 6 weeks old). During the interview, Chloe spoke about her experience of exercising in a gym facility during her pregnancy. The gym classes she attended ranged from boxing to cardiovascular activity and body combat - gym instructors taught all these. She described how the gym instructors affected her experience stating how they helped her remain active through her pregnancy. She also reported walking often and at the time of the interview she was 6 weeks postpartum. Chloe made a comparison of her active pregnancy to an inactive pregnant woman at
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her workplace explaining the known differences in their experiences. She also described being physically active in both of her pregnancies, describing both of these experiences. Her interview lasted 1 hour and 15 minutes in length.

Amelia: Amelia is 36 and has had 3 children [2 boys and 1 girl – aged 10 weeks, 5 and 6 years old]. She was physically active throughout all three of her pregnancies and stated how physical activity was important to her. Amelia lives and was born in Canada, Cochrane [North America] and her occupation is working from home as an online fitness coach which she maintained throughout her pregnancy. At the time of the interview, she was 10 weeks postpartum. Amelia shared her experiences of all three of her pregnancies throughout the interview. Her interview lasted 50 minutes in length.

Mia: Mia is 29 years old, has 2 children [a 2 years and 6 months old], and currently living in London [UK]. At the time of the interview, she was 6 months postpartum. In her first pregnancy, she was physically inactive and in her second pregnancy, she was physically active: she compared both of these pregnancies. During her second pregnancy, she participated in routine exercise taught by her personal trainer in the gym: this ranged from treadmill, weight lifting and circuit workouts. Mia occasionally went walking and maintained her work as a self-employed network marketer. Her interview lasted 50 minutes in length.

Chapter 4 Findings and discussion

This chapter reflects and discusses the findings of this study. It provides a detailed presentation of the master superordinate and subordinate themes generated from the IPA conducted by the researcher, and then a discussion of the over-arching theme is provided. The women's own words are used to illustrate the themes found, retaining the voice of each woman's personal experience. The researcher provides a discussion alongside these direct quotes so that the reader has the opportunity to understand how the researcher formed their interpretation (Pietkiewicz & Smith, 2014). It should be evident to the reader that the themes found in this study often overlap and interconnect. Three master superordinate themes and seven subordinate themes were generated (see table 3 below).

Table 3 Master superordinate and subordinate themes

	Superordinate (major) themes	Subordinate (sub) themes
		
<p>Overarching theme: Maintaining a sense of control over their body whilst balancing this with the responsibility for their baby and their own well-being.</p>	<ol style="list-style-type: none"> 1. Listening to my body to know what to do 2. Experience of control over my pregnant body 3. Feeling judged for being active in pregnancy 	<ul style="list-style-type: none"> • Listening to their bodies: “your body gives you signs” • Modifying themselves and their activities to accommodate their pregnant bodies: “I would kind of create my own way to still do my activities” • Feeling better: “I just have that gut feeling like I think the training helped me not have the nauseous feeling” • Feeling like they were preparing their body for labour: “sometimes when you carry on with your exercise it’ll help you in labour” • Having a sense of control on how their bodies performed during labour: “it’s [labour] almost like an intense workout [laugh]” • Controlling the way they felt about themselves: “I never really felt that whole like “oh, I’m soooo fat”” • Managing the judgement: “oh I hope we don’t have to call the ambulance for you today”

4.1.1 Listening to my body to know what to do

This superordinate theme was developed because the five women in this study identified how they used their body as an information source to make decisions. They learnt to feel their pregnant body through sensing and moving: this somatic awareness enabled them to maintain their physical activity participation.

Three subordinate themes were identified that contributed to an understanding of this experience:

listening to their pregnant bodies; modifying themselves and their activities to accommodate for their pregnant bodies; feeling better.

4.1.2 Listening to their pregnant bodies: “your body gives you signs”

All five women explained that they listened to their body when making physical activity decisions during their pregnancies. Their own bodies were reported as an important informational source often dictating and evidently impacting their physical activity choices: “no matter what, no matter whether it’s a midwife, a doctor, anybody... you know your body best - especially when you’re pregnant, like you know... trust your instinct” (Mia). It appeared that the women envisioned that their own body had a voice and that voice was being listened to through the bodily sensations they experienced, such as their perceived energy levels, tiredness and nausea severity: “your body gives you signs if you’re doing too much” (Chloe); “I just had to listen to my body and how it was” (Clare).

They utilised their bodily sensations as signposts - syphoning information from them -, which directed them towards the correct conduct regarding their physical activity participation (when to stop, cease, continue or even abandon). Listening to their own bodies appeared to be important to these five women because the bodily sensations they experienced were positive and negative: they were also time and context-bound as they could “change daily” or even “in moments of the day”. By listening to their own bodies, these women provided themselves with an inner sense of security - the activities they participated felt safe, suitable and realistic to their own bodies:

“I really listened to my body and what it was telling me as far as how hard I should be pushing [...] I mean some days I skipped workouts because I didn’t, just physically you just can’t do it, you just have to listen to your body [...] like if it needs sleep you give it sleep and by the next day you’re maybe feeling a bit better” (Lille)

“I just always had in my head that I will always just listen to my body and if I felt like my body could train, and it could run on the treadmill and it could do weights then I would do it. At any point if I felt like this doesn’t feel right, or I don’t feel right, or if I was, y’know? becoming too tired, or I just generally really didn’t want to train anymore then I would listen to myself and I would stop” (Mia)

The women in this study all stated that they listened to their own bodies when making physical activity decisions - such as whether to adjust, continue or desist. Women in previous studies have also described listening to their own bodies during pregnancy in order to make health-related decisions (Currie et al., 2016; Evenson et al., 2009; Fredriksen, Moland, & Sundby, 2008; Groth & Morrison-Beedy, 2013; Hegaard et al., 2010; Mansfield, 2008; Walker, Mills, & Gilchrist, 2017) demonstrating the trustworthiness of the five women's voices. These women put trust in their own bodies and listened to it: if their body felt ok then they perceived the activity to be ok and continued; if the activity felt wrong to their bodies, they ceased it - "the strain was on my belly... erm... so I had to stop doing that [the physical activity]" (Clare) - or adapted it until it felt right. Fredriksen et al. (2008) suggest that pregnant women should listen to their own bodies in order to ensure the actions they undertake throughout their pregnancy are suitable to themselves – and evidently, they did this.

These women's experiences suggest pregnant women who are debating or are unsure about participating in physical activity should trust themselves (Mansfield, 2008) and "listen to their body": for instance if a form of physical activity feels pleasant then keep going, if it is uncomfortable then stop (UK Government, 2018). According to ACOG (2015), breathlessness before or following minimal exertion, chest pain, muscle weaknesses, dizziness, chest pain and headaches are all warning signs given by the body which indicate when physical activity should be discontinued during pregnancy. In conclusion, listening to the body was a significant concept of the five women's experiences because it made them feel safe when performing physical activity and if the activity felt ok to their body, it reassured them that it was ok to continue.

4.1.3 Modifying themselves and their activities to accommodate their pregnant bodies: "I would kind of create my own way to still do my activities"

The pregnant women in this study were all physically active prior to pregnancy, and did not want to stop being active just because they were pregnant: "I didn't wanna give up training" (Mia). They wanted to "be able" to continue even if that meant adjusting the way they performed their activities: "so instead of just

saying ... oh, I can't do this ... being able to take the time to find another way to do it and be like... oh no, I was able to do it" (Clare); "to be able to still move even if I had to modify" (Amelia). When faced with difficulty upon continuing their activity participation - such as nausea, hip pain, light-headedness and alternated balance – they refused to cease their activity. Accordingly, instead of viewing any difficulties they encountered as barriers, they saw them as challenges that they would overcome by their own modification (they adjusted themselves or the activity in order to continue):

"I really switched to kind of calmer things just for the sheer fact that, I mean, I'd be working out, running and all that, and I literally threw up because I wasn't feeling well, so, first trimester was pretty rough and I found the lighter workouts a lot more doable" (Lillie).

"maybe if it's making you go a bit "oooo" as you get up erm you shouldn't be doing it, do the ones where you just do some squatting rather than a burpee and down to the floor. Erm, but little things like that you just think right now's the time to do the adaptations". (Chloe)

Clare provided a detailed example of modifying the use of a rock-climbing wall and overcoming bodily challenges in order to maintain physical activity participation:

"so in my pregnancy as my belly became bigger... erm ... it became more of a challenge to figure out how to move my pregnant body, how to move my body up the wall but keep myself close to the wall as well, especially with this big belly. I ended up actually finding other ways to turn my hips into the wall... erm I found different ways to turn my feet, especially when my hips started hurting and I couldn't do splits as I used to. I would have to find other ways to use the foot positions that were still supportive. Erm ... one thing I got particular better at when I was pregnant is called smearing, normally I would put my foot on a wall giving me a foot hold but to get into the position the more pregnant I got the less I could do that, so I would kind of create my own way to still do my activities" [Pause] (Clare)

Chloe was the only one of the five women who highlighted an external source (gym instructors) to also have some impact on her activity modifications:

"I felt quite confident that they [the gym instructors] knew what I should and shouldn't be doing [...] they'd say, "you are doing this alternative", like "you need you to do this" sorta"

One time the gym instructors did not inform Chloe on how to modify physical activity, this led to Chloe becoming unconfident and apprehensive about continuing that activity:

"I don't know whether she'd forgotten [I was pregnant] or she was just busy or whatever, but throughout that whole class she didn't tell me when to adapt the exercises [...] that'd be the only time I did feel a bit nervous"

During pregnancy, women's bodies incur changes (Earle, 2003). These changes - such as increased respiratory rate, the development of a baby bump or nausea - are likely to be bothersome and intrude upon their daily activities (Rodriguez et al., 2001). Although the five women's bodily changes did interfere with their physical activity participation, they managed to maintain activity by modification – they did the same activity but in a different way. For example, they adapted either the frequency, intensity or duration of the activity itself, or they altered their own body within the activity, such as altering their limb positioning and bodily movements. Modifying their physical activity in various ways appeared to enable these women to continue being active: without activity modifications, they may have not been able to overcome the bodily challenges they encountered and thus ceased their activity. The requirement of modifying physical activity to continue being active in pregnancy has also been reflected by previous researchers who have investigated women's experiences of being physically active during pregnancy (Bennett et al., 2013; Bennett et al., 2017; Hegaard et al., 2010).

Whilst modifying physical activity was important in remaining active during pregnancy for the women, their ability to modify their activities appeared to be influenced by their level of self-efficacy - this has also been found by Hegaard et al. (2010) and Hinton et al. (2001). To elaborate, it appeared four of the five women (Clare, Amelia, Lillie & Mia) had high levels of self-efficacy: they had the self-confidence to make their own activity modifications throughout their entire pregnancies (Cramp & Bray, 2009). Feltz, Short, and Sullivan (2008) explain if these four women would have had low self-efficacy levels, they would have been likely to cease their activity participation. This is because low self-efficacy is considered a personal barrier in adopting health behaviours (Schwarzer, 2014), specifically during pregnancy (Cramp & Bray, 2009).

On the other hand, Chloe was interpreted to have lower self-efficacy levels than the other four women: she was not always confident in making her own physical activity modifications - however, she was still able to continue physical activity participation. It is possible that this is because she had more confidence in the gym instructors to make activity modifications than she did in herself. If Chloe did not have the help of gym instructors in her pregnancy it is likely she would have found participating in physical activity more

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difficult: “I probably, well I certainly wouldn’t have carried on with going up until ... like I say just before I had my baby. I think I would have stopped sooner”. Chloe’s experience suggests pregnant women require the opportunity to connect with those who work in the physical activity industry (such as gym instructors and personal trainers). This is because – as demonstrated in Chloe’s account – it has the potential to allow pregnant women to learn how to modify physical activity appropriately, and to participate in physical activity without being apprehensive of whether it is being undertaken correctly or not. Similarly, Currie et al. (2016) suggest women need to be better advised about modifying physical activity during pregnancy, as this could be a significant influence upon them continuing or becoming physically active.

4.1.4 Feeling better: “I just have that gut feeling like I think the training helped me not have that nauseous feeling”

The five women in this study experienced negative bodily symptoms during their pregnancies that differed day-by-day and often inhibited their physical activity participation. However, these women overcame these symptoms by doing what they felt physically capable of in the times they experienced them: “during the first trimester I was very nauseous so erm I would do what I could during that time [laugh]” (Amelia). This highlights that the women in this study were subject to activity restrictions. However, they recognised that their symptoms changed in severity - “my body is having a bad time right now, but it’s not always gonna be that way” (Clare); “even though I was being sick I could still go to the gym like it wasn’t all the time” (Chloe) - and this aided them in continuing their activity participation as they never felt completely incapable of being active. On some occasions, these women persevered with their symptoms, choosing to be active irrespective of how they were feeling: “like I wouldn’t always have the energy to do it. Erm... it was sort of like the first few minutes sucked [...] like the first five minutes would be awful and then, erm, then it would get better” (Clare). These women appeared to always be optimistic in their capabilities and believed physical activity would benefit their body - “I just have the theory that if you give your body what it wants, it will repay you” (Mia) – therefore they chose to be active and had a willingness to do so.

In addition, following their physical activity participation, they all experienced alleviated bodily symptoms. Each woman in this study experienced different bodily symptoms throughout their pregnancy; however,

they all made the connection between the reduction in their bodily symptom severities and their physical activity participation:

“if I hadn’t of been training I’d of felt nauseous a lot more like I did with my first pregnancy [inactive pregnancy]. Yeah I dunno why I just have that gut feeling like I think the training helped me not have that nauseous feeling” (Mia).

“I really struggled with Charlie horse pains [muscle spasms], I think that is what you call them, where it’s a really sudden sharp pain mainly in your feet or legs so moving around really helped keeping them away ... so I didn’t really feel them whilst keeping active even a sore back, my feet swelling, things like that just staying active helped them all like they wasn’t as sore or didn’t swell as much” (Lillie)

“the heart burn, for example, if I got too a deep squat and put my arms up high on the wall and I kind of lifted up with my chest open, then it gave me a lot more room in my upper rib cage and that cleared up a lot of heart burn for me” (Clare)

A bodily symptom which all five women did experience that they each deemed to have been positively affected by physical activity was their “energy”:

“I’m a teacher so I came into school sometimes and I’d feel shattered and I’d be like [sigh] I’ve got loads of school work to do, but then after I’d go to the gym and come home n I’d feel like ... I’ve got loads of energy, I feel loads better, I feel like I can start again, like I can do my school work” (Chloe)

Research reports that women may experience a variety of bodily symptoms during pregnancy which can differentiate in severity day-by-day and change in unpredictable ways (Bergbom et al., 2017): these can be debilitating for pregnant women (Chien & Ko, 2004). Accordingly, if the women in this study felt they had no energy, over-fatigued, or were too tired or nauseous then they would abandon physical activity or reduce the intensity at which it was performed – this has also been found by previous researchers (Duncombe, Wertheim, Skouteris, Paxton, & Kelly, 2009; Marquez et al., 2009). These women also recognised that their negative bodily symptoms would disappear or reduce in severity. During the periods of reduced severity, they would participate in physical activity: “so on the days when I wasn’t feeling as nauseous, or in the moments of the day [laugh] when I could fit it in [physical activity] and wasn’t feeling like nauseous I would go and workout” (Amelia). They are likely to have chosen to do this because physical activity was important to them and thus prioritised in their pregnancies: “it wasn’t something I

was willing to sacrifice” (Mia). Accordingly, the five women in this study reflect that being physically active in pregnancy may be about choosing to do so.

Similarly, Dishman, Heath, and Lee (2013) describe how personal factors can increase physical activity participation and also be potential mediators for people’s behavioural choices, for example, these women had positive cognitive variables including: a positive attitude; self-efficacy; an expected benefit; enjoyment and intention. These variables enhanced their likelihood of becoming active; remaining active; and feeling satisfied when active.

Moreover, sometimes the five women would persevere with their bodily symptoms they were experiencing throughout their activities. It appeared that by participating in physical activity it evidently shifted the women’s focus away from the negative bodily symptoms they were experiencing towards the management of their physical activity participation (external stimuli). They were able to escape their unpleasant body symptoms and focus their attention onto physical activity, an activity that they each deemed pleasant (Muraven, 2005):

“I know that if I had stopped working out erm that, that would have caused I think more pain to the body than if I had not continued [...] because I would have just stopped and so then you just focus on what’s not going well erm you kind of focus on ... I just know, for me, just kind of focusing on, not that I was injured, but erm I can relate it to a time when I had an injury not being pregnant but erm y’know? that’s kind of your focus ... an injury ... that’s all you can focus on and so you, like how you can’t do something because of an injury” (Amelia)

These women, following their physical activity participation, noticed their bodily symptoms had alleviated which provided them with an incentive to continue. Previous research reports that pregnancy symptoms such as lack of energy (Evenson et al., 2009), tiredness, fatigue (Symons Downs & Hausenblas, 2004), pains and nausea (Goodrich et al., 2013) can all be alleviated following physical activity participation (ACOG, 2002; Thompson et al., 2017). In summary, following and during their activity participation these women experienced control or alleviation of their bodily symptom severity – they all felt that physical activity made them feel better. In accordance, because being active made them feel better they viewed physical activity as beneficial to their bodies and this experience gave them the incentive to keep going.

4.2 Experience of control over my pregnant body

This superordinate theme demonstrates how the five women experienced feeling in control of their bodies - despite its pregnant state and the changes it encountered. The five women felt their sense of control was due to participating in physical activity – choosing to participate in physical activity made them feel in control of what their body could do and evidently, the way it felt. Three subordinate themes contribute to the understanding of this experience: feeling like they were preparing their body for labour; having a sense of control on how their bodies performed during labour; controlling the way they felt about themselves.

4.2.1 Feeling like they were preparing their body for labour: “sometimes when you carry on with your exercise it’ll help you in labour”

The women in this study thought about labour prior to experiencing it: from the beginning of their pregnancies, the thought of labour was ever present. Evidently, labour was one of the main reasons the five women choose to be active in their pregnancies. All women in this study wanted to give birth vaginally: accordingly, they each had the belief that by participating in physical activity, the likelihood of delivering their baby vaginally would be increased: “I mean the biggest reason was because I, I wanted to be physically fit for labour, erm, because it was important to me to have a natural childbirth” (Clare). All five women had the belief that being physically active would better prepare their bodies for labour, including the onset of labour and the baby’s positioning:

“It’s obviously proven that it [physical activity] helps the baby rotate head down, open up your hips, it helps blood er... blo... blood flow [laugh] continually go around your legs, reduce swelling of the feet ...just all this gets you kinda ready for labour” (Lillie)

“so I could feel her head on my cervix, and I wanted to encourage that pressure, to help dilate me, erm ... so that’s why I focused more on the squats, cause that definitely helped, and I forced more on the walking... and ... erm then the yoga, that I was doing, was focused on getting her in a good position for labour, so... yeah at that point it really wasn’t about being physical it was much about, how can I help my body open up” (Clare)

Some of the physical activities these women participated were also aimed at preparing their body for labour. Four of the five women, for example, believed that if they had strong legs or were “strong” that this would assist them in labour when they were required to “push” and give birth to their babies. Accordingly, they undertook a variety of leg strengthening activities including squats, leg presses and lunges to achieve this:

“I actually did, I did a lot more work with my legs during pregnancy than I did previously... cause erm ... cause I felt like having that leg strength was going to be very important in labour for pushing the baby out” (Clare)

“it would put me in good stead for labour like having strong legs and like having the resistance from the legs like obviously it works through the rest of your body when you’re pushing down on your legs and so I guess we thought that would probably help me in labour” (Mia)

“stronger legs help you push during labour and the whole pushing motion of labour” (Lillie)

“so I wasn’t as fatigued coming to the end and still being able to be strong to erm, to push” (Amelia)

Although Chloe did not refer to strengthening the legs to “push”, the strength of Chloe’s stomach muscle area - pointed out by a midwife - appeared to also impact upon Chloe continuing physical activity in order to prepare for labour. Chloe explained: “the midwife that was around me then said to me “you’ve got really good tummy muscles so that’ll really help you in labour and afterwards” and I thought that must be from doing exercise and I carried on doing it in that pregnancy”. Moreover, Lillie even thought about preparing and being strong post-labour: “strengthening your legs and definitely arms cause you’ve gotta hold the baby all the time when they get here [pause] you’ve gotta have strong arms too”.

During pregnancy, labour is often an unavoidable situation (Lundgren, 2005) which has the potential to increase stress levels amongst pregnant women - especially if they have not experienced it before. How women view themselves in managing their labour may impact how they deal with it (Monat, Lazarus, Reeve, & Duncan, 2007). According to Escott, Slade, Spiby, and Fraser (2005) women will usually implement coping strategies to deal with labour such as attending antenatal classes. In this study, the five women appeared to adopt physical activity as a coping strategy: they attributed physical activity participation as a way in which their bodies would be better prepared for labour. One particular physical activity they all participated in was resistance (strength) training. Schoenfeld (2011) states resistance training can provide a multitude of benefits for pregnant women and Hall and Kaufmann (1987) found

high levels of resistance training to have positive effects on multiple indices of a women's labour. Similarly, the five women in this study engaged in most types of resistance training including free weights, machines and body weight movement: they each deemed resistance training would help them during labour and suggested that it did. Conclusively, the voices of these women suggest that by participating in physical activity they felt like they had some control over the way their bodies would perform throughout the labouring process (Carlsson, Ziegert, Sahlberg-Blom, & Nissen, 2012) – ranging from their baby's positioning to the strength to push. Given the fact they felt positive regarding how their bodies would perform in labour, this appeared to reduce their stress levels (Monat et al., 2007) - they focused upon how they could prepare for labour, rather than fearing the experience of it.

4.2.2 Having a sense of control on how their bodies performed during labour: "it's [labours] almost like an intense workout [laugh]"

The women in this study utilised physical activity as a way to prepare their bodies for labour, and evidently felt satisfied with how their bodies performed within labour. They each described their labours as natural and short in length, which they attributed to their physical activity participation: "I think that what I was doing was super helpful because I ended up with a really short labour, I was, like laboured for 10 hours, and, erm... I had a really good positive experience ... it was drug-free ... and she came out really fast [laugh]" (Clare). They also described their labours being on or around their due date claiming physical activity to be partly the reason why: "I had my baby bang on my due date, he was due on the 22nd and he came on the 22nd but she [an inactive pregnant woman] was overdue, and she was going a bit crazy" (Mia). All five women were pleased and proud with the way their labours went and their body's physical capabilities throughout it, they did not refer to their labours negatively but in a consistent positive manner. These women enjoyed talking about their labour experience and appeared to have enjoyed the experience of it.

There was evidence in this study that physical activity did not only prepare these five women physically for labour but also mentally as well. Amelia, for example, shared the view that labour is a form of physical

activity within itself: “it’s [labours] almost like an intense workout [laugh]”. This mind-set appeared to help Amelia mentally focus during labour and deal with the labour contractions she was experiencing: Amelia envisioned that the labour contractions were intense exercise moves in a workout, which allowed her to manage her pain effectively:

“There’s some strength training programmes that I use that have the same erm personal trainer in the videos and erm so I always say like [laugh] “Oh he was there in the delivery room with me” I joke with my husband because I say like, y’know? you talk about doing an intense move in a workout and having to kind of really mentally focus and breathe through it erm and then the move is eventually over, and so that’s the sort of mentality I brought into the delivery room with me, erm, so I would, y’know? I knew the contractions would only last for a certain amount of time and so I just, I just envisioned that I was doing a move, y’know? in a workout and okay, yes it’s hard and its intense and ... it will eventually be over. So I just erm focused on things during labour on the things I would focus on during a workout... so just making sure I was focused and breathing and erm as well so I kind of connected [laugh] the two together [labour and physical activity] if that erm make sense [pause]”.

Although the other four women did not refer to labour as a form of physical activity, they did agree with Amelia that labour helped them mentally deal with their labour pain. Mia provides a good example of this by comparing her inactive pregnancy to her active pregnancy, her mental state, and the labour pain she experienced:

[in the inactive pregnancy] “I just lost my head. I really, really couldn’t deal with the pain. No matter how much people used to try calm me down, try to give me a bath... I just couldn’t deal with it, I just couldn’t. I couldn’t get my head in the right zone to deal with this pain and all I wanted it to do was stop [...] I got to the hospital and they could just about examine me because I was jumping off of the table, like I wouldn’t sit down I was constantly like “I NEED THE EPIDURAL, GIVE ME THE EPIDURAL!” [...]. Whereas with my son [active pregnancy] I just dealt with the labour very much better [...] I just felt like my head was in a better place to deal with them. They did [the contractions did] start to get really painful but then I would just count down the minutes they were lasting! [...] I had him at 3:46, 46 minutes after going into the erm hospital and I didn’t have any pain relief at all with him and I just felt like my body dealt with it a lot better”.

All five women also had quick recoveries after giving birth to their babies. They claimed physical activity helped them bounce back - “I think that [physical activity] does help you bounce back afterwards” (Chloe); “to see how quickly my body bounced back” (Clare) - and believed their recoveries may not have been as fast as they were if they had been physically inactive:

“I was walking down the hill to the park, then walking round the park, going to the super market, doing everything like normal like I was before. Erm, and other people were like saying “oh how do

you do it, I couldn't get off the sofa and I felt proper uncomfortable all the time" and I didn't!" (Chloe)

"I definitely know that if I hadn't been working out during pregnancy I probably wouldn't have recovered as quickly as I have, this fast [pause] erm, or even be out as often as I am now" (Lillie)

The five women in this study gave birth vaginally. They stated that they had short labours; gave birth on or near their due date; and recovered quickly – and they each indicated that physical activity was partly the reason for this. According to previous research, women who have been physically active during their pregnancy have also been found to have a reduced risk in having caesarean delivery and are more likely to give birth vaginally (Domenjoz, Kayser, & Boulvain, 2014). They are also likely to have shorter labours; recover quicker and have fewer neonatal complications as opposed to inactive pregnant women (Clapp, 1990). This supports the women's belief in this study that their physical activity participation affected their labour experiences and made it "easier" than if they had been inactive - they each indicated the belief that if they had been physically inactive they would have experienced a harder labour. Similarly, the study by Currie et al. (2016) has also found physically active pregnant women to attribute an easy labour to their physical activity participation. However, the authors also noted that some women had experienced labour difficulty despite being active suggesting physical activity made their labour "harder" - this does not correspond to these women's experiences. Therefore, further research may aim to understand the difference between active pregnant women's and inactive pregnant women's labour experiences further.

Corresponding with the findings of this study, pregnant women in other studies have also indicated the perception that labour is a form of physical activity - in Bennett et al's. (2017) study, for example, labour was described to be the "endurance event" and cycling the form of training for it. The perception that labour is a form of physical activity thus appears to be a motivator for some women to adopt physical activity through their pregnancies: "just as you would prepare for an athletic event, you should tone your body for birth" (Mansfield, 2008). The women in this study also made a connection between their physical activity participation and their ability to control labour pain. In accordance, a study by Dudziak and Guskowska (2013) compared the management of labour pain between physically active and inactive pregnant women. They found physically active pregnant women had stronger beliefs about personal control in managing labour pain - they believed in self-managing their pain - opposing to the physically

inactive pregnant women who were more likely to believe that external factors – such as medical assistance – played a more significant role in controlling their labour pain. In line with this study's findings, this demonstrates that physically active pregnant women may control labour pain effectively and internally. It also supports the belief of these women: they thought being physically inactive would have led them to opt for external focusses on pain control such as epidural and other forms of medical assistance.

4.2.3 Controlling the way they felt about themselves: “I never really felt that whole like “oh, I’m so fat”

Physical activity was a strategy utilised by each woman in this study to control the way they felt about their bodies, and to manage their feelings about the changes their bodies were subject to: “I knew my body was going to change in a lot of different ways, but the fact I could keep moving and have some kinda control over my body helped” (Clare). The women appeared to participate in activity, for instance, to have control over the weight they gained: “I just knew that if I stopped doing that [physical activity] just because I was pregnant it would have taken me ages to get the weight off” (Chloe). In accordance, they did experience feeling in control of the amount they gained and were happy with the amount they did gain – which they each attributed to their activity participation - of which led to a positive self-image: “I never felt the whole like “oh I’m so fat”” (Clare). Additionally, all five women experienced bodily satisfaction, again they felt that their physical activity participation contributed to this. However, the way the women reported this differed.

Chloe referred directly to the positivity she felt about remaining in pre-pregnancy gym clothes throughout pregnancy:

“as stupid as it sounds that even when I was pregnant that I could still fit into my normal gym gear, yeah it was stretched and everything but I could still fit into stuff, even right at the end so it kinda makes me think yeah do all this exercise and keep on going and it’ll just keep my body fitter, like don’t put on as much weight. I don’t know that did make me feel better”

Amelia and Mia referred to feeling positive about their appearances. Each indicated that they had a reduction in body dissatisfaction and self-consciousness which they attributed this to their physical activity participation:

[when you're inactive] "well, you get so achy and kinda frumpy [dressed in an unattractive way] and low energy so I guess after a workout I would feel more accomplished and less frumpy I guess [laugh]" (Amelia)

"it was just like erm like a confidence boost as well the fact that like erm, y'know? you're pregnant, you're only gonna get bigger but you're still like looking after yourself and I just felt like I really like erm, with my first pregnancy [physically inactive pregnancy] I was worried about y'know? putting on weight and what I'm going to look like and I felt quite like conscious of myself erm but with my second pregnancy [physically active pregnancy] I did not feel like that at all like I actually appreciated what my body was doing and even the fact that I had a baby inside of me" (Mia)

Clare and Lillie spoke about their ability to maintain their muscly physiques. This led to a positive view of themselves because regardless of pregnancy, they were able to maintain their muscularity:

"it was kind of nice to see that I could maintain muscle tone while my belly was getting huge. Erm ... and so I never really felt that whole like 'oh I'm, I'm so fat', like I never really felt that in pregnancy [laugh]. I just was really, really proud of my belly and really proud that the rest of me pretty much stayed its normal toned way" (Clare)

"So I kinda saw it as daily, do small types of exercises to keep and maintain my muscle mass" (Lillie)

Research suggests throughout the duration of pregnancy women may reflect on their body image (Fuller-Tyszkiewicz, Skouteris, Watson, & Hill, 2013) due to the physical changes it encounters or has encountered (Skouteris, 2011, 2012). The pregnant women who find this reflection difficult are likely to experience body image disturbances. The body image disturbances pregnant women may experience can occur in several forms such as: having a perception of fatness; fear of their body being judged negatively by others; or negative body consciousness where they will consistently check their appearance for fault (Jarry & Ip, 2005). However, the women in this study did not experience any body image disturbances and were satisfied with their own bodies. They felt happy with the way they looked and they also felt in control with the way it changed – they each felt this experience was because of their physical activity participation. Similarly, and in support of the womens voices, the Royal College of Obstetricians and Gynecologists (RCOG) (2006) advocate physical activity as a way of adjusting and controlling body changes that women encounter during pregnancy which can lead to higher levels of self-esteem, often incorporating a more positive view of oneself (McDonald et al., 1992).

Previous research has also shown how physical activity during pregnancy can help women feel more satisfied with their own bodies (Bennett et al., 2013); be in control of their bodies; have a positive self image (Hegaard et al., 2010) and feel more confident about their bodies, generally feeling better within themselves (Currie et al., 2016). Accordingly, the five women's voices suggest that physical activity helped them feel in control with the way they felt about themselves, they experienced a reduction in body dissatisfaction and self-consciousness and an increase in body satisfaction which they attributed this to their physical activity participation.

4.3 Feeling Judged for being active in pregnancy

These women felt judged by others because they had decided to be active in their pregnancy. One subordinate theme reflects this experience: managing the judgement.

4.3.1 Managing the judgement: "oh I hope we don't have to call the ambulance for you today"

The women in this study experienced social judgement upon their decision to be physically active during their pregnancies: "people were like "oh, you're crazy! you're going to the gym while you're pregnant?!" and "I can't believe you're doing it!"; "I would get like 20 jokes said to me like if I was lifting weights guys would be like "oh I hope we don't have to call the ambulance for you today" they were like "you're in the gym lifting weights?! ... hope it doesn't bring on your labour" (Mia). The women in this study were made to feel like they were in the wrong for choosing to participate in physical activity during their pregnancies, that it wasn't safe, and the right decision would have been to cease their activity: "like people close to me kept saying "you shouldn't be doing it [physical activity]" (Chloe); "I experienced some negative comments and stuff from people, saying that y'know? "are you sure that's safe?" erm... "are you sure you should be doing that?" things like that" (Lillie).

However, the five women each discussed that the negative judgement upon being physically active during pregnancy only exists because of people's failure to understand its benefits and the purpose of it. Either they have a lack of knowledge about it or they base their interpretations upon outdated knowledge: "I think that honestly, it's just the lack of knowledge on their part" (Lillie); "they kinda had the old wife tale kind of thing that like once you're pregnant you have to stop everything, an, don't be pro-active and all that kinda stuff" (Chloe).

Clare was the only one of the five women that indicated that the knowledge that does exist around pregnancy in general is focused on what pregnant women cannot do (an arche of "can't"):

"When I hear about pregnancy anyway, well most people that hear about it... it sounds like it's this arche of, y'know? can't, and that things start to get worse throughout, and then you're miserable by the end of the third trimester, and you just wanna get the baby out of you [...] I don't know why I felt differently, I don't know if it is because of the amount of physical activity I'd been doing and kept up a good diet... but ... erm... it's kinda hard to say. It could also be that it's not as bad as people say but ... erm ... I'd say arche is when you look at jokes and forums on the internet and people talk about pregnancy, they make it sound like it's this really hard thing and how pregnant women 'can't' do things" (Clare)

In addition, all five women overcame the judgement they received, but each of them did this differently. Amelia, for example, followed her own beliefs and knowledge about physical activity. Amelia appeared to have read into the subject and acknowledged opposing viewpoints, but evidently perceived physical activity in pregnancy as more beneficial than harmful:

"There's a lot of mixed reviews out there [about physical activity during pregnancy] and I think there's a lot of stuff, I don't know if it's like ... our mums telling us that 'no we are not supposed to workout during pregnancy', erm but there's a lot of positive benefits to it [physical activity]"

In the same way, Chloe trusted herself over any other information or knowledge she was provided with, and felt satisfied when she proved wrong those who said she could not do it:

"I just stuck to my guns with it"; "So it's kinda changed their minds because they were telling me not to but now they realise actually it does do you a lot good. [...] I kinda felt with them abit like "I told you so". They'd kept saying to me "oh! you shouldn't be doing all this, slow down abit, just

finish work and stop going to them gym” and I’d be like “no! I’m fine, I’m fine” cause I did honestly feel fine in myself”

Lillie stated routine was the reason she was able to overcome judgement: the fact that physical activity was embedded in her normal everyday life provided her with the ability to continue to be active in the face of the negativity surrounding physical activity in pregnancy:

“Definitely routine, like I said just like routine, erm, y’know? it’s kinda just what I do daily so it’d be weird for me not to do it [pause]”

Mia was determined to prove that she was capable of being active irrespective of what others thought:

“even though you’re pregnant it doesn’t mean that you’re like y’know? disabled or too fragile to do anything erm, yeah it just pushed me to make me feel like I didn’t have to feel like I had to wrap myself up in cotton wool when I was pregnant [...] like I didn’t like treat ... it made me realise that your body isn’t as fragile as people think it is when you’re pregnant [pause].” (Mia)

Similarly, Clare wanted to feel capable and by participating in physical activity, she stated that it made her feel “less like a cripple [laugh]”. Evidently, she did not want to use her pregnancy as an excuse to not do anything, rather she wanted show that she could still do things:

“I do see women near the end of the third trimester, saying ‘okay, we are done, get this baby out of me, I can’t do this anymore’.... erm ... I just never had that experience, and I do, personally, I do think the exercise made the difference, so because I kinda kept moving, so I never kinda gave in and laid around waiting for the baby to show up”

On the other hand, all five women were concerned for their baby, which was in agreement with their society’s beliefs: “I also didn’t wanna put me or the baby in jeopardy” (Mia); “they were concerned for our safety” (Clare). However, again, these women’s knowledge enabled them to continue their activity participation - “the risk of injury of top roping in a gym environment is very, very, very low... erm ... when you compare it to other sports or other activities ... you’re at risk even when like you’re riding in a car or flying on a plane” (Clare). In addition to the role played by knowledge in enabling the women to continue activity, Chloe provides a good example of how modifying physical activity also enabled them to continue activity through pregnancy:

“you’d say to yourself... like my belly was jiggling up and down a bit too much and it’s like ... Oh! there’s a baby in there. I don’t think ... I shouldn’t really be doing that. So then I’d do half star jumps [instead of high impact star jumps] just to the side so erm it just felt more comfortable and I wasn’t, I didn’t worry that I was jiggling about too much [...] obviously you don’t wanna do that cause you don’t know if you’re doing any damage to your muscles and things like that or I think I suppose I was even worried about damage to the baby which I’m sure it wouldn’t [...] I wouldn’t have wanted to do anything that would’ve meant I could’ve put the baby in jeopardy, I don’t know if like I could have punched the baby in some way or anything like that so if I thought that what I was doing was having any impact on her I would’ve stop straight away. So yeah that’s also sort of why I adapted the exercises as well because that’s like if I was moving and doing too much I didn’t want to harm her” (Chloe)

The women in this study experienced negative judgement around their decision to be physically active during their pregnancies: this has also been experienced by other women in other studies (Bennett et al. 2013; Bennett et al. 2017; Currie et al. 2016; Evans et al. 2016; Heegaard et al. 2010). When people saw these women being active - or heard they were being so - they would often discourage them (Krans & Chang, 2012; Mullinax & Dale, 1986). The majority of the information these women received was focused upon “a very, kind of, can’t nature” (Currie et al., 2016) or was based around safety concerns. There was even indication that others saw pregnancy as a disability. However, the women in this study did not want to be viewed as disabled; rather, they wanted to “prove” they were not, and that their pregnant state did not mean their physical capabilities were impaired. It appeared that, alongside the desire to prove they were capable of doing it, the knowledge they possessed about physical activity generally, and the known benefits they knew physical activity would have upon their pregnancies, helped them to manage the criticisms they encountered – and to overcome them. Notably, these women did, however, pay attention to the criticisms they were experiencing and often incorporated safety precautions into their physical activity if they felt it was necessary – this was partially obtained through self-awareness and activity modification.

During the analysis, it was evident that all of the women had positive attitudes regarding the subject – particularly considering they were all consistently physically active prior to pregnancy. It appeared that the women’s positive attitudes were an underlying contribution to the success of managing and overcoming negative judgement - according to theory, attitude influences intention to action behaviour (Godin, 1987; Godin & Shephard, 1986; Harrison, Taylor, Shields, & Frawley, 2018). For instance, if these women would have had a negative attitude towards the subject matter, they would have most likely ceased their

activity and paid attention to the negativity they were exposed to, basing their decisions solely upon it. However, because these women had positive attitudes, they appeared to think positively too, and whilst acknowledging the negative judgement they received and taking it into consideration, their activity was self-regulated by themselves and they did what they felt was best - irrespective of the negativity surrounding the subject.

Moreover, they also appeared to be intrinsically motivated – they engaged in the behaviour for their own sake – than externally motivated – for social acceptance or reward (Patrick & Williams, 2012). This motivational element allowed them to continue physical activity; a lack of motivation has recently been described as a major barrier to participating in physical activity during pregnancy (Coll et al., 2017). The voices of these women suggest: enhancing the information about physical activity during pregnancy is important (Stengel et al., 2012) as the women in this study possessed knowledge that allowed them to overcome negative judgement. Having a positive attitude towards the subject, and motivation to be active, is also important because this study provides evidence that having a positive attitude and being motivated to be active, may determine the decision, maintenance and compliance of activity participation for pregnant women.

4.4 Overarching theme: Maintaining a sense of control over their body whilst balancing this with the responsibility for their baby and their own well-being.

Participating in physical activity appeared to provide these women with an ability to control their own thoughts, feelings, behaviour and actions (Vohs & Baumeister, 2013). Clare provides a good example of this:

“if I was pregnant and seeing my body change, and just having to lie there and just not having any control over my health, that would have been hard to deal with. I knew my body was going to change in a lot of different ways, but the fact I could keep moving and have some kinda control over my body helped”.

Being physically active allowed these women to feel in control of how their body physically felt: for example, their activity participation appeared to reduced their symptoms severity. Physical activity participation also provided them with control over the way they felt about themselves – they felt “less

frumpy”; they didn’t feel “fat”; it helped them to “not put on as much weight” and “less body conscious”.

They also remained physically active regardless of the judgement they encountered and this made them feel in control of their own actions and behaviour; they were the ones who decided whether they were active or not - “I can do this, so I will” (Mia).

These women also participated in physical activity for a sense of control on how well it was prepared for labour and how well it performed during. They also wanted to have a sense of control over their body’s recovery - “being fit during pregnancy, well, can help with, y’know? easier delivery and faster recovery postpartum” (Amelia); “help me recover after him” (Mia); “stay active, y’know? A little bit every day, and just so that recovery is easier, y’know? after baby” (Lillie). Given the fact these women participated in physical activity as they believed it would help them with their physical recovery postpartum, it indicates how these women were physically active for their own physical well-being.

In further elaboration, Chloe provides a good example of the effect she thought physical activity had on her physical well-being. She compared herself to another mum at her school who she specified as “physically unfit” and she “didn’t want to become that really unfit pregnant person”:

“There was erm a mum who goes to my school, and she was the same number of weeks pregnant as me so we was like the same throughout. She finished work about six weeks before me and I was still going. She was physically unfit like struggling to walk, she’d put on loads of weight, she was really fed up. Whereas I was still at school working, doing everything, attending things after school in the evenings and things and she’d be like “Oh my god” [...] I didn’t want to feel like that [...] I didn’t want to feel like sluggish and feel horrible and feel lazy and everything so I kept going”

The women were also active for their mental well-being: “It’s kind of like my daily therapy almost [laugh]” (Amelia); “if I couldn’t have exercised, I think I would have been pretty depressed” (Clare); “is it those endorphins or whatever it is that are released that are good for you like a feel good? I think that’s how it made me feel” (Chloe); “working out really helped me mentally [...] I think it clears your head and it just gave me an hour to focus on something else outside of the world of ‘being pregnant’” (Mia); “not to even mention the mental aspects of working out every day, it’s just, it’s proven to make you a happier person so” (Lillie).

However, although they had the belief that physical activity would positively impact upon their physical and mental well-being, they had to balance their physical activity decisions around their babies. For example, Chloe stated: "I adapted the exercises as well because that's like if I was moving and doing too much I didn't want to harm her". All women indicated that they participated in physical activity for their babies positioning - such as ensuring their baby's head was engaged and that their baby's were facing head down during labour to allow their baby to be delivered vaginally and safely. Notably, this allowed them to feel in control of the mode of delivery their baby would be brought. They also thought about the general possibility of harm occurring to their babies:

"I didn't wanna put me or the baby in jeopardy" (Mia)

"the falling could be awful for me and the baby" (Clare)

They also thought about the benefits:

"it made me feel like I was doing the best for my child" (Clare)

"to keep the blood flowing to the baby" (Lillie)

"it seemed to have a calming effect on not just myself but on, on the baby" (Amelia)

In accordance, physical activity helped them to maintain a sense of control over their pregnant bodies. This, however, required balancing the impact it would have upon their physical and mental well-being and the effect physical activity would have on their baby.

Chapter 5 Conclusion

This final chapter discusses why the study was initiated, it provides a summary of the study's findings, the study's strengths and limitations, and how it could be improved.

Summary: Recent research has indicated that few studies have focused upon the experience of physical activity during pregnancy, that very little is known about the subject, and that more studies are needed (Cioffi et al., 2010; Hegaard et al., 2010; Murtezani et al., 2014). Accordingly, this study was initiated in order to address this gap in the literature. Five women who had experienced being physically active throughout the full course of their pregnancies were recruited. They each took part in in-depth semi-structured interviews with open-ended questioning and each provided rich accounts of their experiences - evidence of this can be found in Chapter Four where three major superordinate themes and seven subordinate themes were generated: these themes reflect the women's experiences through the use of direct quotation. Chapter Two also presents a literature review, which uncovered some of the concepts that play a significant role in womens' experiences of being physically active during pregnancy.

The findings of this study provide insight into five women's individual experiences of being active in their pregnancy: as a result, the reader has been provided with an insider's perspective of their experiences, obtained through IPA. Accordingly, this study not only provides insight into their experiences but also the meaning of their experience. It also provides insight into the reasons why the five women chose to participate in physical activity during pregnancy, and how they successfully maintained their activity participation - irrespective of any underlying tensions and challenges they encountered. Key findings of this study indicate: that the women used their own bodies as an informational source - "listened to their bodies" - to make informed activity decisions; these women felt that participating in physical activity during pregnancy provided them with a sense of control over their bodies; that these women's abilities to be

active in pregnancy were enhanced by their abilities to modify activity or change the way they were undertaking activity; that the five women's level of self-efficacy, motivation, self-determination, attitude and beliefs impacted upon their desire to undertake activity and their ability to maintain it. These women were also active before pregnancy which appeared to increase their desire to be active - they wanted to maintain their activity participation as it was something they did "daily" and it would have been "weird not to do it".

Strengths Limitations and improvements: The researcher considered the way this study was conducted by acknowledging alternative methods and approaches that could have been adopted, the strengths and limitations of the methods adopted, to ensuring reflexive practice - this can be found within Chapter 3. However, there are additional limitations and further strengths to this study that need to be acknowledged. Accordingly, these are discussed below.

The women recruited were at different stages of motherhood as the study involved first-time and second-time mothers; the inclusion, exclusion criteria did not exclude women with multiple children. This led to three of the five women recalling retrospective accounts of their experiences which ranged from two to five years ago. It was therefore unclear during their interviews which pregnancy the experiences they were recalling were related to: the risk of recall bias was consequently increased. Making first-time mothers part of the inclusion criteria, and excluding women with multiple children, would have prevented the recall of retrospective accounts and reduced recall bias.

Nevertheless, previous research has indicated that even after 20 years a women's memory of their first pregnancy is highly accurate (Penny, 1992). According to Githens, Glass, Sloan, and Entman (1993) women can recall their pregnancy-related information up to six years after giving birth, and a more recent study by Liu, Tuvblad, Li, Raine, and Baker (2013) has increased this value to eight to ten years. Women themselves have also been suggested to be the most convenient source of information regarding their pregnancy and birth outcome (Yawna, Suman, & Jacobsen, 1998). The level of detail these five women provided about their experiences demonstrated that they were confident in the experiences they were recalling. To provide an alternate viewpoint, the involvement of first-time and second-time mothers may

have been a strength of the study as women were able to provide very enriched responses to questions: for example, opportunity arose for one woman to compare her active to her inactive pregnancy experience, whilst another was able to discuss all three of her active pregnancies.

Using IPA to explore five physically active pregnant women's experiences is a strength of the study. IPA aims to facilitate a more enriched investigation about an experience (Smith, 2011; Smith et al., 2009) and is based on the belief that the experiences of a few participants examined at greater levels of depth is more valuable than simply describing the experiences of many individuals (Reid et al., 2005). Achieving high-quality IPA therefore requires the involvement of a small sample size (Smith, 2011; Smith et al., 2009) – in accordance, this study purposefully selected five women. Moreover, using a small sample allowed the researcher to explore the nature of a phenomenon under study and in doing so had an ability to obtain rich knowledge and produce a contextualised understanding of the women's experience's (Smith, 2018). Notably, statistical-probability generalisability is neither applicable or the goal of qualitative research (Polit & Tatano Beck, 2010).

From an alternative viewpoint, the use of IPA cannot infer causality (Willig, 2008) therefore although the women in this study believed that physical activity impacted upon their pregnancy experiences, we cannot clarify if physical activity did affect their experience. Thus, further research is needed to increase the credibility of this study. Further research may adopt alternative approaches to phenomenology and IPA, use a larger sample, or use alternative methods to interviewing - such as questionnaires and focus groups – to also measure the trustworthiness of this study.

The use of purposive sampling led to the recruitment of a diverse group of women - they were at different stage of motherhood, varied in age, and they lived in different countries and cities around the world - the researcher could have utilised opportunistic and snowball sampling to increase the homogeneity of the women recruited (Bennett et al., 2017). However, a strength of recruiting a diverse group of women from different countries is it has acknowledged the diversity in human culture, and has provided different women belonging to different social and cultural groups around the world with a voice. It has demonstrated that these women – although living in different countries around the world - implemented

similar coping mechanisms and strategies to overcome the underlying tensions and challenges they encountered. They also had similar beliefs about the effect physical activity had on their pregnancies.

A limitation of the study is the researcher had no previous experience of conducting interviews. Thus, the researcher's interview preparation could have been improved by implementing a pilot test. This would have helped to identify limitations, flaws and weaknesses within the interview design and conduct, and allow the researcher to make any revisions prior to the implementation of the study (Kvale, 2007), including the refinement of the research questions (Turner 2010). The researcher could have also have expanded their skills and experience by attending interview courses and by networking with other researchers who had prior experience of conducting interviews.

Future Research:

- The type of physical activity undertaken by the women in this study was mainly premeditated and structured; they participated in unstructured activity occasionally. However, this research did not categorise the different types of activities they participated in. Future research may study the difference between the experience of structured and unstructured physical activity participation during pregnancy: this may help to distinguish any differences and similarities they possibly entail.
- Modifying physical activity was important to these women because it enabled them to remain active throughout their entire pregnancies. It is considered important to increase pregnant women's knowledge about activity modification – future research may create guidance on how pregnant women can modify activity by speaking to health professionals, fitness professionals and pregnant women themselves.
- The thought of labour motivated the five women to be active. They believed that participating in physical activity during their pregnancy was the reason why they experienced an “easy labour” and managed their labour pain effectively. Future research could compare the experiences of labour between inactive pregnant women and active pregnant women in order to verify whether

being active can make a difference to labour. This could be obtained by interviewing women or creating an online survey or questionnaire where women can share their experiences and birthing outcome confidentially.

- All these women were active before pregnancy. Further research may study physically active pregnant women who were inactive prior to their pregnancy. It may also study the experiences of women who stop physical activity during pregnancy.

The findings of this study suggest that, in relation to physical activity during pregnancy, pregnant women are willing and able to make a series of complex judgements, decisions and actions based upon the information they have available to them, in order to maximise their own well-being and the well-being of their unborn baby. It would be a fitting outcome of this study if it helped to motivate the development of more comprehensive information about physical activity in pregnancy.

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Appendices

Appendix 1

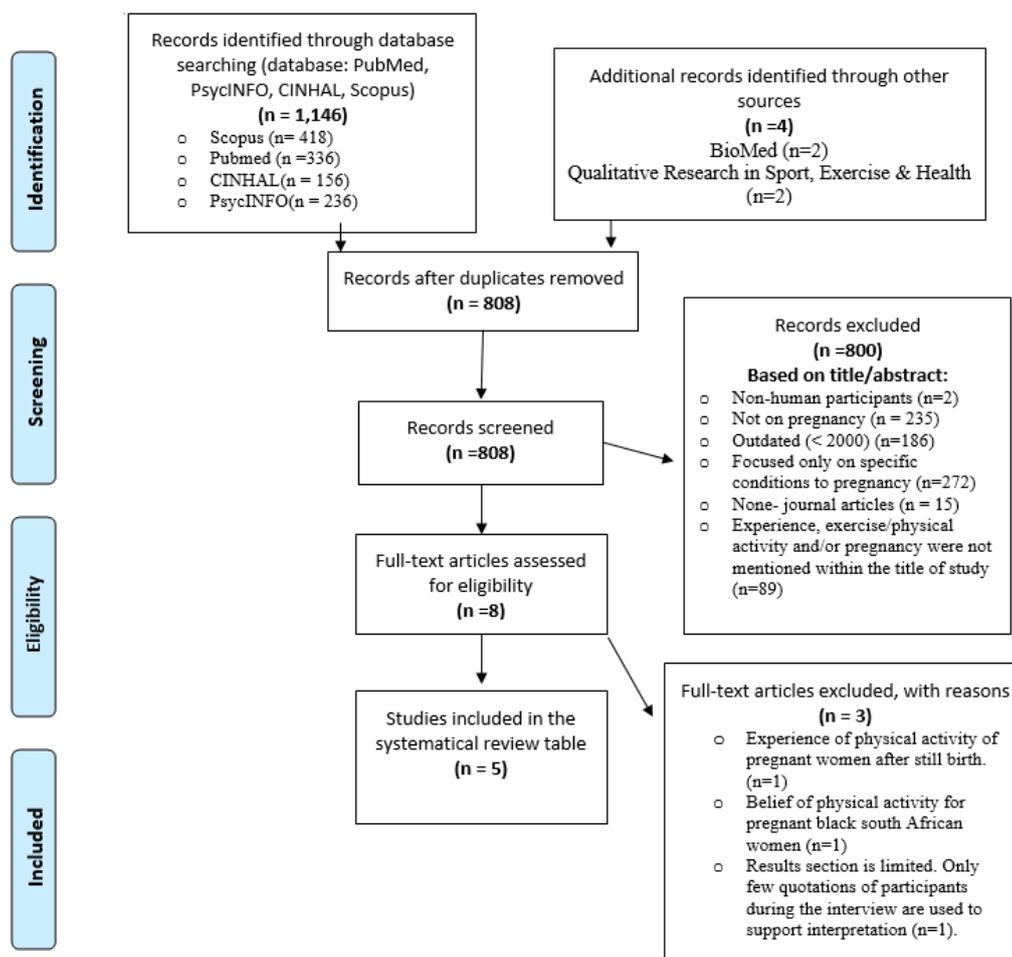
Search strategy

The key papers were discovered through searching electronic data bases (Pubmed, CINHAL, PsychINFO & Scopus) using the 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses' (PRISMA)

SEARCH STRING USING BOOLEAN SEARCH OPERATORS: Girls OR females OR ladies OR women*

AND perception OR views OR knowledge OR understanding OR participation OR experience OR involvement AND of AND physical activity OR exercis* OR sport OR leisure activ* OR fitness OR health behav* AND in the OR at the time of OR during OR through* OR when OR within OR for the duration OR whilst AND gesta* AND pregnan* OR expecting OR bearing OR with child OR pregnan OR preppers OR parturient OR maternal OR pregn

PRISMA Flow Diagram



PRISMA. (2015). PRISMA FLOW DIAGRAM. Retrieved from <http://www.prisma-statement.org/PRISMAStatement/FlowDiagram.aspx>

The inclusion/exclusion criteria used to screen paper eligibility;

Inclusion

- Written in English
- Peer reviewed journal articles
- Full text availability
- Scholarly empirical & non-empirical articles
- The title included physical activity, pregnancy and experience or synonyms

Womens	experience	Physical activity	during	pregnancy
girls	perception	exercise	in the	gestation*
females	views	physical exercise	whilst	gesta*
femal*	experiencing	physical activities	at the time	pregnan*
woman	participation	exercising	Invo*	child-bearing
maternal	involvement	recreational	throughout	Preg*
women	taking part	leisure	through	maternal
lady	exposure	activities	over	expectant mother
ladies	understanding	physic*	within	expect*
motherly	knowledge	fitness	when	bump
mum	judgement	athletics	course of	Patur*
		Working out	while	carrying
		sport	right through	with child
		fitness	From beginning to the end	
			For the duration	

- Qualitative methodology
- Less than 10 years' old

Exclusion

- Not written in English
- None journal articles such as books and articles
- Animal participation
- Irrelative to pregnancy and physical activity
- Focused on specific conditions or experience's during pregnancy such as gestational diabetes, fertility treatment or health conditions
- postnatal physical activity experience
- quantitative methodology
- over 10 years old
-

The five key papers were selected because they met inclusion, exclusion criteria and were selected through PRISMA: other papers were rejected because they did not meet inclusion, exclusion criteria. All five papers had a main focus of exploring the experience of physical activity during pregnancy using qualitative methodology – similar to the present study - and therefore relevant. All five papers reported the experience of physical activity comprehensively and gave in-depth insight into the experience of it. They were also dated research studies being 1-5 years old (2013-2017).

Appendix 2

Summary of the five key papers exploring the experience of physical activity during pregnancy identified through PRISMA

Author	Title of study	Search Strategy	Purpose	Themes, theories and findings	Quality: an interpretivist approach	Comments & implications for practice
Hegaard, Kj aergaard, D amm, Peter sson & Dykes (2010)	Experiences of physical activity during pregnancy in Danish nulliparous women with a physically active life before pregnancy. A qualitative study.	19 pregnant women with a moderate physical activity before pregnancy. Personal interviews analysed through content analysis.	to explain the experience of physical activity during pregnancy in nulliparous women who were active before pregnancy.	4 theme categories and 9 sub-categories emerged. (1) Physical activity as a lifestyle (Habit and Desire to continue), (2) Body awareness (Pregnancy related discomfort, having a complicated pregnancy and a growing body), (3) Carefulness (Feelings of worry, balancing worry and sense of security) (4) Sense of benefit (Feelings of happiness and physical well-being)	Excellent: This study has several authors; they coded the interview transcripts independently and then compared their codes. They discussed and agreed with one another's codes increasing the studies trustworthiness. A large variety of direct quotes are used. These direct quotes retain the voices of the pregnant women and allow the reader to understand what the experience's felt like to the women. From an interpretivist perspective, the women were asked as a mean of introduction to describe their physical activity from childhood until their pregnancy, and were then asked "What happened when you became pregnant?" (Hegaard et al., 2010 pg 2). In accordance, this possibly shifted the focus of experiencing physical activity during pregnancy to how physical activity changed when they were pregnant. Arguably, this was part of their experience but did not allow women to respond openly about it - Interpretivist seek questions that allow participants to talk freely.	*Danish nulliparous women only – lack of transferability to other women. *required insight into the experience of pre-sedentary and second-time mothers.
Bennett, McEwen, Clarke, Tamminen & Crocker (2013)	'It's all about modifying your expectations': Women's experiences with physical activity	9 previously active pregnant women participated in two semi-structured interviews (total	to qualitatively examine women's experiences with physical activity throughout the	Findings reflected 4 theme categories: 1.physical changes influencing activity during pregnancy, 2.underlying tensions and negotiating physical activity involvement, 3.the changing	Outstanding: This study used IPA to explore women's experiences of being active during pregnancy. Semi-structured interviews were conducted allowing the women to respond openly. The women's own words are used to illustrate the themes found, retaining	*a need to examine pregnant women's experiences with physical activity beyond the psychosocial models and theories within the current literature is apparent.

	during pregnancy	of 18 interviews) – between 1 and 5 months apart and analysed through Interpretative Phenomenological analysis.	course of pregnancy.	role of physical activity, 4. Social support of physical activity	the voice of each woman's personal experience. The researcher provides a discussion alongside these direct quotes, so that the reader has opportunity to understand how the researcher formed their interpretation. There is exceptional acknowledgement regarding researcher reflexivity, including acknowledgement of limitations with counterargument to address them. The authors used two interview transcripts for each woman—this provided enriched detail about their experience and further opportunity for the women to expand upon it. Some of these interviews, however, were conducted 1 to 5 months apart. The women's experiences were therefore being explored differently regarding the timing of their pregnancies and were possibly only partially explained dependent upon the timing of interview.	*Participants were heterosexual, highly educated, and predominantly white and English speaking; the experience of physical activity during pregnancy in more diverse populations is required. *a need to investigate pregnant women's full experience of physical activity – such as at the end of pregnancy or early postpartum.
Evans, Walters, Liechty & LeFevour (2016)	Women's experiences of physically active leisure during pregnancy	12 pregnant women in Western Canada. Purposively selected: Participants completed 2-3	Explore how women's experience of pregnancy and the changing body may play a role in shaping and defining	Two themes were central to the experience (1) A loss of control over their pregnant bodies, (2) A loss of control over their actions. A closely linked theme was lack of knowledge and information.	Good: The women's own voices and experiences are reflected in the findings using direct quotes. There is an explanation alongside these allowing the reader to understand how the findings were formed. Multiple interviews were used to grasp a deep understanding about the experience's	*limited to a relatively narrow group of women: Western Canada among a sample of mostly White women and all were in committed relationships. Cultural impact was evident; future research should

		interviews analysed through thematic analysis.	their physically active leisure.		these pregnant women had. The use of multiple interviews provided opportunity to understand how their perceptions may have changed as their pregnancy progressed. Some women, however, missed their second interview – their experiences were therefore only partly explained. During the interviews, participants were asked to describe their experiences of pregnancy and their changing bodies – this possibly shifting the focus of the study to the experiences of bodily changes during pregnancy. Participants were also asked to discuss their experiences of leisure. As a reader, it appears that they recruited women who participated in general leisure rather than physically active leisure only. This led to women speaking about how their leisure activity in general had been affected and irrelevant data appeared to have been collected.	acknowledge different cultural backgrounds. * There is a need to consider the role that pregnancy may play in a wider range of leisure activities and with uncommitted relationships. An exploration is apparent on why and how some women are able to do physical activity during pregnancy rather than solely focused on bodily changes. *future studies should clearly define the type of leisure/ activities they wish to explore.
Currie et al. (2016)	Antenatal physical activity: A qualitative study exploring women's experiences and the	A qualitative exploratory study involving 24 women who attended seven focus groups. The focus groups took place in local	Explore women's experiences of being physically active during a recent pregnancy and explore acceptability of	These women had experiences relating to antenatal physical activity and analysis categorised the data into: (1) biological/physical issues (2) Psychological issues (3) social/environmental issues	Excellent: The experiences recalled were upon a large amount of qualitative data increasing the trustworthiness of the study. This study uses direct quotes - as indicated by the use of quotation marks in the text or longer quotes - clearly retaining the voices of the pregnant women and providing detailed explanations	*women recalled their experience up to 5 years previous, recalling issues are therefore possible, future research should look to study experiences that are clear and introduce a 'wash out period'. *Women were recruited deprived areas of central Scotland; future

	acceptability of antenatal walking groups	nurseries and mother and toddler group premises.	antenatal walking groups.	(4) Acceptability of antenatal walking groups	alongside them. From an interpretivist perspective, the use of focus groups involving numerous participants may have reduced the amount of detail the women could share about their own experience and the depth of it.	studies should consider studying different deprivation levels.
Bennett (2017)	Bumps and bicycles: Women's experience of cycle-commuting during pregnancy	A grounded theory approach. Three semi-structured interviews and three focus groups (consisting of 3-4 women's). Women included were cycle-commuting during a recent pregnancy. Recruited through convenience and snowball sampling. Qualitative methodology – thematic coding.	To explore women's experiences of cycle-commuting in the context of pregnancy	Five overarching themes were found within analysis: 'the body', 'reasons to continue or desist', 'changes in cycling practice to minimise risk, 'medical advice' and the 'perceptions of others'	Excellent: Using two different data collection methods – focus groups and semi-structured interviewing – and a diverse sample of women – those who stopped early and late during pregnancy - they developed an in-depth insight into cycling during pregnancy. This study provides an understanding of the women's experiences from bodily comfort when cycling to accommodating for the pregnant body to cycle. The study concluded that it identified obstacles and benefits to continued cycle commuting in pregnancy: however, the study appears to lack depth on how this experience felt to the women, the study appears to focus around decisions rather than the experience. For example, some of the questions were structured around decisions – “Take me through your decision-making process. What kinds of things led you to continue or stop?” – Accordingly, as an interpretivist, this restricted the information women	* Snowball sampling is a technique that has a tendency to result in the formation of relatively homogeneous groups limiting the diversity of the experiences elicited. Further research should entail a different sampling strategy in order to accumulate different socio-demographic groups. *Most participants within the study were active throughout or were still active, only few were stated to have stopped early. Future studies may look into why women stop early during pregnancy regarding physical activity rather than how women remain active.

shared about their experiences and possibly influenced their answers.

Appendix 3

Participant information sheet



A phenomenological study exploring the experiences of being physically active during pregnancy.

INFORMATION SHEET

You are being invited to take part in a study about being physically active during pregnancy. Before you decide to take part it is important that you understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with me if you wish. Please do not hesitate to ask if there is anything that is not clear or if you would like more information.

What is the study about?

The purpose of this study is to explore pregnant women's experiences of being physically active during pregnancy.

Why I have been approached?

You have been approached as you belong/subscribe to a pregnant women's forum on social media.

Do I have to take part?

It is your decision as to whether or not you take part. If you decide to take part you will be asked to sign a consent form, and you will be free to withdraw at any time - up to the write-up point of 1st of September 2017 - and without giving a reason. A decision to withdraw at any time, or a decision not to take part will not affect you in anyway.

What will I need to do?

If you agree to take part in the research you will be asked to take part in a skype or telephone interview. This interview will be recorded.

Will my identity be disclosed?

All information disclosed within the interview will be kept confidential, unless you indicate that you or anyone else is at risk of serious harm, in which case I would need to pass this information to my university supervisors who may choose to progress concerns further.

What will happen to the information?

All information collected from you during this research will be kept secure and any identifying material, such as your name, will be removed in order to ensure anonymity. It is anticipated that the research may - at some point - be published in a journal or report. However, should this happen, your anonymity will be ensured, although it may be necessary to use your words in the presentation of the findings and your permission for this is included in the consent form.

Who can I contact for further information?

If you require any further information about the research, please contact me on:

Name : Jade

E-mail : U1359560@unimail.hud.ac.uk

Appendix 4

Consent form



CONSENT FORM

Title of Research Project: A Phenomenological Study Exploring the Experiences of being Physically Active during Pregnancy

It is important that you read, understand and sign this consent form before your participation in this study. Your contribution to this research is entirely voluntary and you are not obliged in any way to participate, if you require any further details please contact the researcher.

I have been fully informed of the nature and aims of this research as outlined in the information sheet

I consent to taking part in it

I understand that I have the right to withdraw from the research at any time without giving any reason

I give permission for my words to be quoted (by use of pseudonym)

I understand that the information collected will be kept in secure conditions for a period of 10 years at the University of Huddersfield

I understand that no person other than the researcher/s and facilitator/s will have access to the information provided.

I understand that my identity will be protected by the use of pseudonym in the report and that no written information that could lead to me being identified will be included in any report.

If you are satisfied that you understand the information and are happy to take part in this project, please put a tick in the box aligned to each sentence and print and sign below.

Signature of Participant: _____ Print: _____ Date:	Signature of Researcher:  Print: Jade. _____ Date: _____
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(one copy to be retained by Participant / one copy to be retained by Researcher)

Appendix 5

Risk assessment/safety protocol section example.

(TRAFFIC LIGHT SYSTEM)

		Impact				
		Very Low 1	Low 2	Medium 3	High 4	Very High 5
Probability	Very High 5	5	10	15	20	25
	High 4	4	8	12	16	20
	Medium 3	3	6	9	12	15
	Low 2	2	4	6	8	10
	Very Low 1	1	2	3	4	5

GREEN : LOW RISK

**AMBER:
INTERMEDIATE
RISK**

RED: HIGH RISK

When undertaking research where participants, setting or others pose a safety risk to the researcher/data collector there should be a clear protocol or safety plan. The plan should include assessment of the following

PHYSICAL IMPACT

Do the interviewees pose a threat to the researcher?

4- the probability is very low but the impact is high.

No. The Interviewees will participate in the study at their own free will. The Interviews will take place through the telephone or video call therefore; participants cannot contact the researcher physically. Interviewees do not have any personal information about the researcher nor is it shared with them.

If you feel unsafe, ask your supervisor to sit within the interviews being conducted/ conduct the study in a pre-booked room in the university library ensuring safety and confidentiality.

Do not conduct the interview if the interviewee appears threatening – such as using abusive language. Contact your university supervisors immediately and exclude them from participating in the study – do not try to contact them again. If any extreme threats are made it may be necessary to share the experience with higher levels of authority such as the police.

Do others associated with the interviewees pose a threat to the researcher?

4- the probability is very low but the impact is high

No as it is only the individual who will be interviewed and they are asked to be in an environment that is comfortable to them and also so they can talk openly with minimal distraction

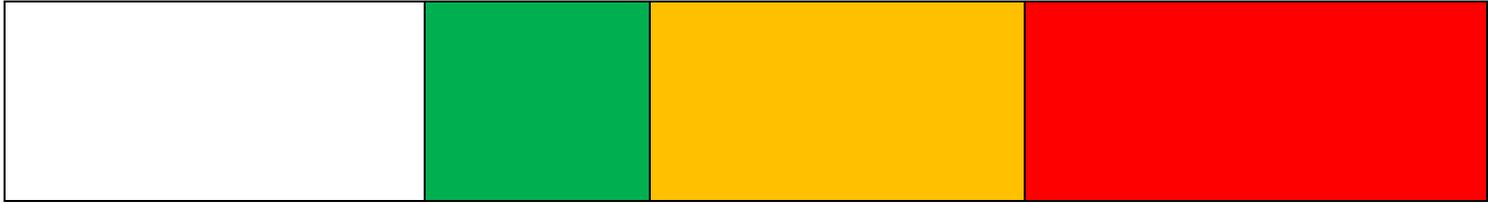
If another individual joins in the interview, ask the interviewee if you can speak with them alone in order to avoid any unnecessary situations. However, if they do not feel comfortable doing this then

If there is any threatening behaviour, do not conduct the interview/ end it with immediate effect. Contact your university supervisors to make them aware of the situation and discuss the matter – do not try to contact the interviewee again.

		allow another person in the room.	
<p>What is the nature of the environment (context) in which the data will be collected?</p> <p>5- The probability of injury of risk is very low if risk assessing is carried out correctly but the impact is very high.</p>	<p>Within the university grounds over the telephone/ through video call at the researcher's home.</p>	<p>Wires, and other trip hazards may be within the room. Including Slippery surfaces which may cause harm to the researcher.</p> <p>A risk assessment will be carried out within every room the researcher enters in order to ensure any hazardous objects are removed or dealt with properly - such as clearing up a wet floor and displaying a wet floor sign. Ensure the interviewee is also in a safe environment and has checked the environment they are in for any hazards.</p>	<p>Researchers may injure themselves if the room is not safe & risk assessment isn't carried out.</p> <p>Location of First Aider Will Be Known & Risk Assessments Will Be Carried Out Routinely.</p> <p>Ensure the interviewee is in a safe environment and ask them to check the environment they are in for any danger.</p>

CONDUCTING THE INTERVIEW – PSYCHOLOGICAL IMPACT.

<p>It is important to understand the interviewees tone of voice as they are recalling an experience which may have positively or negatively impacted upon them.</p> <p>8-10 - probability is low but impact is very high.</p>	<p>The participant appears calm and happy such as laughing when talking about their experience; they are very responsive to questions and reply promptly and within detail.</p>	<p>The interviewee may become distressed and become unresponsive – such as stuttering, long silences and hesitation to answer the questions they are being asked.</p> <p>Interviewee is debriefed at the beginning about being able to stop the interview at any time. If necessary, pause the interview before completing it. End the interview if the interviewee becomes unresponsive or ask the interviewee if they are ok to continue. Inform the interviewee that they can also refuse to answer any questions they feel uncomfortable with and the researcher will ask a new question or end the interview if they wish – no questions will be asked.</p>	<p>The interviewee is becoming distressed may seem to be panicking, fearful, and show uneasiness and having breathing difficulty.</p> <p>Stop the interview immediately and allow individual to become calm. Do NOT carry out the interview with this severe case of psychological distress. Inform this level of distress to your university supervisors who may decide to take further action.</p>
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Appendix 6

YOU DO NOT HAVE TO STRICTLY FOLLOW THIS STRUCTURE. REMEMBER TO LET THEM DO MOST OF THE TALKING AND DO NOT PROVIDE YOUR OPINION.

Are they comfortable? Right to withdraw at any time. Don't have to answer.

Reasoning for interview:

As much information as possible, I'm very interested so would like to hear about it all, you will do most of the talking - if not all – and I will purely be asking questions about your experience, am I okay to proceed?

General Questions (USE PROMPTS):

- What physical activities did you do during pregnancy?
- Why did you choose to be physically active in pregnancy? **Let the interviewee tell you what they understand about physical activity in pregnancy. Probe: any influences? Information? Previous experiences?**
- How did being active feel at the beginning of pregnancy? / How would you describe being active in pregnancy?
- Explain to me your experience of physical activity as you got further into pregnancy?
- Could you give me an example of your experience at the beginning and at the end/ to now?
- How do you feel being active in pregnancy affected you... did it affect you?
- Could you explain to me any experience of being active during pregnancy that stands out in your mind?
- Have you been pregnant before? Could you explain to me your experience of physical activity within these? **PROMPT: did you do it in both – why?**
- How did you remain active during pregnancy / if you stopped at any point why? **Is there any specific experience that stands out in your memory? Could you describe this in detail?**

Physical Aspects (USE PROMPTS):

- How did you feel physically when being active in pregnancy?
- Could you give me examples of your physical experiences?

- Are there any negative experiences that stand out in your memory? * how did you overcome this? * how did this effect you?
- Are there any positive experiences that stand out in your memory? * why is this?

Emotional Aspects (USE PROMPTS):

- How did being active in pregnancy make you feel emotionally?
- Can you give me any examples of your emotional experiences?

Social Aspects (USE PROMPTS):

- How did your family feel about you being active?
- Why do you feel they felt like that?
Why did you choose to continue physical activity after they had said that?
- Were you physically active alone or with other people? (Could you expand on that; how did this make you feel?)

Ending the Interview:

- Anything you would like to add that we have not mentioned or you would like to explain further?
- What would you say to other pregnant women about your experience?

– ask participants (IF NOT ALREADY OBTAINED):

What country and City do you live in?

What is your date of birth & place of birth?

Do you have an occupation?

Are you religious? (Christian, Muslim etc)

How many children do you have?

, mention about accessing information (confidentiality & anonymity)

Prompts;

***Why does that stand out in your memory?**

***Say what you mean by [term or phrase]**

***How did others [e.g., partner] respond to that?**

***Why does that matter?**

***What was significant about this to you?**

***Why did you decide to do this?**

***Tell me more about that please**

***Could you expand upon this please?**

***Can you give me examples please?**

***How did that make you feel?**

***Why was this the case?**

***Could you describe this experience in more detail?**

***Why do you think that?**

Intellectual:

***Why did you do that?**

*** What makes you think that?**

*** What was your reasoning for this?**