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Walker, C., Mills, H. and Gilchrist, A. (2017) Experiences of physical activity during pregnancy resulting from in vitro fertilisation: an interpretative phenomenological analysis. Journal of Reproductive and Infant Psychology. ISSN 0264-6838.

Link to official URL (if available):

http://dx.doi.org/10.1080/02646838.2017.1313968

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Experiences of physical activity during pregnancy resulting from in vitro fertilisation: An interpretative phenomenological analysis

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Word Count: 4836

Abstract

Objective To explore the qualitative experiences and decision-making processes surrounding physical activity (PA) for women who have undergone IVF treatment.

Background Physical activity (PA) during pregnancy is safe for both mother and fetus in the majority of cases, including for women who have undergone in vitro fertilisation (IVF) treatment; however, there is a paucity of research into decision-making and PA in this population.

Methods Eight women, who had undergone successful IVF treatment and were currently pregnant or had given birth within the last two years, participated in semi-structured interviews about their experiences of infertility and PA during pregnancy. Interview transcripts were analysed using interpretative phenomenological analysis.

Results Three superordinate themes emerged from the data: 'navigating away from childlessness and towards motherhood', 'negotiating a safe passage', and 'balancing the challenges of pregnancy with the needs of the self'. Ten subthemes indicated the processes adopted to navigate experiences of infertility, the IVF process, and subsequent decision-making about PA during pregnancy.

Conclusion PA during pregnancy was experienced as a way to soothe the self and control the experience of pregnancy; however, this was mediated by concerns about safety and physical limitations on PA. Limitations of the study are considered, as well as implications for clinical practice and directions for future research.

Key words: Pregnancy, infertility, physical activity, in vitro fertilisation, qualitative

Introduction

Physical Activity during Pregnancy

Exercise during pregnancy is safe for mother and fetus in the majority of cases, with official recommending that in the absence of contraindications such as preeclampsia or extreme morbid obesity, women can initiate or continue physical activity (PA) during pregnancy (Royal College of Obstetricians and Gynaecologists, 2006). This guidance from the United Kingdom is similar to those of other developed counties.

Antenatal PA has a number of benefits. It can increase energy, improve sleep, minimise excessive weight gain, shorten the length of labour and lessen the risk of delivery complications (Clapp, 1990; Ezmerli, 2000). PA can also increase pregnant women's self-esteem (Wallace, Boyer, Dan, & Holm, 1986), and even low-intensity PA can enhance psychological wellbeing (Da Costa, Rippen, Dritsa, & Ring, 2003). Exercise is therefore a vital component in managing both the physical and psychological challenges of a healthy pregnancy.

Despite this research and official advice, PA behaviour is often avoided or significantly decreased during pregnancy (Brown & Trost, 2003; Mottola & Campbell, 2003), increasing the risk of maternal psychological and physical health complications. PA engagement can be influenced by a number of factors, and research has tried to further our understanding of PA behaviour and decision-making during pregnancy.

Explanations of PA Behaviour

Research has largely used the Theory of Planned Behaviour (TPB; Ajzen, 1991) to measure pregnant women's intentions to engage in PA during pregnancy, highlighting attitude (underlying beliefs about the positive or negative outcomes of PA) and perceived behavioural control (PBC; the perceived ease or difficulty of the behaviour) as important predictors of PA behaviour (Hausenblas & Symons Downs, 2004; Symons Downs & Hausenblas, 2003; De Vivo, Hulbert, Mills, & Uphill, 2016). Beliefs about the perceived value of PA therefore form part of the decision-making process. These may be shaped by social, cultural, and psychological factors, as well as a person's previous experiences.

Risk is a recurring theme throughout the literature, with research showing that safety concerns about PA can prevent women from exercising. Beliefs that it can cause miscarriage, injury, and premature labour are not uncommon (Goodrich, Cregger, Wilcox, & Liu, 2013; Hausenblas, Giacobbi, Cook, Rhodes, & Cruz, 2011). Views that low to moderate PA is unsafe predict a decrease in the amount of time spent engaging in PA across pregnancy (Duncombe, Wertheim, Skouteris, Paxton, & Kelly, 2009). Hegaard, Kjaergaard, Damm, Petersson, and Dykes (2010) found that 'carefulness' was a major theme in women's discussions about PA, which included pervasive worries about harming the foetus. Risk perceptions and fears when engaging in antenatal PA are also commonly cited barriers to participation (Currie, Gray, Shepherd, & McInnes, 2016). Cioffi et al. (2010) found that participants emphasised the importance of protecting oneself and the baby. Lack of, or conflicting, information from health professionals and family can also affect beliefs about PA (Clarke & Gross, 2004; Leppanen et al., 2014).

In contrast, intrinsic motivation - doing something because it is personally rewarding - is associated with fewer perceived barriers (Gaston, Wilson, Mack, Elliot, & Prapavessis, 2013). Self-efficacy regarding one's ability to overcome PA barriers is positively related to PA behaviour (Hinton & Olson, 2001). Social and emotional support (Evenson, Moos, Carrier, & Siega-Riz, 2009) can also influence beliefs and affect PA behaviour.

Influence of In Vitro Fertilisation (IVF) treatment

Research has provided a valuable understanding of the factors which inform the PA decision-making process in the general pregnant population, but has focussed less on more complex pregnancies, particularly women who have undergone in vitro fertilisation (IVF) treatment - a population which faces unique psychological and physical challenges prior to and during pregnancy (Atkinson, Shaw, & French, in press). Reproduction is a key component of adult development and identity, thus infertility can challenge a person's core beliefs about themselves and the world (Diamond, Kezur, Meyers, Scharf, & Weinschel, 1999). It can lead to feelings of loss of control over one's life, and challenge the notion that couples are in charge of their own reproduction (Cousineau & Domar, 2007). Infertility diagnosis and treatment can also instil a detrimental view of oneself as 'abnormal' (Johnson & Fledderjohann, 2012; Jutel, 2009).

IVF provides one method of helping couples experiencing fertility problems conceive, with 49,636 women undergoing IVF or intra-cytoplasmic sperm injection treatment (ICSI)[1] in the UK in 2013 (Human Fertilisation and Embryology Authority, 2014). Undergoing IVF is known to be a physical,

[1] Techniques mainly differ in terms of the number of sperm the egg has the opportunity to fertilise with, therefore the term 'IVF' will be used to refer to both IVF and ICSI treatment.

emotional, and relational strain for couples (Boivin et al., 2012). Verhaak, Lintsen, Evers, and Braat (2010) addressed the emotional adjustment of women to IVF treatment and noted that a substantial group show subclinical emotional problems. The prevalence rates of depression and anxiety for women during IVF treatment have been estimated at 15-20% (Chiaffarino et al., 2011; Reading, Chang, & Kerin, 1989).

IVF guidance historically advocated bed rest following embryo transfer, with a resumption of normal activities after pregnancy confirmation. However, despite the updated recommendations about PA in pregnancy, naturally conceiving women continue to perceive rest and relaxation during pregnancy to be more important than regular exercise (Clarke & Gross, 2004). This appears to be the case for IVF mothers as well, as most restricted their daily activities following treatment, against medical advice (Su, Chen, Hung, & Yang, 2001). Küçük, (2012) found insufficient evidence to support the efficacy of bed rest as the restriction of PA following embryo transfer may actually increase already heightened levels of anxiety, potentially increasing distress and decreasing the likelihood of regular PA throughout pregnancy.

Although many women worry to some degree about engaging in PA (which can influence PA behaviour to varying degrees), pregnant women who have undergone fertility treatment are often the most concerned (Hegaard et al., 2010). Experiences of infertility and miscarriage can result in women preparing less for birth and motherhood throughout pregnancy in order to protect themselves from potential disappointment (McMahon, Tennant, Ungerer, & Saunders, 1999).

Rationale and Aims

Previous studies involving IVF populations have been largely quantitative, generating

information about health behaviours, including PA, by using questionnaires (Domar, Conboy, Denardo-Roney, & Rooney, 2012; McMahon, Tennant, Ungerer, & Saunders, 1999). Qualitative studies have provided useful information about the barriers to PA during pregnancy; however, there does not appear to be any specific research to date exploring the experiences of PA for women who have undergone IVF treatment. Qualitative studies of PA have been useful in furthering a psychological understanding of its role in other populations (e.g. Crone & Guy, 2008; Knowles, Niven, & Fawkner, 2011), and this study aimed to extend the current pregnancy literature by doing the same for IVF mothers. IVF mothers start on their pregnancies following a distinctive phase of identifying their infertility. It is therefore important to acknowledge the experiences of this phase alongside the pregnancy journey for an inclusive understanding of these mothers. To research this population two questions were developed:

1. What are the experiences of infertility for women who subsequently undergo IVF treatment?
2. How do experiences of PA during pregnancy for women who have undergone IVF treatment inform the PA decision-making process?

Methodology

A purposive sample of eight participants who had successfully conceived via IVF or ICSI within the last two years took part in the study. Exclusion criteria included being over 40 years of age and/or having had more than three cycles of IVF, the maximum number of cycles recommended for this age group (NICE, 2013). Participants were aged 24 to 39 and recruited from various locations in England via social media. Individual semi-structured interviews were used as an effective way of eliciting detailed stories, thoughts, and feelings

from participants, and interpretative phenomenological analysis (IPA; Smith, Flowers, & Larkin, 2009) was used to analyse the data.

Insert Table 1 here

IPA analysis. Measures were taken to ensure the 'trustworthiness' of the research (Yardley, 2000) including the use of verbatim extracts from participants and grounding interpretations in the data. In order to demonstrate coherence and transparency, an audit trail of codes and themes was checked by a clinical psychologist and a chartered sport and exercise psychologist. A bracketing interview (Ahern, 1999) was undertaken to increase self-awareness and reflexivity about researcher assumptions which could influence the analysis. A reflexive research journal was also used. Guidelines for implementing IPA (Smith et al., 2009) were followed and examples of good quality IPA studies were referred to to increase rigour.

Ethics. Ethical approval was granted by the Department of Applied Psychology Ethics Panel, Canterbury Christ Church University and the BPS Code of Ethics and Conduct (2009) was followed throughout.

Results

Three superordinate and 10 subordinate themes were identified, with superordinate themes representing broad aspects of shared experience. Each subordinate theme consisted of multiple emerging themes.

Superordinate Theme 1: Navigating Away from Childlessness and Towards Motherhood

This theme aimed to capture women's experiences of journeying away from childlessness and towards motherhood through the use of IVF. It conceptualises the journey

towards motherhood as potentially treacherous, with various pressures to manage and emotional storms to navigate, but a preferable destination to a stigmatised, 'childless' identity. Participants responded to obstacles by using their bodies as a vessel to guide them through to motherhood.

Subordinate theme 1.1: The stigma of infertility.

Infertility was experienced as stigmatising by all participants, seemingly capitulating them into 'childless' identity, where infertility became their defining characteristic. The loss of an imagined future as a mother (*'I could not imagine a future without [them]'*- Kim) led to a sense of otherness and social exclusion, taking participants closer to a 'childless' destination (a '*sad, childless woman'* - Paige).

For some participants, infertility appeared to be experienced as traumatic. Responses included assigning failure to oneself (*'I just couldn't conceive'* -Emily) and blame, potentially as a way to seek control in a seemingly uncontrollable situation.
Personal failure seemed to contrast a preferred identity as a mother and provider, despite there being no medical explanation for infertility in some cases.

Subordinate theme 1.2: The pressure to achieve.

All participants experienced the pressure to achieve a viable pregnancy through IVF and carry a baby to term which would allow them to forge a new identity as a mother. IVF was experienced as a significant investment, both financially (*'…it's a lot of money; it's like thousands.'* -Victoria), emotionally (*'…there's not only the pressure of you wanting a child, it's also the fact that you don't want to go through all that process again. (Um) Quite stressful.'* - Emily), and physically. If they did not succeed, they would likely be recapitulated back into the stigmatised identity of a 'childless woman'. As a result, IVF treatment was

experienced as all-consuming by some. This was particularly salient for women who had no prior children, potentially as they had more to lose from a failed IVF cycle (as this would 'thicken' a childless identity), in contrast to participants who were already mothers. For example, Paige and Alexandra, who both had one child from IVF treatment and were both pregnant with their second, made the distinction between their first and second IVF treatments. Paige described having '*nothing else to focus on'* for the first which meant it became 'completely … c*onsuming'* , whereas Alexandra felt more '*relaxed'* about her second IVF experience, explaining *'I've got [my daughter] now'.*

Subordinate theme 1.3: Navigating the storm.

This theme conceptualises the emotional experience of IVF as a storm, within which participants navigated their journey towards motherhood. Emotions were experienced as a churning sea, with participants managing the waves in different ways. Some decided to 'ride it out' and take a mindful approach (*'Feelings are feelings, they're not right or wrong, they just happen…'*- Paige); however first-time mothers seemed to find this more difficult. Others chose to seek shelter from other peoples' expectations in order to protect themselves and their partners from the waves:

*'…only tell immediate family and friends and then if it hasn't work*ed, we can then be open *and honest again, once we've kind of healed a bit.' (Ella).*

Another way to relieve emotions was to reach out to others in the same boat in an anonymous way by using internet forums.

Subordinate theme 1.4: The body as a vessel.

This theme conceptualises the body as a vessel (a '*little incubator'*-Alice) which was used to navigate the way through IVF-related emotional storms and pressure to achieve. A vessel provides an optimal space to store and protect precious cargo during storms, and all participants physically optimised their bodies for IVF to increase their chances of conceiving; for example, through a healthy diet. For some, engaging in PA was integral to this process and was associated with *'los[ing] a little bit of weight'* and making the body 'fitter and *stronger'* (Paige) to withstand the physical demands of IVF treatment. Rest and relaxation were also experienced as ways to exert some control in what was, on the whole, an uncontrollable situation, as well as conversely letting natural processes take over.

Three participants experienced their pregnancies as unique, as unique in comparison to a spontaneously occurring pregnancy. For Emily, uniqueness related to having tried to get pregnant *'for so long'*, whilst for Rebecca it was related to a hyper-awareness of the conception process. For most, this meant they experienced their bodies as providing protection for their new pregnancies (*'doing the best for [the baby]…rather than doing the* best for me.*'* – Emily).

Superordinate Theme 2: Negotiating a Safe Passage

This theme captured the ways in which women negotiated their journey to motherhood once pregnant and particularly focuses on the decision-making process around safety and PA.

Subordinate theme 2.1: Staying afloat.

This theme speaks to managing perceived threats to pregnancy. PA was experienced by the majority of participants as a threat, particularly in the early stages of pregnancy, which affected PA behaviour:

> 'I barely did any sort of exercise during the pregnancy because I was scared *of something happening and me losing it.'* (Emily)

Many participants responded to the perceived threat of PA by getting to a 'safe' stage in their pregnancy (ranging from two to twenty weeks) in order to actively engage in it and stay afloat. For Paige, there was a sense that getting to the *'pregnancy point'* allowed her to confidently engage in PA whilst distancing herself from the experiences of infertility and sense of otherness:

'Now, I'm just like everybody else again. I can carry on.'

Subordinate theme 2.2: Knowing your body.

This theme captures an internal process of re-connecting with the body after letting it *'do what it needs to do'* (Rebecca) to achieve a pregnancy. Knowing your body provides one way to stay afloat. The process of listening to the body is shaped by ideas about the safety of PA and risk to the baby.

The majority of participants experienced an internal '*need to be active'* (Rebecca) once they had arrived at a 'safe stage' of pregnancy. In some cases, the need to be active seemed connected to a sense of self – to an identity of someone who had previously valued PA - as in Paige's case:

'If I didn't do some type of exercise, I didn't feel like me.'

Most responded by being able to *'listen to [the] body' (Victoria)* to stay safe during PA or by modifying their level or mode of activity. 'Knowing the body' seemed to be related to a process of rebuilding trust in the body's capabilities after an experience of infertility, where it was experienced as having failed.

Subordinate theme 2.3: Information as a help and hindrance.

This subtheme reflects a huge variance in how information about PA during pregnancy (particularly in the early stages) was experienced by participants; for some it was useful,

informative, and gave confidence to engage in PA, for others it was experienced as confusing or non-existent.

Five women experienced a lack of, or unclear, information from health professionals about PA which led to uncertainty in some cases, whilst others had *'wads of information booklets' (Ella).* Some participants had benefitted from the knowledge of friends and extended support networks with regard to information about PA; however, experienced PA advice as contradictory, with internet forum-users advising her to *'rest up'* whilst *'some people would be just like, "oh like normal"'.*

Superordinate Theme 3: Balancing the Challenges of Pregnancy with the Needs of the Self.

This theme conceptualises pregnancy as a time when boundaries between the self and the baby can become blurred. It explores the ways in which participants met their own physical and psychological needs whilst also balancing the physical challenges of pregnancy. PA provided one way to do this, and was experienced as a way to sooth the self and control the experience of pregnancy; however, the ability to engage in PA was often restricted due to physical limitations.

Subordinate theme 3.1: Soothing the self through PA.

Nearly all participants reported psychological and physical benefits associated with PA during pregnancy. These were often experienced as reparative in the context of participants' previous traumatic experiences of infertility and associated stigma.

PA facilitated a feeling of success (Rebecca felt she had *'achieved something'* after PA), as well as feeling valued despite the experience of infertility. PA provided 'emotional *wellbeing'* (Paige) during pregnancy. The majority of participants also experienced PA as healthy for themselves and their babies. Participants seemed to be using PA to fulfil their new

identity and role as a mother. PA was experienced as socially unifying during pregnancy for many participants and provided opportunities to connect with other mothers:

> *'…little pregnancy things, it's nice to be able to say to someone else, 'Have you had that?''* (Alice)

It also meant connecting with partners and family:

> *'…me and my husband would go on walks'* (Victoria).

Subordinate theme 3.2: Limitations on PA.

Pregnancy mediated the amount of PA participants engaged in. For many, even day-to-day activities became physically challenging, and pregnancy interfered with the ability to soothe the self through PA.

The majority of participants experienced pregnancy as *'uncomfortable, physically'* (Ella), and *'painful'* (Rebecca), particularly during the last trimester. Alice, who had gone for a run every day prior to pregnancy, found that her body restricted her ability to do the activities she enjoyed:

> *'I just want to go for a run and then like eat a whole brie (laughs). Just do all the things I can't do.'*

Participants experienced pregnancy as tiring, which limited PA. Others talked about the time involved as a barrier.

Subordinate theme 3.3: PA as a way to control the experience of pregnancy.

This theme speaks to the way in which PA was used to manage the experience of pregnancy and how this was achieved. On one level, PA was used to control physical pregnancy experiences such as labour, weight gain ('*I didn't want to be big'*- Emily), and aches and pains; on another level it provided a sense of psychological control which had been diminished through their experiences of infertility, IVF treatment, and pregnancy. Kim spoke

of how, during pregnancy, it was important it was to *'take control of the things you can control because there's so much you can't'*. Control was achieved through perseverance and holding on to 'normal' PA routines where possible.

For many, engaging in PA proved challenging due to the physical limitations pregnancy placed on the body. Alice responded to this challenge by persevering with PA which, whilst challenging, may have allowed her to regain a sense of control during pregnancy, rather than letting the experience control her:

> *'I remember at one point feeling like it was a marathon run almost, like you just have to keep going'* (Alice).

Many participants also spoke about 'going to do, like, *my normal thing'* (Victoria) with regards to PA, again potentially as a way to increase their sense of control over the pregnancy experience.

Discussion

The three superordinate themes connect and increase our understanding of individuals' experiences of infertility and the decision-making process around PA during pregnancy, in line with the research questions.

Experiences of infertility – known to be stigmatising across cultures (Palha & Lourenço, 2011; Tabong & Adongo, 2013) and often traumatic (Paul et al., 2010) - were captured in the superordinate theme 'navigating away from childlessness and towards motherhood'. Some participants experienced infertility as a loss of an imagined future, echoing findings that such a trauma can be reinforced by the loss of hopes, dreams and social roles (Peoples & Rovner-Ferguson, 2000). 'Childlessness' seemed to become a defining self-characteristic which could 'spoil' a person's identity (Goffman, 1963) and lead to stigmatisation, in line with participant experiences of otherness, social exclusion and

withdrawal. Responses to infertility included assigning failure and blame, connecting with previous research (Imeson & McMurray, 1996).

Conceiving and delivering a healthy baby provided a way to leave a 'childless' identity and associated stigma behind. IVF required a significant emotional, financial, and physical investment in motherhood; however, this was compounded by the limited opportunities some participants faced to get pregnant. As a result, the experience was all-consuming, although this did not seem to be the case for those who were already mothers.

IVF created emotional pressures for couples throughout the journey to motherhood. Responses included 'riding out' emotions, sheltering from other people's expectations, and reaching out to others. For some, this included family and friends. For others, internet forums provided a way to connect with others in an anonymous way, highlighting the potential value of such resources for sharing experiences and information (Cousineau & Domar, 2007).

The physical investment of IVF saw participants optimising their bodies through diet and exercise which were seen to increase chances of conception. This suggested a move towards an internal locus of control - a psychological protective factor following trauma, also associated with healthy behaviour during IVF – at a time when an external locus of control can dominate (Beaurepaire, Jones, Thiering, Saunders, & Tennant, 1994). Control was also relinquished at points, with rest and relaxation experienced as important in allowing the body to do what it needed to in order to achieve a pregnancy. For some, pregnancy was experienced as unique and to be protected at all costs given the significant investment involved.

Once pregnant, 'negotiating a safe passage' was essential in ensuring safe arrival at motherhood. This included decision-making about PA. Perceived threats were underlined by an expectation that 'the worst' would happen. PA was experienced by the majority of participants as a threat to pregnancy (Hegaard et al., 2010), or as a risky behaviour (Currie et

al., 2016) particularly in the early stages, which seemed to reduce PA behaviour. This makes sense in the context of the TPB and decision-making, as personal attitude towards PA is often a strong determinant of behaviour in Western, individualistic cultures (Van Hooft & De Jong, 2009). Most participants responded to the perceived threat of PA by getting to a 'safe stage' before considering PA engagement, in an effort to keep the baby safe.

One way to manage threats to pregnancy was to know your body, thus providing a degree of PBC. Most participants experienced an internal need to be active once they had reached a 'safe' stage of pregnancy but had to balance this with safety concerns about PA. Listening to the body (Hanghøj, 2013) and modifying PA allowed participants to engage whilst facilitating a process of re-connecting with the body after IVF treatment, a time when women often 'detach' from their bodies in order to cope with the emotional and physical demands (Benjamin & Ha'elyon, 2002).

Information seeking formed part of the PA decision-making process and was experienced as both helpful and unhelpful, depending on amount and clarity. Lack of information from health professionals led to uncertainty about what level of PA was safe during pregnancy, supporting previous research highlighting the need for clear and consistent advice from professionals (Gross & Bee, 2004).

Decision-making about PA was also explored in the last superordinate theme, 'balancing the challenges of pregnancy with the needs of the self'. PA provided a helpful way to psychologically and physically soothe the self and seemed to be experienced as reparative following the trauma of infertility, perhaps enabling a 'thicker' identity focussed on skills and strengths to emerge (White, 2004). It engendered feelings of success and validation, emotional wellbeing, and physical health for mother and baby, supporting previous research (Da Costa et al., 2003; Nash, 2011). PA was also experienced as socially

unifying – important as social support improves psychological wellbeing following infertility trauma (Paul et al., 2010).

Pregnancy, however, mediated the amount of PA participants engaged in and was experienced as physically uncomfortable at times. Feeling restricted by a changing body, tiredness, and time constraints also prevented PA engagement, supporting previous research (Duncombe et al., 2009; Marquez et al., 2009). Limitations on PA may have negatively affected some participants' PBC beliefs, decreasing their likelihood to engage in PA.

PA was also used to control physical pregnancy experiences such as labour and weight gain. Its role controlling weight may have provided a way for women to maintain their pre-pregnancy identity at a time when women often struggle to balance the identities of the old and new body, role, and self (Chang, Kenney, & Chao, 2010; Nash, 2011). PA also provided psychological control which was achieved through perseverance and trying to carry on as 'normal'. Exercise self-schemas (belief that one is an 'exerciser') seemed to be an important motivator for participants who had engaged in PA prior to pregnancy (Leiferman, Swibas, Koiness, Marshall, & Dunn, 2011) and increased self-efficacy to overcome PA barriers (Hinton & Olson, 2001).

Findings suggest that positive attitudes towards PA (e.g. beliefs that PA improves emotional wellbeing and will help birth) and negative attitudes (e.g. beliefs that PA is a threat to pregnancy) formed part of the PA decision-making process. Similarly, experiences of greater PBC (e.g. modifying PA, listening to your body) are likely to have been considered against experiences of lower PBC (e.g. physically uncomfortable, tiredness).

Limitations

Homogeneity of the sample could have been improved. Although participants were similar in terms of social class and ethnicity, they were at different stages of motherhood.

Five out of the eight participants gave retrospective accounts of their experiences, which may have affected the results; however, research has shown that women recall accurate pregnancy-related information up to 10 years after their child's birth (Liu, Tuvblad, Li, Raine, & Baker, 2013).

In addition, he sample consisted of volunteers thus risking self-selection bias; however, the research did encompass accounts from women who did not class themselves as 'exercisers' and as such still incorporated this aspect of individual experience.

With regards to the analysis, IPA is incapable of inferring causality (Willig, 2008). Whilst we cannot say that women's experiences of PA directly affected PA behaviour, IPA still provides a useful way of enhancing our knowledge about their lived experiences.

Practice Implications

Findings suggest that experiences of infertility and IVF are likely to have an impact on mood, sense of identity, and wellbeing. Narrative therapy could help build a 'thicker' identity following the trauma of an infertility diagnosis (White, 2004), whilst increasing a woman's internal locus of control is likely to result in more adaptive coping strategies during IVF treatment. Excessive anxiety about 'the worst' happening is likely to impact on emotional wellbeing during pregnancy, and is associated with a higher incidence of post-natal depression (Heron, 2004), indicating the importance of intervention. It is also important that practitioners such as midwives are aware of the distressing effects of infertility and IVF treatment, and can refer for psychological interventions where appropriate.

Benefits of PA and risk perceptions need to be explicitly discussed by health professionals during IVF treatment and pregnancy. This could positively influence personal attitudes and PBC towards PA and improve health behaviours (Pringle, Drummond, McLafferty, & Hendry, 2011).

A group PA intervention may be beneficial for this population as it would encourage social support through the sharing of knowledge and experiences of pregnancy. Establishing an environment rich in social support is widely understood as important for forming and then maintaining mental and physical health (Eng, Rimm, Fitzmaurice, & Kawachi, 2002). The beneficial effects of PA interventions can be bolstered by the inclusion of such opportunities for social support (Burke, Carron, Eys, Ntoumanis, & Estabrooks, 2006). Within a pregnant sample, social support has also been identified as a potential facilitator for engagement in PA (Currie et al., 2016).

Future Research

Further quantitative research using pregnancy anxiety scales (Levin, 1991) could explore whether PA increases or reduces anxiety in this population, given the variation in participants' PA engagement.

This study did not delineate between 'exercisers' and 'non-exercisers'. Pregnant women's self-efficacy in overcoming barriers to PA can affect PA behaviour (Cramp & Bray, 2009). PA experience seems an important variable. Future quantitative research could explore the difference in reported self-efficacy and anxiety levels between those who exercised pre-pregnancy and those who did not. Qualitative research could explore experiences of PA in each of these groups.

A facilitated group PA intervention could be evaluated according to its effect on psychological wellbeing, sense of social inclusion, and confidence to engage in PA.

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