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Mothers' experiences of the relationship between body image and exercise, 0–5 years postpartum: A qualitative study

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ABSTRACT

The relationship between body image and exercise in early motherhood is an important yet understudied determinant of mother and infant wellbeing. To address this, we report on a qualitative study of early mothers' lived experiences of the relationship between body image and exercise in the first five years post-birth. Twenty-one mothers (0–5 years postpartum) completed individual, semi-structured online/phone interviews (*M interview time* =47.25 min), to elicit narratives about peripartum body image and its relationship with exercise. Thematic analysis was conducted according to the Braun and Clarke framework. Three key themes, and several subthemes, were identified: 1.body image in early motherhood is diverse, dynamic and individual, 2.postpartum exercise forms part of early motherhood adjustment, and 3.body image and exercise form an important, intricate relationship in early motherhood. Women's narratives indicated three body image/exercise patterns, each characterised by different behaviours and motivations. Mothers who reported exercising, or avoiding exercising, for reasons related to body dissatisfaction appeared at greatest risk of negative outcomes from body-related distress and maladaptive exercise patterns. Conversely, mothers reporting higher body appreciation described more adaptive exercise behaviours. This research provides important information for the development of interventions to support positive body image and healthful exercise in early motherhood.

1. Introduction

The transition to motherhood, although often joyous, can also be challenging as women adjust to the physical, psychological and social changes of becoming a mother (Gross & Marcussen, 2017). Understanding both the negative and positive influences of postpartum on mental health for women is essential for the provision of optimal mother and child support. Shifts in body image and alterations in exercise behaviour are two important areas of change, which have a strong capacity to influence wellbeing (Downs, DiNallo, & Kirner, 2008). The complexities and inter-relationships between body image and exercise in early motherhood (defined as 0–5 years postpartum) are however, not well understood.

1.1. Body image in early motherhood

In pregnancy, women often report a reprieve from body image pressures engaging the thin, fit ideal, with a shift in emphasis from sexual appeal to care of the developing foetus (Rocco et al., 2005). After childbirth however, this reprieve typically dissipates (Clark, Skouteris, Wertheim, Paxton, & Milgrom, 2009; Devine, Bove, & Olson, 2000). Once pregnancy is complete, there can be intense pressure to 'bounce back' and to lose weight quickly (Montgomery et al., 2013). Strong sociocultural messages emphasise the importance of attaining an unrealistic thin and toned postpartum body (Fern, Buckley, & Grogan, 2012; Lovering, Rodgers, George, & Franko, 2018). As a result, body-related distress can be high, particularly as body changes after pregnancy (such as shifts in stomach and breast size) are often unexpected and uncontrollable (Skouteris, Carr, Wertheim, Paxton, & Duncombe, 2005).

Early research among mothers reported stronger body dissatisfaction 2–6 weeks post-birth compared to pre-pregnancy (Hiser, 1987; Jenkin & Tiggemann, 1997). More recent research

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has shown bodydissatisfaction increases significantly from 1 to 9 months postpartum, with a higher endorsement of body shame and avoidance of attention to body shape among women later postpartum (Gjerdingen et al., 2009). One study reported that 87.4 % of participants wanted a smaller body at 12 months postpartum, compared to 75.5 % in pre-pregnancy (Rallis, Skouteris, Wertheim, & Paxton, 2007). The existence of body dissatisfaction in the postpartum period is concerning (Clark, Skouteris, Wertheim, Paxton, & Milgrom, 2009) as it has been associated with a range of adverse outcomes, including disordered eating, higher body weight, poorer mental health, non-breastfeeding status and fewer immediate family relationships (Gjerdingen et al., 2009).

Conversely, positive body image has been associated with a return to beneficial exercise postpartum (Erbil, Şenkul, Başara, Sağlam, & Gezer, 2012; Hinton & Olson, 2001) and body appreciation, a key component of positive body image, may therefore hold important implications for mother wellbeing. Positive body image experiences have been reported in early motherhood. Some women report a new appreciation of body functionality after the amazing feats of pregnancy and postpartum infant care (Fern, Buckley, & Grogan, 2014; Fox & Neiterman, 2015). For example, Strang and Sullivan (1985) reported that women felt positive about their bodies at 2- and 6-weeks after birth, although they were still relatively negative compared to their pre-pregnancy attitudes. Some women report feeling stronger and fitter postpartum (Clark et al., 2009b).

Research has also suggested that body dissatisfaction and body appreciation can co-exist during early motherhood (DeLuca & Bustad, 2017). Overall however, studies tracking body image more than 1-year post-birth are lacking, but the existing research is clear in its findings that postpartum body image is complex.

1.2. Exercise in early motherhood

In addition to body image changes, many postpartum women report decreases in their exercise, which has also been associated with several negative outcomes, including poorer physical and mental health, disordered eating, and higher body weight (Davenport, Giroux, Sopper, & Mottola, 2011; Downs et al., 2008; Walker, Xie, Hendrickson, & Sterling, 2016). Exercise is considered a subset of physical activity and involves planned and structured physical movement, while physical activity refers to bodily activity more broadly which expends energy (Ashdown-Franks et al., 2020). Exercise has been shown to be beneficial for post-natal depressive symptoms (Downs et al., 2008), postpartum weight (Davenport et al., 2011), fatigue and stress (Yang & Chen, 2018), pelvic floor strength (Mørkved & Bø, 2014), and role modelling for children (Edwardson & Gorely, 2010).

Early mothers tend to engage in reduced levels of exercise (Abbasi & van den Akker, 2015; Bellows-Riecken & Rhodes, 2008) (Armstrong, Bauman, & Davies, 2000; Berge, Larson, Bauer, & Neumark-Sztainer, 2011). Research by Berge et al. (2011), as part of the Project EAT Study, found that mothers of young children undertook on average 2.36 hours of moderate to vigorous activity per week compared to 3.19 hours in women with no children (p = .002). These data suggest that postpartum women may be falling below the 2.50 to 5.00 hours of moderate intensity physical activity recommended for health and wellbeing (Australian Government, Department of Health, 2019).

A systematic review by Engberg et al. (2012) identified four studies where physical activity significantly decreased from pre-pregnancy to postpartum, while two studies indicated no change. In the latter two studies however, a relative increase in household activities and walking was noted. Concern has been expressed therefore that there may not be enough intensity in return to physical activity after childbirth to support health benefits (Borodulin, Evenson, & Herring, 2009). Alongside several factors such as conflicting priorities, fatigue, and adjustment to maternal roles (Saligheh, McNamara, & Rooney, 2016), the influence of body image on exercise reduction, and vice versa, is important to consider in early motherhood.

1.3. Body image and exercise in early mothers

While there are likely to be multiple explanations for reduced exercise postpartum, one hypothesis is that heightened body dissatisfaction in this period may be driving exercise avoidance or maladaptive exercise patterns, which in turn may also be linked to entrenched negative body image. Conversely, helping mothers to increase their body appreciation may be one avenue for motivating a return to functional physical activity, as links between body appreciation and increased healthy exercise have been shown in non-postpartum females (Andrew, Tiggemann, & Clark, 2016).

Research with adult women (excluding early mothers) indicates that the relationship between body image and exercise is complex and bi-directional. It is probable that the relationship plays out differently in postpartum women, due to the state of high physical, psychological and social change at this time. Yet studies investigating both body image and exercise, specifically in early motherhood, are scant (Downs et al., 2008) and the available data have generally been reported as secondary or exploratory outcomes, rather than the primary research focus.

Quantitative studies show mixed findings. First, two studies have shown significant positive associations between measures of body satisfaction and exercise frequency in early motherhood. In a longitudinal cohort study of 498 mothers, Hinton and Olson (2001) reported a statistically significant positive bivariate association between body satisfaction and exercise. In a cross-sectional survey of 440 women, body satisfaction was significantly higher in women who exercised regularly postpartum (Erbil et al., 2012). Second, two further studies have shown significant negative associations between body dissatisfaction and exercise. In a study where 74 women from an antenatal program were interviewed 2.5 years after delivery, mothers with greater body dissatisfaction after pregnancy reported undertaking significantly less exercise postpartum (Harris, Ellison, & Clement, 1999). Walker et al. (2016) also reported a statistically significant negative relationship between body dissatisfaction and physical activity from a cross-sectional survey of 600 mothers. Finally, two other quantitative studies found no association between body image and exercise in early motherhood (Collings, Hill, & Skouteris, 2018; Zaman & Jami, 2016). While confounded by design limitations, including inconsistent measurement of body image and exercise, a lack of consensus in the quantitative research is evident.

From a qualitative perspective, Currie (2004) and DeLuca and Bustad (2017) conducted interviews with early mothers on the benefits of structured exercise programs. Currie (2004) interviewed 28 mothers of older children (M_{age} = 10.4 years) who had been enrolled in a 12-week (twice weekly) exercise program. Participants commonly reported using exercise for postpartum appearance management and attributed their improvements in body image to achievement of appearance ideals such as reduced body weight or increased athletic physique. Negative body image effects were also reported, where body surveillance and social comparisons were linked to increased body anxiety. DeLuca and Bustad (2017) studied 10 mothers with a child under 2 years, who participated in a fitness group. Exercise was undertaken for a range of body-related reasons, including weight management, cultivating a “post-baby body”, fitness, and strength. Participants reported equating appearance with self-worth and exercised to reach ‘body ideals.’

1.4. The current study

Given the substantial changes to body image and exercise that can occur in early motherhood, it is possible that both constructs, and the bi-directional relationship between the two, are concordantly affected (DeLuca & Bustad, 2017). Fundamental questions remain around how the relationship between body image and exercise operates within a postpartum individual, what influences it (e.g., trait versus state body image, exercise factors), how it evolves over time, and how adaptive versus maladaptive patterns might manifest. Further research is required to address these significant gaps, if interventions targeting the development of maternal and infant wellbeing are to be effective in promoting healthy body image and exercise behaviours.

Therefore the aim of this study was to conduct a detailed exploration, using qualitative thematic analysis (Braun & Clarke, 2006) of the relationship between body image and exercise, in the first five years after giving birth. To do this, individual semi-structured interviews with mothers of children aged 0–5 years were conducted. We used a narrative history-based approach (Cole & Knowles, 2011) to separately explore body image, then exercise, then the relationship between the two, across time points: before, during and up to five years after giving birth. This approach uses story form to capture an individual's history. The purpose was to explore and understand the range of both positive and negative body image experiences in early motherhood; how these valanced body image experiences might coexist, how women approached exercise after childbirth, and how these complex body image experiences and exercise behaviours might relate to each other, given the often high state of change occurring at this time.

2. Method

2.1. Participants

Semi-structured interviews were undertaken with 21 women living in Victoria, Australia who were over the age of 18 years, and not currently pregnant. A 22nd woman was interviewed; however, her data were not included in the study as she informed the research team after the interview that she was newly pregnant. Women were required to be the biological mother of at least one child aged 5 years or younger and fluent in English. Participants ranged in age from 30 to 46 years, with age of the youngest child ranging from 1 month to 5¾ years. Eight of the women interviewed (38 %) were currently breastfeeding. Participants were well-educated (62.9 % Bachelor degree), and predominantly of Caucasian origin (86.7 %). Two participants identified as Asian and one as Aboriginal. Two participants lived in regional Victoria and the remaining resided in Melbourne.

The majority of women interviewed had two children (52.4 %), followed by one child (23.8 %). Two women had birthed twins. A formal diagnosis of perinatal or post-natal depression was self-reported by 2 participants (9.5 %). Self-reported body mass index (BMI) ranged from 19.9 to 38.7 (with an average of 24.9, *SD* = 4.54). Most women were in full or part-time employment in professional jobs (90.1 %), two were studying and most were married (80.2 %). Two participants had previously competed in elite level sport. The average amount of weekly exercise reported by the mothers was 107 minutes per week (*SD* = 133), which is below the national health recommendations (which suggest 150–300 minutes of moderate intensity physical activity each week; Australian Government, Department of Health, 2019). Table 1 provides an outline of participant details.

2.2. Materials

An online survey hosted by Qualtrics was used to collect general socio-demographic information about each participant, including age, race, weight and height (to calculate BMI), and occupational data. Child and usual exercise data were also collected. Individual interviews were conducted online, and recorded with participant consent, using Internet-mediated software (Zoom® or MP3 Skype Recorder®, version 4.42) and a handheld recording device. One interview was conducted via phone as the participant did not have Internet access. MP3 files were uploaded to an online transcription service.

A semi-structured interview protocol, the predominant approach for qualitative interviews, was followed. Semi-structured interviews were deemed an ideal process for this study as pre-prepared interviews offer consistency of approach across interviews alongside flexibility to respond to the participants' developing account (Braun & Clarke, 2013). Sixteen open-ended questions were posed to elicit narratives on body image, then exercise, and then perceptions of the relationship between the two, at the time points of before having children, in the first 12 months post-partum, and now (if more than 12 months post-partum or subsequent children were born). Where women had given birth to more than one child, questions were repeated for each child under five years of age, in order from youngest to eldest. To develop the interview protocol, a history-based approach was used, and relevant theoretical models were considered, in attempting to understand how the relationship between body image and exercise might be conceptualised, including the Tripartite Influence Model (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), the Biopsychosocial Model (Rodgers, Paxton, & McLean, 2014), and a broader cognitive behavioural model (Cash & Smolak, 2011). For example, the question "How do you think / feel about your body now?" was shaped by the cognitive behavioural perspective that cognition, affect and action are intricately linked in someone's experiences of a phenomenon. Body image was operationalised to participants as one's psychological experience with their body, and exercise was described as structured activity which was undertaken specifically for purposes such as fitness and psychological wellbeing (although a range of individual motivations may exist). The interview protocol was piloted with mothers during earlier focus groups and refined to add a greater focus on exercise and body image before being finalised for the current study. A copy of the interview schedule is provided in Supplementary File 1.

2.3. Procedures

Ethical approval was obtained from the Science, Health and Engineering College Subcommittee of the La Trobe University Human Ethics Committee (LTU HREC S17-143). Purposive sampling via social media and a snowball method were used to recruit participants. Advertisements for participants who had experienced changes to how they feel about their body, or the way they exercise, after having children were placed on the Body Confident Mums Facebook page (https://www.facebook.com/mummamentalhealth/) and individuals known to the researchers were asked to inform other mothers they knew who might be interested in the study. All participants provided informed consent online prior to participation and completed the online survey prior to interview.

Interviews were conducted one-on-one with the first author who was an honours psychology student with over twenty years' experience in allied health and higher education. She had training in qualitative methodology and use of NVivo® software. The protocol was used to guide discussion. History-based questions were employed according to the age/s of the participant's child/ren and

Table 1
Participant age, children breastfeeding and work / study characteristics.

Participant Nº	Age	Nº children	Age youngest child	Currently breastfeeding N = No Y = Yes	Work / Study status full-time = FT part-time = PT
1	35	2	4 years	N	PT study
2	30	2	3 years	N	PT work
3	46	2	5 years	N	FT work
4	34	1	3 years	N	PT work
5	42	2	2 years	N	FT work
6	31	1	3 years	N	FT work
7	39	2	3 years	N	FT work
8	38	1	6 months	Y	FT work
9	35	3	6 months	Y	PT work
10	33	3	9 months	Y	PT work
11	32	2	6 months	Y	PT work
12	30	1	1 year	Y	PT work
13	42	3	1 year	N	PT work
14	46	2	5 years	N	FT work
15	34	2	4 years	N	PT work
16	31	1	1 year	Y	PT work
17	39	2	6 weeks	Y	FT work
18	35	2	1 year	Y	FT study
19	37	2 (twins)	4 years	N	PT work
20	37	2	4 years	N	PT work
21	36	2 (twins)	1 year	N	PT work

were repeated for each child delivered (i.e., perceptions of body image, exercise and the relationship between the two before, first year after and 2–5 years after giving birth to each child). Reflecting on women's experiences before and after childbirth was a comparative strategy used to outline any shifts in the body image-exercise relationship that may have occurred upon entering the years of early motherhood.

Interviews were conducted until saturation was believed to be achieved, leading to a final sample of 21 mothers (a large sample size for a thematic analysis; Braun & Clarke, 2006). While there is widespread debate as to whether data saturation can really be achieved, in this study saturation was gauged by a comprehensive coverage of issues, repeated references to key themes across interviews and an absence of newly emerging perspectives. Questions were applied consistently across all interviews, however flexibility in the ensuing dialogue was encouraged to allow the authenticity of each woman's narrative to unfold.

Average interview time was 47.25 minutes and participants received a $10 shopping voucher as remuneration for their time. All participants were e-mailed within three hours of the interview with follow up contacts for freely available psychological support via helplines, in the event they felt distressed by any content of the interview.

2.4. Data analysis

Electronic audio recordings of the interviews were transcribed verbatim into text-based (MS Word) documents, using the automated online software Trint® (https://trint.com). Written transcripts were then anonymised using pseudonyms, checked for accuracy and edited to match directly with voice recordings. Preliminary analysis commenced alongside interviews, progressing iteratively using the thematic method of Braun and Clarke (2006). This analysis involves six phases: 1. familiarisation with the data, 2. generating initial codes, 3. searching for themes, 4. reviewing themes, 5. defining and naming themes and 6. producing the report. This process was undertaken by the first author in collaboration with co-authors, then steps 4–6 were repeated with an independent double coder.

Initial coding was undertaken by the first author using NVivo Plus® (version 11) on the entire data set, drawing on mixed deductive and inductive approaches (Saldaña, 2016). This stage involved prolonged engagement with the data, including reading Trint scripts, listening to audio files and editing transcripts for accuracy, then re-reading for immersive comprehension. Deductive codes were created for key concepts from existing theoretical and research literature (i.e., body appreciation, exercise for self-care / positive affect; Homan & Tylka, 2014) and inductive codes were developed in response to emerging patterns in the data, strongly grounded in participants' accounts (i.e. shifts in relationship also with postpartum situational influences / life lessons). Multi-coding of the same text was allowed, where important codes overlapped on the same dialogue.

Codes were grouped into themes and subthemes with inclusion and exclusion criteria set to generate the initial coding framework based on all 21 interviews. The coding framework was refined over iterations, as coded material was re-considered, similar codes merged and obsolete codes were deleted, cross transcript comparisons progressed, and the research team critiqued and refined the tool. To enhance coding reliability, 20 % of interviews were independently double-coded by an allied health practitioner (PhD) with coding experience, following the approach of MacPhail, Khoza, Abler, and Ranganathan (2016)). An initial Cohen's kappa value of 0.48 indicated unacceptable reliability (Cohen, 1960). The coding framework was therefore discussed and modified until strong inter-rater reliability of over 0.80 was achieved. Themes were therefore reviewed and amended to ensure they formed a consistent and authentic representation of both coded extracts and the entire data set.

3. Results

Themes presented in this paper focus on the issues of body image, exercise, and finally, the relationship between the two. Theme 1, *Body image in early motherhood is diverse, dynamic and individual* provides important framing information about interviewees' unique postpartum body image experience, and similarly, Theme 2, *Postpartum exercise forms part of early motherhood adjustment* provides framing of postpartum exercise experiences. Theme 3, *Body image and exercise form an important, intricate relationship in early motherhood* addresses the relationship between body image and exercise in early motherhood and forms the primary focus of this paper. Table 2 outlines the three themes, respective sub-

Table 2
The Body Image-Exercise Relationship in Early Motherhood; Themes, Subthemes and Example Codes.

Themes / Subthemes	Example codes
Theme 1: Body image in early motherhood is diverse, dynamic and individual	
1.1 Body image valence postpartum is diverse	- Unhappy with body changes, expresses feelings of shame, sadness, loss of self (for example) and negative cognitions and affect towards body. - Amazed at what body has achieved in birthing a child, what female body can do, strong, self-admiration, appreciative.
1.2 Body image expression is temporally and situationally influenced	- Relationship is learnt early and is enduring but powerful influences of early motherhood can modify the relationship, for example, shifting body priorities, post-natal depression, excess post-partum weight, lack of time and lack of sleep.
1.3 Body values, self-identity and roles of motherhood are intricately linked to body image experiences	- Experiences with social expectations around early motherhood body, such as 'getting the body back' pressure or, it's ok to change shape after having a baby - often includes references to media, social media, friends, family, partner.
Theme 2: Postpartum exercise forms part of early motherhood adjustment	
2.1 Re-establishing exercise postpartum is contextual	- Exercise has diminished, ceased or never re-commenced since having children. - Returned to pre-baby exercise, new opportunities for exercise presented.
2.2 Exercise motivations take on new dimensions	- Reasons for exercise include psychological benefits, social outlet, 'me time' appearance, health and fitness. - Reasons for not exercising might include social anxiety, not liking it, not enough time, pelvic floor injury, breastfeeding.
Theme 3: Body image and exercise form an important, intricate relationship in early motherhood	
3.1 Core beliefs around 'body values' create iterative loops of conditioned learning	- Exercise patterns were positively or negatively reinforced, based on an individual's body goals. - With body appreciation, exercise was used for self-care / positive affect. - With body dissatisfaction, exercise was used for appearance management / reducing negative affect. - With body dissatisfaction, exercise was avoided for reducing negative affect / avoidance of stigma.
3.2 Relationship is stable but situationally influenced	- Relationship shifts pre-post children, and between first year postpartum and current. - Enduring influence of pre-baby orientations. - Shifts in relationship also with postpartum situational influences / life lessons.
3.3 Key body related motivations for exercise	- Exercise for self-care and appreciation, including; physical rebuilding / function, stress relief, positive affect and positive body image. - Exercise for body control and to mitigate weight and shape distress, including; altering body appearance, relief of negative affect and managing negative body image / body image threat.
3.4 Body image, exercise relationship implications are both beneficial and potentially detrimental	- Positive relationship evidenced by adaptive (protective) cognitions, affect and behaviours, including: believing body is strong, feeling good about self and healthy activity. - Detrimental relationship evidenced by maladaptive (damaging) cognitions, affect and behaviours, including: believing body is unacceptable, feeling body-image distress, exercising injured, excessively or prematurely after giving birth.

themes and example codes derived for each subtheme, which are subsequently discussed.

3.1. Theme 1: Body image in early motherhood is diverse, dynamic and individual

The first theme emerged as participant narratives continually and consistently indicated that body image in the postpartum years was complex, of mixed valence and shifted over time in individualised ways. Three subthemes captured these complexities; body image experiences were diverse (3.1.1), temporally and situationally influenced (3.1.2), and linked to body values, self-identity and motherhood roles (3.1.3). Across subthemes, it was apparent that women's body image experiences overall were tied to concepts of body values, personal meanings attributed to weight and shape, shifts in self-identity postpartum and perceptions of early motherhood roles.

3.1.1. Body image valence postpartum is diverse

Women described a range of body image experiences in early motherhood. For some women body image was more negative than in pre-pregnancy, not uncommonly due to postpartum weight retention.

> "I was not very happy with myself at all really (after first baby), I just felt really overweight and did not have a very good body image at all" (P14)

Several women were shocked at the degree of unexpected physical change to their bodies, expressing surprise that they had little forewarning.

> "I actually don't think I thought that my body would end up looking that stretched, it was a shock to me" (P1)

Conversely, positive body image was vividly described by some, particularly by women who had experienced challenges conceiving or carrying to term.

> "I actually felt like superwoman. . ...and so I think you know I felt very much like I could do anything, obviously I couldn't but you know I sort of had that sense of I was really proud of what my body had done in carrying them" (P19)

An important finding was that positive and negative body image experiences were not mutually exclusive, with women often reporting a complex interplay between the two. The proportion of positive relative to negative body image differed between women, commonly shifting over time in response to a range of stimuli.

"Yeah there's always two dialogues there, so it's always like I'm amazing I look after my baby boy, my body has done this, it's fed and nurtured and all of that, and then there's the, but it would be nice to feel as good as I used to in my body" (P12)

And finally, for some women, little to no impact to their body image was experienced postpartum, highlighting the broad range and magnitude of different experiences reported.

3.1.2. Body image expression is temporally and situationally influenced

Body image in the women interviewed was commonly a dynamic phenomenon. For many, the balance of body image valence swayed between relative dissatisfaction to relative appreciation in response to multiple influences over time. Typical examples included, pre-baby orientations, the amount of time since the birth of their child and salient events such as baby's first birthday or return to work.

"So in the first three months it didn't really affect me at all because it was just like post baby, whatever that's fine, about three to eight months I started to get fairly upset about what my body looked like and I'd have semi-meltdowns over it, I would tell my husband that I'm not going out today" (P12)

Interestingly, for some women the same influence had opposite effects on body image, depending on the meaning an individual constructed around that stimulus. For example, while one mother experienced negative body image after returning to work, dissatisfied with being a different size, another described an improvement in body image as her return to the work environment meant that her body was no longer being judged solely on the premise that she was now a mother. For some women pre-baby orientations were pervasive and enduring, particularly where appearance-based pressure was high.

"I remember walking through the corridor at work feeling like I had to justify how I looked because I wasn't that far off having a baby and because I wasn't back to my normal size, back to my normal routine of exercise, I felt like I failed a bit by the time I went back to work" (P3)

3.1.3. Body values, self-identity and roles of motherhood are intricately linked to body image experiences

Women's body image experiences postpartum appeared deeply linked to their personal constructions of motherhood and how it related to participants': body values, self-identity, meanings of weight and shape change, and shifting social roles. Body image responses were underpinned by a range of expectations women had formed around their postpartum bodies and the degree to which these expectations were perceived to be met. For example, some women reported appearance-based expectations, including short timelines to return to pre-pregnancy weight, while others reported the importance of self-nurturing for emotional and physical recovery from pregnancy and birth. Interestingly, achieving body expectations postpartum for some women was closely linked to their sense of identity.

"After having kids you feel like you haven't been successful unless you look good" (P14)

Attitudes around weight and social expectations of physical appearance in early motherhood also strongly shaped some women's experiences.

"I ended up being bed bound for a number of weeks in hospital after she was born and I had a lot of muscle wastage. . ...yeah I was the skinniest I'd ever been and people kept commenting on that, you know even the doctors would come to check my stomach and would be like oh you're one of those women that just bounce back, like it was sort of this real positive, yeah it was good and it was addictive almost" (P11)

"I was in such a bad mental place, I clearly put on a lot of weight and I was always very self-conscious and even the mothers group thing I just avoided at all costs because of my body image, not just cause I wasn't back exercising, like I just was in such a bad place that I just wanted to stay at home all the time"(P3)

3.2. Theme 2: Postpartum exercise forms part of early motherhood adjustment

For the second theme women described postpartum exercise being shaped by past exercise behaviours, although subject to unique personal experiences and circumstances during early motherhood. Exercise experiences in early motherhood were diverse as women faced new barriers to exercising. Motivations for exercise were multifactorial. Two subthemes arose, describing how early motherhood was related to re-establishment of exercise patterns (3.2.1), and exercise motivations in the postpartum period (3.2.2).

3.2.1. Re-establishing exercise postpartum is contextual

While the amount and type of exercise varied, many women in this study returned to some form of exercise reasonably soon after birth. Common forms of exercise within the first few months postpartum included pram walking, Pilates, and yoga. New barriers to exercise were a clear challenge for some, often to the detriment of their own needs being met. The main barriers to exercise included motivation, childcare, money, fatigue, other priorities, and postnatal depression.

"Exercise wise, absolutely everything had gone out the window, it was like running a circus and that was always the least of my priorities, it was more about making sure everyone was happy and you put yourself last, you make sure everything's done but not for you" (P2)

Lack of suitable professional exercise advice was a key concern, particularly regarding rehabilitation from pregnancy or birth-related injuries. Support from family and partners was also important.

"I don't feel like I had a lot of support in that first year really and I'm actually quite bitter and twisted about it too cause everyone in mothers group seemed to have mothers and fathers that you know would drop in and take children" (P14)

3.2.2. Exercise motivations take on new dimensions

Motivations for exercise were usually multiple, with important new incentives such as relief from the psychological stresses of mothering, health benefits and social interaction with other mothers.

"And then also you might be able to exercise with other people who are going through the same thing or you make other friends and you're feeling quite good cause you're socially out there as well, which being a new mum can be quite isolating" (P13)

Appearance modification was also a strong, but at times divisive exercise motivation. Typical appearance-based reasons for exercise included management of excess postpartum weight or in an attempt to meet socially constructed notions around the 'thin, fit' ideal, such as the 'yummy mummy'.

"Your sort of thrown all of these images of beautiful perfect women with happy children and that can get a bit tough, especially if you're not feeling it at the time" (P6)

In addition, these motivations often became stronger in the context of major life or social events.

> "Things were all really out of whack leading into my sister's wedding, I was going for ridiculously long walks even five days after I'd had the baby, dangerously probably so, and not eating for days and things like that and then like felt like crap at her wedding anyway away so I was like, I really felt unhappy with myself" (P11)

3.3. Theme 3: Body image and exercise form an important, intricate relationship in early motherhood

The third main theme arose as women described how body image experiences made important contributions to determining their exercise patterns, and vice versa, in the postpartum period. The body image-exercise relationship (hereafter '*the relationship*'), however, existed within a complex array of related issues.

3.3.1. Core beliefs around 'body values' create iterative loops of conditioned learning

The relationship between body image and exercise appeared to have a 'learnt' element, driven by core body values held during early motherhood (e.g., valuing body functionality such as health and strength versus valuing appearance). When selected exercise patterns contributed to meeting the mother's unique body values, body image-exercise relationships were cyclically reinforced. For example, for women who valued and appreciated their bodies, exercise was undertaken with the goal of self-care. When self-care was achieved, this exercise pattern was reinforced. Alternatively, for those women who valued body appearance, in particular the 'thin, fit' post baby ideal, exercise was undertaken for management of weight and shape. When management of weight and shape was achieved, or deemed achievable, this alternative exercise pattern was reinforced. Women's narratives supported the notion of postpartum body values and described women's goals for using exercise to meet their body values.

> "I just think that there was a certain way that I wanted to be and certain goals that I wanted to achieve and there was no way that I was going to deal with being like 75 kgs or 80 kgs or whatever it was" (discussing exercise) (P7)

Learnt patterns of exercise postpartum were then continued, if women believed a certain way of exercising contributed towards meeting her body values. That is, exercise patterns continued when body goals were reinforced by that exercise.

> "It was definitely a big thing to get back to my physical strength, like I pride myself on being able to lift the strongest weights and I realised that's actually really important to me, being strong" (P9)
> "The link is very strong, so if I work out, like if I'm exercising then I feel better about myself and how I look" (P10)

Three common patterns emerged, capturing common body image-exercise relationships postpartum (Fig. 1), (1) self-appreciation; (2) weight and shape; and (3) self-consciousness.

Fig. 1a illustrates a body image-exercise relationship driven by the core body value of self-appreciation, where exercise was for self-care. When women experienced health and enjoyment from their exercise, their exercise choices were reinforced as the outcome was congruous with self-appreciative body values. This pattern was typically associated with women who described features of positive body image, such as self-love.

Fig. 1b and c illustrate two divergent body image-exercise patterns, arising from appearance-based body values. Women who described their body image-exercise relationship as depicted in Fig. 1b, exercised primarily to change weight and shape. They were mostly able to, or believed they could, achieve their body goals albeit to different degrees, but the exercise required was usually hard and frequent. Achieving body changes reinforced appearance-based body values. Among these women however there was often strong pressure, emanating from both unrealistic societal standards and strict internal expectations, for unworkable amounts and intensity of exercise, which at times came at a cost to health and relationships (*described in 3.4.4 below*).

The relationship in Fig. 1c occurred when women with appearance-based body values avoided exercise due to self-consciousness or stigma, such as feeling excluded from common forms of exercise such as gyms. In avoiding exercise, anxiety and exposure to stigmatising attitudes were reduced in the short-term, but this reinforced avoidance of exercise in the longer term. As a result, exercise avoidance was commonly and adversely associated with shame, frustration, and a lack of exercise benefits, such as stress relief. These latter patterns were typically associated with negative body image.

3.3.2. Relationship is stable but situationally influenced

Comparing across time periods (before, after and 2–5 years after birth) highlighted that pre-baby body image and exercise orientations strongly influenced the post-baby relationship; however, women also experienced a range of new presentations of the relationship with motherhood. Some women shifted to exercise for body appreciation and self-care while others shifted to exercise to manage post-partum weight gain and body dissatisfaction.

> "Now I'm doing yoga sort of two times a week at least and I feel like that's made a huge difference for realising how strong I am and changing the focus to what my body can do as opposed to what it looks like" (P1)
> "It's probably more linked to appearance now than it was before, only because now I'm probably my least fit that I've ever been which also means I'm at my least toned" (P18)

Women's narratives revealed that while the relationship is both learnt and enduring, there are powerful influences in early motherhood that may alter the relationship. For example, the mothers explained that shifting priorities, post-natal depression, excess post-partum weight, reduced fitness, lack of time and sleep deprivation, could all have important situational impact on exercise choice.

> "I also had postnatal depression after her which I think affected how much I wanted to go out and move my body or anything and exercise or do anything, I just felt gross for about two years" (P1)
> "There was different sort of like reasoning behind going to that gym like a maniac, it was just more to sort of deal with what I was dealing with at home, well you know in my new home and raising the two boys" (P7)

3.3.3. Key body-related motivations for exercise

Underlying body values strongly influenced motivations for exercise. Exercise was used as a tool for enhancing physical, psychological and social functioning in early motherhood. Rebuilding strength, fitness and functional capacity, re-enforcing positive thoughts and feelings around the body, psychological stress relief and social enjoyment were also associated with self-appreciation. Exercising for reasons of mental health was also evident.

> "Exercise is something that keeps me sane" (P7)
> "I felt like more exercise would have improved my health overall, both mentally and physically, and I probably would have felt better in my body" (P2)

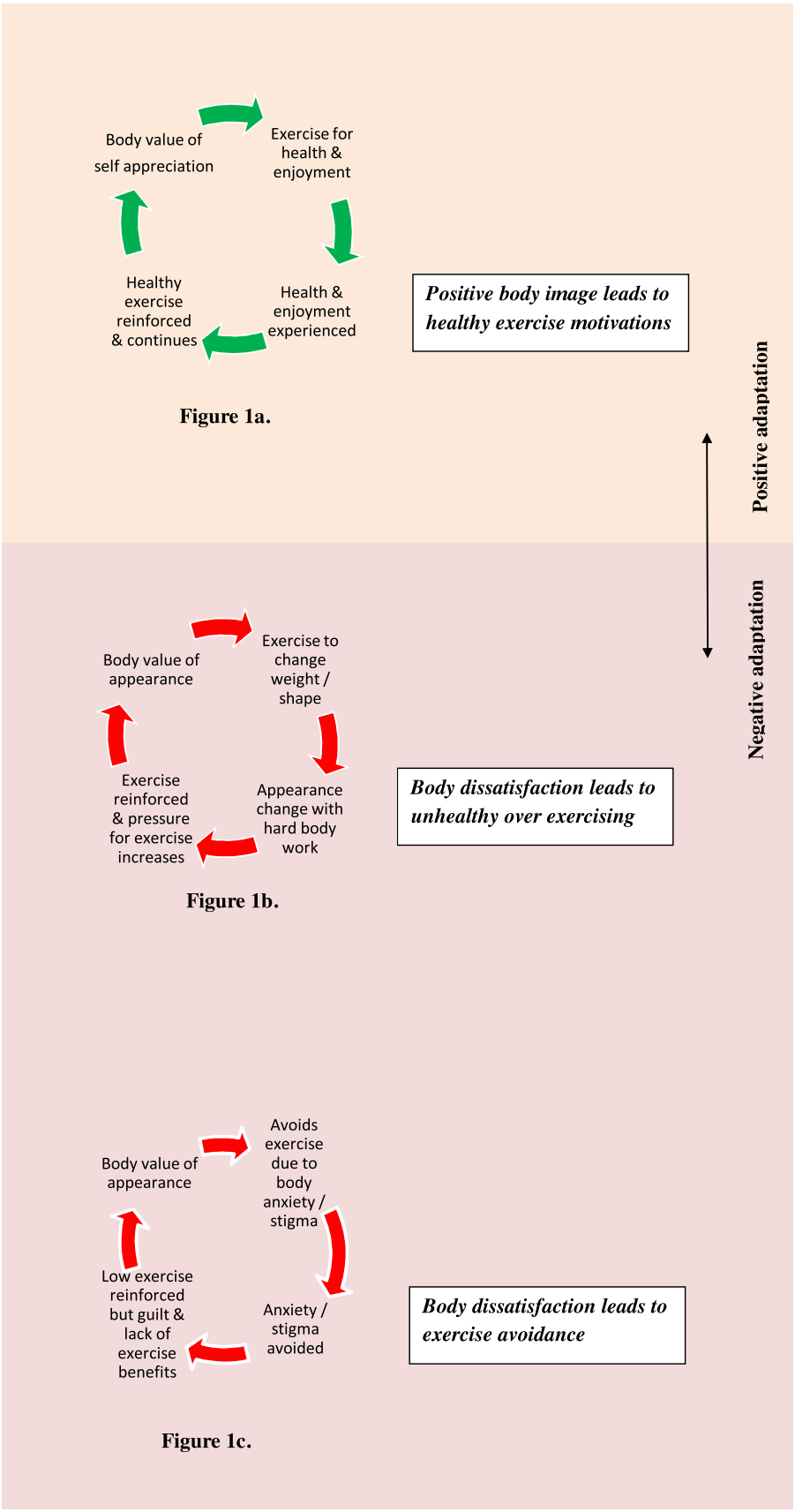

Fig. 1. Three Common Patterns of the Body Image-Exercise Relationship in Early Motherhood.

The relationship was strongly influenced by women's psychological constructions of body weight and shape in early motherhood. In particular, rigorous and prolonged exercise was used as a tool for manipulating body weight and shape, and to manage body dissatisfaction as exercise eased negative thoughts and feelings about the postpartum body.

> "Because I didn't want to put any of that weight back on and so after pregnancy, being told that I was looking petite and then being quite sick and looking quite skinny, I exercised quite differently after her [my daughter], like I got really into the like high intensity training" (P11)
> "Weight loss is my motivation for exercising" (P16)

Conversely, for some women, exercise avoidance was negatively reinforced by bypassing body anxiety and discomfort that was associated with exercise.

> "I feel I'm too fat to do the classes, I feel like I don't have the fitness level and I feel too tired too" (P2)

Importantly, women's narratives highlighted that the significance of each individual's body image-exercise relationship varied during early motherhood. Furthermore, women commonly reporting being concurrently motivated to exercise for both enhanced body appreciation and for diminished body dissatisfaction, although one motivation was typically a priority.

3.3.4. Body image, exercise relationship implications are beneficial and potentially detrimental

Importantly, women's narratives identified that the relationship could have both helpful and detrimental impacts. Helpful impacts included enhanced psychological wellbeing, social benefits, connectedness and the physical benefits of healthy engagement with exercise.

> "For me it would be, I wouldn't be that fussed about the weight loss and losing kilos, it would be the mental health, it would be the physical strength, so feeling like I've got a bit more strength back in my body and improving my posture" (P21)

Detrimental impacts included the risk of physical injury from exercising before the body had fully recovered from pregnancy and birth, exercising injured, increased psychological distress from undertaking strenuous exercise where the desired thin / fit ideal was not reached, reduced production of breast milk, and negative consequences for partner and child relationships.

> "And like I hurt myself, not just through the exercise but also through the eating patterns, I mean even today like I did a run for a half an hour and had it on an incline and I was like I wonder whether this is too soon for my pelvic floor" (P10)

Overall, the finding that the body image-exercise relationship links to subsequent exercise choices postpartum represents a key way the relationship is operationalised in women's day to day lives. Arguably, understanding what motivates exercise on a deeper cognitive level during this complex period of change is essential to the development of effective targeted interventions for return to healthy exercise postpartum.

4. Discussion

This study qualitatively explored women's lived experiences of body image, exercise and the relationship between the two, within 5 years of having a baby. Mothers' experiences were diverse, complex, dynamic and individualistic. Consistent with previous research (Clark et al., 2009a; Skouteris et al., 2005) Theme 1 findings identified that some women in this study experienced worse body dissatisfaction during early motherhood, due to a range of body changes. Importantly however, others reported a newfound appreciation for what their body was able to do peripartum, a finding less reported in the literature (Fox & Neiterman, 2015). Interestingly, across the themes, the concept of body image dissonance consistently emerged. This is consistent with past qualitative literature (Currie, 2004; DeLuca & Bustad, 2017), suggesting that body image changes with early motherhood are not a uni-directional, or fixed experience.

Theme 2 findings identified that the exercise behaviours of the early mothers interviewed in this study were also diverse, with several competing influences impacting upon exercise choice as also found by past research (Devine et al., 2000). Mostly positive return to exercise was reported by women in this study, in contrast to reports in the literature where return to exercise is generally diminished (Abbasi & van den Akker, 2015). The importance of appropriate supports to enable mothers' resumption of safe exercise, both professional and social, was apparent when contrasting the narratives of women who received that support and those who did not. Given the physical and psychological benefits to women of exercise, the importance of the 'right kinds' of support from family and health professionals, according to the individual's needs, is critical. For example, some women recognised that a crèche was available at their gym but did not feel comfortable leaving their child(ren) and would have much preferred more family support to support their exercise endeavours.

The deep qualitative exploration of mothers' body image-exercise relationships in this study revealed how body values strongly motivated exercise patterns, yet motivations were multiple and complex. Although women's exercise motivations were commonly multifactorial, a prioritisation of either exercise to improve appearance (i.e., commonly weight loss) or exercise for health and fitness (i.e., self-care) were evident in most narratives. The concept of an iterative cyclical loop of conditioned learning is an important and novel outcome of this research, consistent with Cash's Cognitive-Behavioural Model of Body Image, which aligns with theories of social learning, conditioning and cognitive mediation of behaviours and emotions (Cash & Smolak, 2011). For example, the degree to which an individual invests in their body image self-schema - attributing it to sense of self, valuing appearance, and weighing up body satisfaction and dissatisfaction against internalised body ideals - will shape self-regulatory strategies such as exercise. If the exercise undertaken is evaluated as contributing to the self-schema, the individual will adopt that pattern if they receive reinforcement for it.

Despite two common body values (appearance vs appreciation) often dominating mothers' exercise choices, the women's narratives demonstrated that body image and exercise do not associate in a simple linear manner in early motherhood. Motivations for exercise were varied and often multiple at any point in time, consistent with previous research indicating that woman exercise for several, co-existing reasons (DeLuca & Bustad, 2017; Homan & Tylka, 2014). The relationship between body image and exercise was also found to be strongly influenced by pre-baby orientations (i.e., traits, schemas), which is similar to earlier findings (Devine et al., 2000). Yet situational (i.e., state) influences, such depressive symptoms, fatigue or beliefs around mothering roles, also influenced the relationship. For example, one woman reported a history of an appreciative body image and healthy exercise after her first child, which shifted to body dissatisfaction and low exercise after her second child when she developed post-natal depression.

Some women appeared to benefit from an adaptive relationship between body image and exercise, describing the physical and psychological benefits that accompany exercise and positive body image. Mothers who exercised for body appreciation reported less pressure to exercise rigidly as their goals were not tied to

managing appearance but rather whether it was right for their bodies. These findings can be juxtaposed against past research linking postpartum exercise to appearance management and reaching for appearance ideals (e.g., Currie, 2004). Factors which have been linked in non-postpartum populations to negative outcomes (Prichard & Tiggemann, 2008) show that an important, beneficial, pattern between body image and exercise can alternatively occur in early motherhood. This can be differentiated from the finding that some body image-exercise relationships were deemed detrimental, based on reports of impacts that were tangibly damaging or exercise avoidant, a pattern more commonly inferred in the literature (DeLuca & Bustad, 2017; Walker et al., 2016). For example in the current study, high levels of body image-related distress and exercise were linked to harmful outcomes, including exercising with pelvic floor weakness or other injury, high pressure to exercise frequently and excessively, distress when body goals could not be reached, and high irritability with family and self with missed exercise sessions, consistent with the features of exercise dependence (Allegre, Souville, Therme, & Griffiths, 2006). Importantly therefore, this research is novel in that it separates out the differences and potential impacts of the way the body image-exercise relationship postpartum is expressed, in a very detailed and nuanced manner. The relationship is complicated and is not the same for all mothers, therefore the degree to which it may be harmful or helpful should be considered on an individual basis.

Given these insights, the findings of this research could be applied to educate families and health professionals about the importance of encouraging body appreciation, the development of healthy body image and a positive return to exercise patterns postpartum. Increased psychological and practical support, tailored to a mother's specific experiences of their body and adjustment to early motherhood, could help women engage in exercise for mental health and stress relief, rather than avoid exercise or overexert themselves to mitigate appearance concerns. The development and testing of interventions specific to early motherhood, focussed on reducing body dissatisfaction and increasing body appreciation, and tailored to the three body image / exercise archetypes described in Fig. 1, are indicated. This study revealed that body values are a core driver of body image and exercise patterns, and it is therefore anticipated that addressing fundamental body values, such as using cognitive dissonance interventions to encourage mothers to reject the 'thin, fit' ideal (Stice, 2002), and enhance body appreciation (Alleva, Martijn, Van Breukelen, Jansen, & Karos, 2015), may have optimal outcomes. Current programs do exist to help promote positive body image and physical activity in children (i.e. Confident Body, Confident Child; Hart, Damiano, & Paxton, 2016), however, there is scope for the development of interventions to increase mothers' body appreciation and healthful reasons for exercise.

4.1. Limitations

The women interviewed in this study were mostly of middle class, Caucasian, educated backgrounds, therefore findings may not be generalised beyond this group. In addition, convenience sampling was used via social media postings on the topic of body image in motherhood, and therefore the sample may have been biased towards women with a pre-existing interest in body image issues or higher levels of body image or exercise concerns. As the study design was retrospective and history-based, recall biases may have influenced women's recollections, particularly depending on the time elapsed since the birth of the first baby. This study did not explore the potentially important influence of body weight on the relationship between body image and exercise as it was outside the study scope. It is acknowledged however that body image and exercise behaviours are heavily influenced by body weight, and especially experiences of stigma and discrimination among people living in larger bodies (Vartanian & Novak, 2011), experiences of which are likely to change with body weight fluctuations during the postpartum years. Furthermore, the exploration of the exercise, body image relationship, over physical activity more broadly is noted as a potential limitation of the study, given the former exists as a subset of the later. For example, we were unable to consider whether reductions in exercise during postpartum were offset against more general increases in physical activity which come with the care of children. These are clearly areas for further research. Strengths of this study include the relatively large qualitative sample and the rich dataset that arose from the history-based approach. The data were double coded and guided by researchers with experience in qualitative analysis.

4.2. Conclusions

This work adds important knowledge to the critical but under-researched stage of early motherhood. Body image, exercise, and the relationship between the two was found to be complex, individualistic, dynamic and context dependent. The in-depth interviews provided narratives describing how these patterns are operationalised in real women's lives. Appropriate support from family and professionals would likely enhance women's body and exercise experiences during early motherhood, and greater understanding of the body image-exercise relationship is likely to foster healthy engagement in exercise for self-care. Further large scale, longitudinal research on the body image-exercise relationship, and the development and testing of interventions to enhance body appreciation and diminish body dissatisfaction, especially targeted for early mothers, is indicated. Given the broad importance of maternal wellbeing on family and child health, supporting the transition to motherhood and its complex effects on body image and exercise is likely to have large-scale benefits for society and should be a key focus of future research.

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Data statement

Interview data for this research will not be publicly available due to ethical reasons.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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