

Research paper

Promoting positive postpartum mental health through exercise in ethnically diverse priority groups

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What is known on this subject

- Women from ethnically diverse groups living in deprived localities in the UK may be at greater risk of poor mental health, particularly at the postpartum stage.
- Exercise may enhance mental health and ameliorate mental illness at the postpartum stage, but there is insufficient information about its effects on a variety of postpartum mental health problems across cultures.
- Members of ethnically diverse groups engage in lower levels of physical activity.
- Research on exercise rarely reports outcomes for ethnically diverse women, or their views on how exercise interventions should be delivered to promote their mental health postpartum.

What this paper adds

- Postpartum women in ethnically diverse priority groups believe in the value of exercise, and would participate in order to achieve improved physical and social outcomes, but they have little knowledge of the mental health benefits of exercise.
- Participation is dependent on the familial, social and environmental influences that shape these women's lives.
- Women do not share the same opportunities to engage in exercise.
- Forms and formats of exercise that are acceptable, relevant and deemed enjoyable have the potential to encourage participation, particularly if they combine 'worthy' and 'fun' outcomes.

ABSTRACT

Postpartum mental health is a significant concern in ethnically diverse priority groups, where challenges that negatively affect mental health can be complex and multi-layered. In 2007, the National Institute for Health and Clinical Excellence (NICE) recommended exercise as a non-pharmacological strategy to ameliorate postpartum mental health problems.

Evidence on exercise for postpartum populations is too sparse to inform service development, particularly in deprived, ethnically diverse communities in the UK. This study explored factors relating to exercise to promote postpartum mental health in priority groups.

The study design was influenced by the principles of grounded theory. Data were collected through focus groups and interviews from 25 women in an ethnically diverse area of multiple deprivation. Participants were end users, health and community professionals, service providers and commissioners.

Four core categories emerged, namely *postpartum exercise* (which included the content, culture and setting of exercise), *beliefs and values* (which reflected how postpartum women made decisions about health), *support and influence* (which explored the independence, dependence and interdependence that shaped relationships and choice), and *planning and resources* (which related to the practicalities involved in designing, developing and sustaining effective interventions).

The findings indicate that wide-ranging factors influence exercise for postpartum women in ethnically diverse priority groups. They integrate practical considerations, social–cognitive factors such as exercise competency and socio-cultural influences. These influences include familial, religious and cultural factors relevant to exercise, mental health, the postpartum stage and health promotion in general.

Keywords: exercise, health inequalities, mental health, postpartum, priority groups, social influence

Introduction

The National Institute for Health and Clinical Excellence (NICE) has recommended exercise as a non-pharmacological strategy to promote postpartum mental health, thus recognising its effectiveness while responding to concerns that women are being failed at a time of great vulnerability to illness (National Institute for Health and Clinical Excellence, 2007). According to the National Perinatal Mental Health Project (Edge, 2011), women who are from disadvantaged communities and/or who are members of minority ethnic and ethnically diverse groups are particularly at risk (see Box 1). Reports on physical activity for all adults (Hillsdon *et al*, 2004) and physical activity and mental health interventions (Whitelaw *et al*, 2008) reveal a paucity of evidence on their effectiveness with ethnically diverse populations. Whitelaw *et al* (2008, p. 61) conclude that ‘equality strands of ethnicity and race ... and religion, were almost completely absent ... given that barriers to physical activity can be particularly prominent and significant to these groups.’ Recent guidance from the Department of Health, Physical Activity, Health Improvement and Protection (2011) recommends a multi-agency, multi-level

approach to involving members of ethnically diverse groups in physical exercise. This guidance is particularly relevant to women from deprived backgrounds. There has been little attempt to understand the experience of these women with regard to participation in exercise and its benefits at the postpartum stage. This paper presents findings from phase 1 of a larger study. The aim of this part of the study was to explore factors that should be considered when designing and delivering exercise interventions to promote the mental health of postpartum women in deprived, ethnically diverse communities.

Ethnically diverse women, postpartum health, mental health and exercise interventions

There is very little information about the risk and prevalence rates of different mental health problems among postpartum women from ethnically diverse groups, although a figure of 10–15% is generally proposed as a conservative estimate for postpartum depression across cultures (Edge, 2011). There appears to be a general belief that these women face greater challenges and experience poorer outcomes, particularly in deprived communities. Postpartum exercise interventions have rarely included or reported outcomes for women from ethnically diverse groups (Whitelaw *et al*, 2008; Biddle *et al*, 2000). Their requirements, preferences, cultural obligations and social influences have never been systematically determined. Previous research in the USA with ethnically diverse women’s groups and postpartum groups identified a complex set of barriers and enablers. Family priorities, lack of time, lack of previous experience of exercise and financial considerations emerged as important across cultural groups. Cultural barriers, which were nuanced and

Box 1 Terminology

The term *ethnically diverse* includes people who originate from the Indian subcontinent (India, Pakistan and Bangladesh) and from African, African-Caribbean, Middle Eastern and other non-White backgrounds. It may also be used to refer to members of White groups whose cultural heritage differs from that of the majority population.

multi-layered, varied between groups, but included acculturation issues, social influence and lack of family and community support. Some studies recognised the importance of safety and settings for participation (Evenson *et al*, 2009; Eyler *et al*, 2002). Lack of understanding about mental health (Edge, 2011; Greene *et al*, 2008; Wittowski *et al*, 2011), fear, stigma, shame, denial, negative family and community strictures, and a paucity of culturally relevant, cross-cultural assessment tools can make it difficult to access and deliver support (Edge, 2011; Templeton *et al*, 2003; Zubaran *et al*, 2010).

Guidance on exercise for postpartum health is sparse and non-specific (Royal College of Obstetricians and Gynaecologists, 2006). There is little clarity on appropriate and effective postpartum exercise, irrespective of ethnicity. Published studies report various forms of exercise and formats of services, but with little clarity about their relative merits (Davis and Dimidjian, 2012). The focus has been on physical outcomes, such as chronic illness or weight management (Evenson *et al*, 2009), or on the management of postpartum mental illness, particularly postpartum depression (Daley *et al*, 2007). There is little guidance on exercise to promote postpartum mental health, especially with a promotion and prevention agenda.

Methodology

Ethical review

A favourable ethical opinion was issued by the University of Wolverhampton School of Health Research Ethics Sub-Committee and the Staffordshire Research Ethics Committee. Informed consent was obtained from all participants, and their rights to withdraw, as well as their confidentiality and anonymity with regard to quotations, were upheld. Particular attention was paid to managing safety in relation to participant disclosure, as it was anticipated that some women might express sensitive opinions.

Study design

The study was designed using the principles of grounded theory because this is particularly appropriate when little is known about a particular subject (Glaser and Strauss, 1967). The location was one of 25 *priority neighbourhoods*, that is, localities that fall within the worst 5% nationally for multiple deprivation in England. The population of this part of the country is very diverse, and it includes both established and newer communities.

Recruitment and sample

Recruitment was through a combination of convenience and purposive sampling from local health centres, children's centres and community agencies through leaflets, by word of mouth and by personal invitation. A total of 25 women from across the ethnically diverse community agreed to take part in the study (see Table 1).

Participants who were not health professionals ($n = 8$) were invited to Focus Group 1. Crèche and breast-feeding facilities were offered to everyone in order to remove barriers to participation. Health and community professionals were invited to Focus Groups 2 ($n = 7$) and 3 ($n = 6$). Most were parents, but the professional roles that were represented included midwife, early years professional, health promotion and family support worker, community psychiatric nurse, exercise professional, service provider/group facilitator, health visitor, link worker and nursery nurse. Interviews were conducted with four senior decision makers in local organisations. Many of these women had occupied between one and four roles during the previous 5 years. A total of 48 roles, more than the sample size ($n = 25$), were recorded (see Table 1).

Data collection and analysis

A flexible topic guide was utilised. The health promotion model of Dignan and Carr (1991) and the integrative framework of James and Prilleltensky (2002) facilitated data organisation and analysis. The health promotion model ensured systematic discovery of all aspects of service design and delivery, including assessment of need, planning, design, implementation and evaluation. The integrative framework enabled appreciation of the lived experience of women, recognising socio-economic and socio-cultural factors and local context.

The use of a semi-structured schedule, a flexible topic guide informed by a health promotion model, may seem at odds with a grounded theory approach. However, the topics were not unique to this area of research, but outlined the broad areas of intervention design in health promotion. The integrative framework helped to ensure understanding of cultural nuance and expression. In keeping with grounded theory, constant comparison helped to identify similarities and differences. This enabled the discovery of cross-cutting core categories and themes in the context from which they emerged.

In keeping with grounded theory, four steps were followed.

1. Data collection and analysis were conducted concurrently. Analysis of the first transcript (Focus Group 1) informed subsequent data collection.

Table 1 Participant characteristics of sample ($n = 25^*$)

	Focus Group 1	Focus Group 2	Focus Group 3	Interviews	Asian Pakistani	Asian Indian	Black African/Caribbean	Arabic	White	Total
Number of participants	8	7	6	4	9	4	3	3	6	25
Roles (some participants occupied different/multiple roles currently or in the previous 5 years)										
ROLE EXPERIENCE	Parent end users	6	1	3	2	6	2	2	2	
	Health professionals (health visitors, midwives, nurses, link workers)		6	6	1	5	3	1	2	2
	Community outreach (non-health)	1	2		1	1		1	1	1
	Exercise professionals		1		2	1				2
	Early years professionals	1	1	2	1	2	1	1	1	
	Volunteers (parent)	3	1		1	2		1	1	1
	Volunteers (non-parent)	1	2			1		1	1	
	Commissioners of services		1		2	1				2
Numbers by role experience	12	15	11	10	19	4	6	8	11	48

* The cumulative total of roles and ethnic breakdown is more than the sample ($n = 25$), as some participants occupied more than one role currently and/or in the previous 5 years, due to overlapping personal and professional interests, changing organisational structures and the career development of individuals.

ETHNICITY AND ROLE

2. Every segment of data was reviewed and checked for similarities and differences, and compared with other segments to clarify and ensure meaning.
3. Nine thematic concepts grounded in the data emerged after axial coding.
4. After a review of the thematic concepts and continually checking back to the raw data to preserve context, four overarching core categories were identified.

Findings

Four core categories were identified: first, *postpartum exercise*, secondly, *beliefs and values*, thirdly, *support and influence*, and fourthly, *planning and resources*. Each category is presented below. Where relevant, the ethnic group and/or role of the participant are included.

Postpartum exercise

This category highlighted the lack of clarity with regard to postpartum exercise. It includes data on

optimising the core content of exercise services, and considerations of form, format, intensity, duration and frequency of exercise for the postpartum stage and to promote postpartum mental health.

Participants did not know what constituted appropriate postpartum exercise, and had little personal experience of it. Professionals were unclear about what to advise in terms of content, setting and context for enhanced mental health and well-being. However, participants could identify what was considered enjoyable and acceptable with a small baby and within their family, community groups and neighbourhoods (see Table 2). Some forms of exercise were deemed to be 'fun.' Dancing was particularly popular, and mentions of 'Bollywood dancing' as exercise (FC2p22) and 'dance in the aerobics section' (FC1p8) were enthusiastically received. Personal goals were important, and regular group sessions that included social time were perceived as preferable: 'allows you to leave all your household stuff away for one day' (FC1p16). Sessions outside the home had the added value of providing respite from family responsibilities.

Participants weighed up the pros and cons of different types of exercise as well as permutations of format, context and setting, that is, individual versus

Table 2 Types of activity identified as acceptable by women end users and professionals

Data source	FC1 Focus Group 1 (end users)	FC2 Focus Group 2 (midwives, health and community workers)	FC3 Focus Group 3 (health visitors, nursery and link workers)	IA (commissioner/ service provider)	IS (service provider/ facilitator)
Type of activity					
Postpartum	Walking Swimming/ aqua-natal Tai Chi Yoga Mat work Aerobics Dancing Gym-based exercise	Walking Swimming Dancing	Walking Swimming	Walking Aqua-natal Yoga Group exercise	Walking Mat work
General (in addition to items identified above)	Rock climbing Synchronised swimming, Horse riding Cycling Hockey Throwball Netball		Group-based dance/aerobics	Group sport dance/aerobics	Gym-based exercise

group, indoors versus outdoors, and home-based exercise versus exercise in a public setting. It was a deliberation that required a detailed appreciation of influences, barriers and enablers for women. All of the focus groups mentioned walking (FC1p4), and over 66% of women had increased their physical activity in this way, although being outdoors presented challenges in terms of safety and propriety for some women. Some forms of exercise were heavily imbued with religious and cultural connotations and were not universally acceptable:

Some men, they say that you cannot dance, some men in Saudi Arabia ... but in Egypt, Yemen, they dance, they do everything that they want. Nobody says that you cannot do that, they are still Muslim, you cannot say that they are not Muslim because they dance.

(FC1p9, Yemeni Arab mother)

Enjoyment appeared to be largely dependent on personal preference rather than culture. Women felt able to participate in a diverse range of activities, but professionals were more conservative in their estimates of what women liked. The moderating factor appeared to be what was acceptable to women and the wider community, particularly in Muslim families, although it would be inappropriate to generalise. The data did not support any particular, mandatory restrictions for any of the ethnically diverse groups represented; those mentioned may only reflect religious or cultural traditions adopted within specific local family or social circles.

Some perceived barriers might be due to lack of understanding. Women were keen to learn better exercise skills and indicated that the quality of instruction, support and encouragement from facilitators was important. However, they had difficulty with the advice proffered in exercise classes, for example, to be 'aware of their own bodies' and do what 'feels safe':

The lady who teach us, she tell us if you get back ache do not do the exercise. You are not sure, which means, which back ache. ... Whether you have pressure in your back or you just a bit tight because you not exercise before.

(FC1p6, Arab mother)

Social and cultural norms were also significant. Arab and Pakistani participants reported issues with western dress codes such as wearing trainers. This surprised Black Caribbean and White participants, who felt that it might be a 'culture thing' (FC1p10) but seemed keen to understand and find solutions. Participants indicated that exercise groups have a 'culture', and that negotiating this culture can be tricky. Some women were less familiar with or did not understand the norms of participation, while others found the norms uncomfortable. Women appeared to find security, at least initially, in a more directive and

prescriptive approach to exercise instruction and delivery.

Beliefs and values

This category reflected how ethnically diverse postpartum women made decisions about health. They appeared keen to participate in exercise, and identified a variety of benefits, including weight loss, appearance, and management of chronic conditions, for example, diabetes: 'to keep my blood sugar stable' (FC1p2). Over 33% said that they would exercise to lose weight and improve their body shape because:

When you have a baby, and then you notice you start to put on weight, your shape changes, you want to look better.

(FC1p2)

Exercise promoted social interaction, particularly with a group, irrespective of ethnicity or the ethnic mix of the group:

I was kind of alone ... and then started in a group where there was other people, it actually got me out of the house and kept getting me out of the house.

(FC1p17 Black Caribbean, single parent)

To make me feel better about myself. Because if you are doing something you feel better for it than just sitting down at home in front of the TV.

(FC1p2)

These findings showed clear awareness of the physical benefits and social advantages of exercise, including friendship, shared values, working together and reducing isolation. However, women did not associate exercise with mental health or the prevention of mental illness.

The role and status of the mother emerged as a significant influence on her power to exercise choice and to meet family and social responsibilities, obligations and expectations:

If she is a mum ... living with her in-laws ... they are concerned about the in-laws, ... you usually find that they are tired, ... anaemic, ... run down, ... stressed out. ... Some of them haven't got time because they've got to do their housework. It's what they see as important instead of their own health.

(FC3p5/6, health professional referring to Pakistani mothers in extended families)

Participants described difficulty in pursuing independent choices:

They may not like to ask ... like they are asking for something for themselves ... if they are traditional and living with their in-laws this may be something that will stop them from coming.

(FC1p20, Pakistani mother)

Even when the women understood and accepted the value of exercise, perceptions within the family about whether participation was appropriate could determine engagement:

If you have a baby and you are living with your husband's family, you are already tired – it's not healthy to have to fight, to challenge, because there are other things.

(FC1p11)

These findings showed that personal and family values underpinned the way in which women exercised choice. Caring for husbands, children and older relatives often took precedence over their own health and needs. Many women, particularly in Asian and Arab families, chose acceptance of what they perceived was expected. Avoidance of conflict and expectations of propriety, dutifulness and virtue as a woman, mother and daughter-in-law were highly valued and could be more important than belief in the value of exercise.

Support and influence

This category refers to the influence of peers, family and professionals with regard to taking part in exercise. Women responded positively to referrals, advice and support from peers, family and social circles. Family members were able to provide encouragement and practical support, particularly with transport and childcare. Support from other postpartum women, including those from other cultural and religious backgrounds, was also helpful. Professionals outlined individualised strategies to negotiate family barriers and promote engagement with health services generally. They also described the professional conflict that this sometimes generated for them:

It is very disempowering to accept that the mother may not be able to make the decision herself because there would be consequences for her. Her mother-in-law ... her husband may not like it ...

(FC3p14, Asian mother/health professional)

Some participants perceived a clash between the approaches of westernised and traditional cultures (FC3p5). They also felt that some women were 'passive to healthcare' (FC3p12) and lacked motivation. They expressed impatience with women who picked and chose what suited them.

Although the dynamic with health professionals could be difficult, women also reported that health visitors' interventions were helpful, and that their influence was accepted and valued:

I actually saw it as positive when I had to have a professional in because they were very protective over me. And they [the family] had visitors waiting downstairs to see the baby, because it's all about baby.

(ISp6, Pakistani mother)

She [a young mother] had been in England for 3 years and she had not left the house alone until the health visitor went to the house and ... said this child has to come out.

(FC2p19, Pakistani community professional)

Thus the directive and prescriptive aspect of the professional role could override family restrictions, to the benefit of the mother.

There was conflict between the competing cultures of standard health models and traditional beliefs, which may warrant closer examination. Professionals demonstrated understanding and the ability to manoeuvre around challenges, but their remarks were tinged with wariness about the possibility of a backlash. They seemed to be constrained by their own frameworks of practice.

Family responsibilities and obligations aside, other influences could present significant and apparently idiosyncratic barriers to participation in exercise. Seemingly absolute restrictions were imposed on some women, including those who understood the value of exercise:

They don't go to swimming because their husbands don't let them go to swimming even if it's 'women only', but maybe the lifeguard is men or the CCTV will see ...

(FC2p20, Arab community professional)

Other examples included restrictions on exercising to music with a beat, female-only walking groups and the need to be chaperoned, irrespective of safety or accessibility. This obviously affected how women were able to access services:

because in my clinic there are women who come on their own to see me on the bus, they drive, they walk they come by themselves but then there are other women who cannot come because they are not allowed to come out by themselves, their husband has to bring them And they are all, Pakistani, Islamic, but all very different.

(FC2p5, White midwife)

These findings point to negative power and control by husbands and parents-in-law, based on personal interpretations of what is appropriate. The findings also suggest a high level of mistrust and fear in relation to both young women themselves and their safety.

Education and acculturation could help women to make better use of health services. Professionals described barriers that stemmed from lack of education associated with women either coming from or marrying into a family that was less educated or acculturated. Education and the lack of it was reflected in child rearing, understanding and using health information, and in challenging or managing cultural issues that inhibited engagement. Better educated, more acculturated women displayed a greater ability and willingness to work with the social norms of the majority population without appearing to experience conflict.

Knowledge and understanding of mental health was generally poor. Mental health problems were regarded as taboo (FC3p9), and seeking help could be uncomfortable and challenging for women. Women could be 'overpowered by family members who speak for them' (FC3p9). Women themselves might 'think that there is something really bad in it ... they will not ask for help' (FC2p15). Women with poor health literacy, little acculturation and limited autonomy were particularly vulnerable to secretiveness and denial about mental health problems. Identifying and gaining access to women who might benefit from a programme designed to promote positive postpartum mental health may present challenges and require careful management.

Planning and resources

Access, timing, the availability of private spaces that were not overlooked, and crèche and breastfeeding facilities were among the many practical issues that needed to be addressed when delivering an exercise programme. Service design and delivery appeared to be informed by the experience of staff in community organisations. There did not appear to be any systematic exploration or documentation of differing needs and perspectives. Despite the diversity of both the workforce and the client group, there appeared to be little institutionally driven learning and reflection on matters linked to ethnicity and culture. Professionals and health and community organisations seemed to lack confidence in the resources available for identifying women at risk of developing postpartum mental health problems. Instead they relied heavily on their own strategies, which, although creative, did not appear to be well documented or validated.

Although language skills were generally considered useful, there were differences in how and when language mattered. There was little consensus on the usefulness of translation and interpretation services. Women appeared to be less concerned about their own or professionals' language skills than about the process of information provision, which they found patchy, inconsistent and culturally disconnected. There were specific issues relating to mental health, and professionals described having to choose words carefully in Arabic, Urdu, Mirpuri and Punjabi when describing mental health concepts.

Professionals frequently mentioned resource allocation and funding. This raised issues of fairness and equity. The ever-changing nature of resource allocation made it difficult to use learning from previous experience to create, develop and sustain services. This was attributed to funding and the way that it was used. Professionals and local organisations appeared to see

themselves as passive recipients of others' decisions about resources.

Discussion

The findings of this study show that factors involved in the design and delivery of successful exercise interventions to promote positive mental health among postpartum women in deprived, ethnically diverse groups are complex, intertwined and multi-layered. Developing a programme of exercise may require a pluralistic approach, as suggested in *Tackling Health Inequalities* (Department of Health, 2003) and *Start Active, Stay Active* (Department of Health, Physical Activity, Health Improvement and Protection, 2011). Figure 1 shows the dimensions of the social context of the mother that could influence participation in exercise.

Participants, irrespective of culture, believed that exercise was beneficial, but their exercise behaviour was influenced by the women's personal priorities and the context of their lives. This finding resonates with those of previous studies. For example, Evenson *et al* (2009) examined the beliefs of 667 ethnically diverse women in the USA. They described similar enablers and barriers, albeit with some variation between groups. There was also a suggestion that the experience of women in the White group was more positive, as they were more accustomed to exercise and its norms, had greater knowledge and previous experience of exercise, more financial power and a higher level of education. In our study, the White and Black African/Caribbean women appeared to be more able

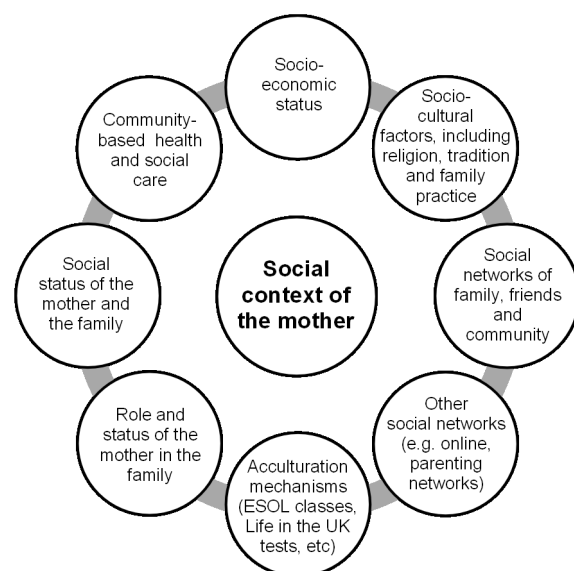


Figure 1 Dimensions of the social context of the mother that could influence participation in exercise.

to engage with health services. They were not necessarily better educated, but were English speaking and acculturated. In contrast, the Asian and Arab women did not always have sufficient personal or financial autonomy to engage in the same way.

Several studies have recognised the importance of support, both practical support to enable women to engage with services, and social support which could promote participation and adherence (Biddle and Mutrie, 2007, pp. 145–6, 152). Our participants responded positively to the role of an exercise group in reducing isolation, which is a particular problem for immigrant mothers (Edge, 2011). The ethnicity of other postpartum women was not a problem, and is unlikely to inhibit participation, which bodes well for services in an ethnically diverse community. In fact, the women accepted other postpartum women as part of their network, placing importance on shared values alongside personal outcomes.

The lack of clarity about postpartum exercise and the absence of well-researched guidance may contribute to inequality irrespective of ethnicity and cultural diversity (Royal College of Obstetricians and Gynaecologists, 2006). Research is needed to determine the best types of exercise, and also those types of exercise that women should avoid during the postpartum period. The needs and preferences of ethnically diverse women also require attention (Davis and Dimidjian, 2012). Although pram pushing may provide useful postpartum exercise, walking outdoors was not an option for some of our participants (Daley *et al*, 2007).

Lack of knowledge about mental health problems is a significant issue in all ethnic groups. The women were more aware of the physical and social benefits associated with exercise than of the contribution that it might make to their mental health. Public health information strategies should include the link between exercise and improvements in mental health. This might also help to reduce stigma, fear and shame.

Our study highlights two other issues relating to mental health, namely the lack of culturally sensitive assessment and the need for means of educating people about mental health in languages other than English. Needs assessment, delivery and evaluation do not appear to be explicit, systematic and consistent. Tools do not appear to be culturally applicable. They were deemed to lack resonance with professional and client experiences at ground level. This could indicate problems with the design of the tools (Zubaran *et al*, 2010), a need for training, or the sidelining of research and theory in service design. Successful service development should harness users' and professionals' experience with theory (Farris *et al*, 2004). This might help to offset the suggestions from earlier studies of ethnically diverse postpartum women that health professionals do not understand them (Wittowski *et al*, 2011). Our study suggests that professionals and

organisations appear to be genuinely concerned about health outcomes for mothers, but feel disempowered in the face of family, social and cultural considerations and the restrictiveness of their own practice models. This led to frustration, impatience and ethical conflict among professionals, and wariness, resentment and perceived discrimination among the women. More work in this area is required, particularly with regard to individual and mutual values and the underlying priorities and values that shape practice frameworks.

Culture, tradition, ethnicity and religion, which often attract a disproportionate amount of focus and misconception, did colour what women individually found acceptable. However, they did not appear to adversely affect the personal motivation of women who were able to participate in exercise. Acculturation was less about westernisation or relinquishing traditions or beliefs, and more about accommodating, understanding and absorbing other frames of reference, without discomfort or when they had contextual value. These findings support those of earlier studies (Whitelaw *et al*, 2008; Davis and Dimidjian, 2012). However, a complex set of less tangible cultural barriers could influence participation. Family, community and religion could provide practical, emotional, philosophical and moral support, but they could also take precedence over a mother's own health. Negative familial and social influences and lack of clarity about religion may need to be addressed in forums away from direct health promotion initiatives because, in some instances, the pressure to behave in particular ways is associated with religion, or is perceived as such, and is complicated by considerations such as role, status and propriety within the social group.

At a policy level, the UK mental health strategy for the general population places emphasis on diagnosable conditions such as depression. However, pertinent to the postpartum stage (Edge, 2011) are widespread, undiagnosed mental health problems such as anxiety, stress, low self-esteem, and impaired ability to cope with everyday life (Biddle *et al*, 2000). In Biddle *et al* (2000), Mutrie's suggestion that all exercise interventions should evaluate a wider range of outcomes, including mental health outcomes, could have particular resonance for ethnically diverse postpartum women in priority groups. Exercise interventions should target a range of mental health problems and focus on prevention and promotion for a wider pool of women, particularly in deprived communities with reportedly higher levels of poor mental health and greater risk factors.

Conclusion

The lack of clarity about suitable exercise for postpartum women is an important issue. Forms of exercise that are known to have specific movements for the postpartum stage, and which many women

enjoy, such as yoga and pilates, require further investigation. Facilitator training should include developing cultural competence to equip professionals to work with ethnically diverse women. The incorporation of behaviour change models and health promotion frameworks could help to optimise success (see Figure 2).

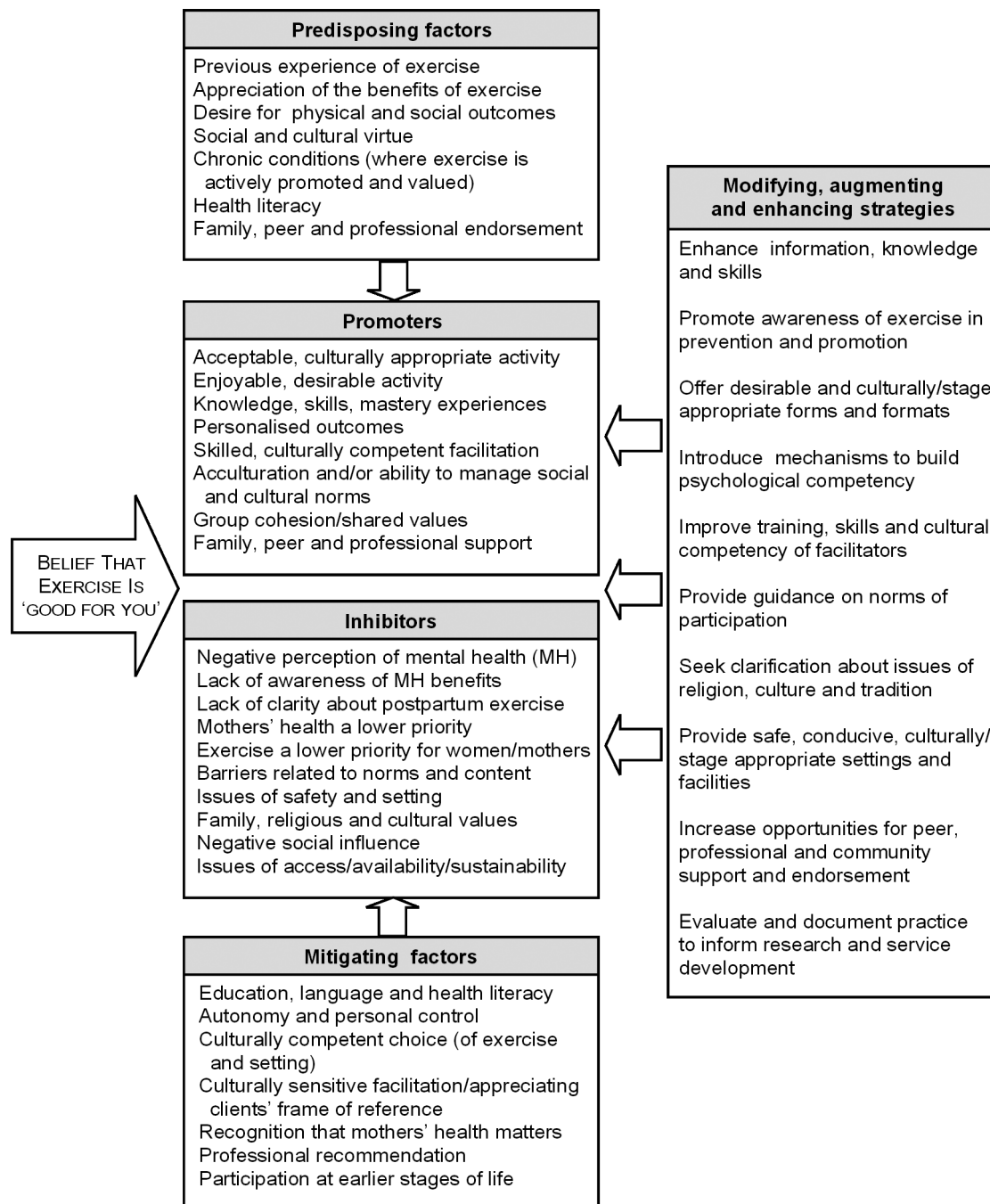


Figure 2 Factors that are relevant to service design and delivery at the point of delivery. The key belief that exercise is beneficial is shown, linked to concepts across the core categories. Strategies can be factored into interventions at different levels or be part of multi-level intervention to encourage participation and enhance benefit.

The findings of this qualitative study are encouraging, and indicate that it is reasonable to view exercise as a suitable non-pharmacological intervention, as suggested by NICE. A wide range of factors influence exercise for postpartum women in ethnically diverse priority groups, and these would need to be factored into the design of future interventions. The findings show a combination of practical considerations alongside social-cognitive factors, mediated by socio-cultural influences relevant to exercise, mental health, the postpartum stage (Evenson *et al*, 2009) and health promotion in general (Farris *et al*, 2004). Influential factors range from internal personal factors to external factors associated with the context of postpartum women's lives (see Figure 1). We conclude that it appears to be possible to design and deliver exercise interventions that are relevant and effective, and offer a framework of mechanisms that can potentially influence successful design.

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