

## CLINICAL PAPER

# Factors motivating women to commence and adhere to pelvic floor muscle exercises following a perineal tear at delivery: the influence of experience

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### Abstract

Childbirth is one of the main causes of urinary incontinence (UI) in women. Pelvic floor muscle exercises (PFMEs) have been used clinically as a method of restoring muscle function, and preventing and treating postnatal UI for over 60 years. The success of PFME programmes is reliant on patient adherence and self-motivation, but 20–50% of postnatal women do not perform PFMEs on a daily basis. This study investigates the experiences determining the factors that motivate women to commence and adhere to PFMEs following a perineal tear at delivery. A cross-sectional, retrospective, qualitative study was carried out using purposive sampling. Ten postnatal women were recruited from a single UK hospital. The approach was based on the principles of Heidegger's hermeneutic interpretative phenomenology. Data were collected using semi-structured interviews that used questions based on the framework of the Health Belief Model. These transcripts were validated and the data were then thematically analysed. Seven themes emerged: (1) knowledge and understanding; (2) personal experience of symptoms; (3) fear of experiencing symptoms; (4) perceived self-efficacy; (5) belief in the effectiveness of the exercises; (6) experience of the actual exercises; and (7) triggers for action. Motivation to commence and adhere to PFMEs was affected when these areas were not addressed. The subjects identified their experience of UI or faecal incontinence, their fear of experiencing incontinence, and their perceived self-efficacy as key motivating factors.

*Keywords:* Health Belief Model, hermeneutics, motivation, pelvic floor muscle exercises, perineal tear.

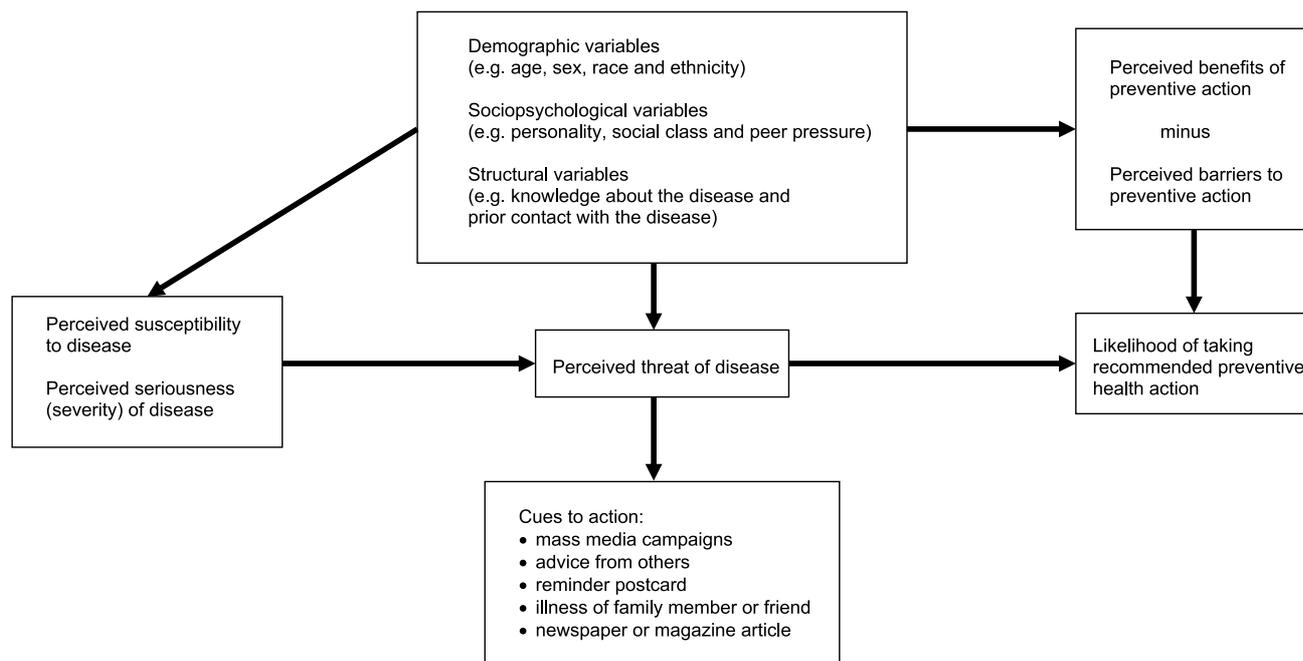
### Introduction

Childbirth is one of the major causes of urinary incontinence (UI) in women (Chiarelli *et al.* 2003a; Haddow *et al.* 2005). The prevalence of UI following childbirth can be temporary, but for up to 43% of women, it becomes a long-term problem (Mørkved & Bø 1999; Haddow *et al.* 2005; Briggs 2006; NCCWCH 2006). Dolan *et al.* (2003) reported that 60% of women who

experience stress UI (SUI) during pregnancy still suffer from it 15 years later.

The most common complication of childbirth is perineal trauma, which occurs in 48% of vaginal deliveries (GSSDH 2005). Perineal tears are classified using four degrees of severity, with second-, third- and fourth-degree tears extending into the pelvic floor muscles (PFMs). Pelvic floor involvement is considered significant because of the role of the muscles in maintaining urinary and faecal continence, the interdependency between all the sections of the pelvic floor (Meyers *et al.* 1998; Otero *et al.* 2006), and the potential of either the tear or the actual delivery to cause

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**Figure 1.** Health Belief Model (Becker 1974).

nerve damage to this area (Allen *et al.* 1990; Layton 2004). Perineal trauma has been identified as a risk factor for developing UI (Chiarelli *et al.* 2003a; Briggs 2006), and it has been suggested that women affected by second-, third- or fourth-degree tears should be targeted on the ward and motivated to commence and adhere to a PFM exercise (PFME) programme (Jouanny 1998; Chiarelli & Cockburn 2002; Ewings *et al.* 2005; Glazener *et al.* 2006; McGourty 2006).

Unfortunately, in spite of the significance of restoring PFM function and strength following trauma, studies have reported that only between 20% and 50% of postnatal women perform daily PFMEs (Mason *et al.* 2001a; Chiarelli *et al.* 2004).

The motivation to follow and adhere to exercise programmes is a complex issue that has been studied for many years (Sluijs & Knibbe 1991; Laforge *et al.* 1999). Motivation is a dynamic and multifaceted process that is based on an individual's subjective understanding of the meaning of an outcome (Roberts 2001). Compliance is traditionally described as being the extent to which a person's behaviour complies with medical advice (Haynes 1979), whereas adherence suggests a more active involvement between the patient and the clinician (Myers & Midence 1998).

The terms 'compliance' and 'adherence' are used interchangeably in the literature on PFMEs. Authors have reported that adherence

to complying with PFMEs is very variable, depending on whether studies are addressing short- (under supervision of health professional) or long-term adherence (without supervision of health professional), and can vary from 79% in the short term to 6% in the long term (Wilson & Herbison 1998; Glazener *et al.* 2005; Bø *et al.* 2007a). Adherence to PFMEs is fundamental to their effectiveness (Chiarelli & Cockburn 1999; Chen 2004; Bø *et al.* 2007a). Research into postnatal PFMEs has primarily focused on the level of adherence to the exercise programme, and has not attempted to understand what influences compliance or adherence (Mørkved & Bø 2000; Chiarelli *et al.* 2004).

The Health Belief Model (HBM) was initially proposed as a theoretical behavioural model to predict and explain compliance behaviour in preventative health during the 1950s (Becker 1974). It focuses on four main dimensions: perceived susceptibility; perceived severity; perceived benefits; and finally, barriers (Becker 1974; Fig. 1). Since the original model was proposed, a further three variables have been added through research. These modifying factors include demographic variables, cues to action and self-efficacy (Janz & Becker 1984).

Only one study within the field of physiotherapy for postnatal PFMs has used the HBM (Chiarelli & Cockburn 1999). These authors employed the model as a conceptual framework to develop questions to use in focus groups. The

**Table 1.** Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Vaginal delivery with a second-, third- or fourth-degree perineal tear	Previous vaginal surgery
Ability to speak and understand English, or non-English-speaking participants who have their own interpreter	Neurological conditions
	Previous physiotherapy for pelvic floor dysfunctions
	Urinary incontinence (prior to pregnancy)

information gained was used to develop a postnatal continence promotion programme.

There is very limited research assessing the factors involved in achieving motivational readiness to adopt a regular postnatal exercise regime or the experiences of women carrying out a PFME programme after a perineal tear at delivery. Therefore, the aim of the present study was to determine the factors that motivated women to do PFMEs following a perineal tear at delivery within the conceptual framework of the HBM.

### Subjects and methods

A cross-sectional retrospective study was carried out using semi-structured interviews with 10 postnatal women. These interviews were based on the HBM (Becker 1974). Using purposive sampling, all patients ( $n=23$ ) on the postnatal ward (i.e. those who had delivered their baby 1–2 days previously) of Royal Berkshire Hospital, Reading, UK, who met the inclusion criteria (Table 1) were given an information pack by the ward physiotherapist so that they could participate in the present study over a 6-month period (2007–2008).

Ethical approval for the study was obtained from the School of Health and Social Care, Oxford Brookes University, Oxford, UK, and the Berkshire Research Ethics Committee, University of Reading, Reading, UK (reference no: 07/Q1602/63).

Voluntary informed written consent (Bowling 2002) was obtained just prior to the interview, approximately 4–6 weeks postnatally. The participants were given the option to decline the interview being recorded and they were also given the right to terminate the questioning at any point.

The first two subjects to reply were part of the pilot study, which aimed to validate the order of the questions and the answers that emerged. This

was followed by further recruitment up to a maximum of 10 participants, i.e. five primiparous and five multiparous women.

### Developing the interview schedule

The open, semi-structured questions were formulated so that they reflected the current literature on PFMEs, adherence, motivation, behavioural change theories and stress urinary incontinence (Table 2), and were within the framework of the HBM (Fig. 1) (Becker 1974). The questions were peer-reviewed by a women's health physiotherapist and lecturer who was external to the study.

### Interview process

All interviews took place within the participants' homes and were led by the first author (S.G.). Demographic and clinical information, details of the subjects' exercise regimes both before and after delivery, and interview variables were collected. All interviews were digitally recorded and transcribed by the first author (S.G.).

### Study reliability and validity

The dependability of the order of the questions and the answers that these produced was tested in two pilot interviews.

Inter-rater verification of the themes that emerged from the women's experiences was achieved by a sample of three interviews being analysed by a physiotherapist who was external to the study and experienced in thematic analysis.

Respondent validation was achieved by the participants being sent a copy of the transcribed interview to ascertain transcription validity (Creswell 2003; Bryman 2004). Any necessary alterations were made and the subjects signed the final draft to confirm that it was a true account of the interview. Participation bias was avoided because all subjects were recruited from

**Table 2.** Reasoning for each interview question in relation to the Health Belief Model (Becker 1974): (PFMEs) pelvic floor muscle exercises

Number	Question
<i>Investigation of variables that might inhibit or motivate the participants to exercise</i>	
1	Before you became pregnant, did you carry out any exercises? If so, tell me about them
2	Did you do any exercises during your pregnancy? If so, what kind?
3	How did your pregnancy go? Were there any complications?
4	Could you talk about your how your labour went and how you feel about the events that happened
5	How has your physical recovery been since your delivery?
6	Have you been surprised by anything about your recovery? If so, can you tell me about it?
<i>Exploration of the knowledge that the participants have*</i>	
7	What do you know about urinary incontinence and the things that can cause it?
<i>Exploration of the participants' knowledge of the exercises and the perceived effect/role of the exercises</i>	
8	What do you know about your pelvic floor muscles?
9	Do you think these exercises are important?
<i>Exploration of whether the environment, the professional or any method in which the participants received the information had an affect on their motivation to exercise</i>	
10	How did you find out about the exercises?
<i>Identification of motivating factors</i>	
11	Have you started to do any PFMEs, and if so, what made you start the exercises?
<i>Identification of inhibiting factors/barriers to exercise</i>	
12	If you have not started to do them, what has stopped you starting the exercises?
<i>Investigation of whether the participants have any suggestions about motivating factors</i>	
13	Can you think of anything which might have motivated you further to start the exercises?
<i>Examination of potential barriers to exercise</i>	
14	How have you found doing the exercises alongside the demands of motherhood?
<i>Exploration of whether the participants' understanding of the exercise programme and their adherence to it</i>	
15	What has been your planned PFME regime and have you managed to keep to this?
<i>Identification of the participants' cues for action, which have a relationship with their motivation and adherence</i>	
16	How have you remembered to do the exercises?
<i>Exploration of whether the participants' knowledge of the value of continuing the exercises in the long term</i>	
17	What is your plan for how long to do the PFMEs for?
<i>An opportunity for the participants to add any relevant further comments</i>	
18	Ask the participants if they have any further comments that may expand any of their answers further or be relevant to the study

\*Perceptions of susceptibility to and the seriousness of disease rely on knowledge.

a hospital external to the researcher's sphere of employment.

### Data analysis

The influence of experience was explored by following the hermeneutic principles of Koch (1995, 1996) and using the generic framework of interpretive thematic analysis (Braun & Clarke 2006) in an attempt to identify and interpret the themes emerging from the women's lived experiences.

The interview transcripts were read in depth, and the subject's key comments and accounts of their experiences of PFMEs after a perineal tear were initially collated under individual questions. These data were then combined under the headings of the HBM (Table 3), which enabled recurring subcategories to be observed and interpreted. The similarities between the subcatego-

ries were then used to define the final themes. These topics were then analysed in the light of the current literature, and the participants' demographic and clinical data.

### Results

Variables between participants were specifically collated in order to examine the length and site of the interview, the time between the delivery and the interview, and whether the subjects had their babies with them at the time of interview. The average interview time was 46.4 min and seven out of 10 participants had their babies looked after during the period. Nine out of 10 interviews were carried out within 6 weeks of delivery; one interview was held at week 10.

Demographic and clinical data were collected and the possible relevance of this information



**Table 4.** Relevance of the clinical data: (UI) urinary incontinence; and (PFMEs) pelvic floor muscle exercises

Clinical data	Relevance
First or second baby	Increased perceived susceptibility to UI
Length of labour	Effect on tiredness/remembering being told information about PFMEs/perineal tears
Type of delivery	Increased perceived susceptibility to UI
Pain relief	Effects on concentration/memory retention
Birth weight of baby	Possible link with symptoms
Weeks in pregnancy delivered	Possible link with retention of information (e.g. because of the surprise of giving birth)
Degree of perineal tear	Perceived susceptibility to symptoms

and one had experienced a fourth-degree perineal tear. The length of labour varied from 1.5 to 13.5 h, as did the type of pain relief used. It is interesting to note that all the subjects who had undergone forceps deliveries had either urinary or bowel incontinence. It should be noted that 70% of participants had either a third- or fourth-degree tear, and of these women, 71% had either UI or faecal incontinence (FI).

The exercise patterns of all 10 participants were identified. The results suggested that, out of the 10 women questioned, the four subjects who did no or irregular general exercises before and during pregnancy were less likely to perform postnatal PFMEs, and that the five women who did general exercise and PFMEs before and during pregnancy were more likely to do PFMEs postpartum. The significant exception was participant 1, who did no exercises before delivery, but was motivated to perform regular PFMEs postnatally because of FI.

### *Thematic analysis*

The thematic analysis was a continuous process of becoming immersed in the data (Pope & Mays 2006). Data saturation in relation to the recurrence of subcategories/themes had started by the third interview, and it became clear by the fifth interview that significant motivation came from a combination of personal experiences of symptoms of UI, and relevant knowledge and understanding that had been obtained. The individual nature and depth of experience and knowledge varied between each participant.

Subcategories that covered similar areas were then collated, and seven themes were identified and interpreted in relation to the research question and the HBM (Table 2):

- (1) knowledge and understanding;
- (2) personal experience of symptoms;
- (3) fear of experiencing symptoms;
- (4) perceived self-efficacy;
- (5) belief in the effectiveness of the exercises;

- (6) experiences of the actual exercises; and
- (7) triggers for action.

*Theme 1: Knowledge and understanding.* Motivation has been reported to be based on an individual's subjective understanding of an outcome (Roberts 2001). Therefore, knowledge and understanding of an outcome is central to an individual being able to make these decisions. The analysis showed that the subjects had received information about and an explanation of PFMEs, but were given only minimal details of the actual tear and its consequences, and of urinary incontinence, its causes and the role of the PFMs. The outcome was a lack of knowledge and understanding of PFMEs and their purpose.

Relevant comments from participants concerning the tear included:

'She said I had a third-degree tear . . . I thought of third-degree burns . . . But [the] doctor said, "No . . . It is just a small tear."' (Participant 1)

'I saw on my notes that it was a second-degree tear . . . They didn't explain what this meant . . . Is it the severity?' (Participant 2).

Subjects made the following relevant comments about their knowledge of PFMEs:

'Nothing . . . other than this is what you should be doing.' (Participant 3)

'I know it's like an umbrella that holds everything together and that's about it really.' (Participant 5)

Minimal knowledge of urinary incontinence and its causes was demonstrated and one participant had no knowledge about this at all:

'I guess that is when you leak and you can't control it . . . coughing or jumping.' (Participant 5)

'I suppose it is a problem with the muscles. If they are not strong enough, you will have

incontinence, but this is just a guess.’ (Participant 6)

*Theme 2: Personal experience of symptoms.* The experience of symptoms within the HBM is thought to increase personal awareness of the seriousness and susceptibility of the phenomena (Becker 1974; Glanz *et al.* 2002). However, the reaction to symptoms is personal and can be influenced by patterns of behaviour (Becker 1974).

The subjects experienced a wide spectrum of symptoms, including traumatic delivery, UI and FI, weakness of the PFMs, perineal pain, infection, decreased bladder and perineal sensation, and vaginal pressure. For all participants, the experience of UI or FI was a motivation to perform PFMEs:

‘I soiled myself a couple of times . . . It was a few weeks before I was in control of my bowels.’ (Participant 1).

‘It felt like I had no nerve endings to my bladder.’ (Participant 2).

‘When my epidural wore off, I was completely incontinent for quite some time . . . at 4 weeks. The incontinence was probably scarier than the labour.’ (Participant 4)

‘I could hardly walk when I came home.’ (Participant 5)

‘Every time I coughed, I leaked . . . I am really fed up with it.’ (Participant 8)

*Theme 3: Fear of experiencing symptoms.* Seven out of the eight subjects who experienced UI and/or FI were worried about the symptoms recurring or not resolving, and this played a key role in motivating them to commence and adhere to the PFMEs:

‘I knew [that], if I didn’t do them, I would pee myself.’ (Participant 3)

‘Once you have experienced it, you really want to do everything you can to stop it happening again.’ (Participant 4)

‘Incontinence was horrible . . . I don’t want that again.’ (Participant 9).

*Theme 4: Perceived self-efficacy.* Many of the participants lacked the self-belief that they could perform the PFME regime required to achieve the desired outcome:

‘I am not sure I can do them three times a day forever . . . I don’t know how I am going to

remember to do these exercises.’ (Participant 3)

‘The problem is that the exercises are not something that you get a direct reward for.’ (Participant 2)

‘I am not an exercise person . . . I don’t get anything from exercise.’ (Participant 10).

*Theme 5: Belief in the effectiveness of the exercises.* The effectiveness of PFMEs is dependent on an individual believing that the behavioural action will produce the desired outcome (Glanz *et al.* 2002). The subjects believed that the PFMEs would resolve symptoms, return strength to their muscles, prevent UI in older age and improve their sex lives:

‘I am paranoid about doing the exercises. It is an obsession . . . to stop incontinence.’ (Participant 5)

‘PFMEs stop you weeing when you are not suppose to.’ (Participant 8)

‘Without the exercises, the harder it is to prevent incontinence as you get older. Improves sex life.’ (Participant 10)

In addition, some of the participants expressed low expectations about the value of PFMEs and felt that they would be unable to perform the exercises on an unlimited basis:

‘How can you be convinced of the results . . . I won’t do anything until I know the value of it.’ (Participant 6).

*Theme 6: Experience of the actual exercises.* The subjects’ lived experience of actually performing the PFMEs focused on two perspectives: their perceived barriers and their actual exercise regimes (Tables 5 & 6). Reflecting on their perceived barriers enabled these to be addressed and overcome:

‘It is a different thing about remembering to do them and getting time to do them.’ (Participant 2)

‘Early days it was still fresh in my mind and I did a few. But then I just stopped. I don’t remember how long she said to do them.’ (Participant 6)

‘I can’t remember how many to do.’ (Participant 8)

‘I don’t know if I am pulling in the right muscle.’ (Participant 9)

**Table 5.** Participant interview data summarized within the Health Belief Model framework (Becker 1974): (UI) urinary incontinence; (FI) faecal incontinence; (PFMs) pelvic floor muscles; (PFMEs) pelvic floor muscle exercises; and (SUI) stress urinary incontinence\*

Individual perceptions		Modifying factors			Likelihood of action	
Perceived susceptibility	Perceived seriousness	Demographic and clinical variables	Sociopsychological variables	Structural variables	Perceived benefits	Perceived barriers
Delivery experience (5) UI/FI experienced (1, 2, 4, 6-10) Age perception (3) Lack of knowledge of consequence of a tear (1, 2-6, 8, 9) Lack of knowledge of cause of UI (2-8) Weakness of PFMs (1, 2, 4, 6, 7, 9, 10)	UI probably scarier than labour (4) Lack of knowledge of role of PFMEs (1, 3, 5-7, 9) I don't want to leak when older (4, 5, 8) Lack of experience of UI symptoms (1, 3, 5-7) Low priority (2)	Mean age = 32.8 years Multiparae = 4 Primiparae = 6 Second-degree tear = 2 Third-degree tear = 7 Fourth-degree tear = 1	Exercises not natural/lazy (6, 10) Postnatal cultural expectations (1, 7, 9) Lack of self-efficacy in ability to achieve (3, 4, 6, 8, 10) Guilty feeling	Past medical history (4) Lack of knowledge of role of PFMEs Lack of knowledge of UI First labour experience (5)	Resolve symptoms (1-3, 6-10) Prevent SUI in older age (4, 5, 8) Belief in exercises (1-3, 7-10) Get muscles back into shape (1, 2, 10) Wanting to have another baby (7) Improve sex life (10)	Lack of discipline (2-4, 8, 10) Unsure if doing the right exercise (4, 7-10) Perineal pain (1-7, 9, 10) Decreased bladder sensation (2, 5, 7) No direct reward for exercises (2, 10) Low expectations of value of PFMEs (6) Increased passage of time (10) Lack of time/distraction of baby (5, 6, 9, 10) Problems with breast-feeding (4, 6) Always occupied with baby (6, 10) I can't do the exercises forever (3) Tiredness (3, 8, 10) Decrease confidence with baby (6) Lack of self-belief (3, 4, 6, 8, 10) Forgetting (3, 4, 7, 8, 10)

\*Participant number in brackets.

**Table 6.** Cues to action

Cue to action	Participant number
Healing perineum/healing tear	5, 8
Vaginal pressure/fear of everything falling out	1, 10
Mother/husband reminder	4, 7
Moment of panic	10
Friends/family who have stress urinary incontinence	4, 10
Fear of being incontinent	3–5, 8, 10
Urinary incontinence/urgency/bowel incontinence	1, 2, 4, 7
Feeding the baby/changing nappies	2, 3, 6–10
Improvement in muscle strength	4, 9
Physiotherapist visit in hospital	1, 2, 4, 6–10
Knowledge from Internet/leaflets	1, 4, 9
To help heal the stitches	5, 8
Sitting down	4, 9
Part of routine	6
Fear of everything falling out	10
Standing in a queue	8
Mobile phone	10

*Theme 7: Triggers for action.* A wide variety of triggers were identified on the basis of the women's experiences (Table 4):

'My trigger to remembering is feeding.' (Participant 2)

'I have triggered it mainly with sitting down doing things with the baby.' (Participant 4)

'My husband reminds me.' (Participant 7)

## Discussion

The present study identified seven themes that influence whether or not women decide to adhere to PFMEs.

### *Themes 1–3: Knowledge and understanding, personal experience of symptoms, and fear of experiencing symptoms*

Themes 1–3 are interlinked because these focus on the subjects' knowledge about and understanding of the perineal tear, its consequences, the role of the PFMs and the causes of UI. There is an ongoing debate in the literature about whether a lack of knowledge affects a patient's motivation to perform and adhere to PFMEs. The number of relevant studies is limited (Ashworth & Hagan 1993a, b; Chiarelli & Cockburn 1999; Logan 2001; Chiarelli *et al.* 2003b), but the argument consistently recurs. It has been suggested that a lack of knowledge and understanding affects a woman's ability to make an informed decision about whether or not to commence and adhere to a PFME regime (Alewijns *et al.* 2002).

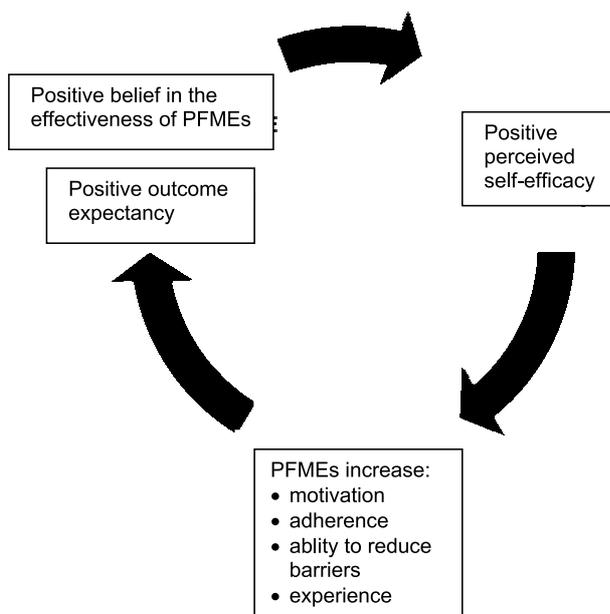
The present subjects regarded personal experience of symptoms and fear of experiencing such signs as both barriers to performing PFMEs and motivating factors. The initial symptom barriers included perineal pain and infection, and the experience of UI or FI was consistently identified as a motivating factor. The literature also identifies a consistent connection between increased severity of leakage, and increased motivation and adherence to PFMEs (Ashworth & Hagan 1993b; Alewijns *et al.* 2003a, b; Bø *et al.* 2007b; Fine *et al.* 2007). In addition, the presence of symptoms has been identified as a cue to action within the HBM framework (Becker 1974; Janz & Becker 1984; Glanz *et al.* 2002).

Within the framework of the HBM (Becker 1974), the present subjects' fear of the symptoms of UI gives a valuable insight to their individual perceptions of the perceived seriousness of and their susceptibility to incontinence. This fear has been identified as a motivating factor postpartum within the literature (Ashworth & Hagan 1993b; Mason *et al.* 1999, 2001a).

All three themes highlight the importance of healthcare professionals providing women who are either experiencing symptoms or are at increased risk with the right information at the right time.

### *Themes 4–6: Perceived self-efficacy, belief in the effectiveness of the exercises and experience of the actual exercises*

There is significant interrelationship between themes 4–6 (Fig. 2). Bandura (1997) suggested that the concept of self-efficacy is based on an individual's belief that she or he can carry out



**Figure 2.** Positive interrelationship of themes 4–6: (PFMEs) pelvic floor muscle exercises.

exercises that will achieve a desired outcome. Positive self-efficacy provides the required motivation to take action, and the level of intensity and persistence is also dependent on the level of self-efficacy (Bandura 1994). Belief in the effectiveness of the intervention (i.e. PFMEs) is considered to be central to good adherence to health-enhancing behaviour (Becker 1974). Self-efficacy has also been identified in the literature as a significant predictor of intention to carry out PFMEs (Svengalis *et al.* 1995; Alewijnse *et al.* 2001; Chen 2004).

The present subjects had both positive and negative experiences of self-efficacy. For example, the participants had difficulty believing that they would be able to do the daily PFMEs without a time limit, would be able to remember them and would perform the exercises correctly, and they were also concerned about the lack of direct visual response from the PFMs.

The subjects' actual experiences of the PFMEs identified two areas: perceived barriers and the actual regimes. The barriers that they experienced were very similar to those described in the literature (Mason *et al.* 1999, 2001b; Chiarelli *et al.* 2003a, b; Fine *et al.* 2007). The participant's experience of the actual PFME regime was in line with current literature (Chiarelli *et al.* 2003a). They lacked confidence in the exercise regime, were unsure about whether they were contracting the right muscles and lacked knowledge of the regime that they should be following.

The subject's belief in the effectiveness of the exercises can be seen as perceived benefits within

the HBM (Becker 1974); for example, resolving symptoms, returning muscles to strength, preventing UI in old age and improving sexual experiences. There is a limited amount of literature about women's actual beliefs about the effectiveness of PFMEs (Chiarelli & Cockburn 1999).

Only Svengalis *et al.* (1995) has subjectively assessed the belief of symptomatic women that a PFME treatment programme would be effective. This questionnaire survey involved 71 participants and was part of a randomized clinical trial investigating the use of behavioural treatments to improve the effectiveness of PFMEs. The above authors reported that 26% of the women questioned believed that PFMEs would cure their UI, 57% thought that their symptoms would be significantly reduced and 17% felt that the exercises would be of some help. Unfortunately, no information was provided regarding whether the questionnaire used had been validated.

The present subjects were often unsure if they were correctly performing their PFMEs. This type of subjective uncertainty has also been reported in the postnatal literature (Chiarelli & Cockburn 1999; Logan 2001; Chiarelli *et al.* 2003b). Even after verbal instruction, over 30% of women are unable to do a voluntary contraction of their PFMs (Bump *et al.* 1991).

The acknowledgement of barriers to PFMEs and the ability to surmount these problems need to be further addressed by the physiotherapy service so that clinicians can work with women in order to help them overcome their obstacles to exercise with the aim of improving motivation (Becker 1974; Bandura 1997; Glanz *et al.* 2002). Barriers that offer a specific challenge include: the experience of becoming a new mother (Barclay *et al.* 1997); the physical symptoms of a perineal tear; a lack of positive experience of being able to successfully carry out a general exercise programme (Bandura 1997); poor time management and discipline (Roberts 2001); cultural beliefs and/or expectations (Chen 2004); and the perceived unachievable nature of the PFME programme.

Finally, the actual regime of PFMEs requires further discussion and research. There is a need to clarify whether these exercises have to be done daily in order to gain results, and whether these exercises have a role in the absence of UI and when the perineum is healed postpartum. Unfortunately, this uncertainty originates in the literature. Because studies use different exercise regimes and protocols, there is little agreement

about the optimal frequency and intensity of training the PFMs (Mørkved & Bø 2000; Laycock *et al.* 2001; Haddow *et al.* 2005; Bø *et al.* 2007a). There is evidence that a vaginal delivery significantly weakens and stretches the pelvic floor (Allen *et al.* 1990; Jones 1995; Bø *et al.* 2007a) and that building up the PFMs postpartum improves the strength of the muscles (Mørkved & Bø 1996, 1997, 2000; Harvey 2003; Bø *et al.* 2007a; Wagg & Bunn 2007). However, there has been very little research into whether muscle strength returns naturally through normal activity in the asymptomatic woman (Mørkved & Bø 1997, 2000).

Themes 4–6 highlight four key areas that must be integrated into the physiotherapy postnatal service:

- (1) it is necessary to explore ways to provide the right information at the right time in order to develop women's knowledge and understanding of the effects of a perineal tear, the role of the PFMs and the continence mechanism;
- (2) practical ways of remembering to do the exercises and integrating PFMEs into activities of daily living need to be developed further;
- (3) it is necessary to increase self-efficacy so that women are able to contract the right muscles; and
- (4) individual exercise programmes must be set in line with current evidence (Chiarelli & Cockburn 1999, 2002; Alewijnse *et al.* 2001, 2002, 2003a, b; Logan 2001; Mason *et al.* 2001a, c; Paddison 2002; Chiarelli *et al.* 2003a, b, 2004; Fine *et al.* 2007).

All of the above points are intended to improve short- and long-term motivation and adherence to PFMEs.

#### **Theme 7: triggers for action**

A trigger for action is known as a cue for action within the HBM, and it is very specific to an individual, depending on the level of perceived susceptibility to and perceived seriousness of the symptoms (Becker 1974; Glanz *et al.* 2002). These cues may change over time depending on the level of motivation required to initiate the desired action (Becker 1974; Glanz *et al.* 2002).

In the present study, short-term cues such as stitches, and feeding and changing a baby's nappies were used as triggers, whereas other studies have made use of exercise diaries, stickers

and posters (Mason *et al.* 2001c). The short-term nature of triggers may contribute to the decreased frequency of PFME performance as time progresses. Participant 10, who was interviewed 10 weeks postnatally, had stopped her exercises 2 weeks previously. Now that she had completely healed, one of the reasons that this subject cited for abandoning the regime was the passage of time since the birth event. Therefore, it is vital to ensure that postnatal women are aware of the importance of developing different triggers for action as time progresses.

#### **Study design: strengths and limitations**

The sample size achieved in the present study was 10, which was sufficient to see recurring themes emerging by interview 3 and data consensus was achieved by interview 10. This is in line with Morse (2000), who advocated between six and 10 participants, but falls short of other recommendations that suggest around 30 participants for a small study (List 2004). The mean age of the participants was 32.8 years and the mean age of the first-time mothers was 32 years, which is above the 2007 UK national average of 29.3 years (ONS 2008).

This does mean that the experiences reported in the present study are biased towards the more mature woman. Although they can add depth to their answers because of their increased life experience and awareness of vulnerability, the sample excludes the experiences of younger women, which may be different. The younger woman may feel less susceptible to UI, which would lead to decreased adherence to PFMEs (Myers & Midence 1998). In addition, the single mother's experiences have not been explored since all participants were married. Younger and single mothers may not have responded because of the low priority that they give their PFMEs or simply because they felt too overwhelmed with motherhood to participate in research.

#### **Conclusion**

The key motivating factors identified from the experiences of the women surveyed in the present study were: experience of UI or FI, fear of experiencing incontinence, and perceived level of self-efficacy. However, the subjects' overall lack of knowledge, absence of symptoms, decreased self-efficacy with regard to the usefulness of PFMEs, uncertainty about whether they were contracting the correct muscles and the non-specific exercise regime all contributed to a decrease in motivation and adherence.

**Table 7.** Recommendations for physiotherapy practice on the postnatal ward: (UI) urinary incontinence; (PFMs) pelvic floor muscles; and (PFMEs) pelvic floor muscle exercises

Theme(s) Recommendation for physiotherapy practice	
1	(a) Improve the quality of the information given to women about their perineal tears, the causes and likelihood of developing UI and faecal incontinence, and the role of the PFMs, including the use of diagrams (b) Examine the time when the information is given
2	Use a validated assessment tool to target those women who are most at risk of and/or are experiencing UI
3	Provide current evidence on the effectiveness of postnatal PFMEs to prevent and resolve the symptoms of UI both immediately and when older
4-6	(a) Provide accurate information on the effects of PFMEs; for example, facts about the therapeutic role of PFMEs after a perineal tear and the part that these exercises play with regard to the continence mechanism (b) Am I contracting the right muscle? Explore the practicalities of vaginally assessing a correct PFM contraction postpartum, teaching self-examination or recommending that women should use the pelvic educator (c) Acknowledge and overcome the barriers to exercise: promote the use of adherence tools (e.g. stickers and diaries), set individual cues to action, and make PFMEs individual and achievable (d) The actual PFME regime: set specific exercise regimes for women in line with current practice
7	Suggest short- and long-term triggers for PFMEs

The HBM framework is an effective tool to explore the multifaceted nature and complexity of voluntary health-related behaviours. The use of the model determined that women who experience perineal tears will only seek and comply with PFMEs under specific conditions, such as SUI. The information collated in the study can be used by the physiotherapy team to develop a more effective service for these women. However, the development of the postnatal physiotherapy service to improve the motivation of such women in line with the factors and experiences identified above will be a challenge because of the shortness of the patients' post-delivery hospital stay and limited staff resources (Table 7).

Recommendations for further research:

- A sample of women who are representative of the UK in terms of their age and ethnic background should be interviewed over a longer period of time after a perineal tear at delivery. Unstructured interviews should be used to explore this topic further in relation to both UI and FI.
- It is necessary to research how long and to what intensity women need to exercise their PFMs after a perineal tear in the absence of symptoms.
- Further research is needed into the optimum frequency of PFMEs and whether the exercises have to be done daily in order to be effective.
- The influence of women's self-efficacy on their ability to carry out a programme of postnatal PFMEs, and how this impacts on their motivation to perform and adhere to the exercises should be further investigated.

It is necessary to investigate the best time for health professionals to give information to women after the birth of their babies.

### Acknowledgements

We would like to thank Dr Sabina Redwood for her critical review of the manuscript. This study was supported by Oxford Brookes University.

### References

- Alewijnse D., Mesters I., Metsemakers J. & van den Borne B. (2001) Predictors of intention to adhere to physiotherapy among women with urinary incontinence. *Health Education Research* **16** (2), 173–186.
- Alewijnse D., Mesters I. E. P. E., Metsemakers J. F. M. & van den Borne B. H. W. (2002) Program development for promoting adherence during and after exercise therapy for urinary incontinence. *Patient Education and Counseling* **48** (2), 147–160.
- Alewijnse D., Mesters I., Metsemakers J. & van den Borne B. (2003a) Predictors of long-term adherence to pelvic floor muscle exercise therapy among women with urinary incontinence. *Health Education Research* **18** (5), 511–524.
- Alewijnse D., Metsemakers J. F. M., Mesters I. E. P. E. & van den Borne B. H. W. (2003b) Effectiveness of pelvic floor muscle exercise therapy supplemented with a health education program to promote long-term adherence among women with urinary incontinence. *Neurourology and Urodynamics* **22** (4), 284–295.
- Allen R. E., Hosker G. L., Smith A. R. B. & Warrell D. W. (1990) Pelvic floor damage and childbirth: a neurophysiological study. *British Journal of Obstetrics and Gynaecology* **97** (9), 770–779.
- Ashworth P. D. & Hagan M. T. (1993a) Some social consequences of non-compliance with pelvic floor exercises. *Physiotherapy* **79** (7), 465–471.

- Ashworth P. D. & Hagan M. T. (1993b) The meaning of incontinence: a qualitative study of non-geriatric urinary incontinence sufferers. *Journal of Advanced Nursing* **18** (9), 1415–1423.
- Bandura A. (1994) Self-efficacy. In: *Encyclopedia of Human Behaviour*, Vol. 4 (ed. V. S. Ramachaudran), pp. 71–81. Academic Press, New York, NY.
- Bandura A. (1997) Self-efficacy: toward a unifying theory of behavioural change. *Psychological Review* **84** (2), 191–215.
- Barclay L., Everitt L., Rogan F., Schmied V. & Wyllie A. (1997) Becoming a mother – an analysis of women’s experience of early motherhood. *Journal of Advanced Nursing* **25** (4), 719–728.
- Becker M. H. (1974) The health belief model and personal health behaviour. *Health Education Monographs* **2** (4), 324–508.
- Bø K., Berghmans B., Mørkved S. & Van Kampen M. (eds) (2007a) *Evidence-Based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice*. Churchill Livingstone/Elsevier, Philadelphia, PA.
- Bø K., Owe K. M. & Nystad W. (2007b) Which women do pelvic floor muscle exercises six months postpartum? *American Journal of Obstetrics and Gynecology* **197** (1), 49–51.
- Bowling A. (2002) *Research Methods in Health: Investigating Health and Health Services*, 2nd edn. Open University Press, Maidenhead.
- Braun V. & Clarke V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology* **3** (2), 77–101.
- Briggs J. (2006) A pelvic floor muscle exercise programme for urinary incontinence following childbirth. *Nursing Standard* **20** (33), 46–50.
- Bryman A. (2004) *Social Research Methods*, 2nd edn. Oxford University Press, Oxford.
- Bump R. C., Hurt W. G., Fantl J. A. & Wyman J. F. (1991) Assessment of Kegel pelvic floor muscle exercise performance after brief verbal instruction. *American Journal of Obstetrics and Gynecology* **165** (2), 322–329.
- Chen S.-Y. (2004) The development and testing of the pelvic floor muscle exercise self-efficacy scale. *Journal of Nursing Research* **12** (4), 257–265.
- Chiarelli P., Murphy B. & Cockburn J. (2003a) Acceptability of a urinary continence promotion programme to women in the postpartum period. *British Journal of Obstetrics and Gynaecology* **110** (2), 188–196.
- Chiarelli P., Murphy B. & Cockburn J. (2003b) Women’s knowledge, practises, and intentions regarding correct pelvic floor exercises. *Neurourology and Urodynamics* **22** (7), 246–249.
- Chiarelli P., Murphy B. & Cockburn J. (2004) Promoting urinary continence in postpartum women: 12-month follow-up data from a randomised controlled trial. *International Urogynecology Journal* **15** (2), 99–105.
- Chiarelli P. & Cockburn J. (1999) The development of a physiotherapy continence promotion program using a customer focus. *Australian Journal of Physiotherapy* **45** (2), 111–119.
- Chiarelli P. & Cockburn J. (2002) Promoting urinary continence in women after delivery: randomised controlled trial. *British Medical Journal* **324** (7348), 1241–1244.
- Creswell J. W. (2003) *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*, 2nd edn. Sage, Thousand Oaks, CA.
- Dolan L. M., Hosker G. L., Mallett V. T., Allen R. E. & Smith A. R. B. (2003) Stress incontinence and pelvic floor neurophysiology 15 years after the first delivery. *BJOG: An International Journal of Obstetrics and Gynaecology* **110** (12), 1107–1114.
- Ewings P., Spencer S., Marsh H. & O’Sullivan M. (2005) Obstetric risk factors for urinary incontinence and preventative pelvic floor exercises: cohort study and nested randomized controlled trial. *Journal of Obstetrics and Gynaecology* **25** (6), 558–564.
- Fine P., Burgio K., Borello-France D., et al. (2007) Teaching and practicing of pelvic floor muscle exercises in primiparous women during pregnancy and the postpartum period. *American Journal of Obstetrics and Gynecology* **197** (1), 107.e1–107.e5.
- Glanz K., Rimer B. K. & Lewis F. M. (eds) (2002) *Health Behavior and Health Education: Theory, Research and Practice*, 3rd edn. Jossey-Bass, San Francisco, CA.
- Glazener C. M. A., Herbison G. P., MacArthur C., Grant A. & Wilson P. D. (2005) Randomised controlled trial of conservative management of postnatal urinary and faecal incontinence: six year follow up. *British Medical Journal* **330** (7487), 337–339.
- Glazener C. M. A., Herbison G. P., MacArthur C., et al. (2006) New postnatal urinary incontinence: obstetric and other risk factors in primiparae. *BJOG: An International Journal of Obstetrics and Gynaecology* **113** (2), 208–217.
- Government Statistical Service for the Department of Health (GSSDH) (2005) *NHS Maternity Statistics, England: 2003–4*. Department of Health, London.
- Haddow G., Watts R. & Robertson J. (2005) The effectiveness of a pelvic floor muscle exercise program on urinary incontinence following childbirth. *International Journal of Evidence-Based Healthcare* **3** (5), 103–146.
- Harvey M.-A. (2003) Pelvic floor exercises during and after pregnancy: a systematic review of their role in preventing pelvic floor dysfunction. *Journal of Obstetrics and Gynecology Canada* **25** (6), 487–498.
- Haynes R. B. (1979) Determinants of compliance: the disease and the mechanism of treatment. In: *Compliance in Health Care* (eds R. B. Haynes, D. W. Taylor & D. L. Sackett), pp. 49–62. Johns Hopkins University Press, Baltimore, MD.
- Janz N. K. & Becker M. H. (1984) The Health Belief Model: a decade later. *Health Education Quarterly* **11** (1), 1–47.
- Jones R. (1995) Muscle nerves and continence. *Journal of the Association of Chartered Physiotherapists in Women’s Health* **79**, 3–6.
- Jouanny C. (1998) Audit of a new service initiated to refer ‘at risk’ postnatal women for early pelvic floor muscle assessment and treatment. *Journal of the Association of Chartered Physiotherapists in Women’s Health* **83**, 11–15.
- Koch T. (1995) Interpretive approaches in nursing research: the influence of Husserl and Heidegger. *Journal of Advanced Nursing* **21** (5), 827–836.
- Koch T. (1996) Implementation of a hermeneutic inquiry in nursing: philosophy, rigour and representation. *Journal of Advanced Nursing* **24** (1), 174–184.
- Laforge R. G., Rossi J. S., Prochaska J. O., et al. (1999) Stage of regular exercise and health-related quality of life. *Preventive Medicine* **28** (4), 349–360.
- Laycock J., Standley A., Crothers E., et al. (2001) *Clinical Guidelines for the Physiotherapy Management of Females*

- Aged 16–65 with Stress Urinary Incontinence*. Chartered Society of Physiotherapy, London.
- Layton S. (2004) The effect of perineal trauma on women's health. *British Journal of Midwifery* **12** (4), 231–236.
- List D. (2004) *Maximum Variation Sampling for Surveys and Consensus Groups*. [WWW document.] URL <http://www.audienceialogue.net/maxvar.html>
- Logan K. (2001) Audit of advice provided on pelvic floor exercises. *Professional Nurse* **16** (9), 1369–1372.
- McGourty J. (2006) Obstetric risk factors for the development of urinary incontinence after vaginal delivery. *Journal of the Association of Chartered Physiotherapists in Women's Health* **99**, 3–13.
- Mason L., Glenn S., Walton I. & Appleton C. (1999) The experiences of stress incontinence after childbirth. *Birth* **26** (3), 164–171.
- Mason L., Glenn S., Walton I. & Hughes C. (2001a) Do women practise pelvic floor muscle exercises during pregnancy or following delivery? *Physiotherapy* **87** (12), 662–670.
- Mason L., Glenn S., Walton I. & Hughes C. (2001b) Women's reluctance to seek help for stress incontinence during pregnancy and following childbirth. *Midwifery* **17** (3), 212–221.
- Mason L., Glenn S., Walton I. & Hughes C. (2001c) The instruction in pelvic floor exercises provided to women during pregnancy or following delivery. *Midwifery* **17** (1), 55–64.
- Meyers S., Schreyer A., De Grandi P. & Hohlfield P. (1998) The effects of birth on urinary continence mechanisms and other pelvic-floor characteristics. *Obstetrics and Gynecology* **92** (4), 613–618.
- Mørkved S. & Bø K. (1996) The effect of post-natal exercises to strengthen the pelvic floor muscles. *Acta Obstetrica et Gynecologica Scandinavica* **75** (4), 382–385.
- Mørkved S. & Bø K. (1997) The effect of postpartum pelvic floor muscle exercise in the prevention and treatment of urinary incontinence. *International Urogynecology Journal* **8** (4), 217–222.
- Mørkved S. & Bø K. (1999) Prevalence of urinary incontinence during pregnancy and postpartum. *International Urogynecology Journal and Pelvic Floor Dysfunction* **10** (6), 394–398.
- Mørkved S. & Bø K. (2000) Effect of postpartum pelvic floor muscle training in prevention and treatment of urinary incontinence: a one-year follow up. *British Journal of Obstetrics and Gynaecology* **107** (8), 1022–1028.
- Morse J. M. (2000) Determining sample size. [Editorial.] *Qualitative Health Research* **10** (1), 3–5.
- Myers L. B. & Midence K. (eds) (1998) *Adherence to Treatment in Medical Conditions*. Harwood Academic Publishers, Amsterdam.
- National Collaborating Centre for Women's and Children's Health (NCCWCH) (2006) *Urinary Incontinence: The Management of Urinary Incontinence in Women*. Clinical Guideline 40. [WWW document.] URL <http://www.nice.org.uk/nicemedia/pdf/CG40fullguideline.pdf>
- Office for National Statistics (ONS) (2008) *Fertility*. Office for National Statistics, London.
- Otero M., Boulvain M., Bianchi-Demicheli F., et al. (2006) Women's health 18 years after rupture of the anal sphincter during childbirth: II. Urinary incontinence, sexual function, and physical and mental health. *American Journal of Obstetrics and Gynecology* **194** (5), 1260–1265.
- Paddison K. (2002) Complying with pelvic floor exercises: a literature review. *Nursing Standard* **16** (39), 33–38.
- Pope C. & Mays N. (eds) (2006) *Qualitative Research in Health Care*, 3rd edn. Blackwell, Oxford.
- Roberts G. C. (ed.) (2001) *Advances in Motivation in Sport and Exercise*. Human Kinetics, Champaign, IL.
- Sluijs E. M. & Knibbe J. J. (1991) Patient compliance with exercise: different theoretical approaches to short-term and long-term compliance. *Patient Education and Counseling* **17** (3), 191–204.
- Svengalis S., Nygaard I. E., Cervone D. & Kreder K. J. (1995) Perceived self-efficacy as a predictor of outcome of pelvic muscle exercises in the treatment of urinary incontinence. *International Urogynecology Journal* **6** (5), 262–266.
- Wagg A. & Bunn F. (2007) Unassisted pelvic floor exercises for postnatal women: a systematic review. *Journal of Advanced Nursing* **58** (5), 407–417.
- Wilson P. D. & Herbison G. P. (1998) A randomized controlled trial of pelvic floor muscle exercises to treat postnatal urinary incontinence. *International Urogynecology Journal* **9** (5), 257–264.

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