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Pilates program design and health benefits for pregnant women: A practitioners' survey

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A B S T R A C T

Background: Little is known about recommendations for safe and appropriate instruction of Pilates exercises to women during pregnancy. The aim of this study was to examine Pilates practitioners' perspectives regarding Pilates program design for pregnant women. We also sought to elucidate their views on the potential benefits, restrictions and contraindications on Pilates in pregnancy.

Methods: A cross-sectional survey was performed. Pilates practitioners were invited to participate via email. Participants were surveyed about their experience and views on: screening processes in alignment with The American College of Obstetricians and Gynecologists (ACOG) (2002) guidelines; (ii) optimal exercise program features and (iii) physical and mental health benefits of Pilates for pregnant women.

Results: The survey was completed by 192 Pilates practitioners from a range of settings. Practitioners reported conducting formal screening (84%) for safety in pregnant women prior to commencing Pilates classes. Most did not routinely seek medical approval from the woman's general practitioner. Divergent views emerged regarding the safety and benefits of Pilates exercises in the supine position. Mixed opinions were also generated regarding the effects of spinal flexion exercises, single-leg stance exercises and breathing manoeuvres. There was little agreement on the optimal frequency or dosage of exercises. Views regarding absolute contraindications to exercise differed from The American College of Obstetricians and Gynecologists (ACOG) (2002) guidelines which cautioned about the dangers of persistent bleeding, premature labour, pre-eclampsia, placental praevia and incompetent cervix. The most frequent reported physical and psychological benefit of Pilates was improving pelvic floor strength (12%) and improved social wellbeing (23%).

Conclusions: The study highlighted wide variations in practice for Pilates exercises with pregnant woman as well as low adherence to clinical practice guidelines. Further evidence is required to advise on appropriate screening and individualized Pilates programming, particularly for women with medical conditions during pregnancy.

1. Background

Pilates during pregnancy is a new and popular focus of health promotion programs throughout the world (Robinson, 2007; Dillard, 2013). In healthy women, Pilates is reported to improve postural alignment (Cruz-Ferreira et al., 2013), lower extremity endurance (Mazzarino et al., 2015; Cruz-Ferreira et al., 2011), quality of life (Mazzarino et al., 2015), flexibility (Cruz-Ferreira et al., 2011), balance (Cruz-Ferreira et al., 2011) and reduced reports of pain (Mazzarino et al., 2015). In addition, Pilates has been promoted as a suitable physical activity for pregnant women

Abbreviations: ACOG, The American College of Obstetricians and Gynecologists; GDM, Gestational diabetes mellitus; RCT, Randomised controlled trial.

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(Balogh, 2005; Dillard, 2013; Robinson, 2007; ACOG, 2015), particularly when they are healthy and pain free. Movements can be tailored to the physiological changes of pregnancy, such as ligamentous laxity (Balogh, 2005; Robinson, 2007). Our recent systematic review of the health benefits of Pilates for women showed evidence that it can improve quality of life, lower extremity endurance and pain (Mazzarino et al., 2015). No previous trials have examined the views of Pilates practitioners on the health benefits of Pilates for pregnant women (Mazzarino et al., 2015).

Since 2000, the American College of Sports Medicine has recommended that women with uncomplicated pregnancy should aim to have 30 min or more of moderate exercise most days of the week (ACSM, 2000). The most recent American College of Obstetricians and Gynecologists (ACOG, 2015) guidelines (ACOG, 2015) recommend that women with low risk pregnancies should be encouraged to continue, or initiate, aerobic and progressive resistance strength training prior to pregnancy, during pregnancy and in the postnatal period. Pilates may be a suitable form of exercise that can meet these recommendations (ACOG, 2015).

International clinical guidelines for Pilates exercise during pregnancy are not currently available. However, brief and informal recommendations are available (Dillard, 2013; ACOG (2002); ACOG, 2015). Some restrictions to the mode of Pilates exercise, and exercise more generally, have been recommended for pregnant women. For example, modification for abdominal exercises is advised to avoid significant divarication of the rectus abdominis muscle (Clarkson, 2014; Balogh, 2005; Dillard, 2013). Pregnant women are also advised to avoid sustained exercise in the supine position to prevent obstruction of venous return due to the growing uterus compressing the vena cava (Artal and O'Toole, 2003; ACOG, 2015). Absolute contraindications to aerobic exercise for pregnant women include an incompetent cervix, persistent bleeding, ruptured membrane and relative contraindications such as severe anaemia and poorly controlled type I diabetes (ACOG, 2015). For these reasons, routine screening of pregnant women is recommended prior to commencing exercise for an assessment of overall health, medical and obstetric risks and physical capability (ACOG, 2015; Kadar and Naim-Shuchana, 2014).

Given the lack of evidence about the methods, procedures and validity of Pilates during pregnancy (Mazzarino et al., 2015), this survey aimed to examine Pilates practitioners' perspectives regarding Pilates program design for pregnant women including eligibility, screening and exercise recommendations during pregnancy. We also sought to elucidate their views on the potential physical and mental health benefits on Pilates in pregnancy. Views on potential restrictions and contraindications for women participating in Pilates exercise were sought and compliance with the ACOG (2002) guidelines was evaluated.

2. Methods

2.1. Ethical approval

Ethics approval for this study was granted by the academic institution (FHEC reference 13/179). There were no conflicts of interest.

2.2. Design

This study employed a quantitative cross sectional survey. The survey was designed specifically for this study as no prototype existed. Usability of the survey was piloted on a sample of five Pilates practitioners before use. Minor modifications were made. Data were collected in the period October 2013 to February 2014.

2.3. Procedure

To be included in the study, participants were required to be Pilates practitioners or Pilates clinic managers in Australia. A purposive and snowball sampling approach was used. Participants were sought through Pilates practitioner training organizations (n = 2), Pilates professional organizations (n = 2) and physiotherapy organizations (n = 3) based in Australia. A flyer was posted on their websites, with directions to a webpage for access to the survey. Within the webpage, an information form provided details about the study and the survey was available. Completion and submission of the electronic questionnaire was regarded as implied consent to participate.

2.4. Data collection

The first section of the survey collected information about demographic characteristics and health service details including the type of Pilates instructed and location of the Pilates service. Participants were also asked about their qualifications and how many years they had instructed Pilates for. In the second section of the survey, eligibility for participating in Pilates was explored with questions about the requirement for doctor's written approval, eligibility of a pregnant woman who had not previously participated in Pilates and processes for screening and reassessment. Participants were asked whether pregnant women should avoid exercise in the supine position or exercises involving spine flexion or single leg stance. For the former questions, participants were asked to select one of the prefilled answer choices i.e. "Yes", "No", or "Other." For the prefilled answer choice "Other" a comment field allowed participants to provide additional information or provide an alternative answer. Participants were also asked to rate a list of medical conditions as 'absolute contraindication', 'relative contraindication', 'not significant' or 'unsure'. Health conditions were obtained from the ACOG, 2002 'Physical Activity and Exercise During Pregnancy and the Postpartum Period' guidelines. Questions were also asked regarding how many times pregnant women should attend Pilates per week. Participants were asked to report what they considered to be physical and psychological health benefits of Pilates for pregnant women. On average, it took approximately 25 min for participants to complete the survey.

2.5. Data analysis

Data is presented as descriptive statistics including frequencies and proportions. For open-ended responses, data were grouped into categories and reported as numbers and proportions. Data were analysed using SPSS version 22 (IBM Corporation, Somers, NY, USA) (IBM, Released, 2013).

3. Results

3.1. Characteristics of participants

One-hundred and ninety-two (192) participants commenced the survey. However, a large proportion did not provide responses to all questions. Hence, 85 (44%) participants completed the questionnaire in full.

The majority of respondents were Pilates practitioners (50%) or Pilates practitioners who were also a director/manager of a clinic (40%), female (95%) and employed as Pilates practitioners (41%) or physiotherapists (37%). Approximately one-third (36%) reported they had instructed Pilates for five years or less. Pilates was more often delivered in a dedicated Pilates clinic or studio (60%). Respondent characteristics are presented in Table 1.

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