

People with non-specific chronic low back pain who have participated in exercise programs have preferences about exercise: a qualitative study

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Question: What factors do participants in exercise programs for chronic low back pain perceive to be important for engagement and participation? **Design:** Qualitative study of three focus groups. **Participants:** 18 adults with chronic low back pain who had participated in exercise programs for chronic low back pain. **Results:** All focus group results concurred and two significant themes emerged from the focus group data. The first was that the experience of exercise informed participant preferences with respect to exercise environment and type of exercise. Participants described a range of positive and negative experiences, a desire to master exercise techniques, and a preference for exercise that matched their abilities and prior skills. The second significant theme was the helpful and empowering skills of the care-provider, and care-seeker ability to identify and articulate their own needs. Participants regarded carer expertise favourably when positive results were achieved early in the interaction, but were frustrated when they were not listened to and symptoms were aggravated. The relationship was enhanced by effective communication. Participants also recognised they needed to be aware of their own skills and abilities and, and that financial or family support incentives encouraged their adherence to a program. **Conclusion:** People are likely to prefer and participate in exercise programs that are designed with consideration of their preferences, circumstances, and past exercise experiences. We propose that information about patient exercise preferences should be collected systematically. [Slade SC, Molloy E, Keating JL (2009) People with chronic low back pain who have participated in exercise programs have preferences about exercise: a qualitative study. *Australian Journal of Physiotherapy* 55: 115–121]

Key words: Chronic low back pain, Exercise, Patient preference, Qualitative research, Rehabilitation, Physiotherapy

Introduction

Non-specific chronic low back pain is a significant problem in industrialised societies due to its associated high healthcare utilisation, rising costs of care, and perceived limitations of the effectiveness of intervention. It is a significant source of long-term disability and work absence and accounts for approximately 80% for the total costs of back pain care (Anderson 1999, Croft et al 2006, LeBoeuf-Yde et al 1996, van Tulder et al 1995, Walker et al 2003, Walker et al 2004). The term is not a diagnosis but a description of back pain for which there is no definitive cause (Hestbaek et al 2003, Pengel et al 2003).

Systematic reviews have concluded that exercise appears modestly effective in decreasing pain and improving function (Clare et al 2004, Ferreira et al 2006, Hayden et al 2005a, Hayden et al 2005b, Hayden et al 2006, Machado et al 2006). There are many designs for exercise programs and quite different programs appear to have similar effects. Not all people with chronic low back pain benefit from exercise and it would assist care-providers and care-seekers if factors that impact on program effectiveness and success were identified (Slade and Keating 2006, 2007). Engagement and participation are key ingredients in successful exercise programs (Hayden et al 2006). Programs may be optimised when the gap between what is offered and what patients prefer, or think they need, is identified and closed.

Important information regarding the components of exercise programs may be gained from understanding the participant's point of view. Satisfaction is not typically measured in investigations into the effects of exercise for

non-specific chronic low back pain (Slade and Keating 2006, 2007). The term 'patient satisfaction' is used widely but assesses user reaction to a health care encounter rather than active engagement with the therapeutic process. Assessment of patients' experiences of health care provides an alternative pathway to improve health services (Underwood et al 2006, Verbeek et al 2004). Research into peoples' experience of exercise programs may provide insights into factors that impact on program outcomes. The aim of this study was to determine the experience of exercise programs by people with chronic low back pain. The specific research question was:

What factors do participants in exercise programs for chronic low back pain perceive to be important for engagement and participation?

Method

Design

Qualitative focus group design was selected because group interactions can trigger responses and build insights that may not arise during interviews. Recruitment was by metropolitan and community newspaper advertisements and university email. People who responded were asked if they would participate in a screening telephone call. If they agreed, a telephone appointment was scheduled and they were asked screening questions (see Appendix 1 on the eAddenda for questions). Three focus groups of 2.5 hours duration were conducted by a facilitator using pre-determined questions (Box 1).

Characteristics of participants and facilitators

People with low back pain were included if they were adults (> 18) who could speak, read, and understand English, had participated in an exercise program, and had had low back pain for more than eight weeks (Pengel et al 2003, Slade and Keating 2006). Back pain was defined as pain below the shoulder blades, above the buttock fold, with or without leg symptoms (van Tulder et al 2003). They were excluded if they were pregnant or had inflammatory joint disease, neurological or nerve root pathology, cauda equina signs, spinal fracture, tumour or malignancy, or osteoporosis.

The focus groups were run by an experienced facilitator who was a physiotherapist with doctoral qualifications in interview and focus group qualitative research methods.

Data analysis

Sessions were audio-taped and transcribed verbatim for independent analysis of emergent themes. A fourth group was not required because emergent themes were consolidated after three groups (Strauss and Corbin 1998). Each participant was assigned a code number for data entry and a pseudonym for the pooled transcripts and quotations. The principles of Grounded Theory (Krueger and Casey 2000, Strauss and Corbin 1998) were applied in the analysis of the shared and divergent exercise experiences of groups of people with non-specific chronic low back pain as described previously (Slade et al 2009a, 2009b).

Box 1: Focus group questions

Considering the exercise program in which you participated:

- Was it enjoyable? If yes, why; if not, why not?
- Do you think it was helpful and why? And if not, why not?
- Did you complete the program? If not, why not? How long were programs that were not completed?
- What incentives supported your participation in programs?
- Did you like the environment in which your program was conducted? If not, why not; and if so, why?
- Do you think that there were aspects to your program that were important in achieving a positive therapeutic effect or in helping you to maintain a commitment to the program?
- After the program was completed, did you continue with exercise or did you stop and why (eg did you stop because it wasn't helpful or because you were feeling good, did you continue because it was helpful or because you hoped for further improvement)?
- For those who continued, how are you now compared to how you were at that time?
- For those who stopped, how are you now compared to how you were at that time?
- Were you engaged in shaping your exercise program to find ways to get the best outcomes for you?
- What did you think about the program structure (location, time of day, number of times per week, weeks' duration, companionship in the task, group interactions, music, physical difficulty associated with participation)?

To enhance credibility of analysis we reviewed and coded the data, discussed themes, and clarified coding. Three rounds of coding and discussion were used to develop

Table 1: Characteristics of participants.

Participant (pseudonym)	Age (yr)	Duration of low back pain (yr)
James	51	20
Jane	53	10
Peter	43	1
Steven	60	42
Jean	43	16
David	26	5
Deborah	59	30
Marjorie	45	9
Rita	60	28
Kerry	58	23
Michael	42	22
Gayle	64	50
Kathy	44	22
Lynne	47	10
Alex	57	15
Jenny	56	20
Bianca	53	7
Carolyn	51	35

clear themes and categories. Dependability was enhanced by accurate transcription, and comparison of audio tapes with transcripts (first author) for accuracy and verbal cues. Confirmability was enhanced when the same themes emerged from the data of subsequent group transcripts. The first and second authors read transcripts independently several times to capture a full impression of the data. They colour-coded related paragraphs manually and collapsed the categories into key themes. Quotations and sections of text were extracted into separate documents under thematic headings and checked for consistency with the narrative content. This process ensured robust representation of the audio and transcript data. The authors met to review, compare, and contrast their findings and reached agreement on theme categories before analysis proceeded. The third author acted as independent arbiter on the emergent analytic account.

Results

Participants

There were 69 respondents over a six week recruitment period and 18 participants (12 female) with a mean age of 51 yr (SD 10) and a mean duration of low back pain of 20 yr (SD 13) participated in the focus groups. Their path into the study is illustrated in Figure 1 and their individual characteristics are listed in Table 1.

Theme 1: experience of exercise

Experience of exercise had the following sub-themes: exercise capability influences engagement, preferred styles have been learned, exercise mastery is important, and environmental and social factors are influential. A representative quotation for each sub-theme is presented in the following text. Bold text within the quotes indicates that participants put emphasis on these words. (See Appendix 2 on the eAddenda for additional quotations.)

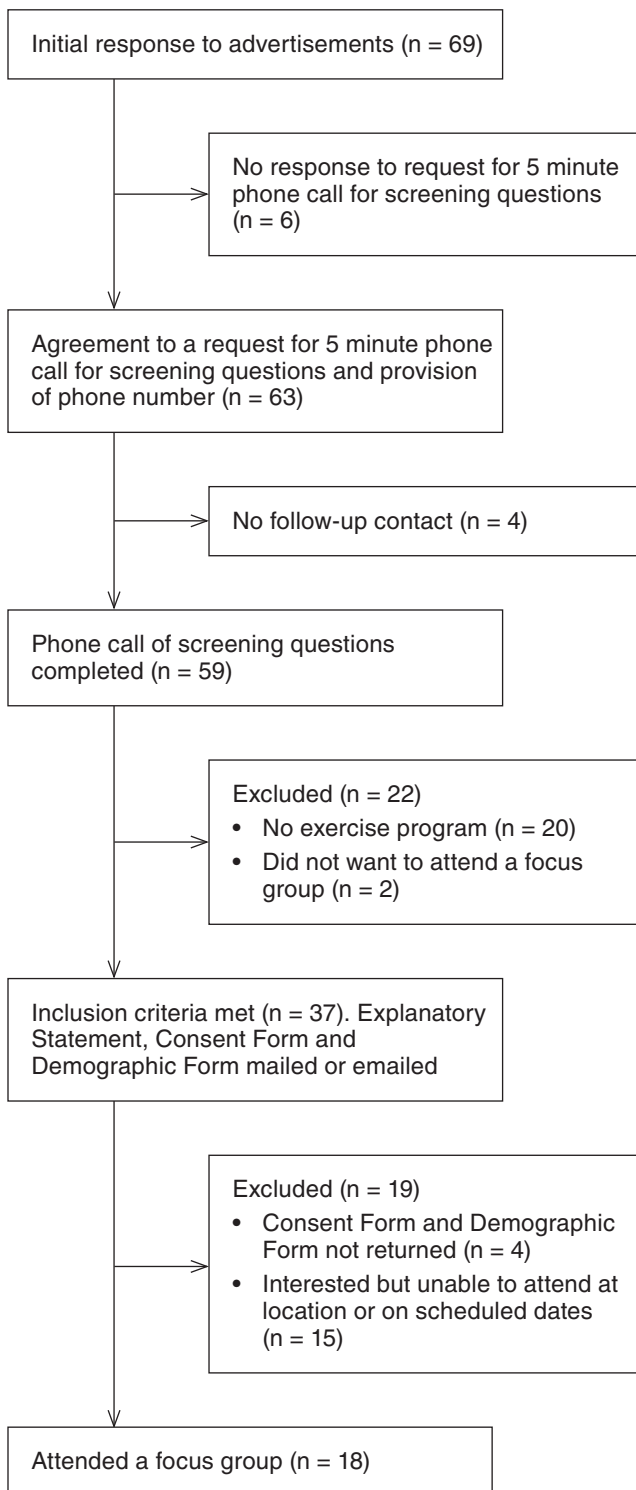


Figure 1. Flow of participants through the study.

Exercise experience and ability influences performance:

All participants agreed that participation is facilitated by familiarity with the exercise environment, culture and training process, and knowledge acquired from previous exercise programs. Twelve participants reported that gym equipment was useful but for six participants gyms were intimidating and prevented them from exercise engagement.

Going to the gym is about physically going to a safe place. I can do exercises there if I go to the gym. I can use the equipment. I'm here; I'll do those things. (Michael)

I'm not a gym person. If you're taking people who have never done exercise into an environment that is so powerful, you're intimidating them from the word go. (Jean)

Sixteen participants found non-clinical settings more engaging than health professional clinics. All participants acknowledged the importance of an exercise environment based on health promotion rather than 'remediation of the sick/injured'.

When you're working with a physiotherapist you feel like you're in a clinical situation. With a personal trainer you feel like you're in a motivational situation, it's more encouraging'. (Carolyn)

Eight participants enjoyed water-based exercise, which they felt allowed more movement options.

I found the only exercise that helped me was hydrotherapy. It allowed me to move my back. (Rita)

Matching abilities, skills and fitness to exercise programs:

All participants wanted exercise programs aligned with their fitness levels and previously acquired skills. Matching people with similar abilities such as fitness, strength, and technical expertise was thought to be important for enhancing group dynamics and individual performance. Four participants with extensive exercise experience reported that they were less fearful of exercise and knew how exercise felt. Ten participants were not challenged by traditional rehabilitation programs and perceived these types of programs as unlikely to be beneficial. Participants reported that they either ceased participation or pursued their own programs when care-providers did not consider their exercise abilities.

Looking at different backgrounds with exercise and finding out where somebody comes from, so you can actually base the program on what people are used to. (Deborah)

The importance of having people who are ... for beginners, with beginners. (Jean)

I was very athletic. [Having experience] makes you less fearful, willing to take the risk of doing. (Alex)

Perceived ability to master exercises: All participants reported that compliance was difficult when they lacked confidence in correct exercise performance. There was consensus that a sense of mastery is essential for correct exercise technique and confidence building. All participants reported great difficulty in mastering exercises that isolated the deep abdominal muscles, or 'core muscles', regardless of the teaching method. They wanted exercise instructors to demonstrate exercises, observe exercise practice, give feedback, and make subsequent corrections in technique. Regular review and written or printed instructions and/or diagrams assisted compliance.

If they demonstrate it on your body you tend to remember. It does help your image in your mind later on. (Rita)

When you exercise the 'core', I'm not really (confident), no. (Peter)

Preferred exercise styles developed through experience:

All participants reported that they had developed preferred exercise styles over time. Experience had enabled them to identify what worked for them and included personal likes and dislikes, enjoyable activities, incorporation into daily routine, initial close supervision, and individually tailored exercises. Six participants disliked exercise and found traditional programs were not enjoyable. All participants preferred fun and variety and were less likely to be engaged by what they perceived as boring or onerous programs.

The range of preferred exercise styles reinforced that the individual should be consulted in program design. Preferences ranged from individual to group, from unsupervised to closely supervised, and included minimal disruption to their lives and exercises as part of recreational or routine daily activities. All participants recognised that time management and flexible time-tables are helpful. Eleven of the twelve female participants enjoyed group exercise for its camaraderie. All male participants preferred solitary, independent exercise.

*I loathe exercise. I don't like structured exercise'. Surely there **must be a fun** way of doing it. I was offered three free dancing lessons ... another creative way of getting exercise. **It's exercise without exercising.** (Deborah)*

It's got to be in daily activities for a person like me, because I'm not a person who goes to another place to exercise. (Jean)

I love group exercise because you've got other people around you. That can motivate you. (Kerry)

*I like it on my own. Not group sessions, blokes are like that. We want to **do stuff by ourselves, fix it and get on with it.** For a lot of men **it's embarrassing.** (Michael)*

Sixteen participants preferred close supervision because of associated motivation and the acquisition of correct technique. Safe, low-risk progression of exercises, with minimal symptom aggravation, was perceived to build confidence and encourage independent performance. 'Trial and error learning' was reported as a burden, both in relation to time consumption and the potential for symptom aggravation. Individualised programs were regarded as essential.

*The important thing about being monitored is they are giving you feedback. So, **one-to-one is ideal, one-to-four is reasonable** as long as the person is there. (Jean)*

Everybody's an individual and you cannot make one size fit all, and most of us have probably found we have been put in 'one size fits all'. (Carolyn)

Theme 2: helpful and empowering skills

Helpful and empowering care-provider skills are those of the effective educator, motivator and communicator. Care-seekers are empowered by recognition of their own physical capability, motivators, time-management skills, and assertiveness. A representative quotation for each sub-theme is presented in the following text. (See Appendix 2 on the eAddenda for additional quotations).

Care-provider expertise as perceived by the care-seeker:

Ten participants reported perceived practitioner expertise when a positive response, such as improved function or successful pain control, was achieved early in the therapeutic interaction. Eight participants were frustrated that early interventions aggravated symptoms or care-providers did not listen.

I knew that I was going to walk away feeling better. I felt the results. (Jenny)

*What have I been telling you for 10 years? They'd say: 'Go out and do this'. I'd be saying: 'Hang on, this is just aggravating me more'. **Listen to me.** (Jean)*

Word-of-mouth is a key. That helps if someone's had a good experience. (Steven)

I'm lucky that I've got a good GP who can tell at what point to send you to which person. (Kathy)

Six participants were confident in sourcing a good practitioner through their social and family network. Three participants trusted their doctor to refer them to a competent and well-qualified provider, and the remainder agreed that it was luck or 'trial and error' in finding an instructor and exercises that worked for them. All participants acknowledged the positive impact of motivating and encouraging instructors and agreed that these qualities and effective teaching skills enabled exercise participation and facilitated positive therapeutic outcomes. All participants volunteered that education and knowledge about back pain and exercise were important. They preferred to be given clear, plain language information, diagrams and assistance to access and process reliable information.

He was motivating; he didn't make me feel guilty for being in the situation that I was in. He was encouraging, and every little step was an achievement. (Lynne)

*Heaps of explaining, telling you why you're doing this particular exercise. I think just having things explained to you is very important. **Tell me why, tell me why. Explain it to me.** (Carolyn)*

*With the personal trainer I learnt what I had to do **I don't think I ever really knew what it was I had to do. He was an educator. He told me what I needed to know** and he had great people skills. (Deborah)*

Perceived ability of the care-provider to communicate effectively:

All participants preferred care-providers to be non-judgmental, empathetic to their situation, and to take adequate time to listen and consider their wants, needs, and circumstances when designing exercise programs. They all preferred collaboration and shared decision-making in their care plan. Episodes of poor continuity of care and abandonment by care-providers were reported by all participants and only six participants felt able to contact their provider readily.

Asking me what I think, not saying this is what you should do. (Deborah)

Trust in where you go. Personability, how they react to you, and be non-judgmental; not you're an idiot for doing that or how did you get to this situation. (James)

He didn't make me feel guilty for being in the situation that I was in. (Lynne)

I could always ring and he would give me advice. (Steven)

Care-seeker ability to recognise their own skills that help exercise participation: All participants stated that they had learned their body's response to exercise and the distinction between 'good' (successful exercising) pain and 'bad' (worse or aggravated) pain. They all agreed that the ability to 'know your own body' was empowering. Ten participants recognised that self-discipline and an ability to be a 'self-starter' were essential. All participants agreed that assertiveness assisted them when working with practitioners, and that asking for what they want or need is often learned slowly.

You learn what's good and bad pain. In that sort of tension that goes with doing exercise is a sort of good pain so you then start to differentiate between them. (Lynne)

The discipline, it must be done, accept it. So I set a challenge every day and that's the reward. I love it. (Steven)

I just need discipline. (Deborah)

I'm only starting to learn to be more assertive and I've now realised that you go to this person and say: 'I want that from you'. (Jean)

Care-seeker recognition of incentives to keep to a program: All participants agreed that incentives and measurements to reinforce progress and demonstrate achievements are important and often not used as part of exercise program implementation. All participants preferred to set short- and long-term goals for themselves or be assisted by their instructor to work towards an explicit or clearly articulated goal. None of the participants had used pain and function outcome measures with their physiotherapists but it was reported that personal trainers consistently used measures such as heart rate, number of exercise repetitions, and tolerance to increased resistance.

All participants reported that developing knowledge of factors that assist in keeping to a program is helpful, eg, family support, cost subsidisation, or subscription or pre-payment. All participants agreed that family support and understanding enabled them to undertake exercise programs. Social support such as back pain specific support groups and hearing success stories were viewed as encouraging. Ten participants reported that there was an unmanageable financial burden in consistent attendance at exercise programs. Those participants whose programs were funded by insurance or sick pay expressed relief that attendance was not restricted by financial constraints.

He worked with stepping it up a little bit to show that you're able to (do more) ... I suppose it was goals. (Lynne)

I think partners and family are the most important resource that you have. (Michael)

For some people, if they've got to go every week, \$20-\$25 out of pocket is a lot. People tend not to go. (Marjorie)

I went to rehabilitation every day for two months, I had that much time off work and my health fund paid the lot. (Deborah)

Discussion

The results of this study indicate that people with non-specific chronic low back pain have a range of preferences in terms of environment and style that are important to consider when prescribing exercise. Although more than 500 decision aids have been developed to assist practitioners and care-seekers with decision-making, a decision-aid for exercise prescription is currently not available. Based on the results of this empirical study we have drafted, and are evaluating, a set of questions to use as a decision-aid. Examples of these questions are presented in Box 2.

Box 2. Sample exercise preference questions

- Would you like to be supervised by an instructor while you do exercises?
- Would you prefer to exercise in a group / one-on-one?
- Would you like exercise(s) demonstration and feedback?
- Do you want a printed description of the exercises and diagrams?
- Do you want supervision?
- Would you prefer to workout with people of similar exercise ability/fitness?
- Would you prefer to workout with people who have similar problems to yours?
- Would you prefer to exercise in a clinical environment, eg, physiotherapy clinic?
- Would you prefer a non-clinical setting?
- Do you need to a convenient location for exercising?
- Would you prefer exercises that do not aggravate your condition?
- Do you like to exercise to music?
- Does recording your daily exercises in a diary help you keep to the program?
- Do you want goals to work towards with your exercise program?
- Do you want information and education about your condition?
- Do you want to hear success stories?
- Would you prefer to join a support group of people with your condition?
- Would you prefer the support of other people to encourage you?
- Would financial assistance or subsidization enable regular exercise?
- Do you need flexibility in the time of day that you exercise?

Engagement and adherence across a range of exercise interventions can be problematic (Dean et al 2005, Liddle et al 2007, Verbeek et al 2004). Our research supports the proposal by Dean et al (2005) that exercise adherence is likely to be positively influenced by ascertaining participants' priorities, establishing a routine, and minimising interruption to a person's daily life. Training diaries (Moseley 2006), telephone, print, email, and website interventions (Ferney and Marshall 2006, Marshall et al 2003, Green et al 2002) have been proposed to assist

adherence. Hayden et al (2005) conducted a meta-analysis of intervention characteristics that improve non-specific chronic low back pain exercise outcomes. They concluded that supervision, individualisation, and strategies to increase adherence improve pain and activity. Our study supports the validity of these results.

Our finding that family involvement can greatly assist ongoing exercise participation is supported by research findings (Keefe et al 2004). Shepich et al (2007) identified that financial constraints are a barrier to exercise participation and argued that improved adherence is associated with financial subsidisation and participants in this study expressed similar sentiments.

Outcome measures provided participants with a sense of progress and achievement and relevant outcome measures were used consistently by personal trainers. The use of outcome measures is an implicit feature of health care practice and the results of this study suggest that they may not be used consistently or made transparent to care-seekers. It may be important to target measures of health that people can identify with (such as heart rate) rather than restricting assessment to disease-specific methods (such as disability questionnaires). The way in which health care providers use outcome measures for appraisal of progress and as a motivating tool requires further research.

Participants in this study preferred effective, supervised exercise instruction that included feedback. There is evidence that interactive exercise demonstration and practice, combined with diagrams and written instructions, improve technique, compliance, and adherence in exercise for back pain (Schoo and Morris 2003). Visual reminders provided by video presentation in DVD, virtual reality/avatars, or computer simulation may be alternative strategies (Warburton et al 2007, Sveistrup et al 2003) as dynamic modelling may be more effective than static illustration (Weeks et al 2002). There is less adherence and smaller benefits with exercises learned from brochures and without supervision compared with demonstration under supervision (Friedrich et al 1996, Schoo and Morris 2003).

The results suggest that levels of acquired skill and experience of the exercise culture require consideration in program design, as well as decisions regarding appropriate venue, entry level performance, and progression rates. People participating in exercise classes and group work may be more comfortable when matched for abilities and experience. Underwood et al (2006) reported that regular exercisers saw little added benefit to a back exercise program because they were not adequately challenged or extended and were not given exercises that matched previously acquired skills. Der Anianan et al (2006) proposed that people with experience in exercising may acquire skills to evaluate whether an exercise is suitable for their condition while non-exercisers demonstrate less skill in modifying exercise routines.

Participation in exercise programs can demand substantial commitment, concentration, and lifestyle adjustments. It seems prudent to incorporate factors that facilitate participant engagement into program design and to identify and remove barriers. Campbell et al (2001) reported that when care-seekers perceive that an intervention interferes with everyday life, is ineffective, or too difficult to implement, they make a reasoned decision to discontinue. Our results suggest that participants are most likely to adhere to exercise programs

when they sense performance mastery, easy incorporation into daily routines, and perceived benefit.

The preferences derived from these themes warrant consideration when designing exercise programs for people with non-specific chronic low back pain. This experiential knowledge may be used to inform and engage potential exercise participants. Factors such as access to facilities and programs, time constraints, work and/or family responsibilities, and environmental structure may not be modifiable, but exercises can be designed to accommodate these variables. ■

eAddenda: Appendix 1, Appendix 2 at www.physiotherapy.asn.au

Ethics: Monash University Standing Committee on Ethics in Research Involving Humans (CF07/1854-2007/0558) approved this study. All participants gave informed consent prior to participation in the focus groups.

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Decision aid websites

<http://www.ohri.ca/decisionaid>

http://decisionaid.ohri.ca/docs/develop/Cochrane_Inventory.xls