Identifying exercise self-efficacy and the impact of personal training in children and young people with CF

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Background: Previous studies have identified that adult support, for example a personal trainer or parent/carer facilitator, is important for maintaining exercise participation in children and young people (CYP) with CF. However, personal training (PTr) is resource intensive and participation varies. Resource-limited CF centres must decide how to direct resources, including supervised exercise, so maximum benefit is achieved.

Objectives: This study aimed to explore the exercise experiences of CYP with CF, as well as their self-efficacy and attitudes towards exercise. Self-reported perceptions of the effectiveness of PTr were also collected 12-35 months after participation in an exercise study (INSPIRE-CF).

INSPIRE-CF was a randomised trial in which half of the participants received a weekly, individually prescribed PTr session at a gym facility for 24 months¹. The PTr sessions were withdrawn after the trial ended.

A convergent parallel mixed methods design was used (figure 1). Purposive sampling identified more than 30 participants from the INSPIRE-CF cohort who fulfilled a range of characteristics (age, gender, control/intervention group), and thus could provide depth and richness of data.

Interviews were transcribed verbatim. Themes were independently identified by two researchers and confirmed via discussion to develop the framework. The framework was then applied to the data and further refined until the hierarchy of categories contained, organised and summarised all themes.

Self-efficacy was measured using the Children's Self-Perceptions of Adequacy in and Predilection for Physical Activity (CSAPPA) questionnaire. This generated a generalised self-efficacy score as well as individual domain scores for adequacy, predilection and enjoyment of physical activities. Higher scores indicated greater self-efficacy.
A total of 20 CYP (aged 11-16 years: 6 male, 14 female) completed the CSAPPA and were interviewed. Data saturation was reached.

**EXPERIENCES**
- 18 CYP had personal experience of PTr.
- Only 10 CYP took part in regular structured exercise, including 4 who reported not enjoying formal sports. These 4 were attending weekly gym-based PTr, and were positive about these sessions.
- 5 CYP were unable to identify any barriers to their maintenance of exercise. Paradoxically they all tended to score mean or less in all CSAPPA domains (i.e. lower self-efficacy for physical activity).

**SELF-EFFICACY**
- (figure 2)
  - Generalised self-efficacy for physical activity ranged from 34-72/76 (mean 53.0), max possible score 76
  - Adequacy 11-28 (mean 19.7), max possible score 28
  - Predilection 10-35 (mean 24.7), max possible score 36
  - Enjoyment 3-12 (mean 8.6), max possible score 12

Figure 2: Individual CYP self-efficacy scores by component domains

Those who identified as ‘sporty’ before PTr (n=4 ⬛️) had higher self-efficacy scores (>63/76) than those who identified as ‘not sporty’ (n=8 ⬝️) (<52/76).
Conclusion:

- CSAPPA provides a useful insight into a CYP’s relationship with exercise, and has the potential to:
  - predict CYP who identify as sporty, not sporty or something in between,
  - identify the CYP most likely to convert their exercise identity following PTr,
  - guide in the provision of appropriately targeted individualised exercise plans for CYP and allocation of CF centre resources.
- PTr is an effective intervention and highly valued by CYP, considerably impacting the exercise behaviour and identity in 27% of our study participants.
- PTr is particularly useful for CYP who dislike formal sport so that they too can experience the recognised benefits of effective exercise.
- CYP may first need to experience and understand supported exercise, such as PTr, in order to identify barriers to maintaining exercise.
- Clinicians must be aware of the potential need to deliver supported exercise to initiate change in behaviour, and then explore and overcome barriers to maintenance.

Participants:

- Participant 4: 'I just don’t like sports. I just find it so pointless.'
- Participant 19: 'I love working hard. It just makes me feel more energised and happy, because I know I’ve done a good workout and I know that its good.'
- Participant 8: 'I didn’t really think it was going to be very good because I didn’t really like exercise and I didn’t do any sports. Now it’s really fun, and I’ve started all the groups and sports'
- Participant 4: 'I just don’t like sports. I just find it so pointless.'
- Participant 19: 'I love working hard. It just makes me feel more energised and happy, because I know I’ve done a good workout and I know that its good.'

Results continued

- Attitudes towards exercise and measures of adequacy, predilection and enjoyment were varied.
- Despite this, all participants identified exercise activities that they found enjoyable.
- 5 CYP reported that regular PTr resulted in a change of sense of identity i.e. they became ‘sporty’.
- All CYP exercising with PTr reported themes of ‘fun’, ‘variety’ and ‘gained skills/knowledge’.

Attitude and personality: Negative attitude to exercise
Identity: Exerciser

Attitude and personality: Positive attitude to exercise
Identity: Exerciser

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