Barriers to and Motives for Engagement with respect to Exercise Programmes for Chronic Disease Management

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Abstract:

Background: Insufficient physical activity (PA) is a leading risk factor for premature death worldwide. The Health Service Executive (HSE) National Exercise Referral Framework (NERF) aims to improve PA levels to manage NCDs. ULMedX is one such NERF centre offering an exercise-based cardiac rehabilitation (EBCR) programme with the aim of intervention development to maximise adherence for optimal health benefits.

Aim: The purpose of this study was to explore participants' experiences of the motives and barriers faced for programme commitment. Identifying areas for future development were also prioritized.

Design & setting: Qualitative interviews were conducted with long-term participants and people who have dropped-out (PWDO) at ULMedX.

Methods: Guided by the Theory of Planned Behaviour the 1-1 semi-structured interviews were performed, transcribed, and evaluated through thematic analysis.

Results: Analysis was performed on 14 participants (50% female; mean age 67.3 years), comprising long term adherers (n=7; 13-month duration, 64% of classes) and PWDO (n=7; 2.8 month duration, 22% of classes). Three major factors affecting attendance emerged: social support, perceived outcomes from participation and practical barriers to attendance.

Areas for future development included provision of evening and advanced classes, psychological support, more exercise variety, more educational seminars, new members start as their own group.

Conclusion: Individuals were more likely to have had a better experience and commit to the programme if they believed involvement would benefit their physical and mental health, increase their exercise motivation by engendering a positive attitude to exercise, and that the ability to attend was within their control.

Key words: primary health care, cardiac rehabilitation, exercise motives, barriers, qualitative research.

Introduction:

Although regular physical activity (PA) is increasingly being recognized as a critical factor for good health and disease management, the global prevalence of insufficient PA is 27.5% [1] and physical inactivity is still the fourth leading global risk factor for mortality [2].

Cardiovascular disease (CVD) is also one of the most common causes of death and disability worldwide [3] and accounts for 30.1% of all deaths in Ireland [4, 5]. It is also one of the diseases most commonly associated with physical inactivity [6,7]. Exercise-based cardiac rehabilitation (EBCR) programmes are regarded by many as essential in the management of CVD [8,9] and usually consists of exercise training alone or in combination with psychosocial or educational interventions [9]. These programmes may be hospital-based or community-based. This study focuses on an EBCR within the community setting.

The high quality of evidence supporting the use of PA for primary and secondary prevention of several chronic conditions including CVD has led to the setting up of the Irish National Exercise Referral Framework (NERF) [10]. 'ULMedX' is a community-based chronic illness rehabilitation centre, which was established in the University of Limerick in 2017, in line with the NERF policy [10]. The centre offers medically supervised exercise classes and educational workshops, as well as peer support through social activities after class. It currently offers an EBCR programme for patients with CVD [8,9].

Despite extensive evidence advocating the integration of EBCR programmes into the treatment plans for CVD, uptake is less than 40%. [11,12]. Among those who participate in EBCR, adherence levels can fall as low as 37% [13].

Attendance records at the ULMedX EBCR in 2018 indicated a gradual decline in adherence as the year progressed, as well as early drop-out. Adherence was 60%, 57% and 37% in January 2018, March 2018 and January 2019, respectively. 75% of all individuals who dropped-out of the programme did so before their twelfth week at ULMedX. Further research was needed to understand the factors related to adherence and early drop-out in this EBCR.

Research on the topic has listed factors influencing non-adherence and drop-out. These include, but are not limited to, low social-support, longer travel times, older-age, and low-income [14]. The aim of this study was to further explore the reasons for people with established and stable cardiovascular disease disengaging with the programme despite having very good medical reasons to continue with it.

The specific objectives were to identify barriers and motives for attendance, as well as suggestions for future development of the programme. This information could then be used to develop an intervention to increase adherence to the programme and reduce early drop-out.

Methods:

Study design

A qualitative study design to explore participants experiences with EBCR. This involved 1-1 semi-structured interviews with long-term attenders (LT) and people who have dropped-out (PWDO) of ULMedX.

Setting

This study was set in the mid-west of Ireland. 1-1 Interviews were conducted from a private room within the University of Limerick Sports arena (Box 1).

Box 1: UL MedEx EBCR

Description of the programme
<p>ULMedX has a user pay EBCR programme located within a third level educational institution and a community setting, with over 80 visits per week. The primary mission of the ULMedX EBCR programme is to transform the lives of people with CVD through physical activity-based rehabilitation. The service is delivered by trained personnel from the sports centre along with academic staff, graduate and undergraduate students.</p> <p>All exercise sessions adhere to the same structure of warm-up, aerobic exercise, resistance exercise and cool-down, with a post-class refreshment, in total 90 minutes duration.</p> <p>Individuals adherence is monitored by the number of classes attended, which is manually recorded by the students. Classes are supervised by trained staff at a ratio of 1:15.</p> <p>Participants are encouraged to attend two classes per week. They are also advised to attend the same sessions every week in order to foster social-support and habit formation.</p> <p>Educational workshops on exercise and nutrition are scheduled regularly throughout the year for the participants.</p>

Participants and recruitment

ULMedX participants were referred from local hospitals or general practitioners in the Mid-West of Ireland. LT participants were informed of the study directly by the researchers during exercise classes. For those who gave consent and met criteria, a purposeful sample of participants was selected (Box 2). This sample reflected the breath of individuals who

consistently engaged with ULMedX and contained a mix of gender, age and fitness levels. PWDO were identified by reviewing attendance records and were informed of the research study by phone call. For the PWDO who gave consent and were interested in taking part, an in-person or telephone interview was offered.

Box 2: Inclusion and exclusion criteria

	Long-term attenders (LT)	People who have dropped-out (PWDO)
Inclusion	Adults with an established and stable cardiovascular disease. Attending the EBCR programme regularly for at least six months. This is the accepted time frame for behaviour change to be regulated [15].	Adults with an established and stable cardiovascular disease. Previously attended ULMedX, but have not attended a programme session in the previous three months. Drop-out was defined as the withdrawal from class and has been described elsewhere [16].
Exclusion	Individuals with symptomatic or uncontrolled cardiovascular conditions. Absolute contraindications to exercise [17]. Inability to provide informed consent.	

Data Collection

Interview questions were guided by existing literature, the experience of the research team and the ‘Theory of Planned Behaviour (TPB)’ (figure 1) [18]. All interviews lasted between 20-60 minutes and were audio-recorded and transcribed manually by one researcher (AB). The reviewer took note of emerging topics and amendments for future interviews when

necessary [19]. Data gathering ceased after 14 interviews once data saturation was reached [20].

Data analysis

Three researchers analysed the data manually using the thematic analysis approach described by Braun and Clark [21] in figure 2. The process of defining, recoding, and refining the thematic analysis framework was repeated until no new codes were generated.

Results:

Participants Characteristics

Out of the fifteen participants selected, fourteen were included in this report. One participant (LT attender) did not partake in the interview due to on-going conflicting hospital appointments during data collection period (Table 1).

Thematic Analysis

The researchers identified four themes, each with sub-themes which were inter-connected based on study objectives, data analysis and the TPB (Table 2). ‘Areas for future development’ were also identified.

Support for ULMedX

Professional

The staff and students offered guidance and support which encouraged participants to adhere to the training programme. Individuals stated that they were more likely to initiate exercise or continue with the programme as a result;

‘...I’m not disciplined enough to do this on my own. I needed somebody to encourage me.’
(LT-001).

Family

Participants’ families would enquire when they skipped a session and this helped keep them accountable. Family members would say things like;

‘Oh why aren’t you going? When are you going back?’ (PWDO-003).

Many participants also found it very encouraging when their family members told them they noticed a positive change in their mood/behaviour;

‘They told me the more physical exercise I do, the more better humour I’m in,’ (LT-001)

Peer

The opportunity to talk after class and engage in participant-led discussions surrounding their condition and exercise helped many individuals feel less apprehensive about exercising and spurred them to continue engaging in the programme;

‘You can talk to your GP or your wife but there’s nothing like talking to a man whose gone through it all and felt the little things you felt’(PWDO-005)

Benefits from ULMedX

Physical health:

The adverse effects of cardiac treatment interfered with individuals’ ability to look after their family and to engage in recreational activities. The EBCR classes helped many participants regain their physical functioning and return to normal life.

‘When I started ULMedX, I couldn’t carry shopping I couldn’t push a large shopping trolley...Then gradually from 3 to 4 months, I progressed from not being able to carry

shopping bags to being able to carry the shopping bags. To not being so breathless. To not being so afraid.’ (LT-001)

Mental health:

Participants detailed having a poor mental health status prior attending ULMedX. Cardiac treatment provoked chronic symptoms of anxiety or depression and low self-confidence for many, with one individual stating;

‘It’s not really until 12 months [post treatment], that’s more when the depression starts to kick in, because you’re kind of going along and saying “is this it? Is this [what] life has to offer for me?”’ (LT-002).

For some, attending ULMedX simply made them ‘feel good’ (PWDO-003) however, others noted it helped them come out of seclusion;

‘This really got me out of my shell’ (LT-007).

Some PWDO noted they decided to play sport and or train at their local gyms instead of attending ULMedX classes. The training and support at ULMedX helped them reach a point where they felt they could now become independent exercisers who no longer needed medical supervision;

‘When you find yourself back on your feet and you’re perfect, there might be a tendency to say okay now, I don’t have to keep going to this medical thing’ (PWDO-005).

Motivation for ULMedX

Attitude:

Many participants already had a positive attitude towards exercise and understood the importance of lifestyle management prior to attending ULMedX. They sought help from

ULMedX to make drastic alterations to their lives as they found it too difficult to do own their own;

‘With a young family, I didn’t want to die’ (PWDO-006).

Similar reports were also given by other LT participants. The emotional and physical ‘cost’ of the aftermath was enough to motivate many to engage in the programme;

‘I couldn’t afford to be the way I was, I needed to get my life back.’ (LT-001)

Behaviour:

For some, ULMedX was the first opportunity to initiate exercise and build better behaviours in a safe, supportive environment;

‘It makes you start, that’s the single most important part of it. It makes you believe that you can do stuff that otherwise you were either afraid to do or you thought you shouldn’t have been doing’ (LT-002)

Barriers to ULMedX

Self-awareness:

It was common for some participants to ruminate about the exercises they could not yet execute, as well as the post exercise pain. This led some to believe the programme wasn’t suited for their abilities and resulted in them dropping-out;

‘I think it was just a bit too much for me’ (PWDO-004).

Physical barriers:

Participants reported that their friends who were eligible to attend felt the morning classes were too difficult to attend due to traffic and other work commitments;

‘Tommy would be interested in coming, but he can’t get the time off work’ (LT-002)

Greater travel distances and associated expenses had a negative influence on individual's ability to attend. PWDO travelled 19.09 km more on average than the LT attender;

'It was the distance and expenses with the getting there. The cost of getting there. Other than that, I would be still continuing to attend' (PWDO-004)

Family responsibility was another factor influencing programme attendance. A PWDO mentioned the caring responsibility of family which hindered their ability to continue attending;

'my thing was my husband was very sick and I had to look after him' (PWDO-003)

Some felt that ULMedX might not be suitable for them due to their age;

'I think it's a bit much for perhaps older people or those that maybe haven't got the physical strength' (PWDO-004)

Chronic injuries or illness were other major barriers. Four out of the seven PWDO had injuries or CVD-related problems which required attention and so could no longer attend ULMedX.

Areas for future developments

Programme progression:

Modifications in programme progression to cater for all abilities was a common desire. For some, the first few sessions were fatiguing and debilitating, with one individual stating;

"I was exhausted. I couldn't drive home. I had to go sleep in my car." (LT-003)

Participants suggested including talks from long-term adherers at induction detailing their journey and what to expect. Delaying the inclusion of new participants into the bigger group (with long-term attenders) was also suggested;

"I think in some ways... the new group would even benefit from coming in for a week or two of just them and then integrate them into the big group" (LT-002)

Psychological Support:

Participants suggested including more information and conversations around mental health. Educating all the participants on the benefits of exercise for positive mental health was also suggested;

“I do think that there needs to be more stuff on the mental side of it because as I said, I think people-, they just don’t know. Nobody tells them.” (LT-002)

Class timetable:

PWDO and LT participants recommended tailoring classes to suit different abilities. They suggested this modification will allow individuals to work at their desired intensity and would offer more scope for progression;

“I was progressing a little bit faster... so mainly, I did feel a little bit held back.” (PWDO-004)

The inclusion of evening classes was a common suggestion among participants to combat common barriers to adherence ;

“An evening class where somebody that is working could come and do the class. I think it would be huge.” (LT-001)

Discussion:

Summary:

The current study offers a novel exploration into the participants’ experiences of a community-based EBCR programme. Three inter-related attributes shaping participant experience and commitment to attendance were established. These were (a) social support surrounding engagement; (b) perceived outcomes resulting from participation and (c) the

practical issues with attendance. Results were in line with TPB propositions which were that individuals were more likely to have had a better experience and commit to the programme if they believed involvement would benefit their physical and mental health, increase their exercise motivation by engendering a positive attitude to exercise, and that the ability to attend was within their control [22,23].

Strengths and Limitations:

The 'semi-structured' nature of the interviews and the questions chosen enabled us to capture a variety of experiences at ULMedX to date [24]. This research was also able to outline the attitude participants have towards ULMedX and EBCRs in general, including PWDO. As well as this, interview questions were guided by the literature optimising the relevance of our findings. All but one of the interviewees selected were included in this report, hence optimising the experiences documented.

Social desirability bias was countered through interview script indicated that positive and negative feedback was welcome. Limitations included the fact that certain aspects of our results may not be applicable to other EBCR programmes in different areas, with factors like location, duration of EBCR establishment and public transport coming into play.

Comparison with existing literature:

Social support surrounding engagement:

Social and medical support that was associated with participation in ULMedX had a major impact on the patients' experience and commitment to the programme. This support generated feelings of exercise competence and safety. A major barrier to exercise participation, particularly in older adults, is fear that exercise will exacerbate existing conditions [25]. ULMedX was also perceived to offer consistent encouragement and praise

from specialist staff in a safe, supervised setting. It also encourages a mastery based climate and these are core theoretical strategies shown to improve self-efficacy as proposed by Bandura [26]. This is particularly important as barrier self-efficacy [27], has been recognized as a crucial element for long term PA adherence in EBCR programmes [28]. Support from fellow ULMedX members encouraged commitment and this favours previous work on exercise motives in EBCR [29,30]. High levels of family support also assisted with commitment, in line with previous research [31, 32].

Attitude towards the behaviour:

Perceived mental health improvements were reported to result from participation at ULMedX, supporting other works examining EBCR programmes [30, 33]. The participants' strong intention to engage in the programme to 'get their life back' post cardiac treatment highlights the drastic change in quality of life many patients experience post treatment [30, 33]. The 'feel good factor' associated with engagement is consistent with evidence that exercise training can significantly alleviate symptoms of anxiety among individuals with CVD [34].

Perceived behavioural control:

Greater travel distance and associated costs were major barriers to commitment for long-term attenders and the primary barriers for engagement in PWDO. Studies have shown that as length of travel rises over 30 minutes, individuals are less likely to engage in EBCR programmes [35, 36]. Family responsibilities acted as a barrier for some and evidence confirms significant effects family can have on exercise adherence [23]. Additional barriers included injury and working status and the lack of parking facilities are similar to findings in other studies [37, 38]. Participants effected by practical barriers still held ULMedX in high

regard, supporting the TPB proposition that perceived behavioural control can directly influence behaviour despite intention and attitude [22].

Conclusion:

The findings indicate that EBCR programmes be reviewed so that their structure centres on the participants' motivations to engage in the programme. The findings also indicate the EBCR programmes require the introduction of new strategies to resolve practical barriers to adherence, such as home-based programmes using digital resources [39, 40, 41]

Implications for Practice and Research Practice:

To improve the overall experience and most importantly, regular attendance at ULMedX, a number of issues will be addressed (Box 3).

Box 3 Areas for future development at ULMedX

Future development		
Programme progression	<i>Talks at induction</i>	Talks at induction from long-term members was suggested to facilitate the transition into the programme. This is a novel idea requiring further research however, the use of current participants in the recruitment process has been suggested by participants in similar programmes, supporting its plausibility [31, 42].
	<i>Separating new and LT members</i>	Separating beginners and long-term attenders initially to avoid intimidation and ensure greater understanding of the exercise education element.
	<i>Reintroduction</i>	Injury ultimately resulted in individuals dropping out of the programme. As ‘subjective norms’ play a major role in engagement [22], ULMedX will implement strategies to re-engage the participant following recovery.
Class timetable	<i>Alternative classes</i>	For those with low physical fitness levels, the provision of an alternative exercise class may encourage their long-term commitment to attend.
Psychological support	<i>Educational seminars</i>	The inclusion of educational seminars on health behaviour may offer an effective way to improve coping strategies for participants who are struggling.
	<i>Mental health & NCD</i>	Additional information on the psychological impact of living with a chronic illness and how to cope will be offered to the participants.
	<i>Stress management</i>	Family caregivers are exposed to chronic stress which interferes with their physical health and PA engagement [43]. Inclusion of individualized training on how to cope with the strain of family responsibilities and caregiving may support engagement.

Research:

It is plausible that unique settings like ULMedX within the community, as opposed to the hospital, and directly accessible to GPs could be seen to promote a sense of normality and give CVD patients confidence to continue to exercise post hospital-based EBCR completion.

Further research is indicated in this area. Quantitative outcome measures are needed to determine significant changes in psychological and physical health at ULMedX [12].

Declarations:

Ethics approval and consent to participate

Ethics approval was obtained from the Faculty of Education and Health Sciences, Research Ethics Committee in University of Limerick (2018_12_14_EHS). Informed consents were obtained from all the participants in the study.

We confirm that all methods were performed in accordance with the relevant guidelines and regulations.

Consent for publication

All authors consent to publication of this paper

Availability of data and material

The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

Competing interests

We declare no conflict of interest or competing interests

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Authors' contributions

AB, VN, ROC and CW made substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data; drafted the work or revised it critically for important intellectual content. ; AB, VN, ROC and CW approved the version to be published; and AB agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Authors' information (optional)

Not applicable

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Figures

Figure 1

The theory of planned behaviour- Proposed determinants of behaviour

Figure 2

A step by step illustration of thematic analysis. PWDO=Participants who have dropped out