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Birtwistle, SB, Jones, ID, Murphy, RC, Gee, I and Watson, PM Family support for physical activity post-myocardial infarction: a qualitative study exploring the perceptions of cardiac rehabilitation practitioners. Nursing and Health Sciences. ISSN 1441-0745 (Accepted)

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Family support for physical activity post-myocardial infarction: a qualitative study exploring the perceptions of cardiac rehabilitation practitioners

Family involvement in cardiac care

Original research article

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Acknowledgements

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The authors would like to thank the staff working within the cardiac rehabilitation service of study for their assistance in data collection.

Funders

The authors would like to thank Liverpool John Moores University for the PhD scholarship awarded to Sarah B Birtwistle to undertake this research.

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/nhs.12806

Abstract

Physical activity post-myocardial infarction has numerous health benefits, yet uptake through cardiac rehabilitation is poor. Whilst family support can facilitate patients' recovery, little is known about the role family may play in supporting physical activity for post-myocardial infarction patients. This qualitative study used semi-structured interviews with fourteen cardiac rehabilitation practitioners to explore their perceptions about the role of the family in supporting post-myocardial infarction patients' physical activity. Data were transcribed verbatim and analysed thematically. Three familial roles were identified, 'family as a second pair of ears', 'family as physical activity regulators' and 'family as social support'. A fourth theme, 'factors that influence family support' described how family health beliefs and perceptions could influence the physical activity support provided. Practitioner perceptions suggest families play an important role in post-myocardial infarction patients' physical activity, that is enhanced when families personally value physical activity. Integrating the family into cardiac rehabilitation may help facilitate physical activity-related interactions and promote positive engagement for patients.

Key words: Exercise; Physical activity; Cardiac rehabilitation, Practitioner perceptions; Qualitative; Family

Introduction

Coronary heart disease is a leading cause of death worldwide [World Health Organisation, 2019] and occurs when there is a build-up of plaque in the coronary arteries which, if the plaque erodes or ruptures can result in thrombus formation and myocardial infarction [MI]. Following MI, patients are typically referred to a programme of cardiac rehabilitation [CR], a multifaceted intervention aiming to limit the physiological and psychological impacts of cardiac disease, often termed secondary prevention. Although CR pathways vary worldwide in intensity and duration [Dalal et al, 2015] they follow the same progression from hospitalisation through to recovery and long-term maintenance [Price et al, 2016]. They typically comprises four phases: Phase 1 - the period in hospital following the patient's acute event, where information on the patient's condition and recovery is provided; Phase 2 – an outpatient visit to review that patient's progress and agree their next steps for recovery; Phase 3 - structured and supervised exercise training, together with continued education and psychological support in an outpatient setting; and Phase 4 - the facilitation of long-term maintenance of lifestyle changes, occurring in community settings.

Physical activity [PA], defined as *“any bodily movement produced by skeletal muscles that requires energy expenditure”* [Casperson et al, 1985, pg.126], is an integral part of recovery following MI and a core component of CR. Global guidance [World Health Organisation, 2020a; World Health Organisation, 2020b] stipulates both adults (18 – 64 years) and older adults (64+) should engage in at least 150 minutes of moderate-intensity PA per week (or 75 minutes of vigorous-intensity PA or an

equivalent combination) plus undertake muscle strengthening activities at least twice weekly. Older adults are also encouraged to incorporate activities that promote balance and coordination (for example, yoga, tai-chi) on at least 3 days of the week. Post-MI, PA can reduce cardiac-related mortality and hospital admissions whilst improving health-related quality of life [BACPR, 2012; Dalal et al, 2015]. Despite these benefits, uptake to CR programmes is below 50% [Piepoli et al, 2015] and few who attend maintain PA following programme completion [Karmali et al, 2014].

Family involvement in patient care may enhance patients' engagement in treatment (for example, CR) [Wolff & Roter, 2008] and therefore help in the management of chronic health conditions [Stenberg et al, 2018]. Whilst healthcare consultations have traditionally focused on the practitioner-patient relationship, recent years have seen triadic consultations (involving the practitioner, family and patient together) [Laidsaar-Powell et al, 2013] gain fervour. Evidence suggests that by being involved, families can absorb information, ask questions, provide healthcare information and facilitate patient understanding [Wolff & Roter, 2008]. Not only do patients appreciate this support [Shin et al, 2013; Koren et al, 2018] but families themselves benefit from involvement in patient care through decreased worry, increased feelings of helpfulness and ability to act as the patients' advocate [Duran et al, 2007]. Furthermore, when families share information, this can help health professionals (HPs) better understand patient needs [Koren et al, 2018; Mackie et al, 2018a].

Despite the benefits associated with family involvement, challenges exist that have the potential to compromise its effectiveness. Factors such as unclear

responsibilities and poor HP communication can lead to feelings of abandonment and stress for families [Coyne, 2013; Laidsaar-Powell et al, 2013]. Moreover, lack of motivation, aggressive or critical communication, competing priorities and lack of intellectual competency have been found to impact upon on the support families provide during consultations [Shin et al, 2013; Laidsaar-Powell et al, 2016]. Whilst HPs working in cardiovascular care recognise the benefits of involving family, they feel they lack both the time [Luttick et al, 2016] and workplace protocols [Gusdal et al, 2017] for caring for families. Families can also be viewed as a source of stress, as HPs feel like they are being “checked up” on [Luttick et al, 2016].

To our knowledge, no research has explored cardiac rehabilitation practitioners [CRPs] views on family involvement in the context of post-MI patients’ PA behaviour. This is relevant to consider, since the process of taking up / resuming PA after suffering MI may involve a raft of emotional and practical challenges [Rogerson et al, 2012]. Family support has been shown to help support PA engagement post-MI [Astin et al, 2008; Aliabad et al, 2014] and, as shown in our recent longitudinal research with post-MI patients and families [authors names removed for anonymity, under review], family are well placed to provide emotional and practical support during this time. What remains unknown however, is how the family might be integrated within patient’s cardiac care and to what extent HPs feel this would be beneficial. This study therefore aimed to explore how family might contribute to patients’ PA-related rehabilitation from the perspective of CRPs. To achieve this, we conducted semi-structured interviews with CRPs to explore their views on the influence, roles, behaviours and involvement of the family in PA post-MI.

Methods

Study design

Positioned towards solving practical problems [Frey, 2018], this study adopted a pragmatist paradigm [Creswell & Creswell, 2018], aiming to generate research insights to inform clinical practice. Pragmatism advocates methodological pluralism [Lamont & Swindler, 2014], where the most appropriate methods are adopted to answer the research question. As such, a qualitative cross-sectional design was chosen due to its grounding in generating data that captures participants' experiences [Sparkes & Smith, 2014] and allowing participants to share their views [Creswell & Creswell, 2018]. This approach provided participants with the opportunity to discuss their attitudes, beliefs and experiences [Sparkes & Smith, 2014] offering rich and meaningful insights into how the family may contribute to patients' PA post-MI.

Study setting

The study took place with CRPS working within a public CR programme serving two metropolitan boroughs in the Northwest of England. The CR programme followed a four-phase format, moving from a hospital to community setting and included, phase 1: an inpatient visit from a member of the patient's cardiac team during which the patient's condition, treatment and recovery were discussed; phase 2: a home visit from a specialist cardiac nurse [CN] (it is at this point the phase 3 exercise classes were introduced); phase 3: a 6 week course of exercise with a physiotherapist in an outpatient hospital setting, coupled with stress management classes offered by

occupational therapists [OTs]; and phase 4: a 12-week course of exercise with qualified exercise specialists, known as activity referral scheme instructors [ARSIs]. Within phases 3 and 4, exercise took place in a group setting with other cardiac patients, however within these classes, patients followed their own individualised exercise programmes, which were developed in collaboration with the CRP responsible for leading the exercise component in their respective phase. Additionally, all phases were supplemented with ongoing education as recommended by the British Association of Cardiovascular Prevention and Rehabilitation [BACPR, 2017] (for example, risk factor management, other lifestyle behaviours (for example, smoking), psychosocial health). Throughout the CR programme, there was no formal protocol for involving families within the patient's recovery process. Families were however involved on an "ad hoc" basis (with the patient's permission), for example, if they accompanied a patient to an appointment.

Sampling and recruitment

Eligibility

Eligible participants were CRPs who had experience of working with MI patients across phases 2 – 4 within the CR service of study. Cardiac rehabilitation practitioners within these specific phases were targeted because of their roles in providing PA in either a consultative (CNs and OTs) or practical (physiotherapists and ARSIs) capacity. Further, they were deemed to have increased opportunities of interaction with family through patients' scheduled recovery consultations/appointments, when compared with phase 1 CRPs who had limited family contact or involvement in PA promotion.

Participant recruitment

Recruitment took place between March and May 2018. Eligible CRPs were identified by two practitioners known to the research team who were working within the CR service of study. Study gatekeepers (managers overseeing CR in their respective hospital/community setting) emailed a recruitment leaflet to eligible members of staff and asked interested participants to respond to [first author] via email. Participants were then followed up by [first author] to arrange interviews.

Final sample

In total, 19 CRPs were invited to take part, 3 from phase 2 (3 CNs), 7 from phase 3 (3 physiotherapists, 2 physiotherapist assistants, 2 OTs), and 9 from phase 4 (9 ARSIs). Of those invited, 14 agreed to participate (2 CNs, 3 physiotherapists, 2 OTs, 7 ARSIs). Reasons for non-participation included time constraints (n=1), no longer in post (n=1) and no interest (n=3). The final sample were predominantly female (10/14) and length of service within job roles ranged from 2 to 18 years (average 7 years).

Interviews

Interviews lasted between 20 and 50 minutes and were conducted by [first author] at CRPs place of work (either a community hospital or community gym setting) between April and July 2018. Written consent was obtained prior to each interview. A semi-structured interview guide was developed through discussions with the research team. A funnelled approach was adopted to interview questioning, beginning with a broad topic and leading on to more specific questions. Participants were first asked to discuss what they perceived to be the role of the family in post-cardiac care for MI

patients. Follow-up questions then focused on how the family might influence PA post-MI, familial behaviours perceived as being positive and negative to support PA post-MI and thoughts on involving the family in post-cardiac care for MI patients. The closing question focused ideas on how the family could support PA engagement in a post-MI population. To help encourage participant responses, open questions were adopted and accompanied with probing questions used to help elicit further depth from participants. The full interview guide is available for viewing as supplementary file 1. To create an intellectually enriched understanding of each participant's account, throughout the interview, [first author] engaged in a process of 'member reflections' [Smith & McGannon, 2017], and involved offering her reflection of accounts to the participant to generate new insights and discussion.

Data analysis

Interviews were audio-recorded and transcribed verbatim by [first author], and all identifiable information removed. Braun and Clarke's [2006] six stage thematic analysis was undertaken by [first author] using Nvivo 11 [QSR International, 2015] software. Transcripts were analysed by CR phase to explore comparability of themes across phases, and to capture how family influences on patient PA may change over the course of CR. In the first instance, analysis involved reading and re-reading transcripts to ensure [first author's] familiarity with the data. Pieces of text pertaining to familial influence on post-MI patients' PA were then coded based on the interpretation of the conversation between [first author] and participants. Once this process had been completed for each transcript, codes were explored for meaning and

similar codes grouped together. A theme name representing the content within it was then applied. Individual themes were then explored further to look for nuances between codes, with codes added, refined and discarded as appropriate. During this process, similar codes were also grouped together to form specific sub-themes if required. Lastly, themes across CR phases were explored for comparisons and contrasts to understand whether differences could be observed between practitioners working in different CR phases.

An inductive approach was adopted for analysis, however, due to [first authors] familiarity with the subject area, it was acknowledged the interpretation of the data and developing themes did not occur in the absence of pre-existing knowledge [Hardcastle & Hagger, 2011]. To enhance credibility in the analysis, [first author] and [last author] independently coded 3 transcripts (one from each CR phase) and came together to discuss developing themes. To ensure each theme was distinct, meaningful and captured the essence of the extracts within it, the full research team engaged in regular debriefing meetings where themes were reviewed, refined and discarded until a consensus was reached.

Ethical approval

Ethical approval for this study was granted in January 2018 by [*withheld for anonymity*] NHS Research Ethics Committee, reference number: 17/WS/0053.

Results

Overall CRPs perceived family involvement to be a positive factor and noted how the family had important roles to play in patients' post-MI PA experiences. Similar themes were identified from CRPs across CR phases 2 - 4, therefore the themes are presented collectively with any differences in experiences highlighted in the narrative. Three themes were identified, 'family as a second pair of ears', 'family as physical activity regulators' and 'family as social support'. A fourth theme, 'factors that influence family support' was identified, and comprised factors that influenced the level and type of PA support provided by families. Table I illustrates the themes and sub-themes identified during analysis, accompanied with illustrative quotes.

1. Family as a second pair of ears

Phase 2 and 3 CRPs noted advantages of family presence, describing families' abilities to support PA decisions, absorb and relay PA information to patients, and encourage PA participation, all useful if patients appeared disengaged, distant or passive during consultations:

"...see[ing] family is helpful...it's another pair of ears to take on board advice and information" (P1).

Further, some CRPs reported family presence afforded them opportunities to explain to family the type and intensity of activity patients could do at home and help settle any fears that family may have regarding patients' PA:

"... [in consultations] you can explain [to the family] what activity and level of exertion you want patients to work at and how much they should be doing" (P5).

Although many phase 4 CRPs understood the benefits of family presence (for example, asking questions), they questioned whether their presence during phase 4 was necessary because of patients' earlier PA engagement during phase 3 CR. Phase 4 CRPs commented by the time patients reach phase 4 they are more *"able and independent"*, therefore deeming family support unnecessary:

"... [after phase 3] patients get to that point that they've [patients] left their family behind...they've [patients] done 12 sessions [at physio] and are used to doing a little bit [of exercise]" (P14).

Despite family presence being positively received by many, challenges were cited also and included family becoming *"too involved"*. Too much involvement was said to disrupt patient autonomy, and was perceived to mostly occur when females were the supporting family member:

“...if it’s a [male] patient...half the time the wife will...take over the consultation and answer the questions” (P5).

2. Family as physical activity regulators

CRPs discussed the complex role played by families in regulating PA, which served both adaptive and maladaptive functions. In some situations, family were perceived to play a role in reigning in the amount of PA patients were doing. For instance, CRPs reported how patients who were active pre-MI could become anxious at the lack of PA following their event, and therefore attempt to throw themselves back into their pre-MI PA. In these circumstances, family were said to be instrumental to ensure patients did not overdo PA.

There was however a fine line between keeping patients safe and over-protection, which CRPs felt may negatively impact on long-term PA engagement of the patient:

“...[post-MI] the other half...will wrap [patient] up in cotton wool ...family like that may be reluctant to let [patient] do what they perceive as strenuous exercise” (P2).

Overprotection was believed to result from worry that PA may bring on another MI, something CRPs acknowledged was understandable. However, they also described how reigning the patient in could lead to frustrations and arguments within the family:

“I... hear about family, but it’s more often than not ‘they’re tranna [trying to] stop me doing things’...which causes a lot of frustrations and arguments” (P4).

Another circumstance in which family regulation was perceived to be beneficial was for patients who were less motivated or were perhaps not doing enough PA. CRPs described how family members played a role in keeping patients on track, encouraging PA and acting as the “timekeeper” (i.e. monitoring how much PA patients were doing):

“[I see] those that really want to encourage their partner, mother, father, whoever to engage in activity because they [family] may perceive that they are not doing enough” (P3).

3. Family as social support

CRPs described several supportive behaviours family could adopt, including ‘role modelling’, ‘supporting practical engagement in PA’ and ‘emotional support’.

3.1. Role modelling

Many CRPs (especially those in phase 4) noted how family who engaged in activity themselves acted as positive role models. It appeared important for patients to have an active role model, especially if patients could see similarities to themselves:

“...it’s lead by example... if my wife can do it [PA] and she has a few health problems, that shows that he [patient] can do it ...” (P8).

3.2. Supporting practical engagement in PA

Providing companionship-based forms of PA (for example, being active together) was said to promote patients’ PA engagement. Cardiac rehabilitation practitioners noted how family could help with transport to PA classes if patients were unable to get there themselves:

“I’ve seen [instances] where patients have been supported by the family to physically get to a venue” (P4).

3.3. Emotional support

Several CRPs reported nurturing behaviours (for example, providing encouragement, showing care and empathy), were regarded as positively encouraging PA behaviour, especially if patients felt scared, anxious or unsure about PA post-MI. Conversely, if family members adopted negative behaviours (such as being critical), this could have psychological implications for the patient:

“...if [family] are critical that can heighten the negative psychological effects of the patient...and vice versa, if [family] are...encouraging activity then obviously that’s positive” (P5).

To provide emotional support, CRPs recognised sometimes family require support themselves, because the MI can psychologically impact them also:

"...families...are often traumatised by the myocardial infarction... [offering] that emotional and psychological support [to patients] is a lot easier for family if they understand what is going on" (P6).

4. Factors that influence family support

Cardiac rehabilitation practitioners perceived the type and level of support provided by families was influenced by 'family health beliefs' and 'perceptions of the patient's post-MI condition'.

4.1 Family health beliefs

Many CRPs reported families who had positive health beliefs (for example, value the importance of lifestyle behaviours in health) were more likely to encourage PA through their own interest and engagement, whereas those with negative health beliefs (for example, disinterest in healthy behaviours) were said to be less inclined to encourage PA through their own disinterest.

"...family are important... if family aren't motivated [to be active themselves] the patient has no chance in terms of encouragement" (P2).

Cardiac rehabilitation practitioners felt this link was not only with PA, but if families had generally poor lifestyle habits (for example, poor diet), they would be less likely to encourage PA. Socio-economic status and educational attainment were believed to influence health beliefs, with CRPs perceiving more educated, less deprived families to have more positive health beliefs than less educated families from deprived backgrounds.

4.2 Perceptions of the patient's post-MI condition

Several CRPs described how some families worry about patients' engagement in PA post-MI and attributed this to a lack of understanding of the role of PA in recovery, beliefs perceived to originate from the historical legacy that post-MI 'bedrest is best':

"...people think 'you've had a heart attack, don't exert yourself', so the thought that [patients have] been told to do some exercise could worry family because you are putting exertion on the heart...but that is back from the legacy where it was bedrest...but we know now that getting up and moving [is best]" (P13).

Many CRPs also noted how families can be unaware of the severity of patients' MI, or perceive patients as 'fixed' in the event of surgery, and therefore able to 'get on with life' as it were:

“...sometimes families don’t understand the severity of an MI...you’ll get patients who will say ‘my wife doesn’t realise I’ve had an MI, I’ve still got to do everything I was doing before” (P5).

Discussion

This study aimed to explore how family might contribute to patients' PA-related rehabilitation, from the perspective of CRPs. Findings provided insight into how CRPs viewed the family within the CR pathway and the roles they can adopt in influencing post-MI patients' PA experiences. Overall CRPs viewed family involvement positively in promoting PA post-MI and identified multiple roles they can adopt (being a second pair of ears, regulating PA and providing social support). However, the social support offered by families for these roles appeared to be influenced by families' own health beliefs and perceptions of patients' MI condition.

All CRPs noted family can be an important source of social support. It is well documented that social support is a determinant of PA [Smith et al, 2017; Birtwistle et al, 2018] which appears no different within the context of cardiac care. Role modelling, taking patients to CR classes, being empathetic and providing care and encouragement were some of the supportive roles CRPs suggested families could adopt to help support patients' PA engagement. However, CRPs also noted that the support family provided varied with families' own health beliefs, which were perceived to have both a positive and negative impact upon patients' PA engagement. It has been shown elsewhere that health behaviours are concordant within families [Cobb et al, 2016], therefore if family members do not prioritise PA and healthy lifestyle behaviours, it is unlikely patients will. Within spousal relationships, when one partner makes a change, it can increase the likelihood of the other doing so also [Falba & Sindelar, 2008; Jackson et al, 2015]. Therefore, to ensure the support family provide is optimum, it is important CRPs explore the family's current health beliefs and perceptions and encourage positive change where appropriate.

Family involvement was not routine in the CR service of study. However, when family involvement occurred incidentally, CRPs felt it was particularly important during the early phases of CR, especially if patients appeared disengaged, and therefore impacting on their ability to interact with the information provided during consultations. Patients experience emotional distress following a cardiac event [Wheatley, 2006; Jones et al, 2016] with feelings such as frustration, vulnerability and loss, as patients try and make sense and adapt to their illness [Meredith et al, 2018]. This may explain why CRPs in earlier CR phases appreciated family involvement, due to their ability to speak and listen for the patient and provide information they may not have had access to otherwise [Laidsaar-Powell et al, 2016]. Further, it is estimated from those who take up CR, only 76% of patients complete it [British Heart Foundation, 2020]. It is therefore likely phase 4 CRPs are only seeing post-MI patients who are motivated to reach that stage of recovery and continue with PA as part of their rehabilitation, who may in turn be more confident to attend CR consultations on their own. Our findings suggest family support may help enhance PA engagement in the early stages of recovery, therefore it is plausible that involving families in phases 2 and 3 of CR may help improve uptake of phase 4 also.

Although family involvement was generally well received, CRPs did note challenges towards triadic consultations with concerns family can become *“too involved”*. Challenges regarding family involvement have been reported elsewhere and included issues related to information disclosure and aggression during consultations [Laidsaar-Powell et al, 2016] which can impact upon the delivery of patient care and harm patient autonomy. Promoting patient autonomy appears key to ensure the success of triadic consultations [Shin et al, 2013; Laidsaar-Powell et al, 2016]. Given consultations typically centre on patients, it is important they have an element of control over how it is run (i.e. whom they would like to

be present, what information they are comfortable to disclose). The persistent thwarting of autonomy (for example, being in a controlling environment) [Vansteenkiste et al, 2010] can promote feelings of ill-being and lowered motivation [Gunnell et al, 2013]. As CR comprises multiple consultations at differing time points, it is possible such controlling behaviour may impact negatively upon post-MI patients. Consequently, it is worth considering ways to work with CRPs, families and post-MI patients to promote autonomy-supportive behaviour and minimise controlling behaviour, with a sensible starting point being to check how patients and family members wish the consultation to run [Carman et al, 2013].

Cardiac rehabilitation practitioners noted how families' perceptions of patients' post-MI condition could influence the PA support they provide to patients post-MI, and this was evident in CRPs' discussion of how families can hold patients back to prevent them "over-doing" PA. Such regulation from family appeared to be driven by fear (for example, concern PA may bring on another MI), and thus was perceived as potentially detrimental for patients' PA engagement. It is well established that PA post-MI is beneficial [Dalal et al, 2015; Ekblom et al, 2018] thus families "*holding patients back*" was perceived to limit patients' PA engagement. This provides further rationale for CRPs to involve family, dispel historical myths that "*rest is best*" and provide families with information about appropriate frequency, intensity, duration and type of PA for the patient's condition, which may allay fears about the patient causing themselves undue harm. Sharing information is important to promote patient health outcomes [Mackie et al, 2018b] and as suggested by the BACPR [2017], is recommended to be delivered in a way that meets the diverse needs of patients and families (for example written or verbal forms of communication). Adopting a co-production approach, whereby collaboration between service providers and service users is emphasised to help promote intervention effectiveness [Valaitis et al. 2018], may be

worthwhile to help ensure the information shared meets the needs of all involved (patients, family members and CRPs), **as demonstrated in recent work by Buckley and colleagues [2018].**

Strengths and limitations

This is the first known study to explore the role families can play in supporting PA engagement in post-MI patients, from the perspective of CRPs. Much of the literature exploring practitioner views on familial involvement in healthcare has been conducted within different contexts (for example, oncology, critical care) where the family are involved in a clinical capacity [Coyne, 2013; Laidsaar-Powell et al, 2016]. Thus, the findings from this study go some way in highlighting how CRPs view the family and the roles they can adopt within a post-MI context with specific regard to PA behaviour, whilst also suggesting that involving family in the capacity of lifestyle behaviour change is valued and potentially worthwhile. Additionally, although this study focused on post-MI patients' PA, it is possible the findings may be relevant to other clinical conditions, specifically, how being a second pair of ears and providing social support are arguably relevant to any clinical care, and regulation of behaviour could also be relevant to other lifestyle behaviours.

The sample was limited to CRPs who worked within a public CR service serving two metropolitan boroughs located within the Northwest of England. It is possible the findings may not be representative of other CR contexts, such as those offered in specialist centres rather than district hospitals, and therefore consideration must be taken when comparing the findings between CR services as views between cardiac practitioners may differ. Not all practitioners invited to participate in the study did so (i.e. physiotherapist assistants). It is therefore important to acknowledge those who agreed to take part may have more of a positive outlook on, or acknowledge the benefits of, family involvement in helping shape

post-MI patients' PA experiences, and therefore more willing to share their views. Lastly, the CR service of study was located in a geographic region with low cultural diversity, evidenced through census data reporting 93.7% of the population identifying themselves as being of White descent (Office of National Statistics, 2011). As family support may vary with cultural and ethnic factors (Astin et al., 2008) further research is warranted to explore the perceptions of practitioners working within more ethnically diverse cardiac rehabilitation services (and from different ethnic backgrounds themselves).

Conclusion

Family involvement post-MI appeared to be supported and welcomed by practitioners working within CR, particularly in the early stages of recovery. This study highlighted multiple roles the family can adopt that help shape post-MI patients' PA experiences. However, despite the benefits of involving family in care, CRPs noted that in reality the interactions they had with family varied and often occurred by chance. Given how families can influence patients' PA post-MI, introduction of triadic consultations within the CR pathway may be favourable. However, as the impact families have can also be negative, developing interventions focusing on building families' positive health beliefs and ensuring they understand their role in supporting patients' PA behaviour is important. Development of such an intervention might benefit from a co-production approach, ensuring it addresses the needs of the patients, family and CRPs involved.

Relevance for clinical practice

The findings of this study indicate how the family have the potential to encourage patients to engage in PA post-MI. For this outcome to be achieved, it is suggested triadic consultations are adopted and CRPs invite the family (or family member) to be a part of CR consultations held during patients' recovery. Doing so optimises opportunities for CRPs to communicate the roles family can adopt during patients' rehabilitation process, to help families build positive health beliefs, and to provide information about the frequency, intensity, duration and type of PA that is appropriate for the patient's condition. This process should be done in a manner that supports patient autonomy, for example by providing a meaningful rationale, offering the patient a say in how or whether their family are involved, and coming from the patient's perspective. These aims may be achieved through both verbal and written forms of communication.

Author contributions

Study design: SBB, IJ, RM, IG, PMW

Data collection: SBB

Data analysis: SBB, PMW

Manuscript writing, reviewing and editing: SBB, IJ, RM, IG, PMW

References

Aliabad, HO. Vafaeinasab, M. Morowatisharifbad, MA. Afshani, SA. Firoozabadi, MG. & Forouzannia, SK. (2014). Maintenance of physical activity and exercise capacity after rehabilitation in coronary heart disease: a randomised controlled trail. *Global Journal of Health Science*, 6, 198-208. doi: [10.5539/gjhs.v6n6p198](https://doi.org/10.5539/gjhs.v6n6p198)

Astin, F. Atkin, K. & Darr, A. (2008). Family support and cardiac rehabilitation: a comparative study of the experiences of South and White-European patients and their carer's in the United Kingdom. *European Journal of Cardiovascular Nursing*, 7, 43-51. doi: [10.1016/j.ejcnurse.2007.06.002](https://doi.org/10.1016/j.ejcnurse.2007.06.002)

Birtwistle, S. Ashcroft, G. Murphy, R. Gee, I. Poole, H. & Watson, P. (2018). Factors influencing patient uptake of an exercise referral scheme: a qualitative study. *Health Education Research*, 34, 113-127. doi: [10.1093/her/cyy038](https://doi.org/10.1093/her/cyy038)

[Authors removed for anonymity]

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101. doi: [10.1191/1478088706qp063oa](https://doi.org/10.1191/1478088706qp063oa)

British Association for Cardiovascular Prevention and Rehabilitation. (2012). *The BACPR Standards and Core Components for Cardiovascular Disease Prevention and Rehabilitation 2012* (2nd Edition). [online] Available at:

[http://www.bacpr.com/resources/46C BACPR Standards and Core Components 2012.pdf](http://www.bacpr.com/resources/46C_BACPR_Standards_and_Core_Components_2012.pdf)

f [Accessed 19 July 2019]

British Association for Cardiovascular Prevention and Rehabilitation. (2017). *The BACPR Standards and Core Components for Cardiovascular Disease Prevention and Rehabilitation 2017* (3rd Edition). [online] Available at:

[http://www.bacpr.com/resources/AC6 BACPRStandards&CoreComponents2017.pdf](http://www.bacpr.com/resources/AC6_BACPRStandards&CoreComponents2017.pdf).

[Accessed 17 July 2019]

British Heart Foundation. (2018). *National Audit of Cardiac Rehabilitation (NACR) Quality and Outcomes Report 2018*. [online] Available at:

<https://www.bhf.org.uk/informationsupport/publications/statistics/national-audit-of-cardiac-rehabilitation-quality-and-outcomes-report-2018>. [Accessed 10 February 2020]

Buckley, B. Thijssen, D. Murphy, R. Graves, L. Whyte, G. & Gillison, F. et al. (2018). Making a move in exercise referral: co-development of a physical activity referral scheme. *Journal of Public Health*, 40, e586-e593. doi: 10.1093/pubmed/fdy072

Carman, K. Dardess, P. Maurer, M. Sofaer, S. Adams, K. Bechtel, C. & Sweeney, J. (2013).

Patient and family engagement: a framework for understanding the elements and

developing interventions and policies. *Health Affairs*, 32, 223-231. doi:

10.1377/hlthaff.2012.1133

Casperson, CJ. Powell, KE. & Christenson, GM. (1985). Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. *Public Health Reports*, 100, 126-131.

Cobb, LK. Godino, JG. Selvin, E. Kucharska,-Newton, E. Coresh, J. & Koton, S. (2016). Spousal influence on physical activity in middle aged and older adults. *American Journal of Epidemiology*, 183, 444 – 451. doi: 10.1093/aje/kwv104

Coyne, I. (2013). Families and health-care professionals' perspectives and expectations of family-centred care: hidden expectations and unclear roles. *Health Expectations*, 18, 796-808. doi: 10.1111/hex.12104

Creswell, JW. & Creswell, JD. (2018). *Research design; Qualitative, quantitative & mixed approaches* (5th ed). Thousand Oaks: Sage.

Dalal, HM. Doherty, P. & Taylor, R. (2015). Cardiac rehabilitation. *BMJ*, 351, doi: 10.1136/bmj.h5000

Duran, CR. Oman, KS. Abel, JJ. Koziel, VM. & Szymanski, D. (2007). Attitudes toward and beliefs about family presence: a survey of healthcare providers patients' families and patients. *American Journal of Critical Care*, 16, 270-79.

Ekblom, O. Ek, A. Cider, Å. Hambraeus, K. & Börjesson, M. (2018). Increased physical activity post–myocardial infarction is related to reduced mortality: results from the SWEDHEART Registry. *Journal of The American Heart Association*, 7. doi: 10.1161/jaha.118.010108

Falba, T. & Sindelar, J. (2008). Spousal concordance in health behaviour change. *Health Services Research*, 43, 96-116. doi: 10.1111/j.1475-6773.2007.00754.x

Frey, BB. (Ed.). (2018). The SAGE encyclopaedia of educational research, measurement and evaluation. SAGE

Gunnell, K. Crocker, P. Wilson, P. Mack, D. & Zumbo, B. (2013). Psychological need satisfaction and thwarting: A test of Basic Psychological Needs Theory in physical activity contexts. *Psychology of Sport and Exercise*, 14, 599-607. doi: 10.1016/j.psychsport.2013.03.007

Gusdal, AK. Josefsson, K. Adolfsson, ET. & Matrin, L. (2017). Nurses' attitudes towards family importance in heart failure care. *European Journal of Cardiovascular Nursing*. 16, 256-266. doi.org/10.1177%2F1474515116687178

Hardcastle, S. & Hagger, M. (2011). "You can't do it on your own": experiences of a motivational interviewing intervention on physical activity and dietary behaviour. *Psychology of Sport and Exercise*, 12, 314-323. doi: 10.1016/j.psychsport.2011.01.001

Jackson, S. Steptoe, A. & Wardle, J. (2015). The influence of partner's behaviour on health behaviour change. *JAMA Internal Medicine*, 175, 385. doi:

10.1001/jamainternmed.2014.7554

Jones, M. Thompson, D. Ski, C. Clark, R. Gray, R. Vallury, K. & Alam, F. (2016). How can we better support families living with cardiovascular disease and depression?. *The Journal of Mental Health Training, Education and Practice*, 11, 61-71. doi: 10.1108/jmhtep-04-2015-0017

Karmali, K. Davies, P. Taylor, F. Beswick, A. Martin, N. & Ebrahim, S. (2014). Promoting patient uptake and adherence in cardiac rehabilitation. *Cochrane Database of Systematic Reviews*. doi: 10.1002/14651858.cd007131.pub3

Koren, D. Laidaar-Powell, R. Tilden, W. Latt, M. & Butow, P. (2018). Health care providers' perceptions of family caregivers' involvement in consultations within a geriatric hospital setting. *Geriatric Nursing*, 39, 419-427. doi: 10.1016/j.gerinurse.2017.12.013

Laidaar-Powell, R. Butow, P. Bu, S. Charles, C. Gafni, A. & Lam, W. et al. (2013). Physician–patient–companion communication and decision-making: a systematic review of triadic medical consultations. *Patient Education and Counseling*, 91, 3-13. doi:

10.1016/j.pec.2012.11.007

Laidaar-Powell, R. Butow, P. Bu, S. Charles, C. Gafni, A. Fisher, A. & Juraskova, I. (2016). Family involvement in cancer treatment decision-making: a qualitative study of patient,

family, and clinician attitudes and experiences. *Patient Education and Counseling*, 99, 1146-1155. doi: 10.1016/j.pec.2016.01.014

Lamont, M. & Swidler, A. (2014). Methodological pluralism and the possibilities and limits of interviewing. *Qualitative Sociology*, DOI 10.1007/s11133-014-9274-z

Luttick, MLA. Goossens, E. Ågren, S. Jaarsma, T. Mårtensson, J. Thompson, DR. Moons, P. & Strömberg, A. (2016). Attitudes of nurses towards family involvement in the care for patients with cardiovascular diseases. *European Journal of Cardiovascular Nursing*. 16, 299-308. <https://doi.org/10.1177%2F1474515116663143>

Mackie, B. Marshall, A. & Mitchell, M. (2018a). Acute care nurses' views on family participation and collaboration in fundamental care. *Journal of Clinical Nursing*, 27, 2346-2359. doi: 10.1111/jocn.14185

Mackie, B. Mitchell, M. & Marshall, P. (2018b). The impact of interventions that promote family involvement in care on adult acute-care wards: an integrative review. *Collegian*, 25, 131-140. doi: 10.1016/j.colegn.2017.01.006

Meredith, S. Wagstaff, C. & Dicks, M. (2018). Getting to the heart of the matter: an ethnography of emotions and emotion regulation in cardiac rehabilitation. *Qualitative Research in Sport, Exercise and Health*, 11, 364-381. doi: 10.1080/2159676x.2018.1548373

QSR International. (2015). Nvivo qualitative data analysis software (Version 11). QSR International Pty Ltd.

Office of National Statistics. (2011). Wigan local authority, local area report. [online]

Available at:

https://www.nomisweb.co.uk/reports/localarea?compare=E08000010#section_6_4

[Accessed 13 September 2020].

Price, KJ. Gordon, BA. Bird, SR. Benson, AC. (2016). A review of guidelines for cardiac rehabilitation exercise programmes: is there an international consensus? *European Journal of Preventative Cardiology*. 23, 1715-1733. doi: 10.1177/2047487316657669

Piepoli, M. Corrà, U. Abreu, A. Cupples, M. Davos, C. & Doherty, P. et al. (2015). Challenges in secondary prevention of cardiovascular diseases. *International Journal of Cardiology*, 180, 114-119. doi: 10.1016/j.ijcard.2014.11.107

Rogerson, MC. Murphy, BM. Bird, S. & Morris, T. (2012). "I don't have a heart": a qualitative study of barriers to and facilitators of physical activity for people with coronary heart disease and depressive symptoms. *International Journal of Behavioural Nutrition and Physical Activity*, 9. doi: 10.1186/1479-5868-9-140.

Shin, D. Cho, J. Roter, D. Kim, S. Sohn, S. & Yoon, M. et al. (2013). Preferences for and experiences of family involvement in cancer treatment decision-making: patient-caregiver dyads study. *Psycho-Oncology*, 22, 2624-2631. doi: 10.1002/pon.3339

Smith, LG. Banting, L. Eime, R. O'Sullivan, G. & van Uffelen, J. (2017). The association between social support and physical activity in older adults: a systematic review. *International Journal of Behavioural Nutrition and Physical Activity*, 14, doi: 10.1186/s12966-017-0509-8

Smith, B. & McGannon KR. (2017). Developing rigour in qualitative research: problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology*, 11,101-121. doi: 10.1080/1750984X.2017.1317357

Sparkes, AC. & Smith, B. (2014). *Qualitative research methods in sport, exercise and health, from process to product*. Oxon: Routledge.

Stenberg, U. Vågan, A. Flink, M. Lynggaard, V. Fredriksen, K. Westermann, K. & Gallefoss, F. (2018). Health economic evaluations of patient education interventions a scoping review of the literature. *Patient Education and Counseling*, 101, 1006-1035. doi: 10.1016/j.pec.2018.01.006

Valaitis, R. Meagher-Stewart, D. Martin-Misener, R. Wong, ST.,MacDonald, M. & O'Mara, L. (2018). Organizational factors influencing successful primary care and public health collaboration. *BMC Health Services Research*, 18. doi: 10.1186/s12913-018-3194-7

Vansteenkiste, M. Niemiec, C. & Soenens, B. (2010). The development of the five mini-theories of Self-Determination Theory: a historical overview, emerging trends, and future directions. In T. Urdan & S. Karabenick, *Advances in motivation and achievement*. UK: Emerald Publishing.

Wheatley, EA. (2006). *Bodies at risk: an ethnography of heart disease*. Aldershot: Ashgate Publishing.

Wolff, JL. & Roter, DL. (2008). Hidden in plain sight: medical companions as a resource for vulnerable adults. *Archives of Internal Medicine*, 168, 1409-1415. doi: 10.1001/archinte.168.13.1409

World Health Organization. (2019). *The Top 10 Causes of Death*. [online] Available at: <<https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death>> [Accessed 3 July 2019].

World Health Organization. (2020a). *Physical Activity and Adults*. [online] Available at: https://www.who.int/dietphysicalactivity/factsheet_adults/en/ [Accessed 21 February 2020].

World Health Organization. 2020b. *Physical Activity and Older Adults*. [online] Available at: https://www.who.int/dietphysicalactivity/factsheet_olderadults/en/ [Accessed 21 February 2020].

Table I. Themes illustrating how the family may contribute to patients PA post-MI

Theme	Subtheme	Illustrative quote
1. Family as a second pair of ears		<i>"I think if they [family] are present to hear that discussion around risk factors...they are going to take on board the advice that we are giving people and obviously more likely to try and encourage their loved one to do the things that we've advised" (P2).</i>
2. Family as physical activity regulators		<i>"I think [family] either encourage exercise because the person perhaps isn't engaging, or, usually out of some kind of fear of doing too much try to reign them in" (P6).</i>
3. Family as social support		
	3.1 Role modelling	<i>"...I think the patient having someone to inspire confidence in them by being active themselves and who buys into the belief that exercise is of benefit...we've seen it a few times, especially with things like swimming where they [patient and family member] come and exercise together" (P9).</i>
	3.2 Supporting practical engagement in PA	<i>"[family are often like] 'transport isn't an issue...I can take you to physio, I can take time off work'" (P1).</i>
	3.3 Emotional support	<i>"...it's encouragement isn't it...I think it's really important for the family to encourage and support them [patients] through this tough time [post-MI] and to exercise really" (P14).</i>
4. Factors that influence family support		
	4.1 Family health beliefs	<i>"...I think if they're [family] are used to being quite active themselves then I think they [family] have a more positive attitude towards exercise and will let the patient to get back into it....but I think if patients come from a more sedentary background where family are not particularly active themselves then I think they [family] are the ones who seem to be a bit more reluctant to support patients" (P5).</i>
	4.2 Perceptions of the patient's post-MI condition	<i>"...some families do have misconceptions around well yeah, activity, which I think can impact the support they provide, so yeah, I think there's a place to involve families to minimise those [misconceptions]" (P7).</i>