

Original Article

## Using the theory of planned behaviour when designing motivational letters: Exploring through patient interviews how determinants of behaviour are operationalised in letters of invitation to cardiac rehabilitation

Corinna Dressler

Division of Evidence Based Medicine, Department of Dermatology, Charité – Universitätsmedizin Berlin, Berlin, Germany

### ARTICLE INFO

Received 20 August 2018  
 Revised 18 September 2018  
 Accepted 23 September 2018  
 ePublished 13 October 2018  
 Published 07 December 2018

Available online at:  
<http://npt.tums.ac.ir>

**Key words:**  
 health behaviour,  
 qualitative research,  
 theory of planned behaviour,  
 illness behaviour,  
 cardiac rehabilitation

### ABSTRACT

**Background & Aim:** While health behaviour theories are often used to develop written material for health care interventions, descriptions of how to operationalise such theories are lacking in the literature. Paradoxically, it is precisely this information that is supposed to influence patient behaviour. Letters inviting patients to participate in cardiac rehabilitation are further examined here.

**Materials & Methods:** Semi-structured interviews were conducted to explore how concepts from the Theory of Planned Behaviour had been operationalised in invitation letters, focusing on the motivational potential of different passages.

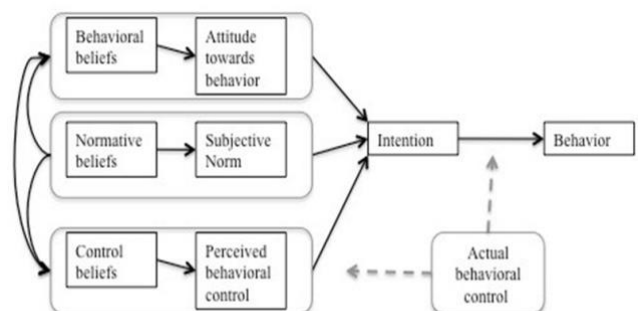
**Results:** Thirteen participants were interviewed and asked to comment on the invitation letters. Without having been informed about the Theory of Planned Behaviour, most commented on passages that were based on the theory. It seemed important to many participants that the content is more relatable and personal. Message framing and the use of the future tense in sentences meant to motivate patients to attend cardiac rehabilitation appeared to be important. Using simple language might be more effective than technical terms.

**Conclusion:** When using health behaviour theories such as the Theory of Planned Behaviour to compose materials motivating patients to behave in certain ways, message framing and relatable content are approaches to operationalizing theoretical concepts.

### Introduction

Cardiac rehabilitation can reduce mortality, morbidity, systolic blood pressure and cholesterol levels, as well as provide psychosocial benefits (1-5). In many countries that provide it on an outpatient basis, including the UK, US and Canada, cardiac rehabilitation is a fragmented, heterogeneous service with little funding and poor attendance (6-8). Due to limited resources, most patients are invited to attend cardiac rehabilitation after they have left the hospital. They are most frequently contacted by telephone or post (9). Letters inviting patients to cardiac rehabilitation have been

evaluated in the past (figure 1) and are commonly used because they require the least amount of effort, time and money (10, 11). Attendance at cardiac rehabilitation depends in large parts on a complex



**Figure 1:** Theory of planned behaviour as illustrated by Ajzen (17) interplay of personal and social factors (12).

The use of health behaviour theories to design letters or other interventions to motivate patients to attend a health care

\* Corresponding Author: Corinna Dressler, Postal Address: Division of Evidence Based Medicine, Department of Dermatology, Charité – Universitätsmedizin Berlin, Berlin, Germany, Email: Corinna.dressler@charite.de

service is widespread, and interventions based on a theoretical framework tend to be more effective (13). Many theories have overlapping domains, and a synthesised framework has recently been suggested (14). Theories such as the Theory of Planned Behaviour by Ajzen (15-17), which had been developed to explain or predict behaviour rather than to change it, are used as tools to design interventions (18). Researchers in different areas of health care explore the parts and concepts of theories with the aim of identifying modifiable determinants of behaviour. Those seemingly modifiable determinants are subsequently targeted by interventions – for example, certain behaviour is displayed in combination with a desirable asset in order to change a person's attitude towards this behaviour.

To date, a discussion about or instructions on how to operationalise such theories of health behaviour in written material for patients appears to be absent from the literature. Even the most up-to-date instruction manuals on designing interventions often state only that information should be provided (p. 111, 14) but not how to do so. The aim of the current study was therefore to explore how health behaviour theory is operationalised in existing letters inviting patients to cardiac rehabilitation by interviewing former cardiac rehabilitation and support group attendees about the motivational potential of these letters and individual passages within them.

## **Methods**

Semi-structured telephone interviews were conducted with 13 participants who had experienced a cardiac event. This work was conducted as part of a PhD thesis, and a more detailed description of the methods and results can be found in Dressler 2013 (19). The quotes from the participants are identical, as may be some of the text.

In short, participants were recruited from three community cardiac support groups. People attending the groups were given information material, including a

consent form, and were invited to contact the researcher by post if they were interested in participating in the study. A completed consent form had to be returned by post before an interview could be conducted. Patients were included if they had good knowledge of English, had experienced a cardiac event more than six months ago and had not been hospitalised in the past three months.

As part of the information package, participants received two examples of invitation letters to cardiac rehabilitation, each on a separate page. The letters had been developed previously. Letter A had been developed using the Medical Research Council framework, as well as data from expert and patient consultations (20). Letter B was derived from patient interview data that had been analysed using the Theory of Planned Behaviour and the Common Sense Model of Illness Representation (11, 21). Both letters are given in table 1, and the theoretical concepts behind different passages are highlighted.

A topic guide was used to facilitate the telephone interviews with participants (see Chapter 5 (19)). Open-ended questions were used to elicit participants' thoughts about the invitation letters, focusing on which aspects of the letters might motivate or discourage people from attending cardiac rehabilitation. Participants were also asked if they could think of any better way to get people who say they are not interested in cardiac rehabilitation to attend such programmes.

The interviews lasted 20 to 30 minutes and were audiotaped and transcribed (22). Data were analysed using concurrent analysis to foster a dynamic, exploratory approach (Hansen, 2006).

Constant comparison of data and coding took place when sorting data into categories (similar data) and themes (recurring aspects) (23, 24). A descriptive, qualitative account was undertaken to present quotes that encompass similar and opposing opinions under the umbrella of the theoretical concepts of the Theory of Planned Behaviour.

Capital letters are used to indicate loudness, square brackets to designate materials that have been added or omitted, and a hyphen to show that a word or phrase

was interrupted. Data were analysed using ATLAS. It 5.x.

The University of York Research Governance Committee gave ethical approval.

**Table 1.** Invitation to cardiac rehabilitation letters

Theoretical comments	Letter A By Wyer et al. (2001)	Letter B By Mosleh et al. (2011) <sup>1</sup>	Theoretical comments
Subjective norm (TPB)	The medical and nursing professions recommend that people who have had a heart attack should attend a cardiac rehabilitation programme.	Your consultant and health team have recommended that you undergo an 8-week cardiac rehabilitation programme, which aims to help you to recover and improve your health and life.	Subjective norm (TPB)
Perceived control (TPB)	During this programme, you will be offered advice and information about how best to recover after a heart attack. It will be up to you to follow these if you want to recover as well and as quickly as possible. Experience has shown that the more effort you can put in, the more quickly the results will be achieved	The programme is multidisciplinary, which means that the doctor, cardiac rehabilitation nurse, and dietician, physiotherapist, and the occupation therapist work together to tailor the programme to meet your individual needs.	Perceived control (TPB)
Attitude (TPB)	This is because those who attend such a programme are more likely to recover sooner and better than those who do not attend. In addition, research has shown that attendance can reduce the chances of dying from another heart attack.	Research shows, however, that people who attend cardiac rehabilitation are more physically fit, return to work and other activities more quickly, and have lower chances of having chest pain, anxiety, or depression, than those who don't attend	Attitude (TPB)

<sup>1</sup>The letter by Mosleh et al also uses the concepts of control theory from the **Theory of Planned Behaviour (figure 1)**. This is similar to the concept of perceived controlled and not disclosed any further here

## Results

All 13 participants (two women, 11 men) were older than 70 years and had experienced complex or several heart problems. All were attending a community cardiac support group but only nine had been given the opportunity to participate in cardiac rehabilitation programmes in the past.

The findings are presented here in direct relation to the main components of the

perceived behavioural control, which together impact intention. Intention is the motivational component and in combination with perceived behavioural control explains or predicts behaviour (25).

### Attitude

Attitude was used in both letters in similar ways: once in relation to better health

and once to avoid negative outcomes. Attitude is an assessment of the consequences of a behaviour (16). All participants made remarks about the outcome of cardiac rehabilitation with regard to letter B:

*Luke: And uh, to say, 'research shows, and then cross out the however, that people who attend cardiac rehabilitation', and I changed 'are' to 'will become'*

*Malcom: ..., rehabilitation are more fit, I wouldn't, I would put the word 'become' there, instead of are.*

Changing the tense made the sentence more relatable for each individuals' current state of health. Regardless of the participants' health status, the suggested message is framed so that it includes a goal that is achievable. It conveys a positive outlook and emphasises importance.

*Simon: I think you are really saying the important things in the letter by saying it will aid your recovery more quickly and you get back to work or whatever uh I think that must be the best motivation.*

Both letters explicitly state negative developments that can be avoided when attending CR. Letter A states, 'Research has shown that attendance can reduce the chances of dying from another heart attack'. Most participants found the statement about dying to be inappropriate. They thought it was 'a bit emotive' or 'a little bit severe'. It was seen as too upfront and many participants wanted to change it to phrases such as 'reduce the chances of another heart problem' or a 'heart attack reoccurring' or 're-admission to hospital'. Only two men thought it might help to 'waken them up'.

Letter B mentions chest pain: 'After leaving hospital, many patients still have episodes of chest pain and distress, which can stop them returning to normal daily activities quickly'.

Three men talked about this statement and not liking it much. It seems that most of the participants preferred that death or potentially reoccurring chest pain not be mentioned. These statements conveyed important content and were discussed by

almost all of the participants grabbed almost every one's attention.

### *Subjective norm*

Subjective norm is a concept that describes how the perceived expectations of others can motivate an individual to engage or not engage in a particular behaviour (15, 16). This concept was operationalised directly through writing about what the doctor or other health care professionals expected and indirectly through the opportunity to talk to peers when attending cardiac rehabilitation.

*Benjamin: [...] 'The consultant and health team recommend that you undergo an 8-week cardiac programme' [letter B]. Yeah that's fine.*

*Wesley: Uh rather than just say, you know, like many other patients, uh you will shortly be offered a place. But who is offering you the place [...]*

Several participants saw the motivation through a doctor directly or indirectly as positive.

*Simon: And the thing that motivated me is, the doctor said to me, 'You can't go back to work until you can walk three miles'.*

In Simon's case, the health care professional made a connection to something that was of personal relevance to him, namely going back to work.

Two participants also mentioned that meeting other people during cardiac rehabilitation is helpful when dealing with heart problems.

*James: It's the relieving anxiety [...] after I had my bypass that was the one I thing that I had found most sort of helpful [...] talking to people uh, you know, who had actually had the various things uh made it a lot easier to understand and feel more at ease.*

Mentioning that others attend cardiac rehabilitation might influence subjective norm as well. While the

operationalisation of this concept in the letter focused on the professional and

medical side, it seems that when the participants talked about their experiences, the messages contained an emotive component. Perhaps within the medical field, the expertise from health care professionals is relevant for patients but this could or should be combined with information from a more personal context.

### *Perceived behavioural control*

Perceived behavioural control describes a person's perception of whether he or she can perform a particular behaviour. The Theory of Planned Behaviour postulates either a direct connection between control and behaviour or an associative one through actual control, which refers to extrinsic factors such as transport options (Sutton, 2010).

In the two invitation letters, this concept was operationalised through an emphasis on 'patients having to make an effort' or more indirectly through 'the program being tailored to your needs'. Both letters also provide some information about what cardiac rehabilitation is.

*James: [...] give them an idea of what it actually is they are going to let themselves in for.*

*Wesley: [...] quite explanatory. What is going to happen [...] Uh number uh number seven actually tells you uh like everything else what you should wear. It's a good suggestion of what you should wear, uh also bringing medication, reading glasses [laughs], that's a brilliant idea.*

It could be helpful to provide patients with more information about cardiac rehabilitation – for example, what people need to bring or what they

will be doing during the programme. Patients are going to want to know what they are invited to. Knowledge relates not only to the concept of perceived behavioural control but also to attitude, as described above.

Furthermore, some participants liked that a set time and location was provided, whereas others thought this was too direct and preferred a separate invitation to attend.

*Callum: 'Your appointment is on... bang, you've gotta come. [...] Well, you could [put], you will be offered an appointment, uh, you will be contacted to be offered an appointment, rather than, your appointment is on. It's a bit bland.*

Moreover, the use of technical terms was criticised:

*James: [...] interested in anatomy and physiology and what's going on, but I think a lot of people may, might find it a bit uh uh off-putting [...] anatomy and physiology, that are two words that uh that ordinary people might be put off by [...] not helpful to be confronted by big words.*

Such terms were disliked and not seen as encouraging attendance by six of the interviewees. It seemed that a simpler explanation of what is coming might help convey a sense of control and lessen anxiety.

Two additional aspects, related to safety and support, were brought up by Kathryn:

*Kathryn: Also, where it tells you that you will be asked to do a walking test. It does say in a SAFE SUPERVISED environment. Which again, I think is very encouraging. Because you are not frightened of doing it if you know that is somebody there who is going to supervise you.*

For one, she liked that she know ahead of time what she will be asked to do and secondly, the reassurance that someone will be around for support. She was the only to mention anything in terms of safety and support.

## **Discussion**

When discussing passages in two invitation letters to cardiac rehabilitation, participants in 13 semi-structured interviews made unprompted reference to the health behaviour concepts that had been operationalised in the letters. As expected, not all participants found the same wording and content to be motivating in terms of encouraging attendance. However, a variety of important aspects related to the operationalisation of the concepts of attitude and subjective norm became apparent.

Attitude was operationalised in both letters in a straightforward manner: positive aspects of cardiac rehabilitation attendance and negative aspects of non-attendance were stated. The Theory of Planned Behaviour is an expectancy value model that encompasses the perception of potential positive and negative outcomes. These have often been operationalised as a statement to be evaluated, such as a 7-point Likert scales ranging from strongly agree to strongly disagree. The letters both display such statements but the rating scale or perhaps another type of relatable component is missing. The latter idea for change is based on what participants say: change the verb to future tense. *People who attend cardiac rehabilitation will become more fit.* This motivates attendance since almost anyone can become more fit.

Any message can be framed in a gain or loss related context to instigate a behavioural change (26, 27). The findings of some studies support gain-framed messages (28), others suggest that the opposite is more effective (29) and yet others propose moderators to effectiveness such as personality (30), message content or recipient (31). The only study specific to cardiac rehabilitation supports the use of gain-framed messages (32). In two reviews, however, little to no difference between the type of frame and how it influenced attitude or intention was detected (28, 31).

At a more theoretical level, when considering the lower-order concepts of attitude – namely instrumental and affective attitude {Hagger, 2005 #38} – one could

argue that the former was operationalized in a positive and the latter in a negative manner. For example, the ability to go to work and the risk of depression may be seen as useful and unpleasant, respectively. Whether the words used in the letter trigger such reactions in this way is unclear since only some of the participants highlighted the emotive component of the second part of the statement.

It is somewhat surprising that the cardiac event experienced by the typical participant did not serve as a motivating factor itself. The letters emphasised that attending CR can mean avoiding negative consequences of non-attendance such as “the chance of dying”, “chest pain”, and “anxiety”. These are loss-framed messages and were disliked by participants, especially the mention of death. While it could be motivating, if it induces anxiety, it might instead lead to total avoidance. As part of the Protection Motivation theory, evidence supports the use of threat messages but only in situations where the message receiver also receives self-efficacy support (33). The content of the message can be amended so that both types of framed messages match each person’s motivational orientation (external or internal). For example:

Research shows that people who attend cardiac rehabilitation will become more physically fit, return to work and social activities sooner.

Those who do NOT attend can have higher chances (optional: might have higher chances OR will have higher chances) of other heart problems, anxiety or depression than those who do attend.

According to the Theory of Planned Behaviour, subjective norm also influences intention (15). Subjective norms can either be direct pressures from the social environment to perform a behaviour or, more indirectly, through observing the behaviour in others (34). The latter – called descriptive norm – may be more important to adherence to CR since patients meet other patients during CR sessions. Alternatively, a visual aid such as a simple picture of cardiac

rehabilitation attendees and the location where the programme takes place might be one way of operationalising subjective norm. Others have also suggested that imagery helps with persuasion (14).

Regarding the former, called injunctive norm, some participants here stated professional recommendations were important. Conversely, Clark et al's review found that negative experiences with health care and staff reduced patients' motivation to participate. With a simple invitation letter the potential magnitude of influencing behaviour through the concept of social norm is likely trivial. An alternative option of operationalising subjective norm may be to create content that is more relatable: work, gardening, family responsibilities, grandkids or similar topics that could help persuade patients and their family. Clark et al had found the lack of support to be a barrier to attendance (12).

The final concept explored in this study was perceived behavioural control (PBC). The letters had either operationalised this by stating which professionals will attend to 'your needs' or that patients will receive information about the recovery and that 'it is up to them to follow it' – both focus on intrinsic motivation. The latter is perhaps more in line with self-efficacy, one subcomponent of perceived behavioural control (16). However, since the participating patients appeared to be information given is culturally specific to this elderly population interviewed in northern England. Further reflections on the strengths and limitations can be found elsewhere (pp. 194, 19). The research is limited to secondary prevention contexts and cannot be generalised. However, the points discussed are a good basis for further inquiry.

## **Conclusion**

A summary of the findings is displayed in Figure 2. These could be used as a starting point when further investigating the operationalisation of behavioural theory in

uncertain about what CR entails, this may have led to perceived low self-efficacy. Furthermore, the patients had little control over how the CR programme was set up, and this may have led to perceived low controllability for some (the second subcomponent of PBC). Other patients indicated that they however, liked being told when and where cardiac rehabilitation would take place. In terms of presenting motivational statements, PBC is likely the most difficult one to operationalize in writing. While this case study provides preliminary insights into how to use these concepts, further work is needed to elucidate the most effective ways to implement concepts of the TPB in motivational health materials. Participation in rehabilitation programmes is hindered or fostered by each person's individual experiences with the disease and the health care service (12). While safety was only mentioned by one woman, this may be something else to consider since the majority of the target population is geriatric. Attributing health issues to age rather than lifestyle may cause perceived behavioural control to be lower (35-37).

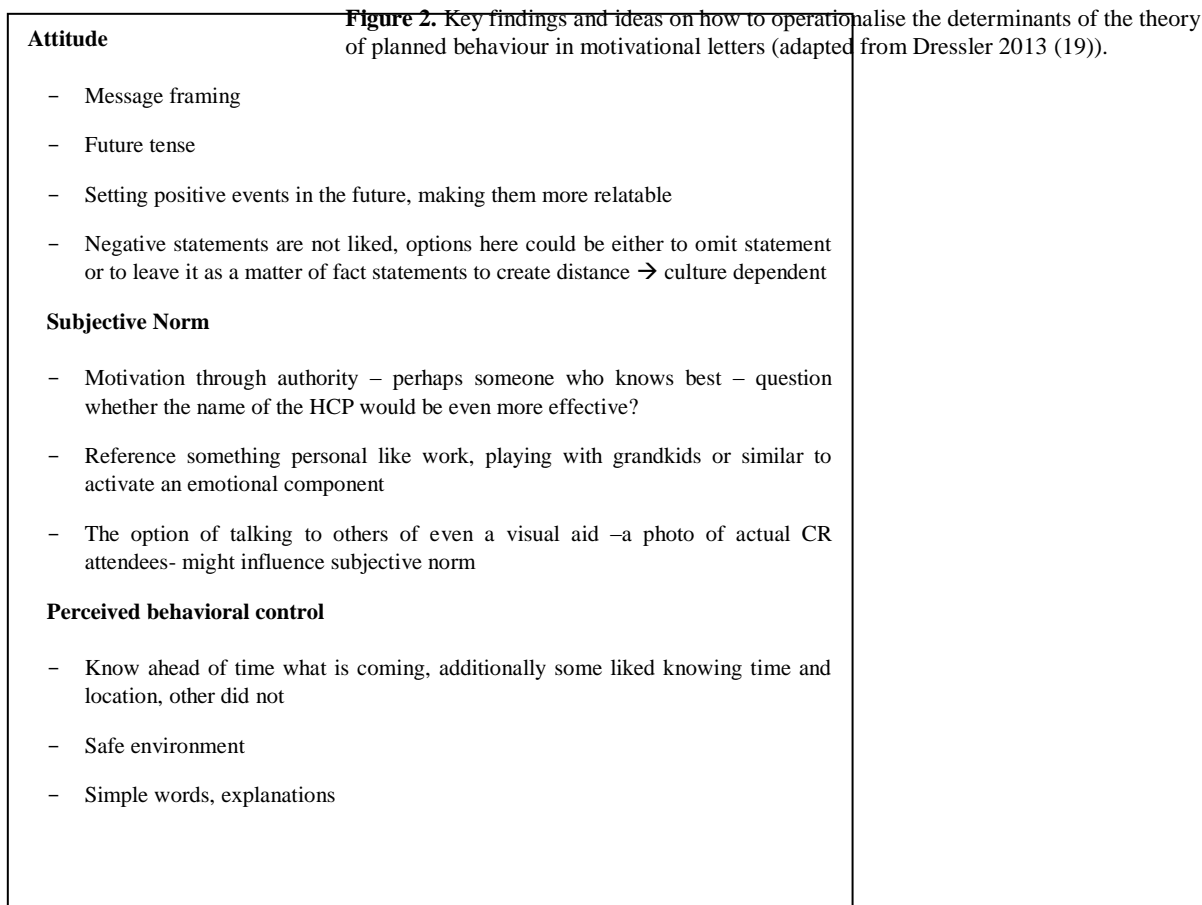
The Common Sense Model of Illness Representation was also used when Wyrer et al. designed their letter, which was not taken into account here. While the participants gave some interesting insights into how to word certain passages, at least some of the writing. In an era of continuously tight budgets in health care provision, the use of motivational letters remains a low cost option of contacting and motivating people to attend health services. The content and phrasing, however, is crucial to achieve high levels of effectiveness.

## *Practice Implications*

Whereas both invitation letters examined in this study were developed with patient input, the findings suggest that piloting letters and collecting structured feedback for individual settings may be worthwhile. It may

also be advisable to think about message framing and relatability through verb tense as

well as additional options not explored here such as visual aids.



## Acknowledgement

I am extremely grateful to Professors Karl Atkin and Bob Lewin for their invaluable feedback and to Matthew Gaskins for critically reviewing the manuscript.

## References

1. Alter DA, Oh PI, Chong A. Relationship between cardiac rehabilitation and survival after acute cardiac hospitalization within a universal health care system. *Eur J Cardiovasc Prev Rehabil.* 2009;16(1):102-13.
2. Heran BS, Chen JM, Ebrahim S, Moxham T, Oldridge N, Rees K, *et al.* Exercise-based cardiac rehabilitation for coronary heart disease. *The Cochrane database of systematic reviews.* 2011(7):CD001800.
3. Jolliffe J, Rees K, Taylor RS, Thompson DR, Oldridge N, Ebrahim S. Exercise-based

- rehabilitation for coronary heart disease. *Cochrane Database Syst Rev.* 2001(1):10.1002/14651858.CD001800.
4. Piepoli MF, Corr U, Benzer W, Bjarnason-Wehrens B, Dendale P, Gaita D, *et al.* Secondary prevention through cardiac rehabilitation: from knowledge to implementation. A position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation. *Eur J Cardiovasc Prev Rehabil.* 2010;17(1):1-17.
5. Taylor RS, Brown A, Ebrahim S, Jolliffe J, Noorani H, Rees K, *et al.* Exercise-based rehabilitation for patients with coronary heart disease: systematic review and meta-analysis of randomized controlled trials. *The American Journal of Medicine.* 2004;116(10):682-92.
6. Hutchinson P, Meyer A, Marshall B. Factors Influencing Outpatient Cardiac Rehabilitation Attendance. *Rehabil Nurs.* 2015;40(6):360-7.



7. Evenson KR, Rosamond WD, Luepker RV. Predictors of Outpatient Cardiac Rehabilitation Utilization: The Minnesota Heart Survey Registry. *J Cardiopulm Rehabil Prev.* 1998;18(3):192-8.
8. Menezes AR, Lavie CJ, Milani RV, Forman DE, King M, Williams MA. Cardiac Rehabilitation in the United States. *Prog Cardiovasc Dis.* 2014;56(5):522-9.
9. Dressler C, Lewin RJ. UK survey of patient cardiac rehabilitation attendance. *British Journal of Cardiac Nursing.* 2013;8(12):603-9.
10. Mosleh SM, Kiger A, Campbell N. Improving uptake of cardiac rehabilitation: Using theoretical modelling to design an intervention. *Eur J Cardiovasc Nurs.* 2009;8(3):161-8.
11. Wyer SJ, Earll L, Joseph S, Harrison J, Giles M, Johnston M. Increasing attendance at a cardiac rehabilitation programme: an intervention study using the Theory of Planned Behaviour. *Coronary Health Care.* 2001;5(3):154-9.
12. Clark AM, King-Shier KM, Spaling MA, Duncan AS, Stone JA, Jaglal SB, et al. Factors influencing participation in cardiac rehabilitation programmes after referral and initial attendance: qualitative systematic review and meta-synthesis. *Clin Rehabil.* 2013;27(10):948-59.
13. Michie S, Johnston M, Francis J, Hardeman W, M. E. From Theory to Intervention: Mapping Theoretically Derived Behavioural Determinants to Behaviour Change Techniques. *Applied Psychology An International Review.* 2008;57:660-80.
14. Michie S, Atkins L, West R. *The Behaviour Change Wheel : A Guide to Designing Interventions.* Great Britain: Silverback Publishing; 2014.
15. Ajzen I. The theory of planned behavior. *Organ Behav Hum Decis Process.* 1991;50(2):179-211.
16. Ajzen I. Constructing a TPB questionnaire: Conceptual and methodological considerations.; 2006 [updated 2006; cited 2018 25.06.]; Available from: <http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf>, <http://people.umass.edu/aizen/tpb.html>.
17. Ajzen I. Behavioural intervention based on the theory of planned behaviour. 2006 [updated 2006; cited 2018 25.06.]; Available from: <http://people.umass.edu/aizen/tpb.html>.
18. Neil S, Ferguson MA, Henshaw H, Heffernan E. Applying theories of health behaviour and change to hearing health research: Time for a new approach. *Int J Audiol.* 2016;55:S99-S104.
19. Dressler C. Improving the uptake of cardiac rehabilitation in invited patients: a multi-method evaluation. [PhD Thesis]. <http://etheses.whiterose.ac.uk/4754/>: University of York; 2013.
20. Mosleh SM, Bond CM, Lee AJ, Kiger A, Campbell NC. Effectiveness of theory-based invitations to improve attendance at cardiac rehabilitation: A randomized controlled trial. *Eur J Cardiovasc Nurs.* 2013.
21. Wyer SJ, Earll L, Joseph S, Harrison J. Deciding whether to attend a cardiac rehabilitation programme: an interpretative phenomenological analysis. *Coronary Health Care.* 2001;5(4):178-88.
22. Silverman D. *Doing Qualitative Research.* London: Sage Publications; 2009.
23. Morse JM. Confusing categories and themes. *Qual Health Res.* 2008;18(6):727-8.
24. Pope C, Ziebland S, Mays N. Analysing qualitative data. *BMJ.* 2000;320(7227):114-6.
25. Sutton S. Using Social Cognition Models to Develop Health Behaviour Interventions: The Theory of Planned Behaviour as an Example. In: French DP, Vedhara K, Kaptein AA, Weinman J, editors. *Health Psychol.* Pondicherry, India: BPS Blackwell; 2010.
26. Updegraff JA, Rothman AJ. Health Message Framing: Moderators, Mediators, and Mysteries. *Soc Personal Psychol Compass.* 2013;7(9):668-79.
27. Myers RE. Promoting healthy behaviors: How do we get the message across? *Int J Nurs Stud.* 2010;47(4):500-12.
28. O'Keefe DJ, Jensen JD. Do Loss-Framed Persuasive Messages Engender Greater Message Processing Than Do Gain-Framed Messages? A Meta-Analytic Review. *Communication Studies.* 2008;59(1):51-67.
29. Levin IP, Schneider SL, Gaeth GJ. All Frames Are Not Created Equal: A Typology and Critical Analysis of Framing Effects. *Organ Behav Hum Decis Process.* 1998;76(2):149-88.
30. Carver CS, Sutton SK, Scheier MF. Action, emotion, and personality: Emerging conceptual integration. *Pers Soc Psychol Bull.* [Article]. 2000;26(6):741-51.
31. Gallagher KM, Updegraff JA. Health message framing effects on attitudes, intentions, and behavior: a meta-analytic review. *Ann Behav Med.* 2012;43(1):101-16.

32. McCall LA, Ginis KAM. The Effects of Message Framing on Exercise Adherence and Health Beliefs Among Patients in a Cardiac Rehabilitation Program. *Journal of Applied Biobehavioral Research.* 2004;9(2):122-35.
33. Bartholomew LK, Parcel GS, Kok G, Gottlieb NH. *Planning health promotion programs : an intervention mapping approach.* San Francisco: Jossey-Bass; 2006.
34. Manning M. The effects of subjective norms on behaviour in the theory of planned behaviour: A meta-analysis. *Br J Soc Psychol.* 2009;48(4):649-705.
35. Diefenbach MA, Leventhal H. The common-sense model of illness representation: Theoretical and practical considerations. *Journal of Social Distress and the Homeless.* 1996;5(1):11-38.
36. Keib CN, Reynolds NR, Ahijevych KL. Poor use of cardiac rehabilitation among older adults: A self-regulatory model for tailored interventions. *Heart Lung.* 2010;39(6):504-11.
37. Cooper A, Lloyd G, Weinman J, Jackson G. Why patients do not attend cardiac rehabilitation: role of intentions and illness beliefs. *Heart.* 1999;82(2):234-6.