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Life Values as an Intrinsic Guide for Cardiopulmonary Rehabilitation Program Engagement: A Qualitative Analysis

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STRUCTURED ABSTRACT

PURPOSE—Participation in cardiovascular and pulmonary rehabilitation programs (CVPR) can lead to improved functional abilities and improved quality of life, but attendance and adherence to these programs remain suboptimal. Behavioral therapies have emphasized the importance of life value identification as a guide for goal-setting and behavior change for both psychological and physical health conditions. Individuals who choose to engage in behaviors that align with their life values are thought to be intrinsically reinforced. The purpose of the following qualitative study was to interview CVPR patients about their own life values and motivating factors related to healthy behavior changes.

METHODS—Thirty cardiac or pulmonary patients were recruited from a CVPR program and participated in a semi-structured interview about their life values and motivating factors related to program engagement. The data were transcribed and analyzed thematically.

RESULTS—Participants identified a wide range of values related to program engagement, and only half of participants endorsed health as a value. The most frequently endorsed life values included, being active, family, and independence. The interviews indicated that, while patients make lifestyle changes in the program to improve their physical health, there are often other values that primarily guide their choice to engage in and maintain lifestyle behaviors.

CONCLUSIONS—Life values can serve as a powerful guide for individual behavior change. The present study suggests that the piloting of brief values interventions early in CVPR treatment is warranted and have the potential to improve patient outcomes.

Keywords

cardiopulmonary rehabilitation; life values; engagement; adherence; qualitative

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A high level of research evidence supports the effectiveness of cardiac and pulmonary rehabilitation (CPR) on improving outcomes. A recent review of over 14 000 patients demonstrated that CPR was associated with reductions in cardiovascular mortality and hospital readmissions, while also suggesting an improvement in health-related quality of life, compared to no-exercise controls.¹ Similarly, results from reviews of CPR suggest that outcomes such as health-related quality of life, dyspnea, fatigue, and exercise capacity are all improved following CPR,² and CPR programs can be cost-effective.^{3,4} Despite this wealth of evidence, participation rates in these programs remain low.^{5,6} Referral rates to CPR also remain suboptimal, with only 3% to 16% of eligible patients receiving referrals.⁷ Given CPR has been shown to improve patient outcomes, more research is needed to identify factors that might be targeted to improve program engagement.

One possible method for increasing client engagement with CPR programs is to help clients identify how participation is consistent with their personal values and supports them living a value-driven lifestyle. Values are principles that guide decisions by individuals about behavior, such as supporting loved ones or having an active and healthy lifestyle, and may have a significant impact on the specific goals that individuals set, such as completing CPR. Value-driven goals can help clients live their lives in a value-consistent manner from moment to moment.⁸ This focus on values is an important component of several evidence-based behavioral therapies and techniques, including acceptance and commitment therapy (ACT),⁹ behavioral activation for depression (BATD)¹⁰ and motivational interviewing (MI);¹¹ such interventions have been shown to help clients engage in a variety of behavioral changes, including substance use cessation, weight loss, and the management of diabetes and chronic pain.^{12–15} In addition, an acceptance-based behavior therapy program, which included value clarification components, was recently piloted with a small cardiac rehabilitation sample, and patients reported high treatment satisfaction and made positive dietary and exercise changes during treatment.¹⁶ The promising results from this pilot study warrant further exploration of the relationship between value sets of clients and their participation in CPR.

The purpose of the current study was to use a qualitative interviewing methodology to investigate life values in CPR patients and their relationship with program engagement. We recruited primary program participants (those who were attending the initial outpatient CPR program) and maintenance participants (those who have completed the initial outpatient CPR program but continue to attend) to explore if there may be differences among the values identified related to CPR participation.

METHODS

Participants and Procedures

The study was approved by the University Institutional Review Board. Participants were recruited from a CPR program located in a Southeastern city. A nurse employed by the program approached patients and asked if they would like to volunteer to participate in an interview about their experiences at the CPR program. Both cardiac and pulmonary patients

were invited to participate, with no exclusion criteria. Each participant received a gift card for their participation.

All interviews were conducted by one of the authors (JME). During the semi-structured interview, patients were first asked about their referral to CPR and reason for attending. The interviewer also utilized several questions to identify life values that guide participants in making healthy changes associated with CPR. The interviewer then asked about other motivating factors, changes in motivators and barriers to treatment adherence. Finally, patients were asked if the CPR program was what they had anticipated. The duration of the interviews ranged from 15–40 min. Audio recordings of the interviews were transcribed verbatim. Analyses were conducted as the data were collected and interviewing continued until thematic saturation, defined as 3 consecutive interviews that yielded no additional novel information, was achieved.^{17,18}

Following the interviews, participants completed the Valuing Questionnaire (VQ), a 10-item questionnaire that assesses valued living¹⁹ and contains 2 subscales which measure Progress towards individual values and Obstruction to values progress over the past week. Results from the VQ were reported as mean \pm standard deviation.

Analytic Strategy

A thematic framework and grounded theory approach were utilized to identify key themes in the interview transcriptions.^{20,21} A framework approach is a flexible approach to qualitative analysis, in which some themes and concepts are identified *a priori*, and also allows for the inductive identification of emergent themes.²² An initial coding scheme was developed based on a review of past qualitative research on CPR programs and some codes, such as “values” and “values shift”, were developed based on the unique elements and research questions of the present study. Four authors (JMS, DMS, EPM and EVV) conducted an independent initial analysis of the first 4 transcripts, which included familiarization and code generation. The 4 researchers then met and discussed the coding decisions, refined the themes, and reached consensus on a final coding scheme. As new and unique life values were endorsed by participants, they were added as a thematic code for future analysis. Following the initial 4 interviews, rotating pairs of researchers independently coded each transcript and then met to reach consensus. There was a high level of agreement between researchers independent coding. Analyses were conducted using NVivo, version 10 (Precision Consulting Company).

RESULTS

Thirty individuals from the CPR program participated in the study (15 men and 15 women). Patient demographics were obtained from medical records (Table 1). Five major themes were identified in the analysis, which may elucidate the relationship between life values and behavioral engagement in CPR. These themes are described in the following section and the endorsement of codes within these themes is presented in Table 2. Code endorsement was also parceled into initial and maintenance patient groups; however, for most themes there were no clear differences between the groups.

Major Themes

CPR Referral—Participation in CPR programs is considered an important step in the functional recovery of cardiac and pulmonary patients and key to the prevention of future cardiac or pulmonary events; yet, over half of the participants in the study indicated that their referral to the program was perceived as an option. Only 20% of the patients perceived their referral as prescribed, and 13.3% reported that a referral was absent so they sought out the program on their own, even when a referral was indicated.

Information Needs—The majority of participants reported information needs and a lack of clarity about care related to their referral to CPR and followup programming. In general, many of the patients did not have a clear understanding of what attending a CPR program would include before reporting to the program. Although some participants understood that the CPR program would include physical exercise, very few knew it would include other components, such as dietary consultation, relaxation training, and education classes. For example, participant #24 expressed frustrations about a lack of information during the referral process.

Participant 24: I mean, I really wish the doctor had taken a little bit more time to explain what I was getting ready to step into, rather than goin', 'See ya. Come see me again in 3 months.'

Life Values

Participants in the study identified a diverse range of life values that guided their participation in the CPR program. Many values emerged during the course of interviewing and analysis, indicating that most individuals held a unique set of values related to program engagement. The most frequently endorsed life values included: 1) being active (regular active engagement in physical, social, and mental tasks, hobbies, etc); 2) family (spending time with family members); 3) independence (autonomy in activity engagement); 4) health (possessing good physical health); 5) self (self-care and self-exploration); and 6) work (occupational activities) (Table 2). Similar to many other patients, participant #33 reported that maintaining autonomy and independence were major guides for program participation.

Participant 33: I think for me, it's being able to do what you want to do when you want to do it. ... being independent to be able to live my life as I want to, to do the things that I want to do, and things that I enjoy, like gardening and walking and being with family and friends and traveling...you know just picking up and going somewhere and not having to go, 'I can't do that'; or 'I'm not physically able to do that now'; or 'what if this would happen.'

Many participants endorsed valuing the ability to remain connected and engaged with their children and/or grandchildren and CPR participation as a means to live within those values. Participant #37 stated the importance of family, and demonstrates that the value of remaining engaged with grandchildren is an especially important developmental consideration in CPR populations.

Participant 37: Well, it allows me to watch my grandchildren grow up, that's one thing I want to do. Think odds are against it right now, but long as I keep trying to do my part I can't hope for any more.

Many of the participants had enjoyed a highly active lifestyle before the onset of their chronic health condition, and they viewed participation in CPR as an avenue for maintaining this important aspect of their life.

Participant 44: Well, just like I said, I've always lived a very active lifestyle. I enjoy doing carpenter work and I'm about to build a house now, so I just want to continue to be able to do what I've done...you know... I don't have the stamina I used to, but I want to keep active as long as I possibly can.

In comparison to the maintenance patients (23.1%), primary program participants (52.9%) were more likely to value work, which reflects the older age of the maintenance participants. Many of the maintenance patients reported being retired during the interviews, which likely allows them to more easily commit to continued programming. Participants who valued work indicated a strong desire to return to work, or find other activities consistent with work-related values.

Participant 4: So you know, you put in forty plus years in a work environment and suddenly you lose that, okay, and all the value that's in that. And so suddenly there's a big void and so you try to fill up that void, now you can do a lot of different things to fill the void and I think this [CPR] was what one of them was.

External Motivators—In comparison to life values, external motivators were defined as having a more direct and external influence on CPR engagement. For example, while a participant may value remaining physically active with certain family members, a more direct motivating factor would be a spouse who comes to CPR with their partner or cheers their achievement of exercise goals. Two important motivating factors that were identified in this study include what was coded as “improved health” (noticeable positive physiological changes) and “avoiding aversive outcomes.” (perception of decreased health or mortality risk). Nearly all of the participants indicated that direct improvements in their physical health (eg, reduction of angina pectoris, walking faster, less fatigue), which they attributed to exercise or dietary changes, were highly motivating.

Participants also reported being highly motivated by avoiding aversive outcomes of their cardiac or pulmonary disease.

Participant 30: I wanted to live a while longer. It's basically what it is. I knew that my condition was getting to the point where it was deteriorating quick and my breathing...it comes and goes...at times it's been bad...and I really thought that if I don't do something, I'm just going to die. Simple as that, so if I've maybe been prolonging [life] a little bit and...live the quality of life that I really want to live... that's the reason I came.

Lastly, participants indicated that the social interactions within the CPR community motivated them to keep coming back. Many participants stressed the importance of

socializing and expressed how the direct social interactions experienced at CPR are often an unforeseen motivator for participation.

Participant 2: Then after having to do this for so long...it being like an outing every time I come, you know, and then I started meeting people and knowing what it's like to be communicating with other patients and everything, you know. So...I just, you know, just being with people. I get 2 days out of the week that I get out of the house. I can come and communicate with people. Laugh, joke. It's like a social meeting and an exercise at the same time.

Value Shifts—Another important theme identified within the data was value shifts; that is, some participants indicated that they were motivated by 1 value when they started the CPR program, but were later motivated by different or unforeseen values. These results may indicate that some participants take time to identify the values that best maintain their participation in a lifestyle change program. Some participants reported they later identified valuable aspects of the program, such as the social relationships, beyond just the exercise components.

Participant 11: Right, [social relationships] was secondary [to health], and in the beginning, it was, ..., do what they tell you to do, and do this, and do this, and then it slowly grew into, you know friendships and stuff like that. ... I still want to come for the exercise, but I also come for the people. It's like seeing your friends, you know, that sort of thing,

Many of the value shifts discussed in the interviews showed that patients were initially engaged in the program to improve their health or avoid aversive outcomes, but their reasons for participation became more varied and individualized over time. Patient #33 expressed a value shift from not just focusing on wanting to be healthy, but also valuing the responsibility of making healthy lifestyle changes.

Participant 33: Well I think for me, a value is I want to be healthy and healthier than I am and even though I knew I had some heart disease, and was doing fine ... I was just goin' on this 'Well I have this, but I'll be fine because I've been fine for 10 years knowing it so I'll be fine' and just continue on until I realize that that's not a guarantee, you know, and that changed. So, it's those values of not trying to take something for granted; and assuming that I do have a role and a responsibility in this as well.

VQ

Results indicated no significant difference in the Values Progress scores for primary program (23.47 ± 4.22) and maintenance participants (23.23 ± 6.34) groups; $t(28) = .12$, $P = .90$. In addition, there was no significant difference in the Values Obstruction scores for the current (11.82 ± 6.56) and maintenance patient (9.77 ± 7.01) groups; $t(28) = .83$, $P = .42$, indicating that patient perceptions about valued living and factors that obstruct valued living were similar across patient groups.

DISCUSSION

The primary aim of the present study was to determine if life values play an important role as an intrinsic motivator, or guide, for lifestyle behavior change in CPR patients. Overall, values appear to be an important and salient factor for participants. Results from the interviews clearly showed that values related to health behavior change are varied and highly individualized. In addition, results demonstrated that while improved health from program engagement serves as a direct motivator for most participants, health itself was not always the primary value related to program engagement; values had a tendency to shift away from health and on to more personal and individualized values over time. These results also demonstrate that “health”, as a value, is likely multifaceted and conceptualized differently across individuals and contexts. These results support previous research that showed CPR patients often set short-term functional goals related to improving physical health, but long-term goals are often focused on other aspects of life.²³

These results suggest that some CPR patients experience a value shift that may increase their engagement in the program. Some individuals could benefit from support in making this shift, especially during the transition from a major health event to engagement in rehabilitation. These interventions may be especially important for those individuals who are also experiencing a mental health condition, such as depression, which is common after experiencing a significant cardiac event²⁴ and linked to program noncompletion.²⁵

Results from the study also indicated that the referral process is a critical time for providing information about the different components of CPR and “selling” the program to the patient; yet, given the evidence supporting CPR completion, referrals are often absent or presented as optional and lack clarity. These findings indicate the importance of CPR and the relationship of functional recovery to other aspects of a patient’s life should be stressed during the referral process. The lack of clear differences between patient groups likely reflects the fact that poor referral rates and poor explanation of the importance of CPR result in poorly motivated patients never attending CPR.

Brief value interventions implemented by health service providers have the potential to increase program engagement. A brief intervention at program enrollment could help patients identify reasons for participation that are highly individualized, and CPR providers could regularly refer patients back to their values when setting specific short-term goals. Research supports that values-based interventions can be successfully implemented by both professionals and trained lay persons;²⁶ such that, nurses or other health professionals could potentially help patients identify and clarify important life values during CPR.

There are several limitations to the present study. The study relied on a convenience sample from the CPR program, which likely included people who were already motivated and engaged in the program. Similar research in the future may benefit from recruiting patients close to program enrollment. This study also included both cardiac and pulmonary rehabilitation patients. Given that these groups are not equivalent across diagnoses and prognoses, future research should investigate value differences among these groups and identify diagnostic specific intervention targets. Another limitation to the study was the

inability to measure or gauge the ability of patients to readily identify values related to participation, which could provide more information about values clarity.

In conclusion, life values can serve as a powerful guide for individual behavior change and the present study suggests that the piloting of brief values interventions early and throughout CPR treatment is warranted and have the potential to improve patient outcomes.

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Table 1Demographic Characteristics of the Participants (n = 30)^a

Age, y	67.3 ± 13.9
Male	15 (50)
Race	
Caucasian	20 (66.7)
African American	10 (33.3)
Program type	
Current Patient	17 (56.7)
Maintenance Patient	13 (43.4)
Diagnosis	
Cardiac	17 (56.7)
MI	6 (20.0)
Heart failure	6 (20)
CABG	2 (6.7)
PCI	2 (6.7)
NSTEMI	1 (3.3)
Pulmonary	12 (40.0)
COPD	7 (23.3)
Interstitial lung disease	3 (10.0)
Pulmonary hypertension	1 (3.3)
Sarcoidosis	1 (3.3)
Other	1 (3.3)
Obstructive sleep apnea	1 (3.3)

Abbreviations: CABG, coronary artery bypass graft surgery; COPD, chronic obstructive pulmonary disease; MI, myocardial infarction; NSTEMI, non-ST elevation myocardial infarction; PCI, percutaneous coronary intervention.

^aData reported as mean ± standard deviation or number (%).

Table 2

Endorsement of Major Thematic Codes Among CPR Patients

Thematic Codes	Current Patient (n =17)^a	Maintenance Patient (n =13)^a	Total (n = 30)^a	Number of Endorsements
<i>Life values</i>				
Acceptance	1 (5.9)	2 (15.4)	3 (10.0)	8
Active	13 (76.5)	8 (61.5)	21 (70.0)	54
Adaptability	2 (11.8)	3 (23.1)	5 (16.7)	8
Challenge	4 (23.5)	4 (30.1)	8 (26.7)	24
Commitment	4 (23.5)	5 (38.5)	9 (30)	15
Family	11 (64.7)	8 (61.5)	19 (63.3)	40
Friends	3 (17.6)	2 (15.4)	5 (16.7)	8
Health	9 (52.9)	6 (46.2)	15 (50.0)	25
Helping others	5 (29.4)	2 (15.4)	7 (23.3)	13
Independence	9 (52.9)	8 (61.5)	17 (56.7)	44
Leisure	3 (17.6)	1 (7.7)	4 (13.3)	9
Persistence	2 (11.8)	5 (38.5)	7 (23.3)	13
Responsibility	2 (11.8)	1 (7.7)	3 (10.0)	5
Self	7 (41.2)	5 (38.5)	12 (40.0)	26
Social	1 (5.9)	3 (23.1)	4 (13.3)	7
Spirituality	5 (29.4)	2 (15.4)	7 (23.3)	17
Work	9 (52.9)	3 (23.1)	12 (40.0)	22
<i>External motivators</i>				
Improved health	15 (88.2)	12 (92.3)	27 (90.0)	65
Avoiding aversive outcomes	12 (70.6)	7 (53.8)	19 (63.3)	41
Social relationships at CPR	9 (52.9)	8 (61.5)	17 (56.7)	44
<i>Referral type</i>				
Option	8 (47.1)	8 (61.5)	16 (53.3)	20
Prescribed	5 (29.4)	1 (7.7)	6 (20.0)	7
Absent	1 (5.9)	3 (23.1)	4 (13.3)	5

Thematic Codes	Current Patient (n = 17) ^a	Maintenance Patient (n = 13) ^a	Total (n = 30) ^a	Number of Endorsements
Information needs	13 (76.5)	11 (84.6)	24 (80.0)	45
Value/motivator shift	8 (47.1)	6 (46.2)	14 (46.7)	30

Abbreviation: CPR, cardiac and pulmonary rehabilitation.

^aData reported as number (%).