Published in final edited form as:

J Cardiopulm Rehabil Prev. 2018 September ; 38(5): 286–290. doi:10.1097/HCR.0000000000000288.

The Effect of Smoking Status on Exercise Perception and Intentions for Cardiac Rehabilitation Enrollment among Patients Hospitalized with an Acute Cardiac Condition

Hayden Riley, MS^{a,b,d}, Samuel Headley, PhD^b, Christa Winter, PhD^c, Sara Mazur, PhD^b, Diann E. Gaalema^e, Sarah Goff, MD, MPH^f, Peter K Lindenauer, MD, MSc^{f,g}, and Quinn R. Pack, MD MSc^{a,f,h}

^aDivision of Cardiovascular Medicine, Baystate Medical Center, Springfield, MA

^bDepartment of Exercise Science and Sports Studies, Springfield College, Springfield, MA

^cDepartment of Psychology, Springfield College, Springfield, MA

^dPrinceton Longevity Center, Shelton, CT

^eDepartment of Psychiatry, University of Vermont, Burlington, VT

^fCenter for Quality of Care Research, Baystate Medical Center, Springfield MA

^gDepartment of Internal Medicine, Baystate Medical Center, Springfield, MA.

^hTufts University School of Medicine, Boston, MA.

Abstract

Background: Outpatient cardiac rehabilitation (CR) attendance has been associated with higher smoking cessation (SC) rates. However, for unclear reasons, smokers are consistently less likely to enroll in CR than non-smokers, and it is uncertain what might encourage them to attend.

Methods: We surveyed patients eligible for CR who were cigarette smokers at the time of hospital admission. We assessed patient intention to quit smoking, start exercising, and enroll in CR. We also measured anxiety and depression levels.

Results: Of the 105 patients approached, 81 (77%) completed the survey (69% male, 57 ± 10 years, 70% Caucasian). Most patients reported interest in SC (80%) and attending CR (78%). Many felt that SC medications (41%), a stress management program (35%), and an exercise program with SC counseling (30%), would increase their likelihood to attend CR; however, 30% stated they would be less likely to enroll in CR if they continued smoking following discharge. Many patients indicated high levels of anxiety (51%), and depression (27%); many desired to reduce stress following discharge (73%) with 35% stating that, if offered, stress management programs would increase their likelihood to attend CR.

Conclusions: Hospitalized smokers eligible for CR report significant interest in SC, attending CR, and beginning an exercise program. These patients show high levels of anxiety, depression,

and indicate a strong interest in stress management programs. These results suggest that messages emphasizing the role of CR in the treatment of depression, anxiety, and stress are likely to resonate with smokers, increase their enrollment in CR, and support long-term SC.

Introduction:

Smoking cessation (SC) is the single most effective lifestyle change that patients can make after a myocardial infarction to reduce future morbidity and mortality, and is also the most cost effective intervention that can be undertaken¹. SC following a cardiac incident reduces the risk of a reoccurring heart attack by 50% and mortality by 35%¹⁻². However, despite the benefits associated with SC, more than 60% of smokers hospitalized for an acute cardiac event or procedure eventually relapse following hospital discharge²⁻³. Given that the SC rate following MI has not improved over the past decade, and that serious health consequences are associated with continued smoking, it is essential that we discover novel and efficacious ways to enhance the likelihood for a successful quit attempt following hospital discharge³⁻⁴.

An outpatient cardiac rehabilitation (CR) program may provide the necessary support post-discharge to achieve these outcomes as attendance at CR has been associated with higher SC rates and may represent a viable strategy to improve SC after hospital discharge⁴⁻⁵. In one study, CR attendance was the strongest predictive factor for successful SC at both 6 and 12 months after hospital discharge⁴. Unfortunately, CR is often underutilized. Typically, less than 35% of eligible patients attend CR, with fewer smokers attending CR in comparison to non-smokers⁶.

Despite the fact that smokers are more likely to be referred to CR in comparison to non-smokers, fewer attend and reasons for non-attendance among this population remain unknown⁶. Because improving CR attendance may be conducive to improving cessation outcomes, better ways in which health care providers can facilitate CR attendance and SC need to be identified. The purpose of the present study was to explore possible reasons for non-attendance at CR among smokers by assessing their thoughts and attitudes toward exercise and cigarette smoking as factors impacting CR enrollment. Additionally, we aimed to identify key messages and programs, based upon patient opinion, that were viewed as helpful in improving CR enrollment and SC.

Methods:

We surveyed patients admitted to Baystate Medical Center, a 700-bed hospital located in Springfield, MA, who were eligible for outpatient CR between October 2015 and May 2016 and were current smokers at the time of their hospital admission. Eligibility for CR was defined as patients hospitalized with a diagnosis of myocardial infarction (MI) or who underwent a percutaneous coronary intervention (PCI), coronary artery bypass graft (CABG), or valve repair or replacement. A current smoker was defined as a patient reporting having had a cigarette within the 30 days prior to hospital admission. This study was approved by the Baystate Medical Center and the Springfield College institutional review board.

We recruited patients for the study using the list of all patients automatically referred for inpatient CR. If they were deemed eligible for outpatient CR, patients were approached by research staff, provided with a verbal description of the purpose and procedure of the study, and completed a written informed consent form prior to participation. Patients were then asked to complete a questionnaire designed specifically for this study. The questionnaire assessed smoking status, exercise perception, and feelings toward CR enrollment. The Fagerstrom Test for Nicotine Dependence (FTND), Hospital Anxiety and Depression Scale (HADS), and Confusion Hubbub and Order Scale (CHAOS), were also included in the study⁷⁻⁹. Patients were included regardless of interest in SC. Patients could skip questions if they felt uncomfortable answering them. Following completion of the questionnaires, which took an estimated 20 minutes; patients were given a \$10 gift card to compensate them for their time.

The two primary authors (HR and QP) developed the questions pertaining to the primary questionnaire used in the study. Questions were then closely reviewed for clarity, validity, and content by all contributing authors. Prior to survey administration, questionnaire content was cognitively tested with 8 patients to ensure clarity, ease of use, and comprehensiveness¹⁰. Adjustments to formatting and content were made based upon patient feedback.

The questionnaire was 29-items in length and included multiple choice, Likert scales, and open-ended questions, although not all question results are presented in this paper (See appendix). The first three questions assessed educational attainment, cigarettes smoked per day, and years of active cigarette smoking. The remaining questionnaire questions were divided among three domains: attitudes toward smoking, exercise perception, and feelings about CR. Questions within the smoking status category assessed attitudes toward cessation and possible methods to support SC. The second domain assessed how patients felt about physical activity in relation to their smoking behavior and if they felt exercise would be a beneficial method for improving cessation rates. Lastly, the final domain assessed opinions toward CR and likelihood to attend.

We incorporated the FTND, HADS, and CHAOS, in our study to assess how various levels of nicotine dependence, anxiety, depression, and life chaos, may play a role in patients' intentions to attend CR and quit smoking. The FTND consists of 6 questions derived from the Fagerström Tolerance Questionnaire and is a self-report measure of nicotine dependence⁷. An FTND score of 5–7 indicates moderate dependence; where as a score 8 indicates high nicotine dependence. The HADS is a bidimensional, self-report scale that was developed to detect clinically significant anxiety and depression⁸. The HADS consists of two 7-item subscales (each scored from 0 to 4) that assess depression and anxiety symptoms. A score 8 on either subscale was considered a clinically concerning level of depression and/or anxiety. The CHAOS was originally a 15-item scale designed to assess chaos in a child's home; however, a 6-item scale was derived and validated for self-administration in an adult population with HIV⁹. Zullig et al. then utilized the scale in post-MI patients and discovered that life chaos was significantly associated with CVD-medication nonadherence¹¹. A score 14 was considered at least a moderate level of life chaos.

Statistical Analysis

We used REDCap, a web-based database, to enter, monitor, and export data¹². Likert scale questions were averaged, but were also reported as percentages in low (1–2), moderate (3), or high (4–5) categories. Scores were calculated for the FTND, HADS, and CHAOS questionnaires, based upon their individual scoring instructions^{7–9}. Surveys were assessed for completeness; however, if data was missing, the question was excluded from analysis. In addition, we assessed relationship between survey items using correlation coefficients and chi square analysis as appropriate for continuous or categorical data, respectively. We used IBM SPSS version 21 and (SAS institute, Cary NC) JMP 12.0.1 for all statistical analyses. For each analysis an alpha level of 0.05 was used to determine statistical significance.

Results

Of the 105 patients approached, 83 (79%) consented to participate and 81 (77%) completed the questionnaires. Patient characteristics are found in Table 1. In general, participants were primarily male, Caucasian, diagnosed with myocardial infarction and/or percutaneous coronary intervention, with 17 (21%) patients having a history of depression. On average, patients smoked 16 ± 9 cigarettes per day for 37 ± 13 years. Additionally, patients reported moderate to high levels of nicotine dependence (60%), high levels of anxiety (51%) and depression (27%), and high levels of life chaos (12%). Although there was overlap in psychosocial risk factors, in total, 68% of patients had concerning scores in at least one of these domains.

The majority of patients (93%) reported feeling as though quitting smoking was important to their health; however, only 80% indicated that they were interested in quitting and only 67% reported confidence in their ability to do so. Lastly, 68% stated that they were in the action phase of the transtheoretical model and had begun to take steps to quite permanently.

Tobacco and Exercise

Attitudes towards cigarette smoking and exercise can be found in Table 2. The majority of patients (68%) reported that they do not exercise regularly and on average, patients spent 7 ± 5 hours sitting or reclining per day. Of the 26 patients who reported getting some regular physical activity, only 6 (7%) reported meeting physical activity guidelines by exercising 5 to 6 days per week. When considering the influence of cigarette smoking on exercise, 45% of patients reported that they believed regular exercise would help them stop smoking; however, when asked if they felt exercise would help to reduce nicotine cravings, opinions were mixed with about half agreeing and half disagreeing. (See Table 2)

In regards to tobacco use and feelings toward exercise, 49% of patients stated that smoking decreases their interest in physical activity. Additionally, 16 (20%) of patients felt that exercise would be harmful or not beneficial if they were to continue smoking or relapse following discharge. When asked to agree (strongly agree = 5) or disagree (strongly disagree = 1) with the statement “I should not start an exercise program until after I quit smoking,” these patients were also more likely to state that they agree (3.4 ± 0.3 vs. 2.0 ± 0.1 , $p = <0.001$).

Tobacco and Cardiac Rehabilitation

Results from questions assessing feelings toward CR can be found in Table 3. Most patients (78%) indicated that they were either considering attending CR (36%) or planning on it (42%). The majority of patients felt that CR would improve their overall health (60%) and help them to quit smoking (52%). Unfortunately, the possibility of relapse and/or continued smoking was cause for concern among patients. Of the patients (n=63) that stated they were considering or planning to attend CR, 18 (30%) stated they would be less likely to attend CR if they continued smoking and/or relapsed following discharge, while 29 (48%) stated that relapse would not impact their decision to attend. In addition, 29 (36%) of patients reported that they would be concerned about feeling judged by CR staff if they continued smoking. Of these patients, 13 (46%) stated that their concern of judgement would make them less likely to attend.

Cardiac Rehabilitation Enrollment & Stress

In terms of increasing CR attendance, patients reported that, if offered, cessation medications (41%), a stress management program (35%), and an exercise program in combination with SC counseling (30%), would increase their likelihood to enroll in CR (Table 4). When asked which behavior change(s) they felt they should make following hospital discharge, 73% of patients reported “reducing stress” as a priority. Patients with high levels of anxiety (n = 41) were more likely to request stress management programs within CR (48.8% vs 20.0%, $p = 0.007$) and report a desire to reduce stress levels (85.4% vs 60.0%, $p = 0.01$). Additionally, females were more likely to report high levels of anxiety (43.9% of women vs 17.5% of men, $p = 0.01$) and therefore may be in greater need of stress reduction and stress management programs.

Discussion

Among 81 cigarette smokers hospitalized with an acute cardiac event, we found a significant interest in quitting smoking, attending CR, and starting an exercise program. Patients felt that quitting smoking was important following discharge, and the majority were confident in their abilities to do so. Another main finding was that, as a group, current smokers suffering from an acute cardiac condition have high levels of anxiety and depression, and indicated a significant interest in stress management programs. Additionally, relapse or continued smoking following hospital discharge appears to be a cause for concern, as some patients reported that they would be less likely to attend CR if they were smoking at the time of enrollment in CR and would worry about judgment from CR staff.

Considering the intricate role CR staff plays in both the inpatient and outpatient care for these patients, they are in a suitable position to provide the necessary attention and encouragement smokers need to quit. Our findings suggest four ways in which recruitment of smokers hospitalized with a cardiac condition to CR may be more successful. First, endorsing the role that CR plays in helping patients to manage stress and anxiety may resonate with patient needs. Second, reassuring smoking patients that even if they are to continue smoke or relapse following discharge, they will not face scrutiny or judgement at

CR but they will in fact receive the necessary support to quit. Third, highlighting the role CR plays in helping patients to quit smoking and lead heart healthy and physically active lives following discharge. Lastly, staff should emphasize that CR can help provide the necessary resources, such as SC medications, that will aid in successful cessation attempts.

Seeing as though that the majority of patients in this study indicated a significant interest in reducing stress, it appears imperative that health care professionals promote the role of stress management as an integral part of CR, particularly for smokers¹³. In our study we found that the majority of patients have a strong desire to reduce stress and that an additional notable portion report a strong interest in stress management programs. This is similar to the findings of one study in which coping with stress was the highest rated motive for chronic tobacco use; a motive more commonly found in those being treated for mental health problems compared to those who were not¹⁴. Although smokers often perceive that smoking relieves stress, meta-analyses have found the opposite to be true; SC reduces long-term stress¹⁵.

Likewise, high levels of anxiety and depression were found among this population. These findings are similar to one study in which anxiety and depression levels were higher among persistent smokers following MI when compared to those that quit¹. Considering the moderately strong relationship between anxiety and depression scores ($r = 0.193$, $p < 0.001$), and the desire to manage stress more effectively among this population, it appears that anxiety, depression, and stress may play a significant role in enrollment rates and cessation success. Studies suggest that the lack of desire or inability to quit smoking among hospitalized smokers can often be attributed to an inability to handle stress and a history of depressive symptoms, in addition to cravings and physiological addiction¹⁵. Considering that patients can often feel overwhelmed, stressed, anxious, and even depressed as a result of a cardiac event or procedure, and emotional stress following such an event increases the risk of morbidity, mortality, and perhaps continued smoking, this becomes increasingly important¹⁶. These findings suggest that messages about the role of CR in the treatment and management of stress, anxiety, and depression may also help to improve attendance rates.

Incorporating stress management classes as a part of CR has led to significant reductions in stress as well as greater improvements in numerous important medical outcomes when compared to CR programs without stress management offered¹³. A systemic review which analyzed SC interventions among hospitalized smokers found that counseling initiated during hospitalization with supportive outpatient contact for over a month after discharge increases the odds of cessation by 65% at 6 and 12 months¹⁷. Interventions which are less intensive, particularly those that are limited to in-hospital counseling, have not been found to effectively promote cessation¹⁷. Based upon the supportive nature of inpatient and outpatient CR, it may provide the intensive care necessary to help patients quit smoking. Considering the added benefits of stress management programs and the strong desire for their inclusion, it is likely that the stress management classes will increase enrollment rates and substantially help smokers to successfully quit smoking as well.

In the present study we also asked several questions that specifically assessed how patients associated exercise with their smoking habit and how continued smoking would influence

their decision to attend CR. Interestingly, it appears that relapse or continued smoking following hospitalization may pose an increased risk for non-attendance at CR. For instance, 30% of patients who reported interest in attending CR stated that they would be less likely to attend if they relapsed or continue smoking following discharge. Likewise, a significant number of patients (49%) stated that their smoking habit decreases their interest in physical activity, which is similar to the findings of Rallidis et al. who found that relapsed smokers were more reluctant to exercise when compared to non-smokers¹. Additionally, a relatively small but notable group of patients felt as though exercise would be harmful for patients who smoke and/or relapse. These patients were also more likely to feel that they should not start an exercise program until they stop smoking. Loprinzi et al. examined the relationship between physical activity and smoking and discovered that nicotine dependence negatively influenced physical activity; leading researchers to believe that smokers may have a negative attitude toward behavioral changes following a coronary event and therefore require special attention and professional encouragement to quit¹⁸. Limited research can be found that assesses the perception of exercise among currently smoking patients with heart disease, yet it appears that continued smoking negatively impacts CR enrollment and participation in physical activity.

The primary limitation of this study is that 22 patients refused to participate. As a result, our questionnaire answers may not be fully representative of all smokers hospitalized with an acute cardiac condition. However, our participation rate was still high at 79% so it seems unlikely that we failed to identify major themes or messages that could help smokers quit and enroll in CR. Additional limitations include that our sample size was small, limited to only English speaking patients, and was performed at a single center in western Massachusetts. Consequently, our results may not uniformly apply to other institutions with significantly different patient population or clinical settings.

Conclusion

To our knowledge, this is the first investigation of the reasons why smokers, despite higher referral rates, are less likely to attend CR and what could be done about the issue. We found that current smokers hospitalized for an acute cardiac condition have significant interest in quitting smoking and attending CR. Given the high rates of anxiety and depression as well as high patient-reported interest in reducing stress, it appears that emphasizing the psychosocial offerings of CR may be key messages that will increase enrollment and participation in CR and aid in long term SC.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

All authors report no conflicts of interest.

Dr. Pack was supported by the National Center for Advancing Translational Sciences of the National Institutes of health, Award Number KL2TR001063.

Dr. Gaalema was supported by the Center of Biomedical Research Excellence award P20GM103644 from the National Institute of General Medical Sciences.

We would like to thank Nitesh Ainani, MD and Ahmad Turk, MD for their help in recruiting patients.

The use of RedCAP software was supported through Tufts University by the National Center for Research Resources Award Number UL1RR025752 and the National Center for Advancing Translational Sciences, National Institutes of Health, Award Numbers UL1TR000073 and UL1TR001064. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

References

1. Rallidis LS, Hamodraka ES, Foulidis VO, & Pavlakis GP (2005). Persistent smokers after myocardial infarction: A group that requires special attention. *International Journal of Cardiology*, 100(2), 241–245. [PubMed: 15823631]
2. Bakker EC, Nijkamp MD, Sloom C, Berndt NC, & Bolman CAW (2015). Intention to Abstain From Smoking Among Cardiac Rehabilitation Patients. The Role of Attitude, Self-efficacy, and Craving. *Journal of Cardiovascular Nursing*, 30(2), 172–179. [PubMed: 24831728]
3. Colivicchi F, Mocini D, Tubaro M, Aiello A, Clavario P, & Santini M (2011). Effect of smoking relapse on outcomes after acute coronary syndromes. *American Journal of Cardiology*, (108), 804–808. [PubMed: 21741609]
4. Sochor O, Lennon R, Rodriguez-Escudero JP, Bresnahan JF, Croghan I, Somers VK, ... Thomas RJ (2015). Trends and Predictors of Smoking Cessation After Percutaneous Coronary Intervention (from Olmsted County, Minnesota, 1999–2010). *American Journal of Cardiology*, 115(4), 405–410. [PubMed: 25541324]
5. Dawood N, Vaccarino V, Reid K, Spertus J, Hamid N, & Parashar S (2008). Predictors of smoking cessation after a myocardial infarction: the role of institutional smoking cessation programs in improving success. *Archives of Internal Medicine*, 168(18), 1961–1967. [PubMed: 18852396]
6. Gaalema DE, Cutler AY, Higgins ST, & Ades PA (2015). Smoking and cardiac rehabilitation participation: Association with referral, attendance, and adherence. *Preventive Medicine*, (80), 67–74.
7. Heatherton TF, Kozlowski LT, Frecker RC, & Fagerstrom K-O (1991). The Fagerstrom Test for Nicotine Dependence: A revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction*, 86(9), 1119–1127. [PubMed: 1932883]
8. Zigmond AS, & Snaith RP (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica*, 67(6), 361–370. [PubMed: 6880820]
9. Matheny AP, Washs TD, Ludwig JL, & Philips K (1995). Bringing order out of chaos: Psychometric characteristics of the Confusion, Hubbub, and Order Scale. *Journal of Applied Developmental Psychology*, (16), 429–444.
10. McColl E (2006). Cognitive Interviewing. A tool for improving questionnaire design. *Quality of Life Research*, 15(3), 571–573
11. Zullig LL, Shaw RJ, Crowley MJ, Lindquist J, Grambow SC, Peterson E, ... Bosworth HB (2013). Association between perceived life chaos and medication adherence in a postmyocardial infarction population. *Circulation: Cardiovascular Quality & Outcomes*, 6(6), 619–625. [PubMed: 24221839]
12. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, & Conde JG (2009). Research electronic data capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*, 42(2), 377–81. [PubMed: 18929686]
13. Blumenthal JA, Sherwood A, Smith PJ, Watkins L, Mabe S, Kraus WE, ... Hinderliter A (2016). Enhancing Cardiac Rehabilitation with Stress Management Training. *Circulation*, (133), 1341–1350. [PubMed: 27045127]
14. McEwen A, West R, & McRobbie H (2008). Motives for smoking and their correlates in clients attending Stop Smoking treatment services. *Nicotine & Tobacco Research*, 10(5), 843–850. [PubMed: 18569758]
15. Hajek P, Taylor T, & McRobbie H (2010). The effect of stopping smoking on perceived stress levels. *Addiction*, 105(8), 1466–1471. [PubMed: 20528815]

16. So SS, & La Guardia JG (2011). Matters of the heart: Patients' adjustment to life following cardiac crisis. *Psychology & Health*, 26, 83–100. [PubMed: 21337261]
17. Rigotti N, Munafo M, & Stead L (2008). Smoking Cessation Interventions for Hospitalized Smokers: A systematic review. *Archives of Internal Medicine*, 168(18), 1950–1960. [PubMed: 18852395]
18. Loprinzi PD, Kane CJ, Mahoney S, & Walker JF (2015). Physical activity and nicotine dependence among a national sample of young U.S. adults who smoke daily: Evaluation of cross-sectional and longitudinal associations to determine which behavior drives this relationship. *Physiology & Behavior*, (139), 1–6.

Table 1.**Patient Characteristics**

Characteristic	(n = 81)
Age (years, mean $\pm$ SD)	57 $\pm$ 10
Male	56 (69%)
Body mass index (mean $\pm$ SD)	29.9 $\pm$ 6.0
Race	
• Non-Hispanic White	58 (72%)
• Other	10 (12%)
• Black	8 (10%)
• Hispanic	5 (6%)
Smoking History	
• Cigarettes per day	16 $\pm$ 9
• Years of Active Smoking	37 $\pm$ 13
Qualifying Diagnosis	
• Myocardial Infarction (MI)	12 (15%)
• Percutaneous Coronary Intervention (PCI)	7 (9%)
• MI and PCI	43 (53%)
• CABG	11 (14%)
• Valve Procedure	6 (7%)
• CABG and Valve	1 (1%)
• Angina	1 (1%)
Education Level	
• Some High School	12 (15%)
• General Education Degree	8 (10%)
• High School Graduate	21 (26%)
• Some College	15 (19%)
• Trade, Technical, or Vocational Training	11 (14%)
• College Graduate	9 (11%)
• Post Graduate Degree	4 (5%)
Risk Factors	
• Diabetes Mellitus	19 (24%)
• Hypertension	46 (57%)
• Hyperlipidemia	31 (38%)
• Hx of Depression	17 (21%)
• Family Hx of CAD	39 (48%)
Questionnaire Scores	
• Nicotine Dependence (FTND)	5.0 $\pm$ 2.4
• Anxiety (HADS)	7.6 $\pm$ 4.3
• Depression (HADS)	5.4 $\pm$ 3.8
• Life Chaos (CHAOS)	9.2 $\pm$ 4.3

CABG = Coronary Artery Bypass Graft Surgery; NRT = Nicotine Replacement Therapy, CAD = Coronary Artery Disease, Hx = History

Table 2.**Cigarette Smoking and Exercise Perception**

Please indicate your level of agreement with the following statement	N	Mean $\pm$ SD	Strongly Agree	Strongly Disagree
Regular exercise would help you stop smoking	79	3.3 $\pm$ 1.4	21 (27%)	36 (46%)
Exercise helps reduce nicotine cravings	81	3.0 $\pm$ 1.2	28 (35%)	27 (33%)
My smoking habit decreases my interest in physical activity	81	3.2 $\pm$ 1.5	40 (49%)	25 (31%)

Answers range from 1 to 5, using the following scale: (1 = strong disagree, 5 = strongly agree). SD = Standard deviation

Table 3.**Cigarette Smoking and Feelings toward Cardiac Rehabilitation**

On a scale of 1 to 5	N	Mean $\pm$ SD	Highest Category	Lowest Category
How confident are you that attending cardiac rehab will improve your overall health		3.8 $\pm$ 1.3	49 (60%)	17 (21%)
How helpful do you think a cardiac rehab program would be toward helping you quit smoking		3.5 $\pm$ 1.3	42 (52%)	22 (27%)
Would you be more or less likely to attend cardiac rehab if the program would help you quit smoking		3.7 $\pm$ 1.4	53 (65%)	17 (21%)

Answers range from 1 to 5, SD = Standard deviation

Table 4.**Methods to Increase Cardiac Rehabilitation Attendance for Smokers**

Which of the following, if any, would make you more likely to attend CR if they were offered?	(n = 81)
Medications to help you quit smoking	33 (41%)
A stress management program	28 (35%)
An exercise program in combination with SC counseling	24 (30%)
Individual SC counseling	21 (26%)
Group SC counseling	16 (20%)
An educational program in combination with SC counseling	15 (19%)
Self-help materials/instructions	13 (16%)
Individual physician assessment/advice	12 (15%)
None of the above	12 (15%)
Other	5 (6%)

Multiple selections were possible