ORIGINAL PAPER

RETURN TO WORK AFTER CORONARY REVASCULARIZATION PROCEDURES AND A PATIENT'S JOB SATISFACTION: A PROSPECTIVE STUDY

ELENA FIABANE[1], INES GIORGI[2], STEFANO M. CANDURA[3], and PIERGIORGIO ARGENTERO[1]

[1] University of Pavia, Pavia, Italy
Department of Brain and Behavioral Sciences

[2] Salvatore Maugeri Foundation, Work and Rehabilitation, IRCCS, Scientific Institute of Pavia, Italy
Psychological Unit

[3] Salvatore Maugeri Foundation, Work and Rehabilitation, IRCCS, Scientific Institute of Pavia, Italy
Occupational Medicine Unit

Abstract

Objectives: Research into work reintegration following invasive cardiac procedures is limited. The aim of this prospective study was to explore predictors of job satisfaction among cardiac patients who have returned to work after cardiac rehabilitation (CR). **Material and Methods:** The study population consisted of 90 cardiac patients who have recently been treated with coronary angioplasty or heart surgery. They were evaluated during their CR and 12 months after the discharge using validated self-report questionnaires measuring job satisfaction, work stress-related factors, emotional distress and illness perception. Information on socio-demographic, medical and occupational factors has also been collected. **Results:** After adjusting for demographic, occupational and medical variables, baseline job satisfaction (p < 0.001), depression (p < 0.01) and ambition (p < 0.05) turned out to be independent, significant predictors of job satisfaction following return to work (RTW). Patients who had a partial RTW were more satisfied with their job than those who had a full RTW, controlling for baseline job satisfaction. **Conclusions:** These findings recommend an early assessment of patients' psychosocial work environment and emotional distress, with particular emphasis on job satisfaction and depressive symptoms, in order to promote satisfying and healthy RTW after cardiac interventions.

Key words:
Depression, Job satisfaction, Work stress, Return to work, Cardiac rehabilitation

INTRODUCTION

Coronary heart disease (CHD) is the most common cause of death in Europe. It accounts for 1.8 million deaths each year, and involves major economic costs as well as human costs for Europe [1]. In recent decades, thanks to advances in diagnostic and therapeutic procedures, and thanks to improvement in rehabilitation programs, death rates have been falling and the prevalence of older workers with CHD, after a surgery/rehabilitation, has been consistently and constantly increasing [2].

The main goal of cardiac rehabilitation (CR) is to facilitate the return to social and professional life as similar as

possible to the ones the patients had before their cardiac event. Positive Return to Work (RTW) improves patients' quality of life, economic security and psychological health, and, in terms of increased productivity and cost reductions, it has financial benefits for the society [3–6]. However, RTW after a long-term sick leave may be stressful and emotionally demanding because it can be associated with patients' reduced physical capacities or changes in their work employment, such as reduction in working hours or in job tasks, decrease in self-reported responsibility and involvement [7–9]. Several studies have investigated the health-related quality of life (HRQL) after cardiac interventions [10–13]. Most of these studies have found that predictors of HRQL after a heart surgery or coronary angioplasty were primarily psychological and not related to the illness severity [13–16]. Instead, research on professional life and work reintegration after cardiac interventions have focused mainly on the identification of factors predicting RTW (i.e., working/not working) or time for RTW [3,4,17–19], while very few studies have investigated the quality of work resumption, in terms of a patient's job satisfaction and re-adaptation to work [15–22]. Recent studies suggested an important role of psychosocial work environment in the RTW process, with particular emphasis on work stress and job satisfaction [15,16,18,19,21,22]. Dekkers-Sànchez et al. [23] have recently explored factors promoting sustained RTW of employees on long-term sick leaves and underlined the key role played by the work environment and subjective attitude towards work (e.g., work motivation, positive meaning of work, cognitions and RTW expectations). However, what promotes satisfaction with RTW after a cardiac event is still an unexplored issue. It seems that what makes a job satisfying or dissatisfying does not only depend on work characteristics, but is also related to individual expectations from the job and to dispositional influences [24]. Furthermore, previous studies have shown that job satisfaction is associated with mental and physical health problems (including CHD) [25,26], and also with professional dropout and absenteeism [27–29].

In view of the positive effects of job satisfaction on health status and professional outcomes, it is important to understand which factors can promote job satisfaction among patients who returned to work after a long-term sick leave due to cardiac health problems. To the best of our knowledge, no prior studies have explored this issue and such research is needed in order to promote sustained and positive RTW after an acute cardiac event.

Therefore, the aim of this prospective study was to explore predictors of job satisfaction among cardiac patients who have returned to work after a coronary angioplasty or heart surgery. What is more, we investigated whether job satisfaction levels differ between workers who had a full or partial return to work.

MATERIAL AND METHODS

Study design

The study population consisted of consecutive patients who have recently undergone a coronary angioplasty or cardiac surgery and were admitted to a Scientific Rehabilitation Hospital for multidisciplinary cardiac rehabilitation (CR) in Northern Italy, between 2006 and 2011. The participants met the following enrolment criteria:
– recent percutaneous transluminal coronary angioplasty (PTCA), coronary artery bypass grafting (CABG) or cardiac valve surgery (CV),
– being employed before the intervention,
– understanding and speaking Italian,
– being fit for follow-up evaluations.

A 12-month prospective longitudinal design was used. Data were collected at a baseline during the patients' hospitalization for CR (approximately 25 days after the cardiac intervention) and at 12- month follow-up assessment during a daily hospitalization.

A total of 121 patients was included in this study. Ninety cases (74.4%) were considered as eligible, 15 (12.4%)

were not working during the follow-up, 12 (9.9%) did not participate in the 12-month follow-up and 4 (3.3%) had missing data on key variables.

Descriptive characteristics of the sample are listed in Table 1. The average age of the participants was 49.33 (±7.73) years and most of them were male (91.1%), married (72.2%), white-collar workers (67.8%). Most patients underwent a coronary angioplasty (61.1%) and the overall average left ventricular ejection fraction was 51.74 (±8.36). With respect to the baseline occupational characteristics, most of the participants did not have a sedentary job (38.9%), in the case of 75.6% there was a low work-related injury rate index, and 72.2% had a comfortable workplace climate. The excluded patients group (25.6%) was characterized by a higher percentage of females (38.7%) and blue-collar workers (58.1%) compared to the study participants described in Table 1.

Measures

Work stress-related factors

Work stress-related factors were measured using scales from the Occupational Stress Indicator (OSI) [30] – a standardized, psychometrically validated self-report questionnaire that evaluates different aspects of work stress. The scales used in this study have been previously validated in the Italian population [31]:

1. "Sources of pressure" scale (61 items) – evaluates potential risk factors related to a specific workplace and consists of 6 subscales: Factors intrinsic to the job, Managerial role, Relationship with other people, Career and achievement, Organizational structure and climate, Home-work interface (high scores indicate high stress).

2. "Type A behaviour" scale (14 items) – investigates typical individual attitudes such as the need to achieve career success or the time pressure and consists of 3 subscales: Attitude to living, Style of behavior, Ambition (high scores are classified as Type A).

3. "Locus of control" scale (12 items) – refers to how much control individuals feel they have on their job (high scores indicate external locus of control).

4. "Job satisfaction" scale (22 items) – refers to the worker's subjective perception of his/her quality of work, organizational structure and work relationships (high scores indicate high satisfaction).

5. "Physical health" scale (6 items) – assesses the individual's physical health through questions that will ascertain presence of somatic complaints (high scores indicate illness).

All items are scored on a 6-point Likert response key ranging from 1 (strongly disagree) to 6 (strongly agree).

Anxiety

State of anxiety was measured using the Italian version of the State Trait Anxiety Inventory (STAI-X1) [32,33]. The questionnaire is composed of 20 items measuring current transitory anxiety states based on a 4-level scale (1 – not at all; 4 – very much). Higher score indicates higher anxiety level, a possible score range: 20–80.

Depression

Depression was assessed using the Depression Questionnaire (DQ) [34], which is an Italian validated, self-report questionnaire recommended for screening of patients' depressive symptoms during in-hospital intensive rehabilitation [35]. Participants are asked how they "feel at this moment" with regard to 24 items. Response categories are "yes" or "no" and the possible scores range from 0 to 24.

Illness perception

Illness perception was assessed by the use of the Italian version of the Constructed Meaning Scale (CMS) [36,37], which is a brief, 8-item self-report measure. Items are responded to on a 4-point Likert scale (1 – strongly disagree; 4 – strongly agree) and possible scores range from 8 to 32, with higher scores indicating more positive beliefs and attitudes towards the illness.

Table 1. Baseline characteristics of the sample

Variable	Patients (N = 90)	
	n	%
Age (years)		
< 46	26	28.9
46–55	44	48.9
> 55	20	22.2
Gender		
male	82	91.1
female	8	8.9
Marital status		
married	65	72.2
unmarried	25	27.8
Type of intervention		
PTCA	55	61.1
heart surgery (CABG or SV)	35	38.9
Left ventricular ejection fraction (%)		
< 40	4	4.4
40–49	29	32.2
≥ 50	57	63.3
Professional category		
blue-collar worker	29	32.2
white-collar worker	61	67.8
Task energy requirement		
sedentary job (< 2 METs)	35	38.9
not sedentary job (≥ 2 METs)	54	60.0
missing	1	1.1
Workplace climate		
comfort	65	72.2
discomfort	24	26.7
missing	1	1.1
Work-related injury rate index		
< 4 (low risk)	68	75.6
≥ 4 (high risk)	21	23.3
missing	1	1.1

PTCA – percutaneous transluminal coronary angioplasty; CABG – coronary artery bypass surgery; SV – cardiac valve surgery; MET – basal metabolic rate.

Socio-demographic, occupational and medical factors

Socio-demographic (age, gender, marital status, profession), medical (cardiac treatment, left ventricular ejection fraction) and occupational (workplace climate, injury rate index, calculated using the National Workers' Compensation Authority (INAIL)) data for the last 3 years; task energy requirement, expressed as multiples of basal metabolic rate (METs) characteristics were collected at baseline by a cardiologist and an occupational physician's assessments. Furthermore, during a 12-month follow-up assessment, during a daily hospitalization, the patients were asked whether they had a full or partial RTW (type of RTW). We defined a full RTW as returning to the same type of job the patients had before cardiac intervention, and a partial RTW as returning to work with limitations in terms of reduced task energy requirement, working timetable or work-related transfers (e.g., part-time hours, change of job tasks) [38].

Ethics

The research proposal was approved by the ethical committee of the hospital according to the criteria of the Declaration of Helsinki and a written consent was obtained from all the participants before commencement of the study.

Statistical analysis

Descriptive statistics were used to describe characteristics of the sample. In order to explore associations between baseline variables and job satisfaction at follow-up, the linear regression analysis was 1st performed in the univariate analysis. Then variables with $p \leq 0.05$ were included simultaneously in a regression model in order to identify predictors of job satisfaction. Next, a backward stepwise regression was carried out by removing the least significant variables 1 at a time until all contributed significantly ($p < 0.05$) (Model 1). This method has been widely used in previous studies exploring predictors of quality of life among cardiac patients (e.g., 10,11).

The 2nd multivariate regression model (Model 2) was adjusted for potential confounders, including socio-demographic (age, professional category) and medical (left ventricular ejection fraction, type of cardiac intervention) covariates and RTW type (full or partial). We included these covariates because previous studies have found them to be related to RTW [8,14].

Analysis of covariance (ANCOVA) was used to explore whether job satisfaction at follow-up differed between workers who had a full or partial RTW, after adjusting for baseline job satisfaction level. A p value smaller than 0.05 ($p < 0.05$) was considered statistically significant. All statistical analyses were conducted using SPSS, Windows version 13.0.

RESULTS

Majority of the study participants had a partial RTW (55.6%) that included limitations in terms of task energy requirement, working timetable or work-related transfers. Results of the ANOVA indicated significantly higher levels of job satisfaction in the case of patients who had a partial RTW (M = 95.39; SD = 15.00) compared
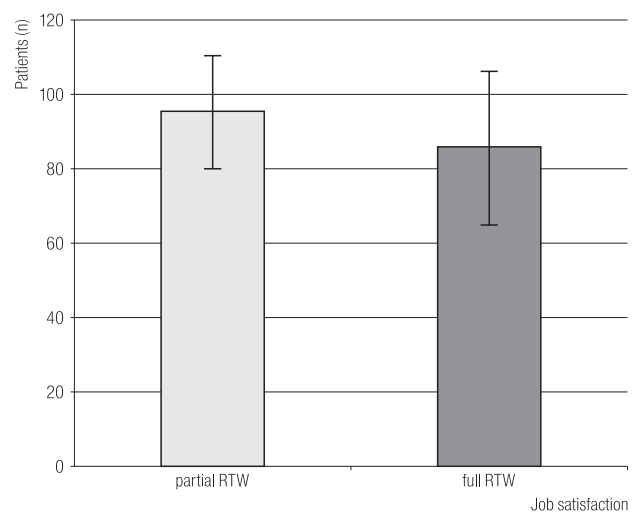
p < 0.05. Results are adjusted for baseline job satisfaction levels.

Fig. 1. Job satisfaction among cardiac patients who had a full and partial return to work (RTW)

to those who had a full RTW (M = 85.77; SD = 21.07) (F = 6.37; p = 0.01). Results of the ANCOVA, showed that the 2 groups still significantly differed in terms of job satisfaction at a 12-month follow-up after adjusting for baseline job satisfaction level (F = 4.91; p = 0.03), with an adjusted R explained by the model of 63.9%.

Association between baseline predictors and job satisfaction at a 12-month follow-up
Results of the univariate linear regression analysis showed that of all occupational characteristics only professional category was associated with job satisfaction at a follow-up, i.e., white collar workers were associated with increased job satisfaction levels (β = 0.20; p < 0.05). All the psychological factors measured at baseline, including depression (β = –0.44; p < 0.001), anxiety (β = –0.37; p < 0.001) and illness perception (β = –0.38; p < 0.001), were significant predictors of job satisfaction at a 12-month follow-up.
With regard to the association between work stress-related factors at baseline and job satisfaction at a 12-month follow-up, the following variables emerged as significant:
– organizational structure and climate (β = –0.21; p < 0.05; inversely related – i.e., the higher the level of stress for the organizational structure and climate, the lower the job satisfaction);
– ambition (β = 0.36; p < 0.01);

– locus of control (β = 0.50; p < 0.001; inversely related – i.e., the higher the external locus of control, the lower the job satisfaction);
– physical health (β = –0.35; p < 0.001) (inversely related, i.e., the higher the physical health levels which indicate illness, the lower the job satisfaction),
– and baseline job satisfaction (β = 0.81; p < 0.001).
No significant association was found for socio-demographic or medical factors and job satisfaction at a follow-up (p > 0.05).

Predictors for job satisfaction among the patients who have returned to work following cardiac invasive procedures
The multiple regression analysis of predictors of job satisfaction after long-term sickness absence among the cardiac patients is summarized in Table 2. Significant independent predictors of job satisfaction at a 12-month follow-up were: baseline job satisfaction (β = 0.69; p < 0.001), depression (β = –0.19; p < 0.001) and ambition (β = 0.12; p = 0.05). This model explained 66% of total variance (Model 1). To control for potential confounders, Model 2 was adjusted for socio-demographic (age, profession), medical (ejection fraction, type of cardiac intervention) factors and type of RTW (a full or partial RTW). The results of the adjusted model showed that baseline job satisfaction (β = 0.65;

Table 2. Predictors of job satisfaction among the patients who have returned to work after an invasive cardiac procedure

Baseline predictor	Model 1			Model 2		
	B (SE)	β	p	B (SE)	β	p
Job satisfaction	0.71 (0.07)	0.69	< 0.001	0.68 (0.07)	0.65	< 0.001
Ambition	0.84 (0.43)	0.13	0.050	0.92 (0.44)	0.14	0.040
Depression	–1.22 (0.41)	–0.19	0.004	–1.10 (0.43)	–0.17	0.010
R^2		0.67			0.70	
Adjusted R^2		0.66			0.67	

R^2 – coefficient of determination of the model; B (SE) – unstandardized coefficients (standard error); β – standardized coefficient.
Model 1 – Baseline job satisfaction, ambition and depression.
Model 2 – Model 1 is adjusted for age, professional category, type of return to work (full or partial), type of cardiac intervention and ejection fraction.

$p < 0.001$), depression ($\beta = -0.17$; $p = 0.01$) and ambition ($\beta = 0.14$; $p = 0.04$) remained independent, significant predictors of job satisfaction of cardiac patients who have returned to work after long-term sickness absence; model 2 explained 67% of the total variance.

DISCUSSION

The aim of this study was to explore which factors predict job satisfaction among cardiac patients who have returned to work after long-term sickness absence due to invasive cardiac procedures.

The main finding was that psychosocial factors exert a major role in the cardiac patients' adjustment to work, while no effect was found for socio-demographic and medical factors.

Specifically, the results showed that the best predictors of a satisfying RTW after cardiac invasive procedures were: job satisfaction for the pre-illness work environment, depression and ambition, independently of socio-demographic factors, medical factors and a type of RTW (full or partial).

The key role in the RTW process after an acute cardiac event played by non-medical factors has been also explored by earlier research [3–5,9,15–23]. Recent studies have shown that the perception of work environment, which can be reflected in work stress and job satisfaction, has a strong effect on both people's decision to RTW [16,21,22] and duration of sickness absence [15,16]. Other studies have shown that depression is common among cardiac patients and that it increases the risk for not resuming the job as well as the risk of longer time for RTW [3,9,39]. To the best of our knowledge, no studies have explored association between the personality trait of ambition and the RTW. However, some studies have investigated the role of type A personality in RTW after a cardiac event but no effect was found [3,4,9]. Therefore, further research is needed. With regard to the results of this study, it is possible that patients with high levels of ambition were originally characterized by strong commitment to their jobs, high competitiveness, striving for achievement and desire of work. Because such people are generally considered to be strongly committed to their work, they might be motivated to RTW and highly satisfied when after a period of sick leave they return to being occupationally active.

Several studies have demonstrated that job satisfaction is an important factor influencing workers' health [25,26] and also professional outcomes, such as increased absenteeism and turnover, and decreased performance and motivation [27–29]. Moreover, previous studies have clearly demonstrated that occupational stress and mental distress make a significant contribution to the risk of CHD and, therefore, preventive interventions may benefit both RTW process and cardiac prognosis [2,40–42].

In view of the influence of job satisfaction on the RTW process, it is important to understand which factors produce job satisfaction among employees who return to work after a long-term period of sick leave due to cardiac health problems. However, few studies have investigated the work adjustment process in terms of workers' perception of their psychosocial work environment after a long-term sick leave [12,15–19]. For example, a recent study by Waszkowska et al. has found that patients maladapted to work have higher levels of depression, anxiety and lowered work ability compared to the well-adapted group after myocardial infarction [12].

Furthermore, it should be considered that patients who return to work may reduce their work involvement, for example in terms of hours, effort or job tasks. In this study, we have found that the cardiac patients who had a partial RTW were more satisfied with their job than those who had a full RTW. This result confirms previous findings, which revealed a positive attitude towards a partial RTW among sick-listed employees and suggested it as a good solution for promoting active work among patients with reduced work ability [8].

Strengths and limitations

The main strength of the study is that this was the 1st study which explored determinants of job satisfaction after a long-term sick leave due to invasive cardiac procedures. We used a 12-month prospective design, which is a reliable measure of work reintegration, while a large part of other studies explored the short term adjustment (1, 3 or 6 months). We also collected information concerning relevant socio-demographic, occupational and medical factors that have been used as covariates in order to show the independent and robust effects of the predictors.

Limitations of the current study should be also noted. Firstly, baseline assessment took place during cardiac rehabilitation after the cardiac intervention. We cannot rule out that the recent cardiac intervention and the distress related to the hospitalization might have influenced patients' responses. Second limitation concerns the sample size that was relatively small and recruited from a single rehabilitation hospital: results cannot be considered as representative of the general population and results should be interpreted with caution. Lastly, the long period spent on recruitment (2006–2011) was characterized by rapidly changing labor market and the onset of economic crisis starting in 2008, which could have made the recruited sample very heterogeneous in terms of aspects not covered in the study.

CONCLUSIONS

The current study showed that the best predictors of a satisfying RTW after invasive cardiac procedures were: baseline job satisfaction, depression and ambition. Furthermore, the cardiac patients who had a partial RTW reported higher levels of job satisfaction compared to those who had a full RTW, independently of baseline job satisfaction. These results suggest importance of an early assessment of patients' perceived psychosocial work environment and emotional distress, with particular emphasis on depressive

symptoms, in promotion of a satisfying and healthy RTW after cardiac interventions.

In the light of the lack of studies in this area, future research exploring how to promote job satisfaction following long-term sickness absence due to cardiac health problems is needed.

REFERENCES

1. Nichols M, Townsend P, Scarborough P, Rayner M. Cardiovascular disease in Europe: Epidemiological update. Eur Heart J. 2013;34:3028–34, http://dx.doi.org/10.1093/eurheartj/eht356.

2. Haschke A, Hutter N, Baumeister H. Indirect costs in patients with coronary artery disease and mental disorders: A systematic review and meta-analysis. Int J Occup Med Environ Health. 2012;25(4):319–29, http://dx.doi.org/10.2478/S13382-012-0042-6.

3. Bhattacharyya MR, Perkins-Porras L, Whitehead DL, Steptoe A. Psychological and clinical predictors of return to work after acute coronary syndrome. Eur Heart J. 2007;28:160–5, http://dx.doi.org/10.1093/eurheartj/ehl440.

4. Boudrez H, de Backer G. Recent findings on return to work after an acute myocardial infarction or coronary artery bypass grafting. Acta Cardiol. 2000;55(6):341–9, http://dx.doi.org/10.2143/AC.55.6.2005765.

5. D'Amato A, Zijlstra F. Toward a climate of work resumption: The nonmedical determinants of return to work. J Occup Environ Med. 2010;52(1):67–80, http://dx.doi.org/10.1097/JOM.0b013e3181c75291.

6. Vogel AP, Barker SJ, Young AE, Ruseckaite R, Collie A. What is return to work? An investigation into the quantification of return to work. Int Arch Occup Environ Health. 2011;8:675–82, http://dx.doi.org/10.1007/s00420-011-0644-5.

7. O'Hagan FT, Coutu MF, Thomas SG, Mertens DJ. Work reintegration and cardiovascular disease: Medical and rehabilitation influences. J Occup Rehab. 2012;22(2):270–81, http://dx.doi.org/10.1007/s10926-011-9345-x.

8. Josephson M, Heijbel B, Voss M, Alfredsson L, Vingard E. Influence of self-reported work conditions and health on full, partial and no return to work after long-term sickness absence. Scand J Work Environ Health. 2008;34(6): 430–7, http://dx.doi.org/10.5271/sjweh.1289.

9. Söderman E, Lisspers J, Sundin Ö. Depression as a predictor of return to work in patients with coronary artery disease. Soc Sci Med. 2003;56:193–202, http://dx.doi.org/10.1016/S0277-9536(02)00024-2.

10. Lau-Walker MO, Cowie MR, Roughton M. Coronary heart disease patients' perception of their symptoms and sense of control are associated with their quality of life three years following hospital discharge. J Clin Nurs. 2008;18:63–71, http://dx.doi.org/10.1111/j.1365-2702.2008.02386.x.

11. Lie I, Arnesen H, Sandvik L, Hamilton G, Bunch EH. Predictors for physical and mental health 6 months after coronary artery bypass grafting. A cohort study. Eur J Cardiovasc Nurs. 2010;9:238–43, http://dx.doi.org/10.1016/j.ejcnurse.2010.02.001.

12. Waszkowska M, Szymczak W. Return to work after myocardial infarction: A retrospective study. Int J Occup Med Environ Health. 2009;22(4):373–81, http://dx.doi.org/10.2478/v10001-009-0033-4.

13. Juergens MC, Seekatz B, Moosdorf RG, Petrie KJ, Rief W. Illness beliefs before cardiac surgery predict disability, quality of life, and depression 3 months later. J Psychosom Res. 2010;68:553–60, http://dx.doi.org/10.1016/j.jpsychores.2009.10.004.

14. Drory Y, Kravetz S, Koren-Morag N, Goldbourt U. Resumption and maintenance of employment after a first acute myocardial infarction: Sociodemographic, vocational and medical predictors. Cardiology. 2005;103:37–43, http://dx.doi.org/10.1159/000081850.

15. Fiabane E, Argentero P, Calsamiglia G, Candura SM, Giorgi I, Scafa F, et al. Does job satisfaction predict early return to work after coronary angioplasty or cardiac surgery? Int Arch Occup Environ Health. 2013;86:561–9, http://dx.doi.org/10.1007/s00420-012-0787-z.

16. Fukuoka Y, Dracup K, Takeshima M, Ishii N, Makaya M, Groah L, et al. Effect of job strain and depressive symptoms upon returning to work after acute coronary syndrome. Soc Sci Med. 2009;68:1875–81, http://dx.doi.org/10.1016/j.socscimed.2009.02.030.

17. O'Hagan FT, Thomas SG. Work adjustment in cardiovascular disease. J Cardiopulm Rehabil Prev. 2011;31:358–64, http://dx.doi.org/10.1097/HCR.0b013e318228a2ff.

18. Yonezawa R, Masuda T, Matsunaga A, Takahashi Y, Saitoh M, Ishii A, et al. Effects of phase II cardiac rehabilitation on job stress and health-related quality of life after return to work in middle-aged patients with acute myocardial infarction. Int Heart J. 2009;50:279–90, http://dx.doi.org/10.1536/ihj.50.279.

19. Fiabane E, Giorgi I, Candura SM, Argentero P. Psychological and work stress assessment of patients following angioplasty or heart surgery: Results of 1 year follow-up study. Stress Health. Forthcoming 2014, http://dx.doi.org/10.1002/smi.2564.

20. Miglioretti M, Gragnano A, Griffo R, Ambrosetti M, Tramarin R, Vestri AR. Does the return to work have a negative impact on the lifestyle of cardiovascular patients? Comments on the ICAROS results. Int J Cardiology. 2014;174(1):193–4, http://dx.doi.org/10.1016/j.ijcard.2014.03.174.

21. Sykes D, Hanley M, Boyle D, Higginson J. Work strain and the post-discharge adjustment of patients following a heart attack. Psychology Health. 2000;15:609–23, http://dx.doi.org/10.1080/08870440008405474.

22. Mittag O, Kolenda K, Nordmann K, Bernien J, Maurischat C. Return to work after myocardial infarction/coronary artery bypass grafting: Patients' and physicians' initial viewpoints and outcome 12 months later. Soc Sci Med. 2001;52:1441–50, http://dx.doi.org/10.1016/S0277-9536(00)00250-1.

23. Dekkers-Sànchez PM, Wind H, Sluiter JK, Frings-Dresen MHW. What promotes sustained return to work of employees on long-term sick leave? Perspectives of

vocational rehabilitation professionals. Scand J Work Environ Health. 2011;37(6):481–93, http://dx.doi.org/10.5271/sjweh.3173.

24. Saari LM, Judge TA. Employee attitudes and job satisfaction. Hum Res Manage. 2004;43(4):395–407, http://dx.doi.org/10.1002/hrm.20032.

25. Fisher JAV, Sousa-Poza A. Does job satisfaction improve the health of workers? New evidence using panel data and objective measures of health. Health Econ. 2009;18:71–89, http://dx.doi.org/10.1002/hec.1341.

26. Faragher EB, Cass M, Cooper CL. The relationship between job satisfaction and health: A meta-analysis. Occup Environ Med. 2005;62:105–12, http://dx.doi.org/10.1136/oem.2002.006734.

27. Hoogendoorn WE, Bongers PM, de vet HCW, Ariëns GAM, van Mechelen W, Bouter LM. High physical work load and low job satisfaction increase the risk of sickness absence due to low back pain: Results of a prospective cohort study. Occup Environ Med. 2002;59:323–8, http://dx.doi.org/10.1136/oem.59.5.323.

28. Ybema JF, Smulders PGW, Bongers PM. Antecedents and consequences of employee absenteeism: A longitudinal perspective on the role of job satisfaction and burnout. Eur J Work Organ Psychol. 2010;19(1):102–24, http://dx.doi.org/10.1080/13594320902793691.

29. Setti I, Argentero P. [Occupational stress in municipal police officers: Contribution to the Italian adaptation of a questionnaire for the assessment of the operational and organizational stressors]. G Ital Med Lav Ergon. 2013; 35(3):157– 62. Italian.

30. Cooper CL, Sloan SJ, William JS. Occupational stress indicator: Management guide. Windsor: NFER-Nelson; 1988.

31. Sirigatti S, Stefanile C. OSI Occupational Stress Indicator. Firenze: Organizzazioni Speciali; 2002.

32. Spielberger CD, Gorsuch RL, Lushene RE. The State-Trait Anxiety Inventory (STAI-X1) Test Manual Form X. Palo Alto: Consulting Psychologist Press; 1970.

33. Lazzari R, Pancheri P. S.T.A.I. [Questionnaire for the assessment of state and trait anxiety]. Firenze: Organizzazioni Speciali; 1980. Italian.

34. Bertolotti G, Michielin P, Vidotto G, Zotti AM, Sanavio E. Depression Questionnaire (QD). In: Nezu AM, Ronan GF, Meadows EA, McKlure KS, editors. Practitioner's guide to empirical based measures of depression. Norwell, MA: Kluwer Academic/Plenum Publisher; 2000.

35. Vedana L, Baiardi P, Sommaruga M, Galli M, Neri M, Pedretti RFE, et al. Clinical validation of an anxiety and depression screening test for intensive in-hospital rehabilitation. Monaldi Arch Chest Dis. 2001;56(2):101–6.

36. Fife BL. The conceptualization of meaning of illness. Soc Sci Med. 1994;38:309–16, http://dx.doi.org/10.1016/0277-9536(94)90400-6.

37. Giorgi I, Sguazzin C, Fiammenghi S, Argentero P. Italian validation of the "Constructed Meaning Scale": Preliminary results. G Ital Med Lav Ergon. 2007;29(1):A58–63.

38. Borg G. Psychophysical scaling with applications in physical work and the perception of exertion. Scand J Work Environ Health. 1990;16:55–8, http://dx.doi.org/10.5271/sjweh.1815.

39. O'Neil A, Sanderson K, Oldenburg B. Depression as a predictor of work resumption following myocardial infarction (MI): A review of recent research evidence. Health Qual Life Outcomes. 2010;8:95, http://dx.doi.org/10.1186/1477-7525-8-95.

40. Siegrist J. Effort-reward imbalance at work and cardiovascular diseases. Int J Occup Med Environ Health. 2010;23(3):279–85, http://dx.doi.org/10.2478/v10001-010-0013-8.

41. Backé E, Seidler A, Latza U, Rossnagel K, Schumann B. The role of psychosocial stress at work for the development of cardiovascular disease: A systematic review. Int Arch Occup Environ Health. 2012;85:67–79, http://dx.doi.org/10.1007/s00420-011-0643-6.

42. Kivimäki M, Virtanen M, Elovainio M, Kouvonen A, Väänänen A, Vahtera J. Work stress in the etiology of coronary heart disease – A meta-analysis. Scand J Work Environ Health. 2006;32(6):431–42, http://dx.doi.org/10.5271/sjweh.1049.