Research Paper

Resilience of patients with coronary heart diseases in Jordan: A cross-sectional study

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ABSTRACT

Objectives: This study aimed to assess the level of resilience and related factors among patients with coronary heart disease.

Methods: A cross-sectional was used to determine the factors associated with the level of resilience. A convenience sampling technique was used to recruit 134 patients with coronary heart disease who attended the out-patients cardiology clinics at two leading public hospitals in Jordan from July to September 2017. The Connor-Davidson Resilience Scale (CD-RISC) was used to collect the data via a face-to-face structured interview. Mann-Whitney U test and Kruskal Wallis test were used to analyze the data.

Results: The results showed a moderate level of resilience among patients with coronary heart diseases. Patients who reported having no history of a cardiac procedure reported a higher total resilience score (69.50 [63.25, 75.00] vs. 65.50 [58.00, 72.00]) and a higher score in dimension 1,"personal competence, high standards, and tenacity" than their counterparts (22.00 [18.50, 26.00] vs. 21.00 [15.75, 23.00]) ($P < 0.05$). Dimension 3 "positive acceptance of change and secure relationships" score was higher for employed patients than retired patients (15.00 [14.00, 16.00] vs. 14.00 [12.00, 15.00]) ($P < 0.05$). However, no significant associations were found between other socio-demographic characteristics and resilience levels across the five dimensions.

Conclusion: Identifying the resilience level and related factors among patients with cardiac problems should be integrated into the comprehensive plan of care to improve patient quality of life, enhance effective coping strategies, improve mental health and well-being, and prevent further disease complications.

What is known?

- Resilience is a psychological factor used to promote a patient's mental health and well-being.
- Resilience is seen as a protective factor that helps patients deal with coronary heart disease prognosis and development.

What is new?

- Resilience was higher among patients with no history of cardiac procedures.

- Therefore, the educational program addressed the effectiveness of resilience, and their contributing related factors are recommended.

1. Introduction

Cardiovascular diseases (CVDs), mainly including coronary heart disease (CHD) and stroke, are the leading cause of global mortality and disability. According to the Global Burden of Disease (GBD) Study 2019, the estimated rate of CVD increased from 271 million in 1990 to 523 million in 2019, and the number of CVD deaths increased from 12.1 million to 18.6 million over that period. The global trends for disability-adjusted life years (DALYs) and years of life lost also increased significantly. The years lived with disability doubled from 17.7 million to 34.4 million from 1990 to 2019 [1]. In Jordan, the total estimated death was 36,000 in 2016; and non-communicable diseases (NCDs) are responsible for 78% of the

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total death, of which CVDs account for 37% of total mortality [2].

Evidence shows that the psychosocial factors impact the development of CHD and the opportunity to recover from the disease and reduce the mortality rate after a cardiac event [3,4]. These factors have a significant role as independent risk factors or as a protective factor for CHD. In part, the need to identify these factors as protective factor help to improve patients' quality of life, increase treatment adherence, maintain positive cognitions and emotions, identify unhealthy behaviors, and prevents many psychosocial problems [5,6]. Resilience is a psychological factor used to promote a patient's mental health and well-being [7]. Resilience is a complex, multidimensional construct examined from different perspectives; however, there is no general agreement about the unified definition of resilience [8]. In some studies, resilience has been described as an outcome of the disease (i.e., The absence of mental complication after facing the adversity [9], others explored resilience as a process of adaptation (i.e., the individual's fast adaptation in dealing with stressful life events) [10,11]. Resilience has also been investigated as a dynamic nature (i.e., the ability of individuals to bounce back and react well with life adversities) [12–14]. Some authors link resilience to personality characteristics, like self-efficacy [10], optimism, and self-esteem [9], whereas others defined their concepts [13,15].

Resilience is a construct characterized by gaining a high quality of bouncing back, moving on after adversity, and a significant consequence of coping and positive adaptation [16]. That is, to demonstrate resilience, adversity must be experienced [13]. CHD is one of the chronic diseases that affect the functional level of individuals in many forms causes adverse outcomes to consider as adversity [17]. The adversity includes negative life consequences associated with maladaptation [12].

In the context of CHD, resilient patients tend to overcome the traumatic event and cope with maintaining or returning to the expected level of healthy functioning after the event [13]. Resilience in this event is a protective factor that helps patients deal with CHD prognosis and development. Moreover, resilient people tend to show purposeful responses to the changes resulting in their own lives through positive adherence to the treatment regimen, motivated well to seek help, enhance healthy lifestyles and behaviors, and maintain their mental well-being [10,18].

Socio-demographic characteristics are thought to influence resilience in patients with CHD. A previous study [7] using the Connor-Davidson Resilience Scale (CD-RISC) among 186 patients with CHD revealed a statistically significant association between the resilience level and age, gender, education status, employment status, and history of hypertension. The results indicated that male patients between 41 and 60 years, with higher education levels and no history of hypertension, have better resilience. Employment status was the only predictor for the resilience level, compared to unemployed patients, and employed patients have a high resilience level. Furthermore, a study found that older patients had a high level of resilience more than younger patients [19]. Also, male, older, single, and employed patients were found to have a higher level of resilience [20].

In Jordan, non-communicable diseases are considered the leading causes of death among the general population. Few studies have addressed the psychosocial and psychological issues among patients with CHD or other chronic diseases [4]. There is no single study that investigated the level of resilience among patients with CHD. Hence, this study aimed to assess the resilience and related factors among Jordanian patients with CHD.

2. Methods

2.1. Design

A descriptive cross-sectional design was employed to assess the level of resilience and its related factors among patients with CHD.

2.2. Sample and setting

This study was conducted in two public hospitals in Jordan. These hospitals were approached for many reasons: most Jordanian populations have public health insurance to access public hospitals and clinics. These hospitals provide services to many populations, with a capacity of exceeding 1,600 beds. These hospitals have specialized cardiac clinics run over the days of the week. The clients served by those hospitals reflect different cultural and social-demographic characteristics of the Jordanian population.

A convenience sampling technique was used to recruit 134 patients with CHD who attended the out-patients cardiology clinics at two leading public hospitals in Jordan from July to September 2017.

All patients who met the inclusion criteria and agreed to participate were approached. Inclusion criteria included: Jordanian nationality, confirmed a diagnosis of CHD by a specialist, period of diagnosis not less than six months, aged 25–65 years old, physically and mentally competent, and agreed to participate in the study.

2.3. Data collection procedure

Ethical approval was obtained from the authors' institution and the Ministry of Health. Administrators of the selected hospitals were approached to take their permission to use patients' data from an electronic database. The researcher met the doctors in each clinic to take their permission to meet the patients and collect the data after explaining to them the aim of the study, methods, and the procedure of data collection. The patients' records were reviewed to collect any extra information related to the health history of those patients. Patients were invited to participate in the study during their visits to their physicians. A private room was used to meet the patients individually and invite them to participate. Through face-to-face structured interviews, the principal investigator and trained research assistants filled out the questionnaire for all patients to control the drop-out and the literacy level of patients.

2.4. Instrument

The questionnaire used to collect data consists of two parts: The demographic data and the CD-RISC [21]. The demographic data includes questions about age, gender, marital status, employment status, educational level, socio-economic status, family history of CHD, co-morbidity, the period since diagnosis, history of the cardiac procedure, compliance with medication, and the source of social support.

The Arabic version of the CD-RISC [22] was used to measure the resilience level among study participants. The CD-RISC [21] is a 25-item self-report scale that employs a five-point Likert scale (0 − not true at all, to 4 − true nearly all of the time). All items are positively worded. Scores can range from 0 to 100, with higher scores reflecting greater resilience. The scale measure five resilience dimensions: 1) personal competence, high standards, and tenacity (items 10, 11, 12, 16, 17, 23, 24, 25), 2) trust in one's instincts,

tolerance of negative affect, and strengthening effects of stress (items 6, 7, 14, 15, 18, 19, 20), 3) positive acceptance of change, and secure relationships (items 1, 2, 4, 5, 8), 4) control (items 13, 21, 22), 5) spiritual influences (items 3, 9).

The Arabic version of the CD-RISC was valid and reliable in assessing resilience among the Arab population. This instrument evaluated resiliency levels among Iraqi refugees in Jordan, and the internal consistency reliability was high 0.91 [23]. Cronbach's α coefficient for the present study was 0.914.

2.5. Ethical consideration

Ethical approval was obtained from the Committee on Human Subjects Research at the author's institution (No: 245–2017, dated 05/07/2017) and the Ministry of Health. Patients who agreed to participate in this study were asked to sign an informed consent after explaining the purpose of the study, the benefits, and the potential risks. Permission to use the CD-RISC from the original author and the Arabic version of the CD-RISC was granted.

2.6. Data analysis

Data were analyzed using SPSS, version 25.0. Descriptive statistics were conducted to summarize the demographic and background characteristics of the study sample. All continuous and categorical variables were examined to determine normal distribution using descriptive statistics for central tendency, histograms, Q-Q normality plots, and the Shapiro-Wilk test. A Shapiro-Wilk test showed significant deviations from normality $P < 0.05$. Thus, the Non-parametric *Mann-Whitney U test and Kruskal Wallis* tests were used to find the differences in the resilience level according to participant characteristics.

3. Results

3.1. Demographics of the participants

A total number of 134 patients were approached and completed the study questionnaire. Of the participants, 53.0% ($n = 71$) were females, and 70.9% ($n = 95$) were married. Participants' ages ranged from 26 to 65 (52.30 ± 9.50) years, and the majority (79.1%, $n = 106$) were not working. Almost 93.3% ($n = 125$) received support from family and friends, and only 6.7% ($n = 9$) from health care providers. According to the educational level, 74.6% ($n = 100$) completed high school or less. Fifty-two percent ($n = 70$) of participants had a history of cardiac procedures and 67.9% ($n = 91$) with a co-morbid disease. The majority of the participants (90.3%, $n = 121$) (88.1%, $n = 118$) reported compliance with medication and follow-up clinic visits, respectively. The period since diagnosis ranged from 1-to- 10 years (2.69 ± 2.00), and the monthly income ranged from $141-$1,692 (453.78 ± 269.97).

Table 1 shows the description of the levels of resilience among the participants. The results showed a moderate resilience level for

the total scores 68.00 (60.75, 74.00), ranging from 25 to 91. Dimension 1, 3, and 4 indicated a low level of resilience (Table 1).

3.2. Effect of demographic characeristics on resilience level

Table 2 presents differences in total resilience level by participants' demographic characteristics. Patients who reported having no history of a cardiac procedure reported a higher total resilience score (69.50 [63.25, 75.00] vs. 65.50[58.00, 72.00], $P = 0.033$) and a higher score in dimension 1,"Personal competence, high standards, and tenacity" than their counterparts (22.00 [18.50, 26.00] vs. 21.00 [15.75, 23.00], $P = 0.006$). Dimension 1 was also higher for patients who reported not complying with their medication (22.00 [21.50, 27.50] vs. 21.00 [18.00, 24.00], $P = 0.047$). Dimension 3 "Positive acceptance of change and secure relationships" score was higher for employed patients than retired patients (15.00 [14.00, 16.00] vs. 14.00 [12.00, 15.00], $P = 0.039$). There were no statistically significant differences between other socio-demographic characteristics, total resilience scores, and five resilience dimensions (Table 2).

4. Discussion

This study showed a moderate resilience level among Jordanian patients with CHD. The findings of this study are similar to those of patients with CHD in Iran, with a mean resilience score of 65.5 ± 1.58 [7] and among patients with other chronic diseases like; chronic kidney disease and cancer [24]. Moreover, the result of the current study was similar to that found in a study that reviewed six studies that had applied CD-RISC-25 in different populations, finding a score between 50.3 and 70.7 [8]. The result of the current study is consistent with other Jordanian studies among Iraqi refugees [23]. Inconsistent results found in other studies among CHD patients showed a low resilience level [11,25].

The diagnosis of CHD, as well as long-term health management, reflects real-life adversity. However, patients tend to encounter a new situation with the usual adaptive and coping mechanism. As a personal attribute, some patients face CHD as a danger while others face it as a challenge. Resilience is not a general structure for all living situations; patients may not demonstrate resilience in all situations and threat events [8,19].

This study showed a significant difference in resilience level and the history of previous cardiac procedures. This indicated that patients who had no history of cardiac procedures are more likely to be resilient. This can be explained by patients' anxiety and level of knowledge and awareness about the procedures since most patients perceived cardiac surgery as a potentially life-threatening event [26—28]. Undergoing a cardiac procedure may affect the patient's recovery and return to a stable health status before the process. The patient's emotional status, lack of support, limited knowledge, and ineffective pre-post procedural education, as well as the type of treatment modalities, these factors may reduce the patient's resilience after the cardiac procedure [28—31]. This explanation is congruent with the current study's findings

Table 1
Total resilience score and the level of resilience within five dimensions ($n = 134$).

Dimensions	Median (P_{25}, P_{75})	Scores range
Personal competence, high standards, and tenacity	21.00 (18.00, 24.00)	4—32
Trust in one's instincts, tolerance of negative affect, and strengthening effects of stress	16.00 (13.00, 19.00)	3—25
Positive acceptance of change and secure relationships	14.00 (13.00, 15.00)	6—19
Control	9.00 (7.00, 10.00)	1—12
Spiritual influences	7.00 (6.75, 8.00)	5—8
Total score	68.00 (60.75, 74.00)	25—91

Table 2
Differences in resilience total score by socio-demographic variables ($n = 134$).

Variables	n (%)	Median (P_{25}, P_{75})	U/H	P
Gender			2197.50[a]	0.862
Male	63 (47.0)	67.00 (61.00, 74.00)		
Female	71 (53.0)	68.00 (60.00, 74.00)		
Working status			1149.50[a]	0.067
Employed	28 (20.9)	69.00 (65.00, 75.75)		
Retired	106 (79.1)	66.50 (59.00, 74.00)		
History of cardiac procedures			1761.00[a]	0.033*
Yes	70 (52.2)	65.50 (58.00, 72.00)		
No	64 (47.8)	69.50(63.25, 75.00)		
Educational level			1430.00[a]	0.167
High school or less	100 (74.6)	67.00(59.00, 74.00)		
Higher education (BSC or master)	34 (25.4)	70.00(63.00, 74.00)		
Family history of cardiac disease			2057.00[a]	0.601
Yes	55 (41.0)	68.00(62.00, 74.00)		
No	79 (59.0)	67.00(60.00, 74.00)		
Co-morbid disease			1875.50[a]	0.699
Yes	91 (67.9)	67.00(60.00, 75.00)		
No	43 (32.1)	68(61.00, 74.00)		
Compliance with taking medication			638.00[a]	0.264
Yes	121 (90.3)	68.00(60.00, 74.00)		
No	13 (9.7)	67.00(61.50, 77.50)		
Source of support			541.50[a]	0.852
Family and friends	125 (93.3)	68.00(60.00, 74.00)		
Health care provider	9 (6.7)	69.00(58.00, 72.00)		
Marital status			0.48[b]	0.787
Married	95 (70.9)	68.00(61.00, 74.00)		
Single	13 (9.7)	65.00(58.00, 72.00)		
Others (widow or separated)	26 (19.4)	67.00(59.50, 73.25)		

Note:*$P < 0.05$. [a]U, Mann-Whitney U test;[b]H, Kruskal-Wallis test. BSC = bachelor of science.

regarding the high resilience score in personal competence, high standards, and tenacity score among patients who had no history of cardiac procedure.

One of our findings, difficult to be explained, is a significant difference in the patient's resilience score in personal competence, high standards, and tenacity score with the compliance with medication. Patients who did not comply well with medication reported a higher resilience score than those compliant with medication. A possible explanation is that the patients diagnosed with CHD may be motivated to learn more about the risk factors and Pathophysiology of the disease than the proper treatment [27,29]. The problem of non-compliance to medication is complex and multifaceted. However, there were two types of non-compliance; intentional non-compliance, when patients choose not to take their medication, and unintentional non-compliance, when patients tend to take their medication in the right way but do not. The patient's self-adaptation strategies vary in the context of trying to adhere. Patients' illness, cognition and emotion, social and financial situations, and type of treatment, these factors affect patients' adherence to medication. The patient's weak intent can lead some to initiate strategies to protect themselves from the unintentional non-compliance; the negative outcome with this type of adaptation put them at risk of more unintentional health-related problems [31].

Moreover, several factors can discourage patients from compliance with their medication. For example, side effects are considered one of the most significant factors affecting non-compliance. Another contributor to non-compliance is the cost of medications; a study found that one in eight patients with atherosclerotic CVD was noncompliant because of the high price [32]. Forgetting to take medication also is a challenge for compliance; a study reported that three out of every five patients forgot their medication, and poorer cognitive function concerning memory predicted non-compliance to medication with heart failure [33]. Another concern is the poor

communication between patients and their healthcare providers; sometimes, the instructions are unclear or very short, or not at the patients' medication literacy level.

In this study, dimension 3 of resilience, a positive acceptance of change and secure relationships, was related to employment status. Employed patients were more likely to show positive acceptance of change and have a safe relationship than retired patients. This result is supported by a previous study [7] that revealed employment status to be a significant predictor of resilience. This can be explained by the fact that the employment status contributes to self-independence, economic security, social involvement, and access to health insurance and health care [34]. Also, it is believed that employed individuals face many challenges and hardships in the work environment, resulting in more acceptance of change and becoming more resilient.

The insignificant differences in the resilience level between patients; gender, educational level, and source of support, can be explained by the homogeneity of the sample, in which most patients share a similar source of support and level of education with an equal ratio of males-females in the study with convergent ages. Moreover, most of the study sample share the same characteristics, same treatment modalities and plans, health insurances, and same health conditions. However, the result of this study regarding the socio-demographic characteristics is consistent with other Jordanian studies among CHD patients regarding marital status and history of other chronic diseases [4,27,28].

5. Limitations

To our knowledge, this study offers valuable information about the resilience level among CHD patients in Jordan; the results need a careful interpretation considering some limitations. The study was conducted in out-patients cardiology clinics in two public hospitals in Amman, the capital city of Jordan, limiting the data's

generalizability to other patients using private hospitals and or indifferent governorates in Jordan. Although power analysis was used to estimate the required sample size, the lack of statistical significance in the results may be due to the small sample size. So, a replicated study with a larger sample is recommended.

6. Implication for practice

It is pivotal to foster resilience in health education programs designed for patients with CHD. Patients with CHD should learn well about the coping strategies that help them deal with such critical life events, especially those with a history of cardiac procedures. As one of the inter-disciplinary teams, nurses should enhance the resilience level in their care plan for patients with CHD. Therefore, the educational program addressed the effectiveness of resilience, and their contributing related factors are recommended. Resilience plays a crucial role in the development and prognosis of CHD through the positive effect for enhancing and promoting patient's cognition and emotion and positive health behaviors, which would increase the patient's adherence with healthy lifestyles, treatment, and proper intervention.

7. Conclusion and recommendations

The current study results revealed that patients with CHD in Jordan have a moderate level of resilience. There were significant differences in the resilience level among patients with a history of the cardiac procedure, employment, and compliance with medication. CHD is one of the leading four causes of death among the Jordanian population and is considered a significant public health problem. Resilience is one of the psychosocial and psychological parameters that play a pivotal role in developing and prognoses CHD. Identifying the resilience level and its related factors among patients with CHD should be integrated into the comprehensive plan of care to improve patient quality of life, enhance effective coping strategies, improve mental health and well-being, and prevent further disease complications. Further research is recommended to study other related social and demographic factors contributing to the resilience level among CHD patients, such as smoking and treatment modalities.

Crdeit authorship contribution statement

Nahla M Al Ali: Conceptualization, Methodology, Software, Writing — original draft, Writing — review & editing, Data curation. **Ibrahim S Al Ramamneh:** Conceptualization, Investigation, Validation, Data curation.

Declaration of competing interest

The authors have no conflicts of interest to declare.

Data availability statement

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijnss.2021.12.003.

References

[1] Roth GA, Mensah GA, Johnson CO, Addolorato G, Ammirati E, Baddour LM, et al. Global burden of cardiovascular diseases and risk factors, 1990—2019: update from the GBD 2019 study. J Am College Cardiol 2020;76(25): 2982—3021. https://doi.org/10.1016/j.jacc.2020.11.010.
[2] Noncommunicable diseases country profiles 2018. Geneva: World Health Organization; 2018. p. 115.
[3] Stoll DP, Csaszar N, Szoke H, Bagdi P. The importance of psychological assessment and support in patients suffering from cardiovascular disease or undergoing cardiac treatment. J Cardiovasc Dis Diagn 2014;2(4):161—5. https://doi.org/10.4172/2329-9517.1000161.
[4] Ghannam BM, Hamdan-Mansour AM, Arabiat DH, Azzeghaiby SN, Al Abeiat DD, Al Badawi TH. Psychosocial well-being of patients diagnosed with coronary artery disease. Psychology 2014;5(8):801—7. https://doi.org/10.4236/psych.2014.58091.
[5] Malik S, Afzal N. Predictors of quality of life and resilience among outpatients with heart diseases. J Pakistan Psychiatric Soc 2015;12(3):31—3. https://www.researchgate.net/publication/338855423_Predictors_of_quality_of_life_resilience_among_outpatients_with_heart_diseases.
[6] Khayyam-Nekouei Z, Neshatdoost H, Yousefy A, Sadeghi M, Manshaee G. Psychological factors and coronary heart disease. ARYA Atheroscler 2013;9(1): 102—11. PMCID: PMC3653260.
[7] Nouri-Saeed A, Salari A, Nouri-Saeed A, Rouhi-Balasi L, Moaddab F. Resilience and the associated factors in patients with coronary artery disease. J Nursing Midwifery Sci 2015;2(2):23—8. https://doi.org/10.7508/jnms.2015.02.003.
[8] Gheshlagh RG, Sayehmiri K, Ebadi A, Dalvandi A, Dalvand S, Nourozi Tabrizi K. Resilience of patients with chronic physical diseases: a Systematic Review and Meta-analysis. Iran Red Crescent Med J 2016;18(7):e38562. https://doi.org/10.5812/ircmj.38562.
[9] Chan IWS, Lai JCL, Wong KWN. Resilience is associated with better recovery in Chinese people diagnosed with coronary heart disease. Psychol Health 2006;21(3):335—49. https://doi.org/10.1080/14768320500215137.
[10] Nabi AU, Khan MI. Resilience as predictor of mental well-being among cardiovascular disorder. Int J Indian Psychol 2017;4(3):182—90. https://doi.org/10.25215/0403.080.
[11] DoustdarTousi SA, Golshani S. Effect of resilience in patients hospitalized with Cardiovascular diseases. J Mazandaran Univ Med Sci 2014;24(116):102—9. http://jmums.mazums.ac.ir/article-1-4252-en.html.
[12] Luthar SS, Cicchetti D, Becker B. The construct of resilience:a critical evaluation and guidelines for future work. Child Dev 2000;71(3):543—62. https://doi.org/10.1111/1467-8624.00164.
[13] Johnston MC, Porteous T, Crilly MA, Urton CD, Elliott A, Iversen L, et al. Physical disease and resilient outcomes:a systematic review of resilience definitions and study methods. Psychosomatics 2015;56(2):168—80. https://doi.org/10.1016/j.psym.2014.10.005.
[14] Meister RE, Weber T, Princip M, Schnyder U, Barth J, Znoj H, et al. Resilience as a correlate of acute stress disorder symptoms in patients with acute myocardial infarction. Open Heart 2015;2(1):e000261. https://doi.org/10.1136/openhrt-2015-000261.
[15] Windle G. What is resilience? A review and concept analysis. Reviews in clinical gerontology. Rev Clin Gerontol 2011;21(2):152—69. https://doi.org/10.1017/S0959259810000420.
[16] Earvolino-Ramirez M. Resilience: a concept analysis. Nurs Forum 2007;42(2): 73—82. https://doi.org/10.1111/j.1744-6198.2007.00070.x.
[17] Stewart DE, Yuen T. A systematic review of resilience in the physically ill. Psychosomatics 2011;52(3):199—209. https://doi.org/10.1016/j.psym.2011.01.036.
[18] Peterson C, Kim ES. Psychological interventions and coronary heart disease. Int J Clinic Health Psychol 2011;11(3):563—75. https://doi.org/10.1002/14651858.CD002902.pub3.
[19] de Lemos CM, Moraes DW, Pellanda LC. Resilience in patients with ischemic heart disease. Arq Bras Cardiol 2016;106(2):130—5. https://doi.org/10.5935/abc.20160012.
[20] Andrade FP, Muniz RM, Lange C, Schwartz E, Guanilo MEE. Economic and socio-demographic profile of cancer survivors according to degree of resilience. Texto E Contexto Enfermagem 2013;22(2):476—84. https://doi.org/10.1590/S0104-07072013000200025.
[21] Connor KM, Davidson JRT. Development of a new resilience scale:the Connor-Davidson resilience scale (CD-RISC). Depress Anxiety 2003;18(2):76—82.

https://doi.org/10.1002/da.10113.

[22] Toma G, Guetterman TC, Yaqub T, Talaat N, Fetters MD. A systematic approach for accurate translation of instruments:Experience with translating the Connor—Davidson Resilience Scale into Arabic. Methodol Innov 2017;10(3): 205979911774140. https://doi.org/10.1177/2059799117741406.

[23] Alqudah AF. Resiliency levels among Iraqi refugees in Jordan and its relation to some demographic variables. Int J Psychol Stud 2013;5(4):50. https://doi.org/10.5539/ijps.v5n4p50.

[24] Böell JE, Silva DM, Hegadoren KM. Socio-demographic factors and health conditions associated with the resilience of people with chronic diseases:a cross sectional study. Rev Latino-Am Enferm 2016;24:e2786. https://doi.org/10.1590/1518-8345.1205.2786.

[25] Arrebola-Moreno AL, Garcia-Retamero R, Catena A, Marfil-Álvarez R, Melgares-Moreno R, Ramírez-Hernández JA. On the protective effect of resilience in patients with acute coronary syndrome. Int J Clin Health Psychol 2014;14(2):111—9. https://doi.org/10.1016/S1697-2600(14)70044-4.

[26] Buzatto LL, Zanei SS. Patients' anxiety before cardiac catheterization. Einstein (Sao Paulo) 2010;8(4):483—7. https://doi.org/10.1590/s1679-45082010rw1517.

[27] Tawalbeh LI, Ahmad MM. The effect of cardiac education on knowledge and adherence to healthy lifestyle. Clin Nurs Res 2014;23(3):245—58. https://doi.org/10.1177/1054773813486476.

[28] Ayasrah SM, Ahmad MM. Educational video intervention effects on periprocedural anxiety levels among cardiac catheterization patients:a randomized clinical trial. Res Theor Nurs Pract 2016;30(1):70—84. https://doi.org/10.1891/1541-6577.30.1.70.

[29] Al-Smadi AM, Tawalbeh LI, Ashour A, Hweidi IM, Gharaibeh B, Slater P, et al. The influence of treatment modality on illness perception and secondary prevention outcomes among patients with acute myocardial infarction. Int J Nurs Sci 2017;4(3):271—7. https://doi.org/10.1016/j.ijnss.2017.06.007.

[30] Tuttnauer A, Meroz Y, Landesberg G. Risk to and resilience of the coronary heart disease patient during surgery. Curr Opin Crit Care 2011;17(4):358—61. https://doi.org/10.1097/mcc.0b013e328348bfb5.

[31] Furniss D, Barber N, Lyons I, Eliasson L, Blandford A. Unintentional non-adherence:can a spoon full of resilience help the medicine go down? BMJ Qual Saf 2014;23(2):95—8. https://doi.org/10.1136/bmjqs-2013-002276.

[32] Khera R, Valero-Elizondo J, Das SR, Virani SS, Kash BA, de Lemos JA, et al. Cost-related medication nonadherence in adults with atherosclerotic cardiovascular disease in the United States,2013 to 2017. Circulation 2019;140(25): 2067—75. https://doi.org/10.1161/circulationaha.119.041974.

[33] Gadkari AS, McHorney CA. Unintentional non-adherence to chronic prescription medications:how unintentional is it really? BMC Health Serv Res 2012;12:98. https://doi.org/10.1186/1472-6963-12-98.

[34] Ordway AR, Johnson KL, Amtmann D, Bocell FD, Jensen MP, Molton IR. The relationship between resilience,self-efficacy,and employment in people with physical disabilities. Rehabil Counsel Bull 2020;63(4):195—205. https://doi.org/10.1177/0034355219886660.