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QUALITY OF LIFE IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION: A LITERATURE REVIEW

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ABSTRACT

Introduction: Quality of life (QoL) is one of the expected results for the health sector and an important condition in the evaluation of health care practices and public policies.
Objective: To characterize scientific production in Brazil about QoL in patients with myocardial infarction. Methodology: This is a bibliographical review of the systematic type. The literature review was carried out in the databases of the Latin American and Caribbean Literature in Health Sciences (LILACS), the Nursing Database (BDEnf) and the Medical Literature Analysis and Retrieval System online (MEDLINE) from October to December 2017 through the Virtual Health Library (BVS).
Results: Twelve studies were selected for analysis. The main instrument used was the generic SF-36. The domain with the lowest score was physical aspect, the women presented lower QoL. Myocardial revascularization and supervised cardiac rehabilitation were important in improving QOL.
Conclusion: It was possible to identify some important aspects in the improvement of QoL and factors that contribute negatively to the recovery of the physical and mental well being of the subjects. Future studies are needed to assess differences in coping with the disease in relation to gender.

INTRODUCTION

The World Health Organization (WHO) defines quality of life (QoL) as the individual's perception of their position in life in the context of the culture and value system in which they live in relation to their goals, expectations, standards and concerns. QoL is a multidimensional phenomenon, of a subjective nature of positive and negative aspects (Whoqol, 1995). In its general sense, it refers to the individual's degree of satisfaction with the multiple aspects of life: housing, food, transportation, good relationships with others, freedom, autonomy,

sexual and loving life, leisure, professional achievement and financial security. QoL may be linked to a lifestyle that involves eating patterns, physical activity practices, and non-adherence to habits considered harmful. It also involves the individual's capacity to deal with daily situations in the environment in which they live (Caetano; Soares, 2007). QoL is one of the expected results for the health sector, being an important condition in the evaluation of health care practices and public policies. These results constitute information complementary to decision-making in clinical practice and can determine changes in health care practices and consolidation of new paradigms of the health-disease process (Souza *et al.*, 2008; Seidl; Zannon, 2004). The QoL assessment is performed

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by the application of instruments, these are divided into generic and specific. Generics have in their structure a broad concept of approach, although the specific instruments, although they also evaluate several factors emphasize the symptoms, disabilities or limitations that a specific disease causes in individuals, evaluate in a specific and detailed way the aspects of the QoL related to a specific pathology (Aguiar *et al.*, 2008). Instruments to assess quality of life need to demonstrate reliability and validity. The reliability proves that a measure can be replicated repeatedly in the same individuals, obtaining similar results (Alcântara, 2005; Pillati; Pedroso; Gutierrez, 2010). Neglecting these aspects in an instrument can compromise the reliability of the instrument and still produce distorted results of the research, so the choice of a research instrument is an action that requires a lot of attention from the researcher (Pillati; Pedroso; Gutierrez, 2010). The main generic instruments used to evaluate QoL in Brazil are: WHOQOL, developed by the World Health Organization Quality of Life group (Pereira; Teixeira; Santos, 2012). The SF-36 Medical Outcomes Study Questionnaire 36-Item Short Form Health Survey created by Ware and Sherbourne, originally in the North American English language (Ciconelli *et al.*, 1999). That of Flanagam, developed by the American psychologist Jhon Flanagan (Flanagan, 1982). The specific instruments most commonly used in coronary artery disease patients are: the New QLMI questionnaire developed at NewCastle University, Australia in 1993 (Lim *et al*, 1993). Seattle Angina Questionnaire (SAQ) was developed in the English language, is specific for the population with stable angina (Franzen, 2005) and the MIDAS that was developed by the University of Oxford and validated by Fiorin (2017). Studies on QL arise from new paradigms that have influenced health policies and practices (Siviero, 2003). The epidemiological transition brought with it changes in the pattern of death, morbidity and disability caused by diseases. These changes contributed to the fact that chronic diseases and their complications made them predominant in the population (Schramm *et al.*, 2004; Omram, 2001).

In Brazil, statistics indicate that cardiovascular diseases are the fourth cause of hospitalization for the Unified Health System (SUS). Within this significant group of diseases, ischemic heart diseases are the most frequent causes of death, with myocardial infarction being the single most common cause of death in men and women. In absolute numbers, the total number of deaths due to diseases of the cardiovascular system in 2005, in Brazil, was 283,927, of which 84,945 were caused by ischemia of the heart. (Schmitt *et al.*, 2011, Mendes, 2011, Ruff, Braunwald, 2011, Datasus, 2017). A study about risk factors for cardiovascular diseases points out the justifications that make studies of QOL to patients with heart disease "unquestionable". The first argument deals with the dilemma of interventions that, although they prolong life, compromise their quality; the second of the relationship between the effects of a drug on QoL and patient adherence to prescription; and the third of the validation, from the economic point of view of a given intervention (Silva, Souza, 1998). After an episode of infarction, individuals suffer from constant fear of death and, above all, from the impositions of changes in habits necessary to prevent a new episode of the disease. These questions may change the QoL of these subjects (Siviero, 2003). In view of these considerations, this systematic review aims to characterize the scientific production in Brazil about QOL in patients with myocardial infarction, to point out the

instruments that are being used to evaluate QL and to identify the dimensions of QoL affected by the disease.

MATERIALS AND METHODS

This is a bibliographical review of the systematic type of scientific production through the guiding question: Which instruments are being used to evaluate the quality of life in patients after myocardial infarction? The literature review was carried out in the following databases: Latin American and Caribbean Literature in Health Sciences (LILACS), Nursing Database (BDEnf) and Medical Literature Analysis and Retrieval System on-line (MEDLINE) in the months of October to December of 2017 through the Virtual Health Library (BVS). For the search, descriptors of the Health Science - DECs and in the same way in the Medical Subject Headings - MeSH were raised, using the Boolean operator "and" for the associations. The descriptors used were combined as follows: Quality of Life and Myocardial Infarction; Quality of Life and Myocardial Infarction and Questionnaire; Quality of Life and Myocardial Infarction and Evaluation; Quality of Life and Acute Coronary Syndrome. Included in the review were article-type studies, produced in Portuguese, Spanish and English, based on the population with the use of instruments to evaluate the quality of life in people after myocardial infarction in Brazil. We excluded articles that did not have as main theme the evaluation of the quality of life of patients after myocardial infarction, duplicate articles, studies carried out outside Brazil and literature review articles. After searching the databases, applying the inclusion and exclusion criteria, the articles were submitted to the evaluation of the researchers. The first step was to read the title of the articles. In the reading of the title, the inclusion criterion used was the presence of one of the descriptors in the text. The second step was to read the abstract. Regarding the abstract / abstract / summary analysis, the criterion was that the methodological process was correlated with the application of instruments to evaluate the quality of life. Subsequently, the remaining articles were read in full, characterizing the third stage of evaluation, to identify if the works dealt with the theme of interest. Finally, the studies were analyzed based on relevant information that was compiled and analyzed in order to evaluate the main instruments applied to evaluate the quality of life in patients after AMI.

RESULTS

The results of the search and selection of the references are shown in figure 1. Using the combination of descriptors, we obtained the following results: Quality of life and myocardial infarction 450 articles, Quality of Life and Myocardial Infarction and questionnaire 171 articles, Quality of life and myocardial infarction and Evaluation 111 articles and Quality of Life and Acute Coronary Syndrome 123 articles. The research from these combinations totaled 824 articles, in which the titles were read, 786 were excluded because they were not the subject of interest for this research, and 26 excluded because they were duplicates. After the primary analysis, 12 articles were selected and analyzed in their entirety. In relation to the characterization of the studies, one article was published in each year, in 2007 and 2008, the highest scientific production was published, six articles were published in this period, three in each year. The journal that published the largest number of articles on QOL in infarcted patients was the Brazilian Society of Cardiology with 5 articles representing 41.66%, in the other journals there was 1 publication

representing 8.33% each. On the authorship of the studies, as main author 5 (41.66%) are nurses, 2 (16.66%) physical educator, 2 (16.66%) physiotherapist, 2 (16.66%) physician and 1 (8, 33%) psychologist.
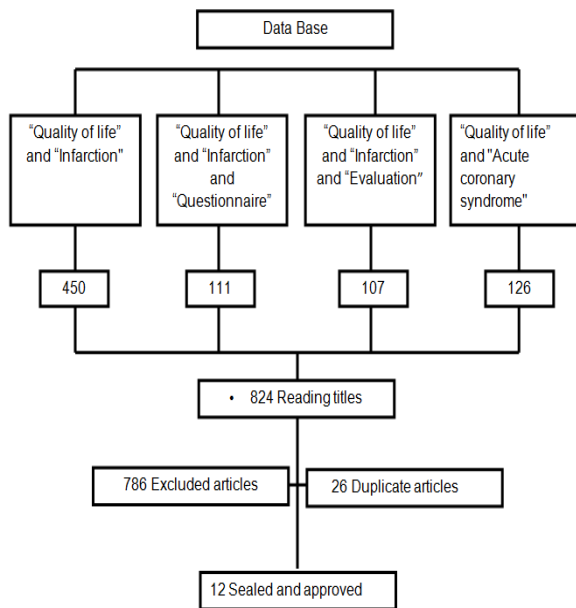

Figure 1. Search method for locating search references according to the descriptors

24.99%, 1 study using the Flanegan scale, 1 Seattle Angina Questionnaire (SAQ) and 1 WHRQOL, representing 8.33% each. All studies were of the transverse type. The domain with the worst QOL score was physical aspects, presented in article 12 with a score of 3.03 using the SF-36. The domain that presented the best QOL score was social aspects, presented in articles 7 and 10 the score of 86 using the SF-36. Articles 3, 5 and 6 did not present the score in the study. Regarding the sample, the prevalence of males was evident in all studies, and articles 1 and 9 established as inclusion criteria were male. The participants' ages ranged from 25 to 83 years. Analyzing the specific results of each study, article 1 used the New QLMI instrument and after comparing 45 patients divided into three groups, found that in cardiac rehabilitation the quantity and / or intensity of physical exercise is a determining factor for the improvement of QoL. Article 2 using the SF-36 shows that factors such as gender, type of employment relationship, time of disease manifestation and the presence of angina, arrhythmia and fatigue are important influencers of QOL. According to article 3, after clinical, surgical or angioplasty treatment there was an improvement in QoL in all areas of the SF-36, however, the improvement was more pronounced in patients who underwent coronary artery bypass grafting. In article 5 using the SF-36, it was observed that arterial hypertension as a risk factor presents a high relation with the emotional domain. However, using the Mac New QLMI hypertension did not present a significant correlation with any of the domains.

Box 1. Characterization of the studies, according to the title, author, periodical, year of publication and sample

Nº	Article Title	Author	Newspaper/ Journal	Year of Publication	Participants
1	Alterações na Qualidade de Vida em Coronariopatas Acometidos de Infarto Agudo do Miocárdio, Submetidos a Diferentes Tipos de Tratamento.	Benetti,Magnus; et al.	Atividade física & Saúde	2001	45
2	Qualidade de Vida em Pacientes Coronariopatas.	Gallani, Maria Cecília Bueno Jaime et al.	Revista Brasileira Enfermagem	2003	76
3	Qualidade de Vida após Revascularização Cirúrgica do Miocárdio, Angioplastia ou Tratamento Clínico.	Takiut, Myrthes Emy et al.	Sociedade Brasileira de Cardiologia	2007	483
4	Qualidade de Vida de Clientes pós-Infarto Agudo do Miocárdio	Caetano, Joselany Afio;SOARES, Enedina.	Escola Anna Nery Revista Enfermagem	2007	30
5	Avaliação da Qualidade de Vida após Infarto Agudo do Miocárdio e sua Correlação com o Fator de Risco Hipertensão Arterial.	Alcântara, Erikson Cústodio et al.	Revista Brasileira Hipertensão	2007	96
6	Preditores de Mudança na Qualidade de Vida após um Evento Coronariano Agudo.	Souza, Emiliane N. et al.	Sociedade Brasileira de Cardiologia	2008	281
7	Qualidade de Vida após Revascularização Cirúrgica do Miocárdio com e sem Circulação Extracóporea.	Nogueira, Célia R. S. R. et al.	Sociedade Brasileira de Cardiologia	2008	202
8	Associação entre Depressão, Ansiedade e Qualidade de Vida após Infarto do Miocárdio.	Lemos, Conceição et al.	Psicologia: Teoria e Pesquisa	2008	168
9	Avaliação da Qualidade de Vida um mês após a Síndrome Coronariana Aguda.	Stocco, Mariana Luz; Castro, Charles Martins; SAKAE, Thiago Mamôru.	Associação Catarinense de Medicina	2009	43
10	Aptidão Cardiorrespiratória e Qualidade de Vida Pós-Infarto em Diferentes Intensidades de Exercício.	Benetti,Magnus; Araújo Cintia Laura Pereira; Santos,Rafaella Zuianello.	Sociedade Brasileira de Cardiologia	2010	87
11	Qualidade de Vida Relacionada à Saúde de Sujeitos Internados, Decorrente da Primeira Síndrome Coronariana Aguda.	Dessotte, Carina Aparecida Masrosti et al.	Revista Latino Americana Enfermagem	2011	253
12	Implicações da Revascularização do Miocárdio na Qualidade de Vida:Três meses de pós-operatório.	Vidal, Tainá Maria de Souza et al.	Revista brasileira de Ciências da Saúde	2015	33

Source: The author (2018)

The sample per study ranged from 30 patients (smaller sample) to 483 patients (largest sample). There was a predominance of the use of the SF-36 instrument in six studies, representing 49.98%, followed by Mac New in three studies, representing

Article 11 using the SF-36 identified that diabetic patients demonstrate a worse physical QoL after myocardial infarction when compared to those without the disease. The smokers of

the sample presented better QoL in the mental aspect, when compared to ex-smokers and non-smokers.

the worst general health condition and 100 the best health status (Ciconelli, *et al.*, 1999). The SF-36 instrument is widely used and has been used in studies of the general population

Box 2. Presentation of the instruments used, place of study and the domains of lowest and highest quality of life score

N°	Instrument used for QoL assessment.	Place of study	Lower QoL domain	Higher QoL domain
1	Mac New QLMI	Clinica Cardiosport Ambulatório do Instituto de Cardiologia do Hospital Regional de São José. Florianópolis (SC)	Physical 4,83	Emotional 5,82
2	SF-36 - Short Form Life Health Survey Questionnaire	Hospital de Clínicas da Universidade Estadual de Campinas (HC-UNICAMP)	Pain 33,9	Functional capacit 62,8
3	SF-36 - Short Form Life Health Survey Questionnaire	Instituto do coração (Incor) do Hospital das Clínicas da faculdade de Medicina da Universidade de São Paulo.	*	*
4	Escala de Qualidade de Vida (EQV) de Flanagan	Hospital de referência estadual em doenças torácicas e cardiovasculares, situado na cidade de Fortaleza-CE.	Work 3,23	Famly 5.63
5	Mac New QLMI e SF-36 - Short Form Life Health Survey Questionnaire	Hospital de Clínicas da Universidade Federal de Uberlândia (UFU)	*	*
6	Seattle Angina Questionnaire (SAQ)	Instituto de Cardiologia do Rio Grande do Sul.	*	*
7	SF-36 - Short Form Life Health Survey Questionnaire	Instituto do coração (Incor) do Hospital das Clínicas da faculdade de Medicina da Universidade de São Paulo.	Physical 28	Social aspects 86
8	WHRQOL - Health Related Quality of Life	Instituto de Cardiologia do Rio Grande do Sul (IC/FUC).	Environment 59,9	Social aspects 76,3
9	MacNew Quality of Life after Myocardial Infarction QuestionnaireMacNew	Florianópolis - SC	Social aspects 4,4	Emotional¨6,91
10	SF-36 - Short Form Life Health Survey QuestionnaireMedical Outcomes Survey (MOS)	Santa Casa de misericórdia Hospital da Faculdade de Medicina da Universidade de São Paulo.	Physical 57,7	Social aspects 86
11	SF-36 - Short Form Life Health Survey Questionnaire	Hospital Nossa Senhora da Conceição (HNSC), Tubarão – Santa Catarina	Emotional 7,15	Pain 56,50
12	SF-36 - Short Form Life Health Survey Questionnaire	Real Hospital Português de Beneficência em Pernambuco	Physical 3,03	Social aspects 82,2

QoL- Quality of Life; (*) Results not presented in the study.
SOURCE: The author (2017).

DISCUSSION

Although individuals' QoL was one of the expected health outcomes, this study showed that research on the subject in patients following myocardial infarction is limited. During the course of 17 years, 12 articles were published, of which five were published by the Brazilian Society of Cardiology, evidencing interest in the subject. Despite the small number of scientific production, the nurse presents himself as the main author in five studies, this interest arose from new paradigms that have influenced health policies and practices. Every multi professional team, and especially nursing, plays a fundamental role in the recovery of patients' health and well-being. An appropriate nursing team care should be able to avoid or minimize possible complications and contribute to better QoL. In this way, scientific knowledge contributes to the decision-making process and makes it possible to carry out activities in a scientifically consensual way in order to reach these objectives. Regarding the instruments, the most used in the research was the SF-36 - Short Form Live Health. The SF-36 is an instrument of the generic type and was created by Ware and Sherbourne, originally in the North American English language. In Brazil, it had its translation and cultural validation performed by Ciconelli *et al.*, In 1999 with the objective of evaluating QOL in patients with rheumatoid arthritis. It consists of 36 questions, covering eight components, functional capacity, physical aspects, pain, general health, vitality, social aspects, emotional aspects and mental health. It presents a final score of 0 to 100, in which zero corresponds to

and patients with specific diseases, such as diabetes mellitus, cancer patients, patients with heart problems, among others (Faria, 2010; Zandonai, 2010; Braw 2012). However, studies point out that generic instruments have the disadvantage of not demonstrating specific changes in the disease, and the specifics are more sensitive to detect changes (Leal *et al.*, 2005; Aguiar *et al.*, 2008). The Seattle Angina Questionnaire (SAQ) was used in article 6, is a specific instrument that has 19 items and measures five dimensions of coronary artery disease: physical limitation, angina stability, angina frequency, treatment satisfaction and perception of disease (Spertus, *et al* 1995). The WHOQOL used in article 8, is a generic instrument developed by the World Health Organization Quality of Life group translated and validated for Brazil by a group of researchers at the University of Rio Grande do Sul, considers six domains for analysis: physical, psychological , level of independence, social relations, environment and spiritual aspects / religion / personal beliefs (Pereira; Teixeira;Santos, 2012). The Flanagam scale, used in article 4, is a generic instrument developed by the American psychologist Jhon Flanagan, evaluates the QOL through 15 components grouped into five dimensions: physical and mental well-being, relationships with other people, involvement in community social activities and development, and personal enrichment and recreation (Flanagan, 1982). The new QLMI questionnaire used in articles 9.5 and 1, is specific and was elaborated at NewCastle University, Australia in 1993, was validated for the Portuguese language by Benetti & Nahas in 1999 in the city of Florianópolis, Santa Catarina, is composed of 27 questions,

subdivided into 3 items, emotional, physical and social (Lim *et al.*, 1993, Oldridge *et al.*, 1998, Benetti *et al.*, 2010). As for the domains affected by AMI, the one with the lowest score was physical appearance with 3.03. Of the 12 studies that make up this review, 4 presented a lower score in the physical aspect, 3 studies using the SF-36 and 1 questionnaire using the Mac New QLMI. The domain that presented the highest score was social aspects with 86 points, using the SF-36 instrument. Of the 12 articles analyzed, 4 obtained a better score in social aspects, 3 of which used the SF-36 instrument and 1 used WHRQOL - Health Related Quality of Life. In fact, this data is little explored by the authors, however it is possible to observe other studies that, when assessing QOL in subjects after AMI, the social aspects domain presents itself as the most well evaluated (Dessote *et al.*, 2011; Failde; Soto, 2006). Regarding the risk factors, article 5 using the SF-36 found that hypertension presents high relation with the emotional domain, already using the Mac New QLMI the hypertension did not present significant correlation with any of the domains. Article 11 using the SF-36 did not find a significant difference in QoL when comparing patients without the disease and patients with arterial hypertension, but identified that diabetic patients show a worse physical QoL after AMI when compared to those who did not have the disease. Like this research, a study with 132 patients identified that smokers had better QoL in the physical aspects dimension and the presence of diabetes was associated with worse QoL.

This result can be justified by the psychoactive effect of nicotine, but nothing has been found in the literature to justify this effect on the QoL of smokers (Alcântara, 2007; Stoco; Castro; Sakae, 2009; Soto, 2005). Article 2 evaluated 76 patients using the SF-36, showing that factors such as gender, type of employment relationship, time of disease manifestation and the presence of angina, arrhythmia and fatigue are important influencers of QoL. When compared to men, women scored lower on QoL. The same result was found in article 7 when analyzing 202 patients after myocardial revascularization surgery (Gallani, *et al* 2003, Nogueira, *et al* 2008). In a survey of 2,343 patients with coronary heart disease, 720 of whom were women, consistently reported worse QoL after one year of follow-up. In contrast, article 6 found no difference in QoL variation in relation to gender, age, color or schooling when analyzing 281 patients using SAQ (Norris, 2004; Souza *et al.* 2008). Regarding the type of employment relationship, the active subjects presented better scores than the inactive ones, more than half of the patients were inactive and attributed the inactivity to the disease. Article 4 obtained the same result, analyzing 30 patients, 21 were inactive and reported that the difficulties related to the return of work occur due to fatigue and pain. According to the studies, the variation of the physical limitation is directly related to the frequency of angina. As the variation of the scores increases, characterizing improvement in physical capacity and anginal symptoms, the QoL score also improves. These findings confirm what the literature shows about the impact of coronary disease in society, in addition to being a disease with serious clinical manifestations, early withdrawal of the subject from productive life (Souza, 2008; Gallani, *et al.*, 2003; Caetano, *et al.*, 2007). The time of disease manifestation was negatively associated with the functional capacity domain, so that subjects with a longer time of disease manifestation had a lower score in that domain. Similarly, the study with 132 patients identified that the previous history of cardiovascular disease decreases by 5 points at QoL compared to those who did not have such

condition. In addition, article 10 identified a greater involvement in the physical aspects domain, in patients who were already treated for another cardiovascular disease or who used psychotropic drugs during hospitalization (Gallani *et al.*, 2008; Soto *et al.*, 2005 Dessotte *et al.*, 2011). Article 8 evaluated 168 patients from the WHOQOL instrument, identified that depression is not a direct consequence of AMI and is present before hospital admission, however depressed patients have lower scores in all domains evaluated. Other studies have shown that untreated depression associated with AMI increases mortality by 70-90% compared to those without depression or who are being treated (Lemos *et al.*, 2008; Smolderen *et al.*, 2017). Regarding the type of treatment, article 3 identified that after clinical, surgical or angioplasty treatment there was an improvement in QoL in all areas of the SF-36, however the improvement was more pronounced in patients who underwent coronary artery bypass grafting . Similarly, article 6 identified in a multivariate analysis that revascularization within 30 days is a predictor of improvement in QoL, and patients treated with coronary artery bypass grafting have a higher score in the score than those who underwent angioplasty.

The same result was observed in a randomized study with 1,810 patients using the SF-36 and the SAQ, where patients treated with the intervention presented better scores when compared to those who were treated conservatively. Article 12, when evaluating 52 patients through SF-36, before and after three months of surgery showed that there was improvement in all domains. The need for periodic follow-up of patients, intense drug administration, side effects and strict control of risk factors alter the perception of patients' QoL, and may have contributed to these results (Souza *et al.*, 2008; Takiut *et al.* 2007; Kim, *et al.*, 2005). After the clinical or surgical treatment, a cardiac rehabilitation cycle (CR) is started, a set of activities necessary to ensure the best possible physical, mental and social conditions of the patient with cardiopathy. In article 1 after comparing 45 patients, divided into three groups, found that in CR the amount and / or intensity of physical exercise is a determining factor for the improvement of QoL. Therefore, the QoL in the group of patients who performed aerobic exercises, muscular resistance exercises and stretches in a supervised manner, five times a week, was superior in relation to the group that practiced spontaneous physical activities or did not perform regular physical activities. Article 9 showed that patients submitted to high intensity aerobic exercise have cardiorespiratory fitness and QOL higher than those who performed medium intensity or sedentary exercises. Similarly, a study of eighty patients using the SF-36 showed significantly better values in the physical, mental health and general health domains in patients who underwent CR (Benetti *et al.*, 2001; Benetti *et al.*, 2010; Mosayebi, Javanmard, Mansourian, 2011).

Conclusion

This review made it possible to construct a synthesis of the studies that evaluate QOL after acute myocardial infarction. There was a predominance of the use of generic instruments for evaluation. It was possible to identify some important aspects in the improvement of QoL and factors that contribute negatively to the recovery of the physical and mental well being of the subjects. Some results were divergent, this may be related to the different instruments used and the demographic and social differences of the samples. The difference in the quality of life of women compared to men was reported in

most of the studies bringing an alert about interventions and approaches that are performed and that seem to affect women in greater proportion. For this reason, future studies are necessary to evaluate such differences in the treatment of the disease in relation to gender.

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