Health-Related Quality of Life for Patients with Cardiovascular Disease after a Coronary Artery Bypass Graft: A Systematic Review

Tintin Sukartini1, Hidayat Arifin1, Ulfa Nur Rohmah1, Dian Rizki Ramadhani1

1Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia

ABSTRACT

CABG can affect health-related quality of life (HRQoL) and it can take a long time to improve. The following question was raised: ‘How long does it take for the HRQoL of patients with a Coronary Artery Bypass Graft (CABG) to increase?’ The aim was to analyze the recent scientific production of HRQoL in cardiovascular patients with CABG. The PRISMA approach was used and we examined articles from Scopus, EBSCO and ProQuest that were published between 2014 - 2018. We used “health related quality of life”, restricted our search to “coronary artery bypass graft” and used “after” in the title, keywords and abstract connected by the Boolean operator “AND”. SF-36 was used to assess the HRQoL and it increased within six months after CABG. This was influenced by self-control, obesity, age, gender, emotions and personality. Improving the patient’s quality of life is key for the nurses to control so then the heart surgery patients become prosperous and thus reduce their morbidity and mortality.

Keywords: health related quality of life; coronary artery bypass graft; cardiovascular disease

Introduction

The number of individuals suffering from cardiovascular disease in the world continues to increase every year. Cardiovascular disease is the foremost most disease in Indonesia, ischemic heart disease specifically.1 The most common medical treatment for heart disease is Coronary Artery Bypass Grafting (CABG) for coronary heart disease. Medical management can affect the quality of life of patients with cardiovascular disease.2 The act of limiting activities, restricting eating and making changes in their lifestyle in post-CABG patients is an effort that is required to maintain the quality of life in patients after medical management. Only a few patients experience depression and this interferes with HRQoL.3 Attention must be directed to the more important aspects, namely quality of life, because individuals not only want a long life but they also want to improve their quality of life.4 Improving the quality of life is also one indicator of the success of CABG operations. This includes symptom prevention and management behaviour post-CABG recovery. The patients also believe and have hope about controlling their illness and treatment in the new approach and they seek to clarify the various symptoms and adaptations that are useful in terms of quality of life.5 The importance of measuring the impact of medical interventions on quality of life related to patient health (HRQoL) is emphasized. HRQoL is also seen as how the results of the treatment can successfully provide potential changes to the lives of the patients.6

Some studies also suggest important results in terms of increasing HRQoL, such as several factors being involved namely comorbid diseases, depression, anxiety and the incidence rate of cardiovascular invasive procedures.7 But up until now, although some studies say that there is a decrease in quality of life after CABG, it is but not yet known in detail the factors that contribute to quality of life in patients who have had CABG. The purpose of the study was to analyze recent scientific production about HRQoL in cardiovascular patients with CABG.
Method

Research design and search strategy: The systematic review research design resulted from and focused on the latest research over the last 5 years. This study used the Preferred Reporting Items for Systematic Reviews and Meta-Analyzes (PRISMA) approach. The process of searching the articles was electronic. The data was obtained from Scopus, ProQuest, and EBSCO. The literature review used the keywords ‘Health related Quality of Life’, ‘After’ and ‘Coronary Artery Bypass Graft’. In the article search, we used the Boolean operator “AND”. After a number of articles was obtained, the researcher then selected them again according to the specified inclusion and exclusion criteria. The article searching process was carried out from August to October 2018. The search for articles used keywords that had been determined by the researchers and they also provided limits as per the inclusion and exclusion criteria. The data obtained from Scopus, EBSCO and ProQuest were then selected one by one by the researchers to determine their suitability. After obtaining articles that were in accordance with the researchers’ intentions, the articles were analyzed one by one and grouped to get the results. The next step was to discuss what had been found based on the points obtained from the results.

Inclusion and Exclusion Criteria: The desired articles were articles published between 2014 – 2018 and articles written in English focusing on the keywords in the search for relevant articles. Articles with samples that did not focus on patients with PCI and CABG, the discussion of articles looking at outside life quality (HRQoL) as well as articles based on a systematic review, narrative review, thesis, books or chapters, abstracts and editorials were not used in this study.

Results

The initial literature search returned 123 abstracts (71 from SCOPUS, 39 from EBSCHOHOST and 20 from PROQUEST). After reviewing the abstracts for relevance and matching them with the inclusion criteria, 45 articles were selected for a full-text review (34 from SCOPUS, 15 from EBSCHOHOST and 6 from PROQUEST). There were 24 duplicate articles and 2 articles published in 2013 which were excluded. Finally, 19 articles were chosen to be reviewed. The studies were heterogeneous. There were 13 cohort prospective/ prospective observational studies, 4 randomized trial studies, 1 longitudinal study and 1 descriptive qualitative study [Figure 1].

The general instruments used were 13 studies analyzed with The Short-Form Health Survey (SF-36 and SF-12). The Short-Form Health Survey (SF-36) questionnaire has been proven to be the most widely used tool to evaluate quality of life among patients undergoing cardiac treatment and surgery.

Most of the studies stated the majority of respondents’ HRQoL scores increased after undergoing CABG surgery, both in the physical and mental domains. Two years after CABG, the clients became more confident in themselves and their health, with 81% of patients having a good quality of life. Post-CABG HRQoL is influenced by a variety of factors, including the type of CABG (on-pump or off-pump), self-control related to health, obesity, age, gender, type-D personality and the role of emotional physical roles, vitality and social functions.

Discussion

There are several stages related to behaving healthily. The stages include precontemplation (in 6 months, not yet interested in making changes), contemplation (considering changes in the next 6 months), preparation (trying to make changes but not and wanting to do it again the following month), action (actively developing
strategies to make changes, sometimes after almost 6 months with time and effort to commitment) and maintenance (changes continue, starting 6 months after the action phase begins). The health-related quality of life increased in patients 6 months after CABG was performed.\textsuperscript{2,3,9,11-16} However, 12 months after CABG was done and even for years after, there was an increase in the quality of life as well. The most common occurred after 6 months. This may occur because patients who have long been hospitalized may have begun to experience boredom or they may be in the action stage. In addition, depression before surgery causes a high level of hospitalization. Prolonged surgical pain can last for up to 6 months and they may have difficulty returning to their previous activities. One needs to consider the effect post-CABG cardiac rehabilitation on older elderly people, as this has an adverse impact on CABG.\textsuperscript{3}

Psychological morbidity includes depression, anxiety, personality and emotional roles reinforcing a decrease in the quality of life of the patients.\textsuperscript{13} This improvement does not seem to be realized in all patients who had undergone CABG surgery.\textsuperscript{n}

\textbf{Objective:} The aim of this study was to test the direct and indirect influence of personality trait Type D on no change-deterioration trajectories HRQoL and the mediating influence of increased symptoms of anxiety and depression. Methods: The hypothesized influence of personality trait Type D on the relationship between increased anxiety and depression and no change-deterioration trajectories in HRQoL was tested with path analysis using structural equation modeling. Results: The results of the current study show that Type D personality comprised a vulnerability factor for poor patient-reported outcomes (i.e., HRQoL and\textsuperscript{nd} stress)\textsuperscript{21}. Coronary artery bypass graft (CABG).\textsuperscript{15,3} Over the years, CABG measures have reduced the significant mortality rates but strangely, there are still patients who have a psychological condition even 5 years post-CABG.\textsuperscript{22} The lack of resolution for the psychological problems of patients after rejection can cause recurrent heart attacks. For that, the nurse should facilitate by helping and relaxing the patients by providing sedatives.\textsuperscript{23}

The female gender is reported as slowing the increase in HRQoL due to low coping mechanisms and changing role perspectives. Women often suffer from chest pain in the arterial area in an epicardial coronary.\textsuperscript{19} There was a gender difference in the biological process that transmits and modulates pain signals; the nervous system of men and women is different when it comes to detecting and responding to pain (pain sensitivity) and the emotional cognatic response to pain differs between men and women. The female gender therefore correlates with a quality of life related to low health.\textsuperscript{15} Pain is also associated with the quality of life of patients who have carried out CABG.\textsuperscript{24} It is known that the standard blood vessels used for CABG are the saphenous vein and the left internal mammary artery of the chest. Although the prevalence of severe pain decreases year by year and modern analgesic methods are used, chronic pain after CABG remains a concern because the incidence rate of chronic pain has reached 30-50%.\textsuperscript{26} Chronic pain after CABG also relates to the subsequent cost estimates for the health care and social support systems. This postoperative CABG pain may also be associated with the somatic, visceral and neuropathic conditions.\textsuperscript{21} Intensity, location, and the presence of neuropathic pain, according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses. The review comprised 3 phases: a methodological assessment of 6 different databases identifying potential articles and screening for inclusion criteria by 2 independent reviewers; data extraction; and study quality assessment. Meta-analysis was used to estimate the pooled incidence rates using a random effects model. We have identified 442 potentially relevant studies through database searching. A total of 23 studies (involving 11,057 patients)

The perception of post-CABG training has an impact on HRQoL. Bad perceptions becomes a barrier within cardiac rehabilitation training. It is known that poor diet and poor exercise are the independent risk factors in developing worsening CAD post-CABG surgery. Exercise, lifestyle modification and diet after CABG surgery is important to pay attention to in order to avoid future risks to one’s health.\textsuperscript{26} The differences in age do not really show as having a specific impact on HRQOL. The patients who are <60 year old age undergoing CABG have worse outcomes than those of an older age. Age is related to cognitive processes. Cognitive differences are usually higher in older people compared to middle-aged adults.\textsuperscript{21} Clinical performance included pulmonary function, which is a physical component related to a decrease in lung function that is also related to an increase in CRP and post-operative blood cortisol concentrations and a greater preoperative IVC.\textsuperscript{10,28-30} HRQoL in this context is where the patients define how
they know the effects of the disease (treatment, follow-up, limitations). Functional capacity and quality of life in patients dependents on any comorbidities, and this can greatly increase the health care costs of the comorbidity itself. Coronary artery bypass graft (CABG) This makes the patients feel that their health function has deteriorated, thereby reducing their quality of life.

**Conclusion**

Health-related quality of life after CABG has proven to be significantly improved. The peak time shows that the patient feels that their quality of life is good after 6 months of action. This needs to be observed again later on. The link of having many supporters involved in the improvement of their quality of life is key for the nurses to control. This is so then the heart patients reduce their risk of morbidity and mortality.

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