

Influence of Perceive Social Support or Pre-Operative Support Program on Quality of Life in Patients Awaiting Coronary Artery Bypass Grafting (CABG) Surgery: Mixed Method Systematic Review

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ABSTRACT

Objective: This paper is a report of a review to identify relevant literature and to summarize the effectiveness of perceived social support on quality of life in patients while waiting for CABG surgery. **Background:** Cardiovascular disease is one of the most common leading causes of death in the world and the most common treatment is CABG surgery. Patients who has been diagnosed and listed for CABG surgery should adapt himself to overcome the changes in their new life style. To conquer this, they should have social support or pre-operative support while awaiting for their CABG surgery. **Data Source:** A search of health and health science database located eleven papers including quantitative and qualitative studies focusing on the perceived social support or pre-operative program on quality of life in patients awaiting for CABG surgery. **Review Methods:** A mixed-method systematic review involving quantitative and qualitative research findings. Inclusion criteria for this review were quantitative and qualitative studies which focus on perceived social support or preoperative program on quality of life in patients awaiting for coronary artery bypass grafting (CABG) surgery. **Results:** The issue of perceived social support of patients prior to undergoing their CABG surgery existed from last decades. Although many researchers have been conducted studies to solve the said issue, but no proper solution was found till present. **Conclusion:** More efforts should be made to improve the quality of life in patients awaiting CABG surgery to prepare them physically, mentally and sociologically to adapt themselves to a new life style.

KEY WORDS: Coronary artery bypass grafting surgery, perceived social support, quality of life, pre-operative program.

INTRODUCTION

Cardiovascular disease is one of the most common leading causes of death in the world. People who have been diagnosed with heart diseases, their quality of life have been diminished and definitely they need some support from people who are surrounding them such as family members, friends or someone special. On the top of this, especially those patients who are on the list for CABG surgery need support from their partners or caregivers to manage their self-care successfully and to maximize quality of life.

A study found that patients undergoing CABG surgery need a social network and social support to cope with their fears, anxiety and depression (1). Besides, patients with coronary artery disease have poor quality of life due to their disease symptoms such as fatigue, lack of health care behavior which

lead them unable to perform their activity of daily living to meet their basic needs (2,3). Therefore, they require support from their surrounding people while awaiting their surgery. Furthermore, social support helps a person navigate through life and is necessary for maintaining the person's physical and emotional well-being (4).

The quality of life of the patients improved with increasing social support (5). In addition, they have found out that the higher the level of social support, the higher the patients' quality of life, which proves the fact that the support provided for patients should be increased.

Therefore, perceived social support or pre-operative support program might be playing an important role in patients who are at waiting list for CABG surgery. Thus, this review focused on perceived social support or pre-operative support program and their influence on patient's quality of life while awaiting CABG surgery.

METHOD

The aim of this review was to identify relevant literature and to summarize the effectiveness of perceived social support or pre-operative support program on quality of life in patients while waiting for their CABG surgery. Furthermore, the author has included papers examining the association between perceived social support and quality of life in coronary artery disease patients before going for CABG surgery.

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Design

A mixed-method systematic review integrating quantitative and qualitative findings as described by Harden (2010) was selected to maximize the inclusion of studies and to preserve the integrity of the findings of the different types of studies (6).

Data sources and search strategies

Searches of the literature were performed by using electronic data bases which include Science direct, Sage Publication, CINAHL, Springer link, Web of Science and Ovid. The following searched keywords for this paper were used in separately and combination with each other's. Those were coronary artery bypass surgery, perceived social support, quality of life while awaiting for CABG and perceived support before bypass surgery. The search limits include human, English language, adult aged 18 years and above, publication date from 1998 to 2013 but no limit were imposed on characteristics of participants, study designs, intervention and methodological used. The author did hand search for references list of all allocated articles for further related articles.

Selection criterion

All studies were included if they met the inclusion criteria such as their recruited patients with coronary heart disease, waiting for CABG surgery, included standardized measure of perceived social support and quality of life before surgery and examined the association between perceived social support or preoperative support program and quality of life while waiting for CABG surgery. The following items were excluded in this review for instance the study report on identified from reviews or editorials, reported on studies of post CABG surgery and other groups such as patient on implantable defibrillator device or post ventricular assist device. Furthermore, studies with no detail's information were also excluded in this study.

As shown in table 1 and 2 , the review of clinical question for this study was defined using PICO and PICo framework; population (P), intervention (I), control/comparison (C), and outcome of interest (O) for quantitative and RCT studies, and population or problem (P), interest related to patient's experience (I), context (Co) for qualitative studies using PICO or PICo Worksheet and Search Strategy Protocol (7). According to the terms specified in PICO and PICo, criteria for including articles were determined. Then, searched for the evidence from original research articles.

Table1. PICO framework for quantitative and RCT studies

PICO element	Inclusion criteria for review
Population	Adult patient with coronary artery disease which require for CABG.
Intervention	Social supports or preoperative support program on quality of life while waiting for coronary artery bypass grafting surgery.
Control/comparison	Least social support or without social support.
Outcome	Quality of life while awaiting for CABG.

Table 2. PICo framework for qualitative studies

PICo element	Inclusion criteria for review
Population /problem	Patient at CABG surgery waiting list.
Interest	Patient's experience while awaiting for their CABG surgery.
Context	Awaiting for their CABG surgery from either at home or hospital

Data Extraction and search outcomes

All available data were extracted from studies meeting with eligibility criteria of patient with coronary heart disease and before CABG surgery. The main outcome measures for this current review were effectiveness of perceived social support or pre-operative support program while the secondary outcome was quality of life before CABG surgery. All data were extracted for characteristics of subject included, condition of recruitment, measures used to assess perceived social support and quality of life, main method of analysis and the strength association between social support and quality of life in coronary heart disease patients while waiting for CABG surgery.

Three hundred and seventy-six articles were identified from the electronic data base and non from other sources. Two hundred and seventy-six articles were excluded after reading as not relevant for this review. After screening all articles from the rest, finally eleven articles have

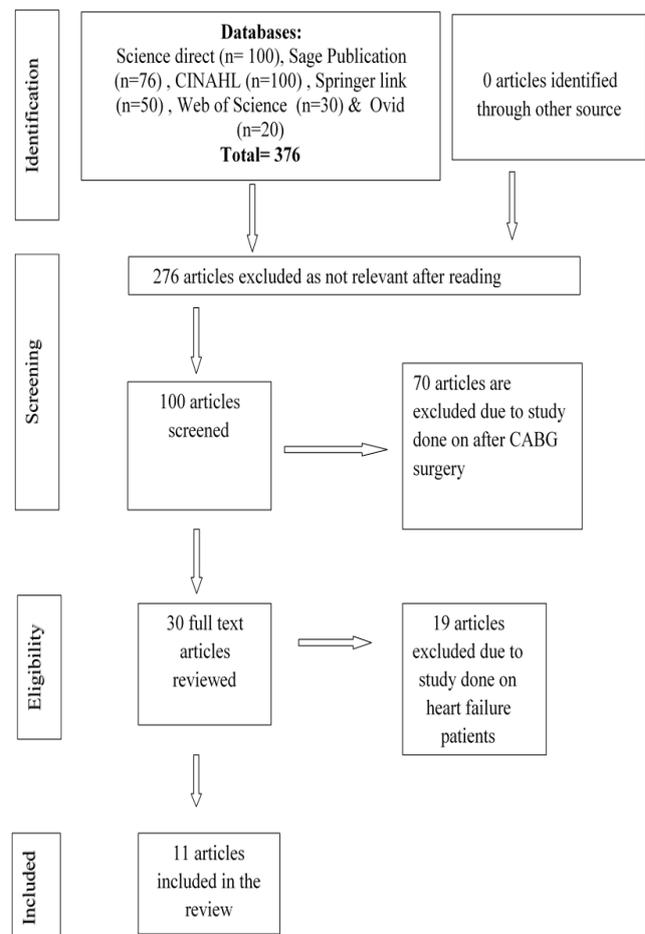


Figure 1. The review processes

extracted for this study. Figure.1 illustrates the review process based on the PRISMA Flow Diagram.

Quality appraisal and assessment of studies

In this review, the quality critical appraisal and assessment of the included studies has been carried out with the guideline from the critical appraisal skill program (CASP) tool (8). The CASP tool was used in this review since this tool was succinct and effectively cover the areas needed for critical appraisal of evidence. Furthermore, specific CASP checklists have been developed for reviews of randomized controlled trials, quantitative and qualitative studies. Thus, by assessing all articles included in this review were checked with following criteria;

- I. The study addressed clear focus question.
- II. The methods of study were appropriate or not.
- III. Recruited participants were represented of population or not (eg. Random sampling method instead of convenience sampling)
- IV. For perceived social support and quality of life measurement, whether it has used valid tool or not.
- V. Outcome was described clearly or not.
- VI. The study findings be generalized to other population and location or not.

According to these criteria, the quality of each study was determined by the author and any uncertain issues were resolved by co-author.

Data Synthesis

Searched studies were synthesized under the following subheading: author, country and date of publication, study design, sample size with sampling method and respond rate, data collection instrument, and key findings. Eleven articles were remained in this review (Table 3). *Please refer attachment below*

RESULTS

Event there were three hundred and seventy-six (n=376) relevant articles has found for this review, only eleven studies (n=11) has included in this study. All studies included for this review were done in European setting and none of them was from local Malaysian setting. Two studies done on RCT, three studies were qualitative semi-structured interview and one critical incidence technique analysis, three studies were prospective descriptive studies, one cross-sectional study and one study were using postal questionnaires. Six studies were done in Sweden, England, and Scotland and while remaining of five studies were done in Canada, Finland, Iceland, Sydney and USA.

Thomson, Molloy and Chung conducted a cross-sectional study to assess the effect of perceived social support on quality of life in patients awaiting CABG and their partners (9,10). They have recruited 84 dyads (patients and partners) awaiting for CABG from outpatient clinic and sample were taken by purposive sampling method. They used the 20-item Medical Outcome study social support survey for perceived social support measure and The Short form 12 health survey forms for quality of life. All participants were completed the questionnaires in the outpatients clinic or returned to investigator by post. For recruitment of participant, to meet their criteria in the study they were recruiting the participants from 2003 till 2004. They found that social support

and quality of life has p-value of 0.001 meaning that if patient have positive social support, their quality of life will be better than who don't have. Furthermore, they have found out those patients' informational and emotional support (p=0.024) was associated with the patients' and their partners' mental health while their waiting period for CABG.

Another RCT study was carried out in UK to evaluate nurses-led program of support and lifestyle management for patients awaiting CABG surgery (11). One hundred and eighty-eight patients were divided into intervention and control group. They were used computerized random number allocation by a third party to allocate patients to intervention or control group in a 1:1 ratio. Patients in intervention group received lifestyle counseling and preparation for surgery at monthly interval by cardiac homecare nurse. Patients from control group received standard care which consists of hospital help line telephone and a pre-surgery information day. They were taken baseline assessment from both groups. Their primary outcome measurements were anxiety, length of hospital stay, changes from base line in BP, cholesterol level and BMI. However secondary measurements were quality of life, post-operative complication and cost minimization. The found that between two groups did not differ meaningfully for any of the clinical baseline but statistically borderline improvement in physical quality of life as measured by SF-36 (p=0.04) but they did not confirm further by another tools (CROQ) which they used in this study to measure quality of life. However, healthcare utilization cost was lower in intervention group due to fewer admissions with p value of 0.002.

A prospective study was carried out to explore patients' and partners' health related quality of life before and four months after CABG (12). They were sent out information packs with patients OPD clinic appointment card to 208 patients over 4-month period and 84 dyads are participated in their study. They were used the instrument of Short Form 12 health survey, Quality of life of cardiac spouse questionnaires and Seattle Angina Questionnaires. Patients and their partners were instructed to complete the questionnaires separately from each other and to refrain from discussing their answer. The questionnaires were completed in the OPD clinic or return to investigator by post. They found that patients who have poor quality of life in post operatively were associated with their partner who had poor pre-operative physical health with p value less than 0.001. And they found that patients' poorer post-operative health related quality was also explained by their poorer pre-operative physical and mental health.

Gallagher & McKinley also carried out a prospective study to determine the course of anxiety, depression, perception of control and the influence of perception of control in patients awaiting for CABG (13). They were recruited one hundred and fifty-five participants with convenience sampling method. However, one hundred and twenty patients were remained in the end of their study. Participants (n=155) were completed the preoperative questionnaires, (n=132) completed the interview post-operatively before discharge home and at last (n=120) patients were completed pre and post-operative questionnaires. Their outcome measurements were anxiety, depression and perceived control. They found that patients with stronger perceived

First Author/ Country/ Date of publication	Study Design	Objective of the study	Sample size/ sampling method/ Response rate	Data collection instrument or outcome measurement	Key findings
Thomson Scotland (2012)	Cross-sectional	To assess difference in social support and quality of life in patients and partners waiting for CABG.	84 dyads sample with purposive sampling method.	20-item Medical Outcome study social support survey for social support measure and The Short form 12 health survey forms for quality of life.	Social support and quality of life has p-value of <0.001 meaning that if patient have positive social support ,their quality of life will be better than who don't have while their waiting period for CABG.
Arthur Canada (2000)	RCT	To examine the effect of multidimensional Preoperative intervention on pre- surgery and post - surgery outcomes in patients waiting for CABG.	123 patients were randomly assigned in intervention group and control group. 108 patients remained in intervention group and 100 patients remained in control group.	-Exercise performance was measures by a symptom-limited, upright-cycle ergometer exercise test, the short form 36 health survey form for health related quality of life and Social support was measured by using the Interpersonal Support Evaluation List.	While their waiting period for CABG, patients in intervention group has better quality of life than controls group. Improved quality of life continued up to 6months after surgery. Patients who received the preoperative intervention spent 1 day less in the hospital overall (p=0.002) and less time in intensive care unit (p=0.001).
Goodman UK (2008)	RCT	To evaluate nurses-led program of support and lifestyle management in patients waiting for CABG.	94 patients in each group with simple random sampling method. 88 patients remained in intervention group and 89 patients remained in control group.	Primary measurements were Anxiety (The Hospital Anxiety Scale), length of hospital stay (from hospital record), changes from baseline in BP, cholesterol level and BMI. Secondary measurements were quality of life by using (the Coronary Revascularization Outcome Questionnaire CROQ and Short form 36.	Statistically borderline improvement in physical quality of life as measured by SF-36 (p=0.04) but not confirmed further by CROQ tools. However healthcare utilization cost was lower in intervention group.
Thomson Scotland (2013)	Prospective Study	To explore patients and partners' pre-operative and post-operative socio-demographic and health related quality of life.	208 potential sample but 84 dyads are participated in the study. 80 patient-partners remained at 4 months follow up.	Short Form 12 health survey, Quality of life of cardiac spouse questionnaires and Seattle Angina Questionnaires were used.	Poor quality of life of patients in post operatively was associated with their partners who had poor physical health with p value <0.011.

First Author/ Country/ Date of publication	Study Design	Objective of the study	Sample size/ sampling method/ Response rate	Data collection instrument or outcome measurement	Key findings
Gallagher Sydney (2009)	A prospective Descriptive design	To determine anxiety and perceived control in patients waiting for CABG	155 participants with convenience sampling. 120 patients were remained.	By using CAS (control attitudes scale) to measure perception of personal and family control in context of cardiac disease and HADS (Hospital Anxiety and Depression Scale) tool to measure anxiety and depression.	Patients with stronger perceived control have less anxious or depression with p value of <0.001 all the time compare to those don't have.
Jonsdottir Iceland (1998)	A Prospective Descriptive design	To determine the informational needs concerning living with coronary heart disease during their waiting time for CABG.	Questionnaires were distributed to 88 patients who are at waiting list for CABG and 72 patients were responded and participated.	The researcher has created own questions which include 4 parts and to measure informational and support needs during their waiting period.	Majority of participants has described that they have difficulties in daily life during waiting period due to lack of support.

First Author/ Country/ Date of publication	Study Design	Objective of the study	Sample size/ sampling method/ Response rate	Data collection instrument or outcome measurement	Key findings
Koivula Finland (2002)	Postal Questionnaire	To ascertain social support resources available for patients and effect of social support on their fear and anxiety in patients awaiting for CABG.	270 participants were sent postal questionnaire but 207 patients were remained in the study.	By using Norbeck's Social support questionnaire and Spielberger's State-A. Quality of basic cardiac information scale and Bypass Grafting Fear scale were developed by researcher.	Those who have less emotional support ($p=0.009$) from social network have higher anxiety. They have found out that the spouse is the best care provider for patients.
Lvarsson Sweden 2004	Qualitative descriptive approach by using Critical Incident Technique Analysis	To describe the patients' experience of support in the form of important events while waiting for cardiac surgery	26 participants	Semi-structured interview guided and inspired by Sarvimaki and Stenbock-Hult's holistic approach consisted of 9 questions to describe patients' experience and support while waiting for CABG.	Two main areas have come out from the analysis which was internal and external factors that influences in their living life before surgery and lack of supporting social network.

First Author/ Country/ Date of publication	Study Design	Objective of the study	Sample size/ sampling method/ Response rate	Data collection instrument or outcome measurement	Key findings
Lvarsson Sweden (2005)	Quality descriptive approach	To describe experience of support, in the form of important events, by next of kin while their intimates were waiting for surgery.	23 next of kin of patients	Semi-structured interview and it was inspired by Sarvimaki and Stenbock-Hult's holistic perspective approach to describe next of kin of patients' experience and support while their intimates were waiting for CABG.	They have found positive and negative: internal and external factors, however negative factors were associated with weakening of social network support.
Banner England (2011)	Qualitative Grounded Theory Approach	To explore the experience of women undergoing CABG.	30 participants with convenience sampling method.	Semi-structured interview by using Grounded Theory to describe the experiences of women undergoing for CABG.	Women expressed that they have difficulties in physical, social and psychological while their waiting period for CABG.
Powell USA (2003)	Qualitative study	To identify the main concerns and early experience of patients waiting to be accepted for CABG	6 participants with purposive sampling method.	In-depth interview was used to describe patients' experience while waiting for CABG.	Almost every participant faced emotional disturbance during their waiting time for surgery due to no structured support services for patients.

control have less anxious or depression with p value of <0.001 all the time compare to those don't have. Another prospective descriptive study done in Iceland to assess the experience of people awaiting for CABG (14). The researcher has designed a questionnaire for this study and it was sent to eighty-eight patients who were in the waiting list for CABG. However, seventy-two patients were participated in their study. Their questionnaires consist of four part which include patients' demographic data, the length of waiting time for surgery, physical and psychological symptoms during in their waiting period and invited subject to write down though and feelings about illness and the wait for surgery. Their key finding was majority of participants who are awaiting for CABG has described that they have difficulties in daily life during their waiting period due to lack of social support and information from health care system.

Another study in Finland on social support and its relation to fear and anxiety in patients awaiting CABG to ascertain social support resources available in patients at waiting list for surgery by using postal questionnaires (2). They sent questionnaire to two hundred and seventy patients who were awaiting for CABG but two hundred and seven patients were participated in their study. The outcome measurements were social support, fear and anxiety. The found that patients who have less emotional support from social network have higher anxiety with p value of 0.009 (95% CI= 1.06-1.49). And also, social support was associated with age (p=0.007) so that those over the age 65 received less intense support compared with younger patients. In addition, they also found out that spouse is the best care provider of emotional and tangible aid for patients.

The studies done by using qualitative descriptive approach to describe the patients' experience of support in the form of important events while waiting for cardiac surgery and experience of support by next of kin of patients while their intimates were waiting for CABG (15,16). They were recruited 26 patients and 23 next of kin of patients in their study. They collected data through semi-structured interview by guided of questionnaires to allow patients and their next of kin to use their own words in describing events that were related to experience of support while their waiting period of surgery. In both study they have come out with two main areas: external and internal factors. On the other hand, they have found positive and negative (internal and external) factors, however negative factors were associated with weakening of social network support or lack of social support that affect on their living life before surgery.

Another study to explore women's experiences of undergoing coronary bypass graft surgery by applying qualitative grounded theory (3). They were identified participants of thirty people during 2003 and 2006 by convenience sampling method. They were used semi-structured interview by guided of Grounded theory six week before operation and six months after operation. Their interviews were tape recorded and conducted either at hospital clinic or participants' home. Their interview lasted for ninety minutes to allow participants to speak openly about all aspects of their illness and experiences. After they done data analysis and rigor, four aspects of key findings were come out: preserving normality, disrupted normality, relinquished normality and renegotiated normality. Participants experienced difficulties recognizing and acting on symptoms and endured physical and emotional distress while waiting for surgery. After

surgery, women faced functional limitation which forced them to relinquish normal activities and roles. Overall women faced that difficulties in physical, social and psychological while their waiting period and post-operative CABG surgery. A qualitative study to identify the main concerns and early experience of patients waiting to be accepted for CABG surgery (17). They were recruited six patients with purposive sampling method. The study was done by using in depth interview in participants' home. Interviews were tape recorded and transcribed verbatim. Then researcher done significant words and theme were identified and coded. The major themes were fear, anxiety and uncertainty. Other themes identified were confusion, guilt, shock, avoidance and acceptance related to their need for CABG surgery. Nearly every participant faced emotional disturbance during their waiting time for surgery due to no structured support services for them to meet their basic needs.

DISCUSSION

This mixed-method systematic review points out that the influence of social support or pre-operative support program is very important on quality of life in patients who are waiting for CABG surgery is still very much under-investigated with the insufficiency of scientific studies in this field. Nevertheless, all presented evidence seems to recommend that perceived social support or pre-operative education program in patients awaiting for CABG surgery have great potential to become integral part of social welfare and cardiac rehabilitation programs for enhancing quality of life among patients with coronary heart disease before and after their CABG surgery.

Specifically, two studies in this review found that patients who have social support had better quality of life while waiting for CABG surgery (9& 10). With regards to objective measurement of anxiety and perceived support or perceived control during pre and post-operative period of CABG surgery patients, three studies reported that patients who had stronger perceive control or support had less anxiety (2, 11, 13). It has also been reported by two prospective studies that both partners support and information before CABG surgery are required to get better quality of life of the patients before and after their operation (12,14). Lack of social network support was found to be a contributing factor in two qualitative studies by to their living life while awaiting CABG surgery (15,16). Patients experienced during preoperative period causes physical and emotional disturbances as mentioned by two studies are due to inadequate supportive services (3,17).

Among eleven studies which are included in this review, there was no clear focus questions mentioned except the study about experience of people awaiting CABG surgery (14). Although RCT is gold standard method in research field, it cannot be applicable pertaining to this particular topic as its related to patients' perception towards receiving social support on their quality of life before undergoing CABG surgery. More information can be gathered by conducting survey and interviewing a large cross section of patients awaiting CABG surgery.

After a survey in eleven studies included in this review some methodological flaws were detected. Two RCT studies by (Arthur et al. & Goodman et al.) one mentions about the details of randomization, blinding and allocation concealment method while

the other did not (10, 11). This may lead to bias in their study and the result may not be accurate. Out of nine non-RCT studies, four studies described their sampling methods while the other five did not (2, 3, 9, 13-17). Other five studies also did not reveal the dropout rate or withdraw participants (2, 9, 14-16)

Due to the small sample size in some studies it showed that the result cannot be confirmed and it may interfere with the findings of the study. This may lead to type II error in their survey. Only one study showed that the sample size calculation through power analysis while the others were unable to (13). Most of studies in this review were using valid tool to measure social support and quality of life patients. The outcome of their survey was described in details in most of the study.

The sample size of the study concluded that from 6 to 207 participants. In summary, this review covered 762 patients with coronary heart disease and confirmed going for CABG surgery. After reviewing all included articles, apparently, we realized that those patients who are waiting for CABG surgery, needed social support or network to improve their quality of life.

CONCLUSION

Recognizing the health status of patients who are waiting for their CABG surgery and identifying factors significantly associated with their health-related quality of life may serve as useful information for our nurses and other health care professionals to make significant interventions for improving the quality of life of patients impending CABG surgery. Proper dissemination of information and advice to patients prior to their CABG surgery can help improve the quality of life and adapting himself/herself after the CABG surgery which will be helpful in having a normal life style. In the local set up due to the lack of pre-operative program and approach efforts should be made to rectify the weakness highlighted in this review paper.

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