

# **PRE-OPERATIVE EDUCATION PROGRAMME FOR PATIENTS UNDERGOING CORONARY ARTERY BYPASS SURGERY**

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## **ABSTRACT**

Patients who are about to undergo coronary artery bypass graft (CABG) surgery may experience great anxiety, thus activating the stress response. This response can be detrimental to the already weakened heart. Pre-operative educational programmes have been shown to relieve anxiety and produce a better outcome after the surgery. To assist patients to cope with their anxiety, a pre-operative educational programme was implemented in two private hospitals in the Gauteng Province of South Africa. This is a structured programme consisting of an educational booklet, an educational model and an educationalist.

In view of the fact that this programme has cost and time implications, the research was undertaken to determine whether a pre-operative educational programme would be of benefit and to describe and explore the patient's experience of such a programme for CABG patients. A qualitative, descriptive, explorative and contextual research design was utilised. Purposive sampling resulted in eight participants. The data were collected through individual interviews that were audiotaped and described. Qualitative analysis of the data revealed that the patients experienced the programme positively, and the recommendation was therefore that the private sectors in South Africa implement a pre-operative educational programme for CABG patients.

**KEYWORDS:** Pre-operative education programme, coronary artery bypass surgery, anxiety, empowerment

## **INTRODUCTION AND BACKGROUND**

When patients are confronted with the news that they have to undergo coronary artery bypass graft (CABG) surgery as part of their treatment for coronary artery disease, they may experience great anxiety. Geyer, Mogotlane and Young (2009:235) as well as Black and Hawks (2009:421) state that patients confronted with a life-threatening disease experience intense emotions such as depression, aggression, anxiety, frustration

and fear which can cause them to behave irrationally. These emotions can also activate the stress response.

The stress response causes the sympathetic nervous system, the adrenal medulla and the angiotension-aldosterone system to be stimulated, causing an increase in preload, afterload contractility and heart rate. These effects can be detrimental to the already weakened heart (Elliott, Aitken & Chaboyer, 2007:437). The sympathetic nervous system mediates cardiovascular stimulation with increased catecholamine blood levels causing tachycardia, hypertension, myocardial ischaemia and infarction. Morin, Geldner, Schwarz, Kahl, Adams, Wulf & Eberhart, 2004:2). These responses may have detrimental effects on the coronary circulation of higher risk patients, which can lead to increased morbidity and mortality.

Gallagher and McKinley (2007:249) support the previous authors by reporting that patients who experience anxiety before a CABG have more post-operative pain, less long-term relief of cardiac signs and symptoms, more readmissions, poorer quality of life and worse long-term psychological outcomes. Therefore, it is one of the responsibilities of nurses to help the patients to manage their stress and anxiety, as they are in close contact with those patients.

Various interventions have been developed; these usually include information, support and stress management to try to reduce pre-operative anxiety and its negative responses. These interventions aim to empower the patient with knowledge with regard to the pre-, intra-, post- and rehabilitative progression of CABG surgery. Knowledge of a situation improves the coping skills of a patient and this can contribute to the success of the operation (Black & Hawks, 2009: 192-193).

Patient education is an essential aspect for empowering patients with knowledge about CABG surgery. It is a process that delivers health-related information to a patient in order to promote changes in behaviour that will optimise health practices and assist the individual in acquiring new skills for living. Quality patient education can shorten the length of the hospital stay and improve self-care management skills (Urden, Stacy & Lough, 2006:39, 40).

The patient's family should be included in the education. According to Schell and Puntillo (2006:770 & 771), the illness of one of the members of the family has an influence on all the members of the family. The family acts as an agent providing cohesion, connection and closure, and in fostering patient well-being. Information to the family has been identified as a crucial component in family coping and satisfaction in the critical care setting. To assist patients in coping with their anxiety prior to CABG surgery, a pre-operative education programme was implemented in two private hospitals in Gauteng. It is a structured programme consisting of an educational booklet, an educational model and the educationalist. The educational booklet is entitled "Let's talk about your coronary bypass operation", and should be given to patients as soon as they are confronted with the news that they require CABG surgery. It should, however, be given at least two days

prior to surgery to enable the family to read it. The booklet was written in an informal manner with humorous illustrations. It is an overview of the patient's heart condition and explains the purpose of the operation, what exactly coronary artery bypass surgery entails, how the surgery is performed, as well as what is expected of the patient prior to the operation (such as living healthily, taking prescribed medication, eating a low animal fat diet) and what to expect after the operation and after discharge.

The educational model is a soft pink material doll called Mr Hope. This doll is a replica of a patient returning from theatre following a CABG. The doll has all the invasive equipment that could be attached to the patient immediately after the operation. Mr Hope should be presented and explained by the educationalist to the patient and family the day before surgery. This will allow time for questions from the patient and family. The educationalist should be an experienced, empathetic cardio-thoracic nurse who should be able to answer all questions and win the trust of the patients and the family.

## **PROBLEM STATEMENT**

The context of this study was two private hospitals in Gauteng. Both have cardio-thoracic units and perform approximately ten CABG surgeries per week. Although research (Doering, 2005:316-324; Mooney, Fitzsimons & Richardson, 2007:77) has shown that a pre-operative education programmes for CABG patients do lower anxiety levels, few of these programmes are implemented in the private sector hospital group in South Africa, due to cost and time restraints. If research demonstrates that the patients experience the pre-operative educational programme as positive, this might influence the private sector to implement pre-operative educational programmes within their hospitals.

## **PURPOSE**

The aim was to describe and explore the patients' experience of a pre-operative education programme for CABG patients.

## **DEFINITIONS OF KEY TERMS**

**Pre-operative education programme:** This is a programme that delivers health-related information to a patient in order to promote a better outcome after CABG surgery.

**Coronary artert bypass surgery:** This is surgery performed via a median sternotomy incision on a quiet, bloodless heart with the use of a cardiopulmonary bypass machine ("on-pump" coronary artery bypass) (Schell & Puntillo, 2006:113).

## RESEARCH DESIGN AND METHOD

A qualitative research study that was exploratory, descriptive and contextual in nature was conducted. According to Burns and Grove (2009:700), the goals of exploratory research are to understand the underpinning of specific phenomena and to explain systematic relationships between phenomena. The study can also be regarded as descriptive as the phenomenon is described in rich detail. It addressed the question “What is going on?”, grounded in the data from which it was derived (Burns & Grove, 2009:54), and was contextual in nature since the validity of the findings is claimed only in a specific context, namely the private sector in South African hospitals. The focus of the study was to record patients’ lived experiences of a pre-operative educational programme. Phenomenology is appropriate for studies in which the research question aims to extract the meaning or essence of an experience (Burns & Grove, 2009:54-55). Data were collected through in-depth phenomenological individual interviews (Cresswell, 2007:131) with patients who participated in a pre-operative education programme.

### Sampling

The target population consisted of all the patients who had to undergo CABG surgery at two private hospitals in Gauteng in South Africa. Purposive sampling was used to select the sample from the target population, which included all patients who underwent an “on-pump” CABG and who met the formal criteria.

- They had to undergo the pre-education programme before surgery.
- There were no long-term complications after the CABG surgery that made the stay in ICU longer than three days.
- There was no mental disease after the CABG surgery, as then an interview could not be conducted.

### Data collection

The educational programme was implemented, once the patient’s consent to surgery and to the research project had been confirmed. A copy of the educational booklet was given to the patient and to the family. Immediately before discharge from the hospital, an in-depth phenomenological interview was conducted with the patient to explore the question “*How was the programme for you?*”.

The researcher, who had not been the educationalist of the programme to that specific patient, conducted the interview. This gave the patient an opportunity to be honest if he/she experienced the programme negatively. The interview was conducted in a quiet non-threatening place at an appropriate time for the patient. The researcher created a context that was conducive to mutual trust. During the interview, communication skills, such as probing, were used to obtain the necessary information. The interviews were tape-recorded and field notes were taken.

A pilot study was conducted with one patient to refine the question and to test whether the research and the interview were feasible. The patient understood the question and the interview went according to plan, so no changes were made. This interview was therefore added to the main sample.

### **Data analysis**

Data analysis was done according to Tesch's descriptive method (Tesch, cited in Cresswell, 2003:192 -193) of qualitative data analysis, by using the following steps:.

- Interviews were transcribed verbatim and analysed by the researcher and an independent coder
- Each interview was read to form an idea of the storyline
- The interview was read a second time so that the researcher could think about the underlying meaning
- Notes were written in the margin about the underlying meanings
- Similar topics were then clustered together under topics
- From these topics, themes and subthemes were formed
- An independent coder, experienced in the field of qualitative research, and the researcher analysed the data separately. After discussions and consensus between the researcher and the coder, the identified themes were finalised
- A literature study was done to verify the findings of the study.

### **Trustworthiness**

Measures to ensure trustworthiness were applied, namely credibility, dependability, transferability and applicability as outlined in Burns and Grove (2009:392 - 393). Credibility was obtained by means of prolonged engagement during the whole peri-operative phase of the participant, keeping reflective notes, and bracketing existing knowledge and preconceived ideas and especially personal views. Transferability was achieved by means of purposive sampling, using a scientific education programme, providing a description of dense methodology and conducting a literature study.

Dependability was achieved by providing a complete description of the methodology, including a literature study to maintain clarity, and the use of an independent coder who was skilled in the field of research.

### **Ethical measures**

Ethical approval was given by the Ethics Committee at the University of Johannesburg. Permission to conduct the study was obtained from the two private hospital groups. Written informed consent was obtained from the patients before they participated in

the study. Anonymity, confidentiality, non-maleficence and beneficence were ensured (Burns & Grove, 2009:184-201).

**Realisation of sample**

Data saturation was achieved and repetitive themes were identified after eight patients had been interviewed.

The sample consisted of eight white Afrikaans participants, six males and two females, between the ages of 50 and 75 years, with the diagnosis of coronary artery disease that required CABG. These patients were also in a private sector hospital. It is important to note that most of the participants were Afrikaans males. In the Afrikaans culture the male figure is generally the dominant figure, tending to make the majority of the decisions and also tending not to show any emotions. The family usually looks to the male for guidance. One female patient, aged 64 was negative towards the programme, as she and her partner had not wanted the operation to be done. Her children had pressurised her into having the surgery.

**DISCUSSION OF RESULTS**

Two main categories with subcategories were identified.

| Main category   | Sub-categories   |
|---|--|
| Empowerment of the patient undergoing CABG surgery            | Improved peri-operative knowledge of the patient undergoing CABG surgery. The patient’s knowledge was improved though the educational programme which consisted of: <ul style="list-style-type: none"> <li>• An educational booklet</li> <li>• An educational model</li> <li>• The educationalist</li> </ul> |
|   | Positive family support will lead to empowerment of the patient undergoing CABG surgery.   |
| Improved satisfaction of the patient undergoing CABG surgery. | Improved satisfaction leading to emotional calmness.   |

Verbatim quotations of the patients are given in italics in the discussion of the findings.

**EMPOWERMENT OF THE PATIENT UNDERGOING CABG SURGERY**

According to Oberholzer, Nel, Poggenpoel and Myburgh (2009:145), “empowerment is a social process that enables people to understand their situation and to make their own decision in order to take action to adapt”. If a patient is not empowered, a sense of hopelessness may be experienced. *“I shivered and felt my world was falling apart”*. *“I was immensely scared and did not know if I should go for the operation and felt as if*

*I could not talk to my family about it". "I couldn't make any decisions concerning the future". "Going through the programme I burst out in tears (I never cry), I felt as though the whole world was on my shoulders as I had to pretend at home that everything was okay, I felt a huge sense of relief afterwards".* Toofany (2006:18-21) cautions that when people feel hopeless they will not take part in anything as they tend to believe that their involvement will not make a difference. Support and information contribute to decision making that is vital for empowerment. Lopez, Ying, Poon and Whi (2007:1304-1315) pointed to the association of the emotional state of a patient as a critical variable for the success rate of the operation, which has an influence on the co-morbidity rate after surgery.

By empowering the patient through the programme, the patients felt as though they were in control of the situation and that they could take their rightful place in the family. The following quotations from the patients in this current study demonstrate this: *"After going through the programme, I felt calm and peaceful and knew that I had to go for the operation". "The programme motivated me to go for the operation". "I got all my family the night together and gave them the book to read and told them what to expect during the recovery time".*

Empowering the family as well as the patient can create a functional family instead of a dysfunctional one and the family can then face this experience together (Rantanen, Kaunonen, Astedt-Kurki, & Tarkka, 2004:158-166).

The pre-operative educational programme empowered the patient to take control of the situation and to make certain decisions. *"Before the programme I was very nervous, but going through the programme I thought no ... I think I will try the operation". "I gave the booklet to my wife and told her to read it then she would not be so anxious". "I told my children what is going to happen and that they must stop worrying".* Information enables patients to make informed decisions.

Spalding (2004:147) found that one of the outcomes of a pre-operative educational programme is empowerment, thereby enabling patients to take control and responsibility for their needs. Evidence that patients have been empowered can be demonstrated by the actions that they take: *"I gave the booklet to my wife and told her to read it then she would not be so anxious".* Patients are empowered through their trust in the educationalist and this leads to confidence in decision making (Spalding, 2004:150).

### **Improved peri-operative knowledge of the patient undergoing CABG surgery**

According to Gallagher and McKinley (2007:249), patient education can be considered an important aspect of patient care. If patients are not educated regarding their care, they may be at risk of complications, for example more post-operative pain, more readmissions and increased length of stay. The purpose of pre-operative education is to give the patient and their family the tools that they need to be able to make informed decisions

(Lewis, Heitkemper, Dirksen, O'Brien & Bucher, 2007:815). Attitudes greatly affect the recovery rate; Graziano (2004:2). Therefore patients need information about what to expect. They also need to understand that their active participation in their care is necessary for a complete and successful recovery. This is also emphasised in this study: *"Better to know ... otherwise I could have fought the breathing machine"*.

### **The patient's knowledge was improved though the educational programme**

The educational programme consisted of an educational booklet, an educational model and the educationalist and will be described in this sequence.

The educational booklet provided understanding of the procedure that was going to be performed; it also gave the patients time to read the information again and again at home, thereby improving their knowledge.

According to Black and Hawks (2009:192), the effects of surgery decrease the patient's cognitive ability and therefore it is imperative that the patient receives written instructions before admission so that the nurse can simply reinforce these instructions and answer questions of the patient. A patient remarked the following about the booklet: *"My angiogram was on a Friday and the doctor told me to be back in the hospital Monday. I told him to forget it, as I would not go for the operation. I was given the booklet and during the weekend my wife and I read it. On Sunday reading it for the second time we decided to go ahead with the operation. Monday I phoned the doctor and said I will be in the hospital that day"*. Another quotation from a patient was *"Man .... That booklet gave me peace and I had time to look at it again and again"*.

Patients who experience great anxiety have a tendency to forget or to misinterpret the verbal information given to them. The educational booklet therefore acts as reinforcement of the information given (Spalding, 2003:288). *"The sketches and everything I could see and learn was exactly as it was"*. The booklet can be studied repeatedly and at the patient's convenience, as this can aid understanding and decrease the anxiety of both the patient and the family (Spalding, 2003:288). It can also aid the family in understanding the procedure and what to expect, and can help allay their fears and anxiety (Graziano, 2004:1). The patient is given ideas for behaviour and coping strategies that can be used for specific problems (Kozier & Urb, 2008:270). The patients experienced the educational model as a genuine picture of what they were about to go through.

Kubzansky, Davidson & Rozanski (2005:10-14) relate the anxiety that patients experience to physical procedures, such as intubation, drains, having to sleep in an unfamiliar environment, as well as how they will tolerate these procedures post-operatively. One patient remarked: *"The doll, it was the real thing. When I woke up after the operation I felt ... all the lines, catheters and drains and knew it was just like the doll. Then I knew I was going to be okay and went back to sleep"*. Spalding (2003:285) claims that patients have an increase in knowledge and remembrance through a visual

image of exactly what to expect post-operatively. The use of a model also helps dispel patients' fears of what they have heard previously. *"The doll meant for me the most. I could understand everything and was not so afraid anymore"*. Urden et al. (2006:49) assert that demonstration and explanation enhance adult learning. *"When I saw the doll I realised that is how I was going to look after the operation and that made me cry and with that the tension I was experiencing was relieved. I can't understand why I cried because I am a man and I should not cry"*. However, one patient misinterpreted the use of the model: *"That is the stupidest thing I have every seen I am not a little girl anymore that you must show me a doll to understand what the operation is all about"*.

The patients experienced the educationalist as a support resource regarding information. A hospital can be viewed as an anxiety-producing experience. If the patient has had prior contact with a friendly and informative person, this can help to familiarise the patient with the hospital and then decrease the anxiety experienced (Spalding, 2003:287). The patients in this study were also of this opinion, as revealed by the following comments: *"The fact that you were there as well as explained it so well made me more peaceful and not so anxious"*. *"You know we call you angel, as you made it that not only me but also my relatives took the operation much better"*.

Spalding (2003:286) is of the opinion that allowing the patient an opportunity to ask questions ensures that the programme is patient-centred and helps the patient and family to clarify any misunderstandings. Urden et al. (2006:49) state that informal discussions can take place anywhere and at any time; the need is to focus on what the families' immediate concerns are and not on trivial information.

### **Positive family support will lead to empowerment of the patient undergoing CABG surgery**

The patients experienced their support systems as empowering. *"I read it through with my wife and whole family this helped us to know what was going to happen. As they were not so anxious they could support me better"*. *"As my family knew what to expect they were not so worried and that made me more at ease"*. *"I didn't have to pretend any more that everything was okay, as we all knew what was going to happen so it felt that we were all working to the same goal"*.

Elliott et al. (2007:598) maintain that critical illness has an impact on the patient, as well as the family, as it is a threat to the stable family unit. The family experiences a feeling of loss of control and this also causes anxiety and uncertainty for them. They are usually excluded from information given to the patient and this can lead to the family experiencing anxiety, which can be reflected onto the patient.

### **Satisfaction about the decision to undergo cardiac surgery**

The last main theme that was identified was satisfaction. The patients experienced satisfaction that led to calmness for making the right decision to opt for the CABG

surgery, as can be seen in the following comments: *“I was satisfied that I made the right decision for going for the operation”*. *“I am calm as I know what to expect”*.

Lewis et al. (2007:350) indicate that pre-operative teaching increases patient satisfaction and can lead to a decrease in post-operative fear, anxiety and stress. Provision of accurate information about the CABG operation may decrease the effects of stressors, and may help to alleviate anxiety and fear (Urden et al., 2006:43) and instil calmness. Comments from the patients in this regard were: *“If a person knows what is going to happen, you can prepare yourself better”*. *“After the programme I was not scared anymore”*.

## **LIMITATIONS OF THE STUDY**

The following limitations were identified:

- The study did not include patients who underwent an “off-pump” CABG.
- Due to the contextual nature of this study, the results cannot be generalised.
- The experiences of the family regarding the pre-operative educational programme were not described nor explored.

## **RECOMMENDATIONS**

- Patients should be assessed regarding their emotional status and the programme should be adapted to meet the needs of the patients. Various methods should be implemented for the pre-operative educational programme.
- Pre-operative educational programmes for patients undergoing CABG should be implemented in the private health sector in South Africa.
- Although this research found that most of the patients stated that the programme relieved their anxiety, further research needs to be undertaken to prove whether the patient’s anxiety was in fact decreased.
- The experience of the family regarding the pre-operative educational programme should be explored.

## **CONCLUSION**

The majority of the participants were positive about the programme and felt that it helped them and had empowered them to take control of an anxious situation in their lives.

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