The impact of therapeutic relationship on preoperative and postoperative patient anxiety

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KEY WORDS

Preoperative Anxiety, Postoperative Anxiety, Interpersonal Relations Model, Nursing Intervention

ABSTRACT

Objective
The aim of this study was to determine the effectiveness of Peplau's Interpersonal Relations Model on preoperative and postoperative patient anxiety.

Design
The study used a randomised clinical trial design.

Setting
The sample of this study consisted of 120 patients who attended the surgery clinic at Atatürk University Hospital in Erzurum, Turkey between 1 June and 30 October 2004.

Subjects
The patients were randomly assigned to the study group (n=60) and the control group (n=60).

Interventions
Peplau's Interpersonal Relations Model intervention was implemented with the study group.

Main Outcome Measure
The effectiveness of Peplau's Interpersonal Relations Model intervention with preoperative and postoperative patient's level of anxiety.

Results
The level anxiety of patients in the study group decreased considerably preoperatively. There was a statistically significant difference between the study group and the control group in terms of the mean anxiety score postoperatively and before discharge from the hospital.

Conclusion
The researchers concluded that decreased patient anxiety was likely to be associated with intervention based on Peplau's Interpersonal Relations Model. Peplau's model can be recommended as an intervention for nurses to improve patient care by decreasing anxiety in the preoperative and postoperative period.

INTRODUCTION

Patients who undergo surgery experience acute psychological anxiety in the preoperative and postoperative period (Varcarolis 1994). According to Peplau, anxiety is an energy source inextricably related to human development from infancy to death and is required for biological and emotional growth (Peplau 1991). Anxiety about a surgical procedure may be reflected in numerous psychological symptoms in the preoperative and postoperative period. This phenomenon has been the subject of considerable study (Maward and Azar 2004). Nijkamp et al (2004) found that patient anxiety was the highest before surgery, decreased immediately after surgery, and increased again postoperatively.

In recent studies, prevalence rates of anxiety have been found to range from 11% to 80% among adult patients (Caumo et al 2001; Maranets and Kain 1999). One study indicated that sixty-two percent of patients suffered from preoperative anxiety; more women than men were affected; and more frequently after intra-abdominal surgery (Malek et al 2004). Preoperative anxiety is influenced by the patient's concern about their general health; uncertainty about the future; type of surgery and anaesthesia to be performed; postoperative discomfort and pain (White 1986); incapacity; loss of independence; and fear of death (Egan et al 1992).

Palapattu et al (2004) suggest that patient anxiety may decrease with the expectation of a positive outcome and with social support provided to the patient. They determined that demographic factors such as gender, age, and marital status were not significantly associated with the overall prevalence of anxiety (Palapattu et al 2004). Conversely, Nijkamp et al (2004) found that gender influenced anxiety levels in patients. Women were more likely to experience higher levels of anxiety than men preoperatively.

Some studies suggested that increased anxiety levels preoperatively, was associated with an expectation of behavioural change postoperatively. In other words, the anxiety level of patients increased because they considered they would have to make behavioural changes postoperatively (Otawara et al 2004; Kain et al 1999). Generally, anxiety scores decreased significantly postoperatively (Otawara et al 2004). Not only the provision of the details about the expected recovery but also information about the preoperative period, the operative procedures and recovery led to significant reduction in self-reported anxiety (Maward and Azar 2004).

Patients continue to experience anxiety in the postoperative setting despite their increasing knowledge and access to knowledge and technological advances (Maward and Azar 2004). High anxiety may adversely influence anaesthetic induction and patient recovery (Kindler et al 2000), as well as decrease patient satisfaction with the preoperative experience (Thomas et al 1998). Consequently, there has been a growing interest in the study of anxiety reducing interventions and in the possible influences of preoperative anxiety on the course and outcomes of surgical treatments (Caumo et al 2001).

While some studies demonstrated a statistically significant decrease in patient anxiety using psychological consultations from the preoperative period to the postoperative period (Gul and Ali 2004; Palapattu et al 2004), none could be located that used a model designed specifically for implementation by nurses.

The central element of Peplau's model is to develop a therapeutic Relationsship between patient and caregiver. Peplau's model is a process-organised model based on the human Relationsship between: *"an individual who is sick, or in need of health services, and a nurse especially educated to recognise and to respond to the need for help"* (Peplau 1952 pp.5-6). According to Peplau, the therapeutic relationship is the central element in the nursing process (Peplau 1991). Peplau describes four phases in the nurse-patient relationship: orientation, identification, exploitation, and resolution. In the *orientation* phase, the individual has a felt need and seeks professional assistance. As the relationship moves into the *identification* phase, the patient begins to respond selectively to persons who seem to offer the help needed. The phase of *exploitation* refers to the use

of the relationship to the fullest possible extent in order to derive the greatest amount of benefit. The phase of *resolution* is a freeing process in which the patient's needs for psychological dependency and sustaining relationships have been worked through in order to strengthen their ability to stand alone.

Because of these distinctive features, the researchers chose to examine the use of Peplau's Interpersonal Relations Model in reducing patient anxiety

Aim

The purpose of this randomised clinical trial was to investigate the effects of an intervention based on Peplau's Interpersonal Relations Model on preoperative and postoperative patient anxiety.

METHODS

Participants

The current study used a randomised clinical trial design. The study was based on a series of 120 consecutive patients who attended a general surgery clinic at Atatürk University Hospital, Erzurum, Turkey between 1 June and 30 October 2004 as a result of inguinal hernia, goitre and gall bladder disease. The patients attending the surgical clinic were given verbal information about the study and were prospectively invited to participate in the research when they were hospitalised. The patients were randomly assigned to the study group (n=60) and control group (n=60). The study group comprised patients who attended the surgical clinical on the first two days of week. The control group comprised patients who attended the surgical clinical the following two days of week. This assignment continued until 60 patients in each group had been recruited. The eligibility criterions were: being registered in the general surgery clinic; being age 18 years or older; having a surgical operation; and being mentally capable of giving voluntarily consent.

Measurement and Data Collection

Data were collected using the Beck Anxiety Inventory (BAI) (Beck et al 1988) together with an additional form to collect demographic characteristics of participants. The BAI indicates how much anxiety the person has felt during the past month in response to particular stimuli. The BAI was designed to discriminate anxiety from depression in individuals and is a recommended tool to assess anxiety in clinical and research settings.

The demographic data form

The demographic data form was designed to elicit information about age, sex, diagnosis duration, monthly income, marital status, and education level (see table 1).

Beck Anxiety Inventory (BAI)

The BAI developed by Beck in 1988 (Beck et al 1988) was adapted to Turkish culture in 1998 and its validity was tested and found to be valid by Ulusoy et al (1998). Individuals respond to an inventory of 21 items on a 4-point Likert scale (3= very serious, 2= moderately serious, 1= slightly serious, 0= not serious) producing a score between 63 and 0. The Turkish version of the inventory's internal consistency was 0.93. In this study, internal consistency of the BAI was 0.87. A higher score reflects higher anxiety.

The researchers collected baseline data (BAI) on patient anxiety from the participants in the study and the control group. The first measurement for anxiety was made on the first day the patients in both groups were sequentially admitted to the general surgery clinic in preoperative period. The Interpersonal Relations Model intervention was applied (see outline of care provided below) by the researchers to the patients in the study group immediately after the first measurement. The intervention was provided in the surgical clinic for 12 hours over one day in one week during the preoperative period. The second measurement for anxiety was carried out on the day before surgery for both groups. The third assessment for anxiety was completed on the first day of the postoperative period for both groups. The fourth evaluation for anxiety was conducted for both groups immediately before discharge from hospital. All assessments for anxiety and the model interventions were carried out by the researchers.

Application of the Intervention

The questionnaire and BAI were applied to the study group and the control group before the intervention was implemented. Then, the model intervention was

conducted with the study group using the activities of caring in the model's four phases listed below (Peplau 1988). The intervention occurred over one week and the researchers spent approximately 84 hours with each patient in one week.

Orientation phase: At the start of the intervention the researchers acquainted themselves with the patients in the study group and initiated communication with them. The researchers and the patients worked together to identify and define the patient's health problems. The researchers also discussed symptoms with the patients and explained what to expect during the preoperative and postoperative period. All patients in the control group expressed a need for professional assistance. According to the patients' statements, the researchers identified the source of the patient's anxiety as the fear of becoming disabled. The researchers helped the patients to recognise their anxiety. Accurate and current information on the operation was provided to the patients and the patients informed about diagnostic tests and potential treatments.

Identification phase: The relationship between the researchers and the patients continued and developed during the identification phase. The patient's anxiety was explored with them in more detail. Identified problems included the patients' feelings about their surgery, which were fear, anxiety, their diagnosis, the outcome of their surgery and their prognosis. The patients had mixed emotions about their forthcoming surgery. The researchers provided one to one interaction during this period and provided information about preoperative and postoperative care and treatment, the role of remedies, possible complications, nutrition, anaesthesia, elimination, fear and pain. This type of discussion helped the patients and their families to gain confidence in dealing with their health problem and promoted hope and optimism. The patients began to feel a sense of belonging and gained confidence in dealing with their anxiety and health care needs. The researchers facilitated the development of collaboratively determined goals which led the researchers to enter the next phase of the relationship.

Exploitation phase: Some patients made full use of all available resources and began to control and search for their own answers to their health problems. Positive supportive responses provided by the researchers facilitated continuing development of the therapeutic relationship. Throughout this time, the researchers had the roles of counsellor and source person. The researchers developed a trusting relationship with the patients using one to one interactions. With each interaction the patients became visibly more comfortable.

Resolution phase: The final phase of the model is where the patients become independent and the relationship between the researchers and patients is dissolved. The patients were encouraged to call the researchers for information, support, and advice. The researchers continued to act as resources in providing information and support about such issues as health maintenance, employment, and other lifestyle issues. Eventually, the patients needed less one to one interaction with the researchers and no longer sought further assistance in arranging continuing support.

The intervention was not applied to the control group.

Ethical Considerations

The study received approval from the ethical committee at the Atatürk University and informed consent was obtained from each participant. Participants were assured of their right to refuse to participate or to withdraw from the study at any stage.

Data Analysis

The intervention formed the independent variable of the research. The anxiety score formed the dependent variable. There were no missing data. In the statistical analysis, two-tailed independent sample t-test was used to examine the difference between the study group and the control group anxiety scores. Mauchly's Test of Sphericity in General Linear Model and post-hoc (Tukey) test were conducted to determine the inter group difference of the anxiety scores in both groups. Covariance analysis was used

to investigate the relationship between the anxiety score and demographic characteristics.

FINDINGS

A total of 120 patients were included in the study database. The study group and the control group demographic characteristics showed no difference in the mean age of the patients. Family monthly income was low in both groups; all the participants had health insurance; 36.7% of the patients in the study group and 50.0% of the patients in the control group had graduated from primary school; average length of diagnosis duration was also similar in both groups. The demographic characteristics of the patients are given in table 1.

The statistical tests showed there were no statistically significant differences between the control group and the study group in terms of the demographic characteristics (table 1).

Table 1: The demographic characteristics of the study group and the control group and chi square results

Demographic characteristics	Study Group (n=60)		Control Group (n=60)		χ^2 p
	N	%	n	%	
Diagnosis					
Inguinal Hernia	16	26.7	28	46.7	$\chi^2 = 5.39$
Goitre	26	43.3	10	16.7	df = 2
Gall bladder	18	30.0	22	36.7	p> 0.05
Gender					$\chi^2 = 1.07$
Female	36	60.0	28	46.7	df = 1
Male	24	40.0	32	53.3	p>0.05
Education					
<Primary school	14	23.3	10	16.7	$\chi^2 = 0.61$
Primary school	22	36.7	39	50.0	df = 3
High school	16	26.7	16	26.7	p> 0.05
University degree	8	13.3	4	6.7	
Occupation					
Civil servant	14	23.3	18	30.0	$\chi^2 = 1.97$
Commercial	10	16.7	4	6.7	df = 3
Agriculture	8	13.3	12	20.0	p> 0.05
Home duties	28	46.7	26	43.3	
Marital status					$\chi^2 = 0.62$
Married	52	86.7	54	88.3	df = 1
Single	8	13.3	6	11.7	p> 0.05

	Mean (SD) Study Group	Mean (SD) Control Group	
Age (year)	40.8 (10.5)	44.3 (9.6)	t =1.35, df= 58, p> 0.05
Monthly income (US $)	382.6 (228.5)	370.1 (198.8)	t = 0.22, df = 58, p> 0.05
Diagnose duration (month)	4.8 (4.9)	3.8 (3.9)	t = 0.91, df = 58, p> 0.05

The distribution and anxiety scores of the patients in both groups are shown in table 2. There were no statistically significant differences between the study and the control group regarding the patient anxiety scores before the intervention and operation.

The mean score of patient anxiety decreased in the study group following the intervention applied preoperatively. Additionally, the anxiety levels of the patients in the study group were reduced postoperatively and before discharge from the

hospital and these differences were statistically significant.

Table 3 shows the differences between the within group measurements for the study group and the control group. There were statistically significant differences between measurement times for patient anxiety in the study group ($p<0.001$). The post hoc test suggested that the difference between measurement times was created by the third and the fourth measurement. There also was a significant decrease in the mean scores of patient anxiety for all measurement times in the study group. This result indicates that the intervention was associated with reduced level of patient anxiety in the study group.

Table 2: The distribution and statistical evaluation of the anxiety scores of the patients in the study group and the control group

The Intervention	The study group (n=30) Mean (SD)	The control group (n=30) Mean (SD)	t and p
Before intervention	18.5 (8.5)	18.2 (10.5)	0.16, p>0.873
Before operation	14.8 (9.7)	17.7 (10.6)	1.11, p>0.270
After operation	3.7 (4.7)	14.7 (6.2)	7.61, p<0.001
Before discharge	1.4 (2.7)	9.7 (4.4)	8.79, p<0.001

df= 58

Table 3: The statistical evaluation of the repeated measurement of the inter croup anxiety level of the patients in the study group and the control group

Groups	Mean (SD)	Mauchly's W	Approx Chi-Square	df	significant
Study Group		0.044	86.63	5	p<0.001
Measurement 1	18.5 (8.5)				
Measurement 2	14.8 (9.7)				
Measurement 3	*3.7 (4.7)				
Measurement 4	*1.4 (2.7)				
Control Group		0.002	175.60	5	p<0.001
Measurement 1	18.2 (10.5)				
Measurement 2	17.7 (10.6)				
Measurement 3	14.7 (6.2)				
Measurement 4	*9.7 (4.4)				

* Difference creating measurement

There were statistically significant differences between measurement times for patient anxiety in the control group ($p<0.001$). The post hoc test suggested that the difference between measurement times occurred by the fourth measurement. There was a reduction in the mean scores of patient anxiety in the control group before discharge from hospital.

The effect of demographic characteristics on patient anxiety was examined. Covariance analysis revealed that the patients' occupation and family monthly income affected the anxiety level of the patient ($p<0.05$). Civil servant patients had less patient anxiety (mean score: 15 ± 9.9) while higher monthly income increased the anxiety level of the patients (mean score: 33.0 ± 4.5).

DISCUSSION

Peplau's interpersonal Relations model has sufficient clarity to be operationalised in pre and perioperative nursing care. The literature review did not elicit any

previous study using Peplau´s model for reduction of preoperative and postoperative patient anxiety. Therefore the results of the current study are discussed with findings of studies indirectly related to this study.

This study examined the effectiveness of an intervention based on Peplau's Interpersonal Relations Model on preoperative and postoperative patient anxiety. The results of this study indicated that the intervention decreased patient anxiety levels.

There were no statistically significant differences between the study and the control group regarding patient anxiety scores before the intervention and surgery. The present study showed that the mean score of patient anxiety decreased in the study group following intervention and before surgery. Additionally, the anxiety level of the patients in the study group was extremely reduced postoperatively and before discharge from hospital and there were statistically significant differences between the study group and the control group (table 2). This result showed that the intervention was effective in decreasing patient anxiety in the study group.

One study evaluating the effect of preoperative visits by operating theatre nurses on preoperative and postoperative patient anxiety in two groups of general surgical patients and showed there was a significant decrease in anxiety 24 to 72 hours postoperatively for the visited groups (Martin 1996). Gul and Ali (2004) showed there was a significant reduction in the mean scores of study and control groups after four weeks of counselling on reducing anxiety levels. Peplau's (1952) model provides a useful framework for nurses and guides the establishment of the model intervention.

There were statistically significant differences between measurement times in patient anxiety in the study group and anxiety scores were reduced in all measurements. This result showed that the intervention was associated with a reduced level of patient anxiety in the study (see table 3). A previous study using Peplau's Interpersonal Relations Model showed a decrease in level of anxiety to a manageable level (Yamashita 1997). McGuiness and Peters (1999) found that the Interpersonal Relations Model was an ideal guide for nursing practice when nurses worked with patients with chronic conditions such as multiple sclerosis. Otawara et al (2004) concluded that anxiety score decreased significantly without intervention after surgery. This is supported by Nijkamp et al (2004) who also determined that the level of anxiety decreased immediately after surgery. The communication between the researchers with the patients by repeated measurements could also have contributed to a decrease in patient anxiety in the control group in the current study.

In our study, Peplau's model was associated with a lowering of patient anxiety. Peplau's allusions to the development of each individual nurse and the model use of self as a tool in professional practice, were especially relevant. There is, in this model, space for the individual practitioner to both reflect on and build interpersonal skills and to mix concepts from Peplau's writing with concepts from other knowledge bases.

Covariance analysis revealed that only occupation and family monthly income affected the anxiety level of the patient, but no other demographic characteristics. One study indicated that demographic factors such as gender, age, occupation and marital status were not significantly associated with the overall prevalence of anxiety (Palapattu et al 2004). Maward and Azard (2004) found that there was not a significant relationship between anxiety level and demographic characteristics, although one study did show a significant association between degree of preoperative anxiety and gender. Female gender was associated with higher risk for preoperative anxiety (Caumo et al 2001). In the current study, the characteristics of the sample group were different from features of sample groups in other studies.

Study Limitations

Although these findings give valuable insight into the reduction of preoperative and postoperative patient anxiety, the findings in this study must be interpreted with caution. The researchers provide the Interpersonal Relations Model intervention and

also collect the data from each patient by asking the questions from the BAI. This can be seen as a limitation.

The sample in this study reflects only one group of patients in Turkey. The findings therefore cannot be generalised to all patients with preoperative and postoperative anxiety in Turkey or in other countries. Further research is recommended to replicate this study. Future studies should include larger samples from different patient groups.

CONCLUSION

In the current study, Peplau's Interpersonal Relations Model was found to be useful in reducing preoperative and postoperative patient anxiety. The researchers concluded that an intervention related to based on the Interpersonal Relationship Model was likely to be associated with decreased patient anxiety. The results of this study show that the Interpersonal Relations Model can be recommended as a guide for nurses in order to improve their ability to be more effective in nursing care for patients with anxiety.

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