The Effect of Education on Anxiety in the Pre-Surgical Spine Patient

Joan L. Skopal
MSN, RN, CNOR
Learning Objectives

• Identify the impact of back pain on the individual and society

• Perceive the psychological & physiological impact of anxiety on the patient

• Discuss the effect of nursing education on the perioperative experience
Significance of Problem

- 85% of the U.S. population
- 2012: 28 million hospitalizations
- 2013: 17% of GDP: healthcare expenditures

2003-2012: Top 5 surgeries
- Total knee arthroplasty (TKA)
- Coronary angioplasty
- Non-fusion spine surgeries
- Total or partial hip arthroplasties
- Spine fusions
Pre-operative Patient Education

- Decreases anxiety
- Increases the patient’s control over their pain
- Increases confidence
- Greater sense of preparation for the upcoming surgery
Anxiety & Surgery

• Pre-operative anxiety
  o is normal
  o compromises the peri-operative experience
  o a reduction can enhance surgical outcomes
Anxiety Reduction Methods

Music Therapy

Aromatherapy

Healing Touch

Exercise & Leisure Time Activities

Religion, Spirituality, Meditation

Nursing Presence

Education
### Review

<table>
<thead>
<tr>
<th>Surgery creates anxiety</th>
<th>Pre-operative anxiety is normal</th>
<th>Anxiety induces the stress response</th>
<th>Reducing anxiety can alter the stress response</th>
<th>Education reduces patient anxiety</th>
</tr>
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- Surgery creates anxiety
- Pre-operative anxiety is normal
- Anxiety induces the stress response
- Reducing anxiety can alter the stress response
- Education reduces patient anxiety
## Purpose of Research

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Question</th>
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<tbody>
<tr>
<td>To compare the anxiety level of a sample of pre-surgical spine patients before and after an education class</td>
<td>Does attendance at a structured, hospital-based, pre-operative education class influence the level of anxiety of the pre-surgical spine patient as measured immediately prior to the class and immediately after the class?</td>
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</tbody>
</table>
Organizing Framework

• Environment of Care Theory of Florence Nightingale

• Andragogy Theory of Malcolm Knowles
Research Methodology & Design

Research Method
- Quantitative
- Non-experimental

Research Design
- Comparative
  - Single-group
Convenience Sample Selection

Eligibility Criteria

• Spine surgery patient

• Attendance at a hospital-based, spine-focused, pre-operative education class

• At least 18 years of age

• No participation in any other pre-surgical education class

• Completion of:
  ✓ Consent form
  ✓ Demographic survey
  ✓ Visual analog scale before and after the education class
IRB and Instrumentation

Protection of Subjects
- Informed Consent
- Voluntary Participation
- Participant Confidentiality

Instrumentation
- Demographic Survey
- Visual Analog Scale for Anxiety (VAS-A)
Research Instrument

Visual Analog Scale for Anxiety

Compared to:
- Hamilton Anxiety & Depression Scale
- Beck Anxiety Inventory
- Amsterdam Preoperative Anxiety Scale
- Spielberger’s State Trait Anxiety Instrument

Valid and Reliable
Visual Analog Scale – Anxiety

Post-Test

How anxious do you feel right now?

0 100
Calm Anxious
Data Analysis

Data Collection and Analysis

Done to determine if patient anxiety levels were different before and after education

Statistical Package for the Social Sciences (SPSS), Version 22

Statistician consultation
# Research Findings

<table>
<thead>
<tr>
<th>Background Characteristics</th>
<th>Details</th>
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<tbody>
<tr>
<td>Convenience Sample</td>
<td>1 orthopedic spine practice Southwest region of the U.S</td>
</tr>
<tr>
<td>Spine-focused education</td>
<td>32 class attendees 20 eligible participants</td>
</tr>
<tr>
<td>Structured, hospital-based</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>19: Non-Hispanic White 1: African-American</td>
</tr>
<tr>
<td>Age Range</td>
<td>30 – 79</td>
</tr>
<tr>
<td>Sex</td>
<td>Male: 13 Female: 7</td>
</tr>
<tr>
<td>Types of Spine Surgery</td>
<td>Cervical: 8 Thoracic: 1 Lumbar: 11</td>
</tr>
</tbody>
</table>
## Research Findings

<table>
<thead>
<tr>
<th>Presentation of the Data</th>
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</thead>
<tbody>
<tr>
<td><strong>Pre-education anxiety</strong></td>
</tr>
<tr>
<td><strong>Post-education anxiety</strong></td>
</tr>
<tr>
<td><strong>After education</strong></td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

### Men
- Pre-education: 46
- Post-education: 33

### Women
- Pre-education: 20
- Post-education: 14

**Findings:**
Education lowered the level of anxiety in the pre-surgical spine patient after a structured, hospital-based education provided by a nurse.
Findings

Paired t-test

Paired samples t test was calculated to compare the mean pretest score to the mean post-test score of the anxiety levels of the sample. A significant difference from the pre-test anxiety levels and the post-test anxiety levels was found.

<table>
<thead>
<tr>
<th>Paired</th>
<th>Pre - Mean</th>
<th>SD</th>
<th>Post Mean</th>
<th>Lower</th>
<th>Upper</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
</table>

Pearson’s r test

Pearson correlation coefficient was calculated for the relationship between the pre-education anxiety level VAS score and the post-education anxiety level VAS score. A strong positive correlation was found indicating a significant linear relationship between the two variables.
Discussion

- Structured, pre-operative education that addresses patient fears and peri-operative events reduces patient anxiety

- Education that reduces patient anxiety can result in
  - shorter hospital stays
  - reduced incidence of surgical site infections
  - shorter overall post-operative recovery
  - decreases in hospital resources and patient expenditures
Recommendations for Further Study

• Larger sample size

• Effect of pre-surgical anxiety on post-operative pain

• Educational material and delivery methods

• Cortisol measurements
  o At time of education
  o Immediately prior to and after surgery
  o Post-op days 1 and 2
Summary

- Spine surgeries are increasing
- Patient anxiety is reduced with pre-operative education
- Nurse educators can have a positive and critical impact on patient outcomes and quality of life