Brief report

The effect of pre-operative psychological interventions on post-operative outcomes in Chinese women having an elective hysterectomy

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Objective. To test the effect of cognitive interventions with information given pre-operatively on post-operative outcomes in Chinese women undergoing elective hysterectomies.

Design. An experimental design. The experimental group ($n=48$) received cognitive distraction and cognitive reappraisal with information, the control group ($n=48$) received information only.

Outcome measures. Post-operative anxiety (Chinese State-Trait Anxiety Inventory and mean arterial blood pressure), post-operative requests for analgesia (drug record), post-operative pain (visual analogue scale) and satisfaction (Chinese Patient Satisfaction Questionnaire).

Results. Cognitive distraction and reappraisal with information produced lower post-operative anxiety and pain scores and higher levels of satisfaction than information only. Post-operative analgesic requests did not differ between groups.

Conclusions. Cognitive distraction and reappraisal with information, when used with women undergoing a hysterectomy may have significant clinical benefits.

For many women the uterus is an important symbolic organ that is the core of their womanhood (Dennerstein & Wood, 1982). Having a hysterectomy causes many women stress, and they often fear for its effect on their sexual relationships, attractiveness and sense of femininity (Fogel-Woods, 1995). Interventions such as information, skills teaching and psychosocial support have been shown from meta-analyses to promote positive post-operative outcomes in patients having surgery (Devine, 1992; Suls & Wan, 1989). Little is known about whether cognitive interventions such as reappraisal and distraction improve post-operative outcomes in women undergoing a hysterectomy.

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Langer, Janis, and Wolfer (1975) developed a strategy involving the cognitive reappraisal of surgery as a stressful event. In this study, a group of patients was asked to replace their worries about surgery with thoughts about the positive aspects of the hospital experience and to rehearse these positive thoughts. When compared with placebo control and information groups, patients having the cognitive reappraisal intervention showed better adjustment in terms of less post-operative anxiety, reported less pain and used fewer medications. In a study involving patients undergoing hysterectomy, women having a cognitive intervention had better outcomes in terms of pain level, analgesia use and total post-operative symptoms than women receiving information or no intervention. In particular, significant differences were found for ratings of anxiety, with the cognitive coping group reporting lower anxiety scores than the information and control groups. Patients in the cognitive coping group also took fewer oral analgesics and were given fewer analgesic injections. Moreover, patients in the cognitive coping group reported less pain and fewer worrying thoughts.

The above studies show that cognitive interventions may be better than information interventions. However, few studies compare cognitive interventions with other interventions, and fewer still investigate cognitive interventions in women undergoing hysterectomies. Thus, more work is needed before the benefits of cognitive interventions can be established.

Drawing on the crisis theory of coping (Moos & Schaefer, 1984) Lazarus and Folkman (1984) noted that individual differences in appraisal of threat would be expected to make a difference to a person’s experience of surgery and his/her response to psychological interventions. The aim of the present study was to test the effect of information plus cognitive interventions given pre-operatively on post-operative outcomes in Chinese women undergoing an abdominal hysterectomy.

**Methods**

**Design**

Ninety-six Chinese women undergoing elective abdominal hysterectomy were randomly allocated into an experimental group \(n = 48\), which received cognitive interventions (distraction and reappraisal, Lazarus & Folkman, 1984) with information, or a control group \(n = 48\), which received information only.

**Intervention**

The intervention developed by Lazarus and Folkman (1984) derives from crisis theory, which suggests that surgery may disrupt an individual’s sense of personal and social identity. Psychological interventions, such as cognitive appraisals, may be used by individuals to minimize the disruption that events such as surgery have on their lives. Participants in the experimental group were taught to direct their attention to more favourable aspects of their present situation whenever they anticipated or experienced discomfort (cognitive distraction) and were encouraged to re-evaluate the surgery from a threatening cognition to a more challenging situation (cognitive reappraisal).

**Participants**

Participants were women aged between 30 and 55 years, able to read Chinese and understand Cantonese, admitted for elective abdominal hysterectomy. Seven women
refused to participate and five withdrew during the study before we could collect data from them. Participants were aged 30–55 years, with a mean age of 41.72 years (SD = 6.27). Most were married (87%), 82% had at least one child, 32% had completed lower secondary education and 31% had completed upper secondary education. Fifty-four per cent had a hysterectomy because of uterine fibroids, 29 (30%) were admitted for a total abdominal hysterectomy (TAH) and 67 (70%) were admitted for a total abdominal hysterectomy plus bilateral salpingo-oophorectomy (TAHBSO). There were no statistically significant differences in age group [$\chi^2(4, N = 96) = 0.977, p > .05$], number of children [$\chi^2(4, N = 96) = 0.912, p > .05$], diagnosis [$\chi^2(4, N = 96) = 0.854, p > .05$], educational background [$\chi^2(4, N = 96) = 0.915, p > .05$], employment status [$\chi^2(3, N = 96) = 0.732, p > .05$], marital status [$\chi^2(3, N = 96) = 0.685, p > .05$] and type of operation [$\chi^2(1, N = 96) = 0.824, p > .05$], between experimental and control groups.

**Measures**

**Anxiety**

Anxiety was measured using the Chinese State-Trait Anxiety Inventory (CSTAI; Tsoi, Ho, & Mak, 1986, Cronbach’s $\alpha = .93$) and mean arterial blood pressure.

**Pain**

Pain was measured with a visual analogue scale (VAS, Price, Bush, Long, & Harkins, 1994).

**Analgesic use**

Total analgesic consumption during the first 3 post-operative days was recorded from the patient’s drug charts.

**Satisfaction**

We measured satisfaction using the Chinese Patients’ Satisfaction Questionnaire (CPSQ; Callaghan, Cheung, Yao, & Chan, 1998, Cronbach’s $\alpha = .91$), 14 items anchored 1 [strongly agree] to 4 [strongly disagree].

**Demographic data**

Age, number of children, diagnosis, educational background, employment status, marital status and type of operation performed were all recorded.

**Procedure**

Following ethical approval, a pilot study was conducted. In the main study, research nurses collected baseline data (CSTAI, and demographics) the day before the participants’ surgery. Shortly after, the patients had their intervention. Immediately before the operation A-State anxiety was again assessed. On post-operative day 1, research nurses collected A-State anxiety levels and mean pain levels from the VAS scores assessed from the day of operation and post-operative day 1. On post-operative day 3, the research nurses assessed A-State anxiety, patients’ satisfaction using the CPSQ and recorded total post-operative analgesic use.
Results

There were no significant differences between the control and experimental groups on baseline state anxiety scores ($t(47) = 0.542, p > .05$), trait anxiety scores ($t(47) = 0.590, p > .05$) or mean arterial blood pressure ($t(47) = 0.550, p > .05$). Comparisons of scores on each outcome measure between the experimental and control groups were tested using independent samples \( t \)-tests (Table 1).

Table 1. Outcomes (mean ± SD, \( t \) values) for patients receiving cognitive distraction and reappraisal with written information and patients receiving written information only

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Cognitive distraction and reappraisal with information</th>
<th>Information only</th>
<th>( t ) Value</th>
<th>Difference (95% CI)</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>State-Anxiety scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day of operation</td>
<td>60.17 ± 6.56</td>
<td>62.77 ± 5.77</td>
<td>2.065*</td>
<td>2.60 (0.51 to 4.70)</td>
<td>0.42</td>
</tr>
<tr>
<td>Post-operative day 1</td>
<td>53.6 ± 6.73</td>
<td>56.42 ± 6.56</td>
<td>2.073*</td>
<td>2.81 (0.56 to 5.07)</td>
<td>0.42</td>
</tr>
<tr>
<td>Post-operative day 3</td>
<td>45.58 ± 7.12</td>
<td>48.88 ± 6.84</td>
<td>2.309*</td>
<td>3.29 (0.92 to 5.66)</td>
<td>0.47</td>
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<tr>
<td>Pain scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Day of operation</td>
<td>7.10 ± 0.72</td>
<td>7.35 ± 0.56</td>
<td>1.890*</td>
<td>0.25 (0.03 to 0.47)</td>
<td>0.39</td>
</tr>
<tr>
<td>Post-operative day 1</td>
<td>5.48 ± 0.68</td>
<td>5.75 ± 0.7</td>
<td>1.918*</td>
<td>0.27 (0.04 to 0.51)</td>
<td>0.39</td>
</tr>
<tr>
<td>Post-operative day 2</td>
<td>3.75 ± 0.60</td>
<td>4.04 ± 0.74</td>
<td>2.115*</td>
<td>0.29 (0.07 to 0.52)</td>
<td>0.43</td>
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<tr>
<td>Total analgesic used</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Post-operative 0–24 h</td>
<td>1.23 ± 0.42</td>
<td>1.35 ± 0.48</td>
<td>1.346</td>
<td>0.13 (–0.10 to 0.36)</td>
<td>0.29</td>
</tr>
<tr>
<td>Post-operative 25–72 h</td>
<td>3.83 ± 1.08</td>
<td>3.96 ± 1.15</td>
<td>0.550</td>
<td>0.13 (–0.25 to 0.5)</td>
<td>0.12</td>
</tr>
<tr>
<td>Patients’ satisfactory scores</td>
<td></td>
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<tr>
<td>Upon discharge</td>
<td>47.38 ± 3.89</td>
<td>45.75 ± 3.52</td>
<td>–2.147*</td>
<td>–1.63 (–2.88 to –0.37)</td>
<td>0.44</td>
</tr>
</tbody>
</table>

*Statistically significant at \( p < 0.5 \) using the \( t \)-test.

Table 1 shows significant differences between experimental and control groups on post-operative state anxiety, pain scores and satisfaction scores. Participants receiving cognitive distraction and reappraisal with information reported lower state anxiety and pain scores and higher satisfaction scores than participants receiving information only. Effect sizes are medium (Cohen, 1992) and confidence intervals are sufficiently narrow to suggest with 95% confidence that observed differences reflect true differences. There were no differences between the groups on post-operative requests for analgesia.

Discussion

The aim of this study was to test the effect of cognitive interventions with information given pre-operatively on post-operative outcomes of Chinese women undergoing elective hysterectomies. We found a reduction in state anxiety scores during
the post-operative period, a finding consistent with previous research (Ridgeway & Mathews, 1982; Young & Humphrey, 1985). These findings support the view that information plus cognitive interventions will lessen state anxiety throughout the post-operative period.

Women receiving cognitive interventions with information reported less pain than patients receiving information only on the day of operation, post-operative day 1 and post-operative day 2. This finding is at odds with previous work (Martin, 1996; Pickett & Clum, 1982; Ridgeway & Mathews, 1982). Pickett and Clum’s study (1982) investigated the effects of cognitive distraction on patients’ post-operative pain. However, the pain assessment in their study was started 5 days after the operation when the most severe pain had probably subsided, a likely explanation for the conflicting findings.

Although patients receiving cognitive interventions with information requested less intra-muscular and oral analgesia than those receiving written information only, these results were not statistically significant. The finding is similar to previous studies (Callaghan et al., 1998; Hawkins & Price, 1993; Ridgeway & Mathews, 1982; Wallace, 1984). The power analysis for this result was relatively low (.14), indicating a high risk of a type II error. In other words, these results may be false. Therefore, it would be interesting to see if further studies using larger samples found a significant relationship between psycho-educational interventions and patients’ post-operative analgesic use.

The patients receiving information plus cognitive interventions reported a significantly higher level of post-operative satisfaction than those receiving written information only. The results in this study generally support previous studies showing similar effects on patients’ satisfaction scores (Callaghan et al., 1998; Davis, 1988; Lookinland & Pool, 1998).

Support for the use of cognitive distraction and reappraisal with information is apparent from the findings of this study. Because five women withdrew soon after agreeing to participate it was not possible to collect data from these participants that could be included in an intention to treat analysis. It is also possible that the extra attention given by nurses when implementing the experimental intervention promoted more positive outcomes. These are potential limitations of the present study.

Conclusion
Notwithstanding these limitations, the results of this study demonstrate that patients undergoing a hysterectomy, given and trained in the use of an accessible and easy to use cognitive intervention with information report better post-operative outcomes on all but one measure. It is unclear how well the intervention may fare against no intervention. However, the effect sizes on anxiety, pain and satisfaction outcomes are on the whole medium, and the associated confidence intervals are sufficiently narrow. This suggests that the use of cognitive distraction and reappraisal may have significant clinical benefits.

References


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