



Research

Effects of Forced-Air Warming Blanket on Anxiety Reduction and Thermal Comfort Improvement With Physical Indicators for Patients Undergoing Abdominal Surgery: A Quasi-experimental Study

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<https://doi.org/10.1016/j.jopan.2025.01.026>

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Abstract

Purpose: Keeping warm is important for patients undergoing an operation because intraoperative or postoperative hypothermia may result in complications and mortality. In addition, patients undergoing an operation could have higher levels of anxiety, and keeping them warm may be helpful for anxiety reduction. The present study examined if using a forced-air warming blanket from the intraoperative to postoperative period could help reduce anxiety, improve thermal comfort, and maintain core body temperatures for patients undergoing operation. **Design:** A quasi-experimental study. **Methods:** There were two groups: a forced-air warming blanket group (FG; n = 30 [23.3% males]; 51.53 years) and a control group (CG; n = 32 [25.0% males]; 48.97 years). The participants were allocated to either intervention or control groups based on the sequence of their invitation to the study: the first 34 were assigned to the FG group, and the second 34 to the CG group. All participants completed measures assessing anxiety and thermal comfort. Body temperatures were measured using an esophageal

temperature probe, and heart rate and blood pressure were measured using central electrocardiography. **Findings:** After controlling for age, marital status, educational level, previous operation experience, and baseline measures, the results showed that the FG had significantly lower levels of anxiety than the CG (adjusted mean $\pm$ SE = 3.83 $\pm$.27 vs. 5.02 $\pm$.24; $p < .001$) with a large effect size ($d = -.85$). The FG had significantly better thermal comfort than the CG (adjusted mean $\pm$ SE = 4.51 $\pm$.21 vs. 3.53 $\pm$.19; $p < .001$), with a large effect size $d = .89$). The two groups had no significant differences in other physical indicators ($p = .144$ to $.836$; $d = -.04$ to $.30$). **Conclusions:** The results indicate that using a forced-air warming blanket is a good intervention to help reduce anxiety and increase thermal comfort among patients undergoing abdominal surgery during the postoperative.

Keywords: Anxiousness; hypervigilance; intraoperative care; comfort care; Warming blanket.

1 Introduction

2 One of the important issues for patients undergoing operation is maintaining their body
3 temperature before, during, and after the surgery [1, 2]. Prior evidence has shown that
4 intraoperative hypothermia and postoperative hypothermia could lead to adverse outcomes for
5 patients who have undergone surgery, including complications and mortality [3-5]. However,
6 environmental temperatures are often set between 20°C and 24°C in the pre-operation room,
7 which may cause patients to feel cold when transferred to an operation theater [6]. Patients
8 often report feeling cold in an operation theater [7]. Therefore, assisting patients in keeping
9 warm during preoperative, intraoperative, and postoperative periods is important.

10 In addition to the physical condition of feeling cold (and the associated higher risks of
11 complications and mortality), patients are usually anxious immediately prior to surgery [8, 9].
12 Anxiety can cause an imbalance in neurotransmitters (e.g., dopamine, norepinephrine, and
13 serotonin) in the brain, which may negatively impact the autonomic nervous system and result
14 in danger for patients undergoing surgery (e.g., slow down their recovery and increase risks of
15 complications) [10, 11]. One factor that may exacerbate anxiety in patients undergoing an
16 operation and during the postoperative period could be feeling cold because cold temperatures
17 are associated with increased anxiety [12]. Therefore, keeping patients warm before and after
18 an operation may help reduce their anxiety and improve their recovery.

19 The current practice in Taiwan is to keep patients warm during the entire surgery
20 (including preoperative, intraoperative, and postoperative). It mainly focuses on the
21 preoperative period, using a self-warming blanket to cover the lower parts of the patients. Then,
22 the operating table might be covered by a warm sheet so patients can maintain warmth during
23 their operation. However, such a traditional warming intervention is less effective than other
24 methods because the literature shows that other warming interventions, including the use of

forced-air warming blanket (or system), warmed intravenous fluid, preheating, prewarming thermal insulation, reflective blankets, and thermal gowns, are better at keeping patients warm [13-27]. Moreover, a systematic review and meta-analysis [2] synthesized the effectiveness of the aforementioned warming interventions, and the quantitative synthesis showed that these had better effects than traditional warming methods (i.e., providing a self-warming blanket during the preoperative period) to maintain intraoperative and postoperative body temperatures. It should also be noted that core body temperature (rather than body temperature) is the most important in these situations. Maintaining core body temperature prevents hypothermia (a core body temperature below 36.0°C [28]).

In addition to the effects on maintaining body temperature, warming interventions have been associated with lower anxiety levels [6, 29] and higher thermal comfort [6, 20, 29-31]. Consequently, surgery nurses may want to identify useful warming interventions to keep patients warm during operation, including the postoperative period. Among different warming interventions, using a forced-air warming blanket could be an effective method with a simple and easy procedure for surgery nurses to keep their patients warm when undergoing surgery and during the postoperative period in the recovery room. Similar to other warming interventions, prior evidence has shown that a forced-air warming blanket is effective in maintaining body temperatures compared to traditional warming methods [32, 33]. However, to the best of the present authors' knowledge, there is no direct evidence that using a forced-air warming blanket helps reduce anxiety among patients undergoing surgery, especially those receiving abdominal surgery.

It is important to understand if forced-air warming blanket is effective for patients receiving abdominal surgery for a couple of reasons. First, this type of surgery is the most common type (e.g., over one-fifth of the operations conducted in Taiwan in 2020 were

abdominal surgery [34], approximately 10 million open abdominal surgeries were conducted in the US from 2009 to 2013 [35], and 5.8 million abdominal surgeries were performed in the UK from 2020 to 2021 [36]). Second, impacts of complications from abdominal surgery are profound among patients, including psychological, social, physiological, and biochemical impacts [37]. Consequently, it is important to address the literature gap regarding the effectiveness of anxiety reduction among patients receiving abdominal surgery.

Therefore, the present study examined if using a forced-air warming blanket, compared to the traditional warming method (i.e., using a self-warming blanket preoperative) is effective in reducing anxiety, improving thermal comfort, and maintaining body temperature among patients receiving abdominal surgery. Based on the positive effects of other warming interventions in anxiety reduction [6, 31] and thermal comfort improvement [6, 29-31] together with the findings of forced-air warming blankets in maintaining body temperatures [32, 33], the following hypotheses were proposed. The primary hypothesis was that a forced-air warming blanket would help reduce anxiety among patients undergoing abdominal surgery. Additionally, two secondary hypotheses were that using a forced-air warming blanket would (i) improve thermal comfort and (ii) maintain body temperature among patients undergoing abdominal surgery.

Methods

Study design, Participants, and sample size calculation

The study was a quasi-experimental design. The participants were those who were about to receive abdominal surgery (e.g., laparoscopic cholecystectomy, abdominal perineal resection, radical hemicolectomy, low anterior resection, or Hartmann operation). The inclusion criteria were (i) being 20 years or older, (ii) being able to fully understand the study procedure and purpose, (iii) having no medical history of hypertension, and (iv) not currently using

vasopressors. Patients who received emergency operations were excluded. All the participants were recruited from the xxx Medical University Hospital, a medical center in Central xx. The clinical nurses in the hospital identified the eligible participants and provided them with the study information. When a participant agreed to participate, the participant was asked to sign a written informed consent before entering the study procedure (please see ‘*Study procedure*’ below for details).

With regard to the required sample size, it was estimated there should be 40 participants per group at the baseline invitation. More specifically, a large effect size (Cohen’s d at .80) was assumed based on prior music therapy studies on patients undergoing operations [9, 38, 39]. With a d at .80 and the considerations of type I error at .05, power at .80, and a 1:1 ratio between two groups, the required sample size was 26 participants per group (52 in total) using an independent t -test. Considering that 25% of participants might not want to participate, the present study aimed to recruit 34 participants per group. Data were collected between July 2021 and September 2023.

Ethics approval and patient consent statement

All procedures in the present study were conducted following the Declaration of Helsinki. This study was approved by the Institutional Review Board of the xxx Medical University Hospital (Approval no.CS1-20045) before the study began. All participants were informed about the study and provided their informed consent.

Study procedure

Based on the sample size calculation, 68 eligible participants were invited, and all agreed to participate. The participants were then assigned to either a forced-air warming blanket group (FG) or a control group receiving a traditional warming blanket (CG). The assignment was

based on the sequence of the participants invited to the study: the first 34 were assigned to the FG group, and the second 34 to the CG group. Although the assignment was not random, this method eased the administrative burden for the surgery nurses who assisted in the present study. The FG had four participants transferred to the intensive care unit (ICU) after their operation and were excluded; the CG had two participants transferred to the ICU after their operation and were excluded. The remaining participants (30 in the FG and 32 in the CG) completed the post-test. Their data were used for data analysis (Figure 1, Study flowchart).

For the FG, the participants received a forced-air warming blanket (3M Bair Hugger; Arizant Healthcare Inc., Eden Prairie, MN) during the operation (i.e., intraoperative period). The size of the blanket is 33*33*36 cm. The forced-air warming blanket was put on the chest of the participant (not impacting the operation procedure) by a nurse anesthetist during the operation. The temperature of the warming blanket was set at $38\pm1.5^{\circ}\text{C}$. In addition to the forced-air warming blanket, the FG participants received a self-warming blanket during the preoperative period, and a warmed sheet covered their operating table. After surgery, the warming blanket was also used in the recovery room. The warmed sheet was stored in a thermal box setting at 60°C . For the CG, usual care in the operation room was provided. More specifically, the CG participants received a self-warming blanket during the preoperative period, and a warmed sheet covered their operating table. The warmed sheet was also stored in a thermal box setting at 60°C . Similar to the FG participants, the CG participants continued using the self-warming blanket during the postoperative period in the recovery room.

All the participants in both groups knew they received these warming interventions (i.e., forced-air warming blanket for FG and the warmed sheet for both groups). Both the operation room and recovery room were set at 22°C - 24°C temperature and 50%-60% humidity. The primary outcome measure (i.e., anxiety and physical indicators) and secondary outcome

measures (i.e., thermal comfort) were collected at baseline and post-test. The participants were informed of the study procedure and purpose before the day of operation. When participants agreed to participate, they were asked to complete a background information sheet and questionnaires on outcome measures on the day of operation before entering the operation room. After completing the sheet and questionnaires, the participants' physical indicators were also recorded before entering the operation room. After the surgery, the participant was asked to complete the post-test measures (including the outcome measures and the assessment of physical indicators) when the participant recovered.

Primary outcome measure: Anxiety

Anxiety was assessed using the Visual Analogue Scale -Anxiety (VAS-A). The VAS-A is a one-item measure using a 0-100 mm line scale. The participants were asked to indicate their anxiety level on the 0-100 mm line, with a higher number indicating higher levels of anxiety. Two anchors were given with a description: 0 indicates totally not anxious, and 100 indicates extremely anxious. The VAS-A has been found to be valid when assessing anxiety in prior validation research. Its correlations with Spielberger's State Trait Anxiety Inventory are good ($r = .40$ to $.60$; $p < .001$), and its responsiveness is supported by a significant difference between admission and discharge of post-anesthetist care unit for patients [40, 41].

Secondary outcome measures: Thermal comfort and physical indicators

Thermal comfort was assessed using a single item (i.e., "*I was too cold*") rated on a five-point Likert scale (1: strongly agree; 5: strongly disagree). A higher score indicates greater thermal comfort. Although the item has never been validated, it has previously been used in research assessing the effects of forced-air warming [29].

Physical indicators were measured using central electrocardiography (DatexOhmeda) and temperature probes. The central electrocardiography recorded the participants' blood pressure

(including systolic and diastolic blood pressures; mmHg) and heart rate (beats per minute). An esophageal temperature probe measured the core body temperature (°C). The central electrocardiography was calibrated before measuring and recording the participants' physical indicators.

Demographics and medical conditions

Demographics were assessed using a background information sheet. This included the participants' age (in years), sex (male or female), marital status (married/in a relationship or single/not in a relationship), educational level (junior high or below, senior high, or college or above), alcohol drinker (yes or no), and cigarette smoker (yes or no).

Medical conditions were obtained from medical records and the background information sheet. More specifically, medical records were used to collect the participants' duration of hospital stay (in days) and duration of operation (in hours). The background information sheet asked about prior operations and hospitalization experience.

Data analysis

The participants' characteristics and outcome performances were first analyzed using descriptive statistics, including frequency (with percentage) and mean (with SD). Then, independent *t*-tests (for continuous variables) and χ^2 tests (for categorical variables) were used to examine the differences between the two groups in their characteristics, baseline outcome measure performances, and post-test outcome measure performances. Lastly, analyses of covariance (ANCOVAs) were performed to examine the differences in post-test outcome measure performances between the two groups with the following factors controlled: age, sex (male vs. female), marital status (married vs. others), educational level (senior high or below vs. college or above), experience of a previous operation (no vs. yes), duration of hospital stay, duration of operation, and measures at baseline. Cohen's *d* was calculated to identify the effect

sizes between the two groups in all the outcome measures. Moreover, a small effect is defined as d at 0.2, medium at 0.5, and large at 0.8 [42]. All the analyses were performed using SAS 9.4 (SAS Institute Inc.).

Results

The two groups did not have significant age differences (51.53 ± 13.36 vs. 48.97 ± 13.83 ; $p = .461$), sex distribution (23.3% vs. 25.0% males; $p = .878$), marital status (86.7% vs. 78.1% married; $p = .379$), educational level (43.3% vs. 65.6% college or above; $p = .211$), experience of prior operation (40.0% vs. 59.4% no experience; $p = .127$), experience of prior hospitalization (30.0% vs. 37.5% no experience; $p = .533$), alcohol drinking status (76.7% vs. 93.8% no; $p = .077$), and cigarette smoking status (80.0% vs. 96.9% no; $p = .050$). However, the FG had a significantly longer duration of hospital stay (12.03 ± 10.15 vs. 5.38 ± 3.39 days; $p = .002$) and operation process (3.66 ± 2.22 vs. 2.22 ± 1.73 hours; $p = .006$) than did the CG (Table 1).

Regarding the outcome measures, no significant differences were found between the two groups regardless of the primary outcome (i.e., anxiety; 5.47 ± 1.53 vs. 4.81 ± 1.31 ; $p = .074$) or secondary outcomes ($p = .232$ to $.896$) at baseline (Table 2). Regarding the post-test measures, the FG showed lower anxiety levels than the CG at a marginal significance with a medium effect size (4.07 ± 1.20 vs. 4.81 ± 1.67 ; $p = .050$; $d = -.51$). Moreover, the FG had significantly better thermal comfort than the CG at the post-test ($4.63 \pm .93$ vs. $3.66 \pm .75$ days; $p < .001$; $d = 1.15$). There were no significant differences on any other physical indicators between the two groups ($p = .306$ to $.723$; $d = -.09$ to $.26$), except for the body temperature among the FG being marginally significantly higher than those in the CG ($36.16 \pm .60$ [FG] vs. $35.89 \pm .47$ [CG]; $p = .050$; $d = .50$).

After controlling for age, marital status, educational level, experience of a previous

operation, duration of hospital stay, duration of operation, and baseline measures, the ANCOVAs showed that the FG had significantly lower levels of anxiety than the CG (adjusted mean $\pm$ SE = 3.80 $\pm$.28 vs. 5.00 $\pm$.23; $p < .001$) with a large effect size ($d = -.90$). Similar to anxiety, the FG had significantly better thermal comfort than the CG (adjusted mean $\pm$ SE = 4.55 $\pm$.19 vs. 3.58 $\pm$.16; $p < .001$) with a large effect size ($d = .89$). No other physical indicators significantly differed between the two groups in the ANCOVA results ($p = .165$ to $.684$; $d = -.11$ to $.28$) (Table 3). Moreover, although not significantly different in the post-test measure, the mean body temperatures of the CG participants met the definition of hypothermia (i.e., $< 36^{\circ}\text{C}$), while those of the FG participants did not (i.e., 36°C or above).

Discussion

The present findings showed that the forced-air warming blanket may be an effective intervention for surgery nurses to help their patients reduce anxiety and improve thermal comfort when undergoing surgery. Although the present results did not find significant differences in body temperatures between the two groups, Cohen's d showed that FG participants had higher body temperatures than CG participants with a small to moderate effect at post-test ($d = .30$ with age, sex, marital status, educational level, and baseline body temperatures controlled for; $= .50$ without control). Moreover, compared to CG participants, the FG participants had a lower likelihood of having hypothermia. Moreover, because the duration of hospital stay and duration of operation are potential factors that can impact hypothermia [1], they were controlled for in the present study when comparing the effects of the forced-air warming blanket. The results showed that when the two factors were controlled (see Table 3), the forced-air warming blanket remained effective in anxiety reduction and thermal comfort, while the core temperature became nonsignificant. Therefore, the primary hypothesis (i.e., anxiety reduction) was fully supported, and the secondary hypotheses were

216 partially supported (thermal comfort improvement was fully supported, and body temperature
217 maintenance was partially supported).

218 The effects of forced-air warming blankets on anxiety reduction for the patients who
219 underwent operation concur with findings from studies using different warming interventions
220 [6, 31]. The effects of warming on anxiety reduction for patients who underwent an operation
221 could be explained by the sense of safety. Although the post-test measures in body temperatures
222 were not significantly different between the two groups, the FG participants might have felt
223 warmer than the CG participants during the postoperative period [32, 33]. Therefore, the sense
224 of safety due to not having postoperative comorbidities could be higher for FG participants
225 than CG participants [6]. Subsequently, the feeling of safety may make FG participants feel
226 less anxious than the CG participants, as reflected in the post-test anxiety measures.

227 In addition to the anxiety reduction, the present findings indicated that patients who
228 received the forced-air warming blanket reported higher thermal comfort levels after the
229 operation. This finding echoes studies using different warming interventions [6, 29-31].
230 Although the core temperature between the two groups in the present study was not
231 significantly different, the FG participants had an average core temperature higher than 36°C,
232 and the CG participants had an average core temperature lower than 36°C. Because
233 hypothermia is defined as having a core temperature lower than 36°C [28], FG participants
234 might have detected the slight temperature difference, making them feel more comfortable than
235 the CG participants.

236 The present study found no significant differences in any other physical indicators
237 between the two groups, except for the body temperature among the FG being marginally
238 significantly higher than that in the CG. This absence of significant differences in the physical
239 indicators, such as heart rate and blood pressure, between the two groups (i.e., FG and CG),

may be explained by the fact that the intervention was targeted at thermoregulation rather than systemic cardiovascular responses. Forced-air warming mainly prevents hypothermia without significantly impacting hemodynamic parameters, primarily controlled through autonomic and neuroendocrine responses to surgical stress and anesthesia [43-46]. Secondly, the minor warming effects may have been masked by the strong homeostatic mechanisms involved in cardiovascular stability during surgery [47,48]. The marginally significant increase in body temperature in FG, $p = .050$; $d = 0.50$, supports the efficiency of the intervention in terms of regulating body temperature and concurs with previous studies reporting its limited effects on systemic physiological responses [49]. This potential of subtle or accumulated effects on systemic parameters may be further investigated using multimodal approaches.

The present study's findings have two implications. First, surgical procedures could consider using forced-air warming blankets rather than traditional warming interventions. Surgery nurses could be educated about the effects of a forced-air warming blanket and receive training in arranging for this blanket to be used during the intraoperative period. Second, surgery nurses could also educate patients who undergo surgery regarding the effects of forced-air warming blankets.

There are some limitations in the present study. First, the study only used a quasi-experimental design and did not randomly assign participants to the two groups. Therefore, the findings could be biased by the non-random assignment. Second, the primary outcome of anxiety was assessed using a self-report measure, and participants knew if they received the forced-air warming blanket. Therefore, the findings may be subject to social desirability biases and placebo effects. The FG participants knew that they received the forced-air warming blanket and were perhaps more likely to report a lower level of anxiety. These biases of social desirability and placebo effects can also be applied to the thermal comfort findings. Future

studies are therefore recommended to use objective measures (e.g., cortisol levels) to evaluate the anxiety effects of forced-air warming blankets. Third, the sample size was relatively small, although it was calculated using the effect sizes from prior relevant studies. Also, the small sample size could partially explain the nonsignificant findings in the body temperatures. Therefore, researchers may want to conduct large-scale research to corroborate the present findings.

Conclusion

The study's findings indicate that using forced-air warming blankets could be a good warming intervention for surgery nurses to help patients who undergo surgery maintain their psychological (anxiety) and physical (thermal warmth) states during the postoperative period. Patients may be less anxious, feel more thermal comfort, and maintain body temperatures to prevent hypothermia by using a forced-air warming blanket. Therefore, a better recovery after the operation could be expected for those who used the forced-air warming blanket during the intraoperative and postoperative periods. However, caution is advised regarding the interpretations of the present findings due to the small sample size, non-random assignment of participants to the intervention and control groups, and the use of self-reports for two of three outcome measures.

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Table 1. Participants' characteristics

	Mean (SD) or N (%)		<i>t</i> or χ^2 (<i>p</i> -value)
	FG (N=30)	CG (N=32)	
<i>Age (in years)</i>	51.53 (13.36)	48.97 (13.83)	0.74 (0.461)
<i>Sex</i>			0.02 (0.878)
Male	7 (23.3)	8 (25.0)	
Female	23 (76.7)	24 (75.0)	
<i>Marital status</i>			0.77 (0.379)
Married	26 (86.7)	25 (78.1)	
Single	4 (13.3)	7 (21.9)	
<i>Educational level</i>			3.11 (0.211)
Junior high or below	8 (26.7)	5 (15.6)	
Senior high	9 (30.0)	6 (18.8)	
College or above	13 (43.3)	21 (65.6)	
<i>Duration of hospital stay (in days)</i>	12.03 (10.15)	5.38 (3.39)	3.42 (0.002)
<i>Duration of operation (in hours)</i>	3.66 (2.22)	2.22 (1.73)	2.86 (0.006)
<i>Experience of operation (No)</i>	12 (40.0)	19 (59.4)	2.33 (0.127)
<i>Experience of hospitalization (No)</i>	9 (30.0)	12 (37.5)	0.39 (0.533)
<i>Drinking habit (No)^a</i>	23 (76.7)	30 (93.8)	(0.077)
<i>Smoking habit (No)^a</i>	24 (80.0)	31 (96.9)	(0.050)

^a Using Fisher's exact test; therefore, no χ^2 statistics

FG = forced-air warming blanket group; CG = control group.

Table 2. Outcome comparisons in baseline and posttest between the two groups

	Mean (SD)		<i>t</i> (<i>p</i> -value)	Cohens' <i>d</i>
	FG	CG		
<i>Baseline</i>				
Anxiety score (1-10 scale)	5.47 (1.53)	4.81 (1.31)	1.82 (0.074)	0.46
Thermal comfort score (1-5 scale)	4.07 (0.52)	4.13 (0.55)	-0.43 (0.671)	-0.11
Heart rate (beats per minute)	78.40 (11.66)	75.06 (10.09)	1.21 (0.232)	0.31
Systolic blood pressure (mmHg)	143.00 (21.19)	138.81 (26.30)	0.69 (0.494)	0.18
Diastolic blood pressure (mmHg)	79.17 (11.53)	78.75 (13.44)	0.13 (0.896)	0.03
Core temperature (°C)	35.99 (0.34)	35.88 (0.56)	0.93 (0.355)	0.24
<i>Posttest</i>				
Anxiety score (1-10 scale)	4.07 (1.20)	4.81 (1.67)	-2.00 (0.050)	-0.51
Thermal comfort score (1-5 scale)	4.63 (0.93)	3.66 (0.75)	4.59 (<0.001)	1.15
Heart rate (beats per minute)	78.40 (10.43)	79.38 (11.09)	-0.36 (0.723)	-0.09
Systolic blood pressure (mmHg)	128.83 (13.42)	123.53 (25.46)	1.03 (0.306)	0.26
Diastolic blood pressure (mmHg)	67.60 (9.18)	66.66 (9.95)	0.39 (0.700)	0.10
Core temperature (°C)	36.16 (0.60)	35.89 (0.47)	2.00 (0.050)	0.50

FG = forced-air warming blanket group; CG = control group.

Table 3. Results of analysis of covariance

	Adjusted mean (SE)		F (df1, df2)	<i>p</i> -value	Cohen's <i>d</i>
	FG	CG			
Anxiety score (1-10 scale)	3.80 (.28)	5.00 (.23)	16.18 (52,1)	<.001**	-.90
Thermal comfort score (1-5 scale)	4.55 (.19)	3.58 (.16)	22.33 (52,1)	<.001**	.89
Heart rate (beats per minute)	75.61 (2.81)	79.91 (2.35)	1.99 (52,1)	.165	-.11
Systolic blood pressure (mmHg)	124.44 (3.85)	126.13 (3.19)	.17 (52,1)	.684	.16
Diastolic blood pressure (mmHg)	63.56 (2.23)	66.45 (1.86)	1.48 (52,1)	.229	.06
Core temperature (°C)	36.06 (.15)	35.96 (.12)	.39 (52,1)	.537	.28

Note. Age, sex, marital status (married vs. others), educational level (senior high or below vs. college or above), experience of operation (no vs. yes), duration of hospital stay, duration of operation, and measures at baseline were controlled.

FG = forced-air warming blanket group; CG = control group.

p* < 0.050. *p* < 0.010.