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Weighted Blanket Versus Traditional Perioperative Practices on Anxiety and Pain in Elective Surgery Patients: A Randomized Controlled Trial

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Weighted blankets reduce anxiety in adult surgical patients with moderate to high levels of preoperative anxiety. This provides a simple yet effective nurse-driven intervention for anxiety reduction.

Introduction

Perioperative anxiety is common in surgical patients and has been linked to poor patient outcomes.

A weighted blanket may offer an alternative to or enhancement of anti-anxiety medications by activating a physiological response through the vagal system.

This response successfully decreases anxiety and agitation in other patient populations but had not been studied in this population.

This randomized study assessed the effectiveness of a weighted blanket for the reduction of presurgical anxiety and pain as well as post-surgical restlessness and nausea.

Methodology

- Convenience sample of 149 patients at ambulatory surgical units at five community hospitals and two units at a regional medical center
- Randomized: interventional group (weighted blanket, n = 74) or control group (n = 74)
- Interventional group: warmed weighted blanket for a minimum of 15 ± 5 minutes
- Control group: non-weighted blanket (warmed/room temperature), sheet, or no covering
- 34’ x 62’ medical-grade blanket by CapeAble® Care. Total weight = 8.5 pounds
- Pre-op vital signs and Visual Analog Scale (100-point scale) for anxiety and pain measured before and 15 ± 5 minutes post intervention/control
- In post-anesthesia care unit, warmed weighted blanket replaced on the interventional group or warmed non-weighted blanket/s for the control group
- At 15 ± 5 minutes, evidence of nausea or vomiting documented and RASS score calculated to measure postoperative restlessness

Results

- No significant demographic differences were found between control or intervention groups for gender, age, weight, type of surgical procedure, or admission characteristics
- Intervention group showed significantly lower anxiety scores as compared to control group, t (141.92) = 2.68, p = .008

Table 1. Participant characteristics

	Control (n = 74)		Intervention (n = 74)		t-value / Chi-square value	p-value
	Mean / n	SD / %	Mean / n	SD / %		
Age	49.85	(15.58)	51.93	(17.37)	-0.77	.444
Weight (kg)	91.91	(22.91)	89.99	(21.40)	0.53	.600
Gender					0.00	1.000
Female	49	66.2%	49	66.2%		
Male	25	33.8%	25	33.8%		
Surgical procedure					4.59	.204
Ortho	18	24.3%	25	33.8%		
Abdominal	41	55.4%	28	37.8%		
Spine	3	4.1%	4	5.4%		
Gyn/Gu/Breast	12	16.2%	17	23.0%		
Location					6.56	.363
Facility 1	5	6.8%	8	10.8%		
Facility 2	9	12.2%	18	24.3%		
Facility 3	22	29.7%	18	24.3%		
Facility 4	8	10.8%	7	9.5%		
Facility 5	16	21.6%	11	14.9%		
Facility 6	5	6.8%	7	9.5%		
Facility 7	9	12.2%	5	6.8%		

Note. T-values are reported for age and weight. Chi-square values are reported for gender, surgical procedure, and location.

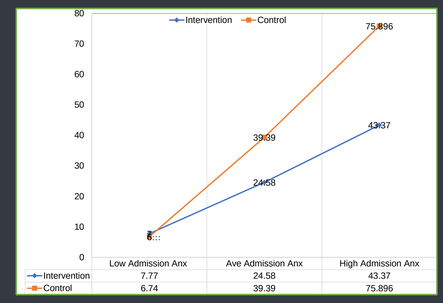
- Intervention group predicted a significantly larger decrease in anxiety as compared to those in the control group (b = -15.15, p < .001)
- Intervention had no significant impact on the 15 minute anxiety score of those who started with a fairly low anxiety level (below a score of 23.83)

Table 2. Descriptive statistics on study variables and comparisons between intervention and control groups

	Control (n = 74)		Intervention (n = 74)		t-value / Chi-square value	p-value
	Mean / n	SD / %	Mean / n	SD / %		
Admission						
Temperature	97.81	(0.62)	97.86	(0.55)	-0.62	.538
Heart rate	75.23	(12.45)	73.88	(12.31)	0.66	.508
Respirations	17.14	(2.35)	16.62	(2.65)	1.26	.211
SBP	133.05	(16.76)	131.08	(19.33)	0.66	.508
DBP	78.09	(12.94)	79.30	(11.08)	-0.61	.545
O2 saturation	98.18	(1.73)	98.22	(1.85)	-0.14	.891
Anxiety	41.33	(29.03)	43.93	(30.23)	-0.53	.598
Pain	18.41	(24.35)	26.86	(26.23)	-2.02	.045
15-minute						
Temperature	97.88	(0.47)	97.94	(0.49)	-0.70	.484
Heart rate	71.46	(13.00)	70.07	(12.03)	0.68	.500
Respirations	16.72	(2.24)	16.22	(2.17)	1.38	.170
SBP	126.57	(16.98)	126.64	(16.47)	-0.02	.980
DBP	74.78	(12.92)	74.66	(10.54)	0.06	.950
O2 saturation	98.03	(1.81)	97.81	(1.67)	0.76	.447
Anxiety	38.73	(30.55)	26.28	(25.75)	2.68	**.008**
Pain	15.96	(22.12)	21.23	(24.01)	-1.39	.167
Recovery						
RASS	-0.49	(0.87)	-0.55	(0.96)	0.36	.718
Nausea					0.00	.970
Yes	12	16.7%	12	16.9%		
No	60	83.3%	59	83.1%		
Vomiting					1.78	.182
Yes	4	5.6%	1	1.4%		
No	68	94.4%	69	98.6%		

Note. Due to some missing data, n = 72 on admission anxiety and pain in intervention group, n = 73 on admission anxiety in control group, n = 73 on admission respirations in intervention group, n = 73 on 15-minute O2 saturation in intervention group, n = 73 in control and 73 in intervention on recovery RASS, n = 72 in control and 71 in intervention on recovery nausea, and n = 72 in control and 70 in intervention on recovery vomiting. Chi-square values are reported for nausea and vomiting, while t-tests are reported for all other variables.

- No significant changes were found for pain, restlessness, or in the physiological indicators of stress: heart rate, blood pressure, and respiration rate
- The intervention becomes more effective as the level of admission anxiety increases



Predicted 15-minute anxiety score based on level of admission anxiety and intervention group status.

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