48 Systematic Review of Pain Management Education in Graduate Medical Education

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Background: Pain is the most common presenting complaint to the ED; practitioners should therefore be experts in pain management. Pain control in the ED, however, is often inadequate and approached in a way that increases risk of dependence and contributes to the opioid epidemic. Given the complexity and discomfort with pain management in EM, improvements in graduate medical education (GME) on pain management are needed.

Objective: To evaluate the literature on educational interventions on acute and chronic non-cancer pain management implemented in all GME settings through a review of methodology and outcomes.

Methods: Following PRISMA guidelines, we conducted a systematic review by searching PubMed using variable keywords to identify studies on GME interventions on non-cancer pain control. Quality of study design and outcome measures were assessed with two valid, reliable tools: (1) Medical Education Research Study Quality Instrument (MERSQI), (2) Newcastle-Ottawa Scale–Education (NOS-E). Two independent coders rated all included studies using the MERSQI and NOS-E, with intra-class coefficients of 0.91 and 0.93 respectively.

Results: The original search yielded 5790 studies; 19 met inclusion criteria and were included in the final analysis. Interventions were conducted across many specialties; internal medicine represented the majority of study settings, while EM represented two. The mean MERSQI score was 12.1 (SD 2.01) of a maximum 18 and the mean NOS-E score was 2.89 (SD 1.24) of a maximum 6.

Conclusions: Studies on acute and chronic non-cancer pain management education in GME are few, with minimal conducted in EM settings. Overall, studies scored similarly to other research in GME on the MERSQI and NOS-E, suggesting average methodological quality. Future work in pain management education, especially in ED settings, should utilize more rigorous designs, incorporate multi-institutional sampling, and target learner behaviors and patient-centered outcomes.

Table 1.

MERSQI Domain	Response Item (points)	Number of Studies	Percentage
Study Design	Single-group cross-sectional or single group post-test only (1)	0	0%
	Single group pre- and post-test (1.5)	13	68.4%
	Nonrandomized, 2 group (2)	5	26.3%
	Randomized controlled trial (3)	1	5.3%
Sampling: institutions	1 institution (0.5)	17	89.5%
	2 institution (1)	1	5.3%
	3 or more (1.5)	1	5.3%
Sampling: response rate	NA (--)	5	26.3%
	<50% or not reported (0.5)	3	15.8%
	50-74% (1)	2	10.5%
	> 75% (1.5)	9	47.4%
Type of data	Assessment by study participant (1)	4	21.1%
	Objective (3)	15	78.9%
Validity evidence for instrument	NA (--)	5	26.3%
Content	Not present (0)	4	21.1%
	Present (1)	10	52.6%
Internal structure	Not present (0)	10	52.6%
	Present (1)	4	21.1%
Relationships to other variables	Not present (0)	12	63.2%
	Present (1)	2	10.5%
Data analysis: sophistication	Descriptive analysis (1)	2	10.5%
	Beyond descriptive (2)	17	89.5%
Data analysis: appropriate	Inappropriate (0)	0	0%
	Appropriate (1)	19	100%
Outcome	Satisfactions, attitudes, perceptions, opinions, general facts (1)	3	15.8%
	Knowledge, skills (1.5)	10	52.6%
	Behaviors (2)	4	21.1%
	Patient/healthcare outcome (3)	2	10.5%

Table 2.

NOS-E Domain	Response Item (points)	Number of Studies	Percentage
Representativeness of intervention group	Not representative (0)	6	31.6%
	Very or somewhat representative of the average learner in the community (1)	13	68.4%
Selection of comparison group	No separate comparison group or comparison drawn from different community (0)	15	78.9%
	Drawn from the same community (1)	4	21.1%
Comparability of comparison group	No separate comparison group (0)	13	68.4%
Nonrandomized (n=5)	Controlled for 1 subject characteristic (1)	5	26.3%
	Controlled for ≥2 subject characteristics (2)	0	0%
Randomized (n=1)	Allocation not concealed (1)	0	0%
	Allocation concealed (2)	1	5.3%
Study retention	Poor retention could introduce bias (0)	3	15.8%
	Retention unlikely to introduce bias (1)	16	84.2%
Blinding of assessment	Outcome assessment not blinded (0)	4	21.1%
	Outcome assessment blinded (1)	15	78.9%