

# A Descriptive Study Evaluating Medical-Surgical Nurses' Knowledge and Attitudes Regarding Pain

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# Problem/Background

- Pain remains a significant patient care problem in the United States (APS, 2012).
- The cost of pain in the United States is estimated to be \$635 billion/year (IOM,2011)
- Research has been centered on oncology patients and nurses, and to a lesser extent other specialties such as post-op, critical care and pediatric populations (O'Brien, Dalton, et al., 1996; Vaartio-Rajalin and Leino-Kilpi, 2011; Rushton, Egget, et al.,2003; Porfyrus, Park, et al., 2012; & Van Hulle -Vincent, Wilkie, et al., 2011).
- In acute care settings medical-surgical nurses and patient populations account for the greatest numbers (New Jersey Department of Health, 2012).
- Pain has not been well examined in the general adult medical-surgical nursing population or the patients they care for.

# Literature Review

## Nurses' Knowledge of Pain

- Nurses' knowledge of pain management is identified as contributory to the problem of pain and pain management (Goodrich, 2006; Guardini, Talamani, Fiorillo, Lipritti, & Palese, 2008; Lewthwaite, et al., 2011; Matthews & Malcolm, 2007; McNamara, Harmon & Saunders, 2012; Salinas & Abdolrasulnia, 2011; Siedlecki, 2013).
- Lack of sufficient knowledge about pain and its management has been identified as a factor in influencing the care patients with pain receive by nurses.
- The Knowledge and Attitudes Survey Regarding Pain (<http://prc.coh.org>) by McCaffery & Ferrell is frequently utilized to measure knowledge levels of nurses.
- Nurses' knowledge about pain is inadequate to address patient needs (Goodrich, 2006; McNamara et al., 2012; Guardini et al., 2008; Lewthwaite et al., 2011).

# Literature Review

## Nurses' Attitudes Regarding Pain

- Nurses' attitudes regarding pain have been identified as a barrier to effective pain management, individually and in tandem with knowledge (Lewthwaite et al., 2011).
- Siedlecki et al.(2013) identified nurses' negative attitudes toward patients with chronic pain influenced the decisions nurses made regarding treatment.
- Nurses' own beliefs & fear about respiratory depression & addiction were shown to influence nurses' behaviors in the treatment of pain (Blondal & Halldorsdottir, 2009; McMillan et al., 2000; Shaw & Lee, 2010).

# Literature Review

## Nurses' Characteristics

- Various personal characteristics of nurses have been examined in relationship to pain and pain management with mixed results.
- Educational level was found to be a characteristic that influenced nurses' knowledge and attitudes regarding pain (Wang & Tsai, 2010; Latimer, Ritchie, & Johnson, 2010; Carlson, 2010).
- Mocerri & Drevdahl (2012) did not find that educational level impacted nurses' pain management of patients.
- Years of experience is another nurse characteristic which has been studied & showed varying, inconclusive outcomes (Al-Shaer et al., 2011, Carlson, 2010; Jastrzab, Fairbrother, Kerr & McInerney, 2003/2004; Lewthwaite et al., 2011, Mocerri & Drevdahl, 2010; Rongstad et al., 2012; Wilson, 2006; & Wilson & McSherry, 2006).

# Purpose/Research Question

- The purpose of this study was to measure the knowledge and attitudes regarding pain of a convenience sample of hospital-based registered nurses and to compare their responses to earlier samples from studies by Clarke, et al., (1996) and McCaffery & Ferrell, (1997).
- Research Question: Have there been any changes in the knowledge and attitudes of nurses regarding pain over the last 17 years.

# Methodology

- This is a non-experimental, cross-sectional, descriptive comparative study using quantitative data gathered from The Knowledge and Attitudes Survey Regarding Pain, NKAS, (Ferrel & McCaffery, 1987, 2008) , a self-report survey.
- Demographics collected from participants included:
  - gender
  - age
  - years of experience working in nursing
  - highest level of nursing education
  - Religion & cultural identification

# Sample and Site

- Sample:
  - The sample was a voluntary, purposive, convenience one comprised of staff RN's drawn from medical-surgical units at two sites.
- Site:
  - A large urban medical center and a small suburban community hospital, both members of a multi-hospital health care system in northern New Jersey.



# Data Collection

- Data (demographics and NKAS responses) were collected utilizing an electronic questionnaire on survey monkey delivered on the institution's computer system and a traditional paper & pencil version of the same surveys.
- Scores from the Knowledge and Attitudes Regarding Pain were calculated as percentages as directed by authors McCaffery and Ferrell (<http://prc.coh.org>)
- Scores and demographics were aggregated & analyzed with no participant identifiers.

# Data Analysis

SPSS 19 was utilized to analyze the following statistics:

- Descriptive statistics were analyzed to provide information about the participant group and include frequency distributions, means and standard deviations and percentages.
- The NKAS (<http://prc.coh.org>) was scored as percentage score, with 80% being set as the score consistent with adequate knowledge.
- Item analysis was performed on the items receiving the highest number of correct responses and the items with the lowest number of correct responses.

# Data Analysis – Cont'd

- A Chi-square of Independence test was used to analyze the scores of the NKAS with demographic variables such as age, educational levels and work experience in years. Level of significance set at  $p < 0.05$ .
- A Chi-square of Independence test was also used to test whether two individual responses on concept questions were independent of each other. Level of significance set at  $p < 0.05$ .

# Results

## Descriptives

- **Total surveys distributed** = 214; 63 respondents -29% return rate; 5 incomplete; n=55
- **Age:** 26% 45 – 54 year olds were single largest group
- **Education Level:** Associates 9.3%; Baccalaureates 55.6%; Masters 31.5% and Doctorates 3.7%.
- **Gender:** 86% female, 14% male.
- **Years as an RN:** 45% had 1 – 9 years experience.
- **Race/Ethnicity:** 47% White, non Hispanic; 23% Asian; 14% Black or African American, non-Hispanic.
- **Religion:** 50% Roman Catholic; 23% Protestant/Christian; 27% divided between remaining groups.

# Results

## Demographic Comparison with Original Study

**Table 2 Comparison of Educational Preparation of Nurses**

Year of Study	Diploma Degree	Associate Degree	Baccalaureate Degree	Masters Degree	Doctorate	Total n
1996	27%	15%	50%	8%	--	120
1997	18%	28%	38%	0%	--	456
2013	--	9%	56%	26%	4%	60

# Results

## Nurses' Knowledge and Attitudes Survey Regarding Pain

**Table 3 Highest level of Nursing Education with mean survey scores**

Highest level of Nursing Education	n	Mean Survey Score
Associate	5	67%
Baccalaureate	30	62%
Masters	14	68%
Doctorate	2	65%

# Results

## Comparison with Original Study

**Table 4 Comparison of Educational Preparation with Survey Scores**

Mean Scores	Diploma Degrees	Associate Degree	Baccalaureate Degree	Masters Degree	Doctorate	Total n
1996	61%	62%	60%	74%	--	120
2013	--	67%	64%	68%	65%	60

# Results

## Analysis of Individual Items

- The individual items were ranked. The eleven items (due to a tie for 10<sup>th</sup> place) with the highest percentage of correct answers were identified.

Range from 98% correct for item #23 to 88% correct for items #26 and #27.

- The ten items with the least percentage of correct answers were ranked.

Range from 16% for item #48 to 45% for item #29.



# Results

## Item Comparison with 1996 Study

**Table 7 Comparison of Questions from 1996 and 2012 which remain similar in response**

Item #		Concept	% Correct (Rank)	% (rank)
1996	2012		1996	2012
22	41	The patient is the most accurate judge of their pain	97.5 (5)	96 (2)
2	23	The patient should not suffer (before next dose)	87 (10)	98 (1)
12	38	Respiratory depression	20 (2)	19 (2)
20	33	Correct route of medication	44 (6)	22 (3)

# Results

## Vignette Responses 1997 and 2013

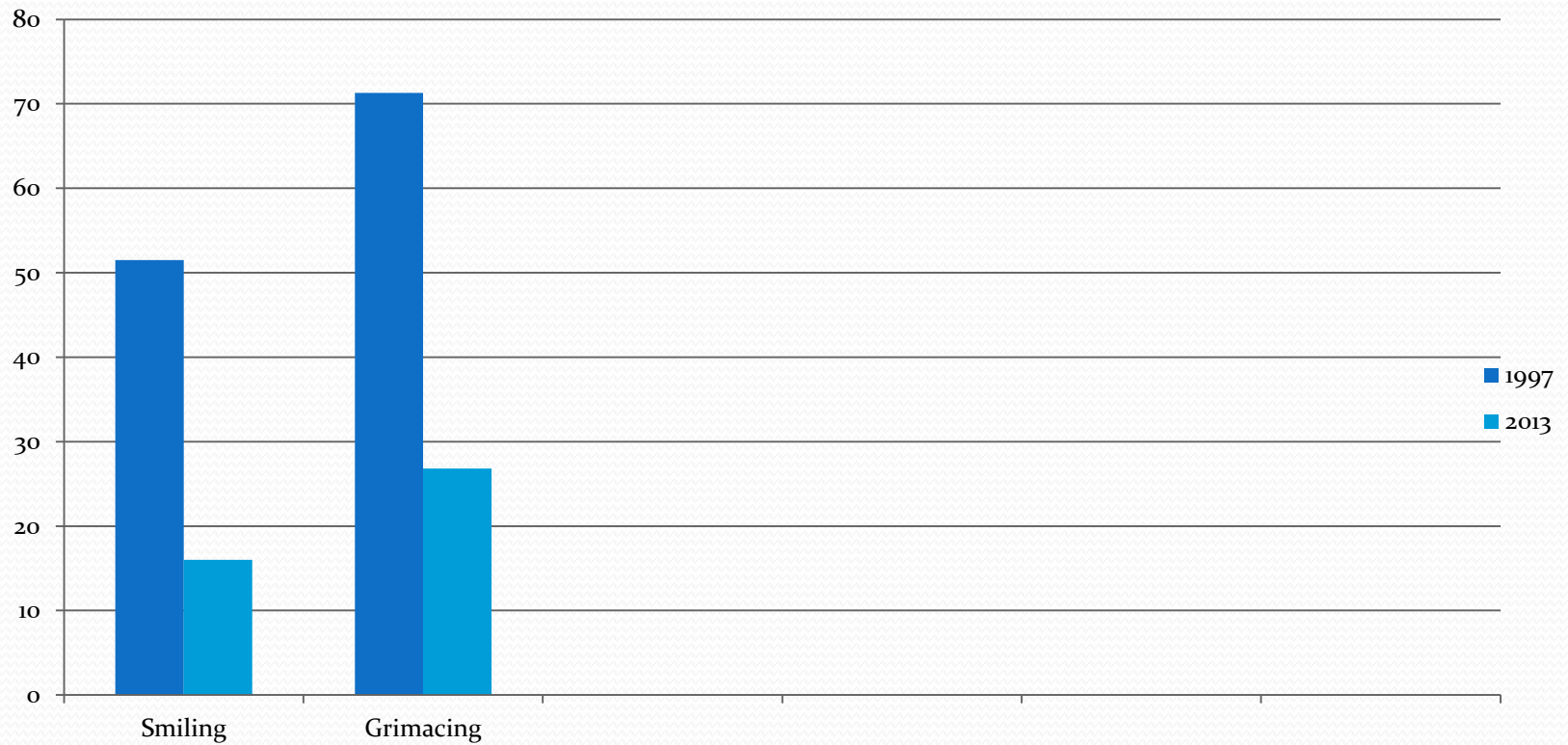
- **Smiling patient** - 1997 - 73.8% recorded pain as reported by the patient; 2013 - 78.6% recorded pain as reported by the patient.
- **Grimacing patient** - 1997 - 87.1% recorded the pain as reported by the patient; 2013 - 92.7 % reported the pain as reported by the patient.

**Table 8 Comparison of vignette treatment choices 1997 and 2013**

Year	Under-treatment of Smiling Patient	Under-treatment of Grimacing Patient	Same dose for Smiling Patient	Same dose for Grimacing Patient	Maximum dose for Smiling patient	Maximum dose for Grimacing Patient
1997	26.7%	9.6%	21.8%	19.1%	51.5 %	71.3%
2013	63.6%	42.8%	20%	30.4%	16.4 %	26.8 %

# Results

## Vignette Responses 1997 and 2013



# Results

## Chi-Square

- No significant relationships were found between the identified nurse characteristics and the respondents score on the NKASRP
- A significant relationship ( $X^2 = 27.12$ ,  $df = 7$ ,  $p < .000$ ) between items #41 and 47 was identified.

Table 10 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.126 <sup>a</sup>	7	.000
Likelihood Ratio	7.684	7	.361
Linear-by-Linear Association	1.602	1	.206
N of Valid Cases	55		

a. 15 cells (93.8%) have expected count less than 5. The minimum expected count is .04.

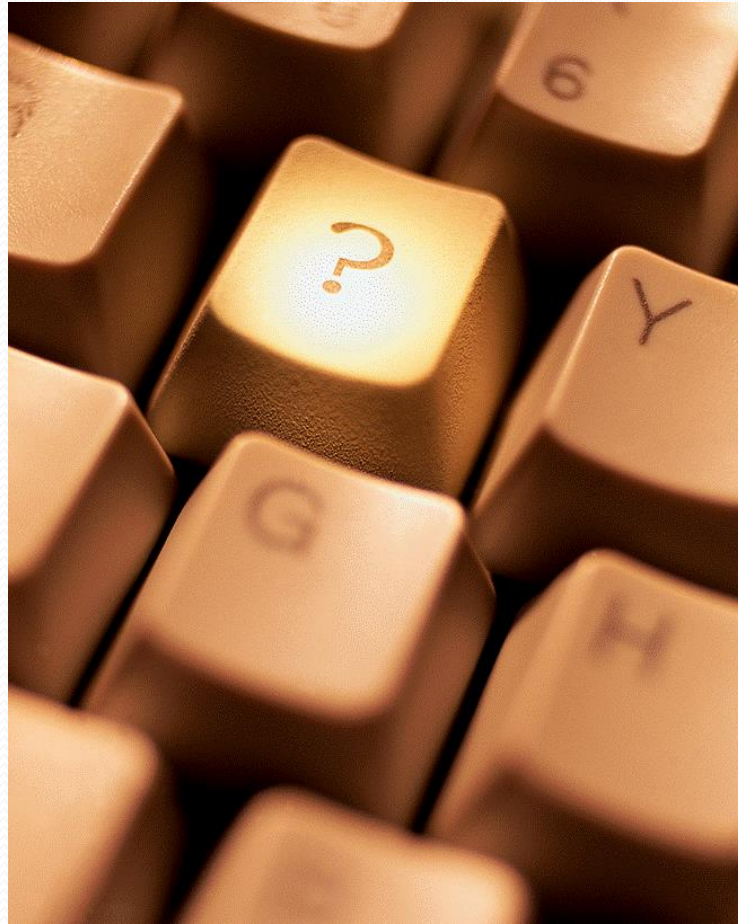
# Conclusion

- Results indicate there has been a change in level of the educational preparation of nurses between samples.
- No significant differences were found between the mean scores of the current sample (66%) and the Clarke et al. (1996) study (64%).
- Masters prepared nurses had the highest mean scores in both studies which reported educational levels.
- Comparing most and least often items answered correctly only 4 remained constant through the years
- Nurses incorrectly answered vignette questions regarding dose of pain medication despite correct responses on knowledge based items pertaining to same.

# Conclusion

- **Implications for/Gap in practice:** the continued problem of the under-treatment of pain (Wells, Pasero & McCaffery, 2011, 2013; Marks and Sacher, 1973; American Academy of Pain Medicine, 2013; IOM, 2011.)
- **Limitations:** Small sample size; single geographic location; technology related issues; tool design.
- **Future Research:** identify differences between knowledge deficits and barriers due to attitudes and beliefs; identification of determinants of nursing behaviors related to pain management; development of strategies to improve patient outcomes regarding pain management

# Questions?



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