

Evaluation of Pain as A Fifth Vital Sign: Nurses' Opinions and Beliefs

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ABSTRACT

Objective: After the American Pain Society recognized pain as a fifth vital sign, many countries adopted similar pain screening approaches. The routine evaluation of pain has recently come to the agenda in Turkey, along with the important role played by nurses in pain evaluation, and hence, this study focuses on the opinions of nurses on the evaluation of pain as a fifth vital sign, their pain beliefs, and how their pain beliefs influence their opinions. **Methods:** This descriptive study was conducted in a City Hospital with the involvement of 223 nurses. A questionnaire and a Pain Beliefs Questionnaire were used for the collection of data, and the data were analyzed using descriptive statistics, and Mann-Whitney U-test, analysis of variance, and Kruskal-Wallis tests. **Results:** Of the respondent nurses, 31.8% of the nurses were working in medical inpatient

clinics, and 56.5% stated that pain should not be evaluated as a fifth vital sign, giving the following reasons: if patients are in pain, they already report it (40.5%), and overwork and the lack of sufficient nurses (34.9%). There was no difference in the pain beliefs scores of the nurses who stated that pain should not be evaluated as a fifth vital sign (56.5%) and the scores of those who stated the opposite (43.5%) ($P > 0.05$). **Conclusions:** Most of the nurses do not think that pain should be evaluated as a fifth vital sign. Furthermore, the pain beliefs of nurses do not influence their opinions regarding the assessment of pain as a fifth vital sign.

Key words: Beliefs, fifth vital sign, nursing, opinions, pain evaluation

Introduction

It is known that, notwithstanding advances in the health area, pain is still an insufficiently investigated problem, and one that is sometimes underestimated by health professionals.^[1] In an effort to reduce the burden of

underassessment and the inadequate treatment of pain, the American Pain Society (APS) in 1996 launched a “pain as the 5th vital sign” campaign.^[2] This led many countries to adopt similar pain screening requirements, although it can

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be observed that pain assessment and control have still be legitimized in some countries such as Turkey, where only classic vital signs measurements are part of the nursing routine.

Studies have shown that the “pain as a fifth vital sign” program has led to some unintended consequences, including prescribed opioid addiction and misleading unidimensional pain scales.^[3-7] The APS guidelines recommend the use of unidimensional pain scales;^[8] although, it has been emphasized that the “pain as the 5th vital sign” campaign, and the use of such self-reported unidimensional pain scales as the numeric rating scale (NRS) has contributed directly to the prescribed opioid epidemic and oversedation.^[3-7] Ballantyne and Sullivan examined the efficacy of the NRS and found that the quality of pain treatment remained unchanged after the implementation of the initiative.^[5] Vila *et al.* made a study of one hospital that implemented the pain as a fifth vital sign initiative and found that although the initiative had been associated with increased patient satisfaction, it also led to an increase in adverse opioid-related drug reactions.^[9] Mularski *et al.* found that routinely measuring pain as a fifth vital sign did not increase the quality of pain management.^[10] Lucas *et al.* reported that overmedication with sedatives and narcotics under the pain as a fifth vital sign mandate had contributed to the death of several patients.^[11]

Studies have failed to identify a connection between improved compliance with regular pain assessments and better pain treatment or patient outcomes.^[6,10,12,13] In the light of research documenting the dramatic rise of opioid addiction and opioid-related deaths, American Medical Association delegates voted to stop treating pain as the fifth vital sign, believing that it is likely that the initiative, along with other factors, exacerbated the opioid crisis.^[14,15]

Adequate pain management frequently comes up against obstacles. In this context, health professionals face difficulties in the routine evaluation and documentation of pain.^[1] Patients generally discuss their pain mostly with their nurses, and nursing staff spends more time with patients than any other health-care provider.^[16] This means that nurses can play an important role in the evaluation of pain, and their opinions of pain assessment are essential. The routine evaluation of pain has recently been considered in Turkey; however, to date, there have been no studies reporting on the opinions of nurses on the pain as a fifth vital sign initiative. Accordingly, this study focuses on the opinions of nurses regarding the assessment of pain as a fifth vital sign, their pain beliefs, and the influence of their pain beliefs on their opinions.

Methods

Samples and design

This descriptive study was conducted in a City Hospital in a city located in the Central Anatolia Region, as the largest hospital with the largest nursing population in the entire city. The study universe was the 350 nurses working at the hospital between February 22, 2018, and July 15, 2018. We did not sample, but some nurses were excluded such as those who declined to participate ($n = 32$) at the outset, those using their free time for such purposes as vacation and maternity leave ($n = 77$), and those from departments not working directly with patients (employee rights and security, training, document control, patient rights, statistics, occupational health and safety, quality management, health-care services coordination, medical social work, diagnosis-related grouping unit, pharmacy, and sterilization) ($n = 18$). Consequently, only 223 of the nurses were involved in the study, meaning a response rate of 64%.

Data collection

Data were collected using a questionnaire compiled by the researchers after a search of literature^[16-22] and the “Pain Beliefs Questionnaire” (PBQ). Each question on the data collection form was asked to the participants, and the forms were filled out by the researchers, with each taking approximately 20–25 min. The questionnaires were filled out during the morning or evening shifts when the nurses have rest time, are not busy, or have completed their shift. The questionnaire was compiled in three parts. The first part contained eight questions on sociodemographics. The second part consisted of questions aimed at garnering the opinions of nurses on the assessment of pain as a fifth vital sign (how often pain is assessed, how often it should be done, knowledge of pain assessment as a part of vital signs, considering/not considering pain as a fifth vital sign and the reasons for these thoughts, and why pain cannot be evaluated effectively), and the third part used the PBQ developed by Edwards *et al.* that covers beliefs about the causes and consequences of pain.^[23] The validity and reliability study of the Turkish version was performed by Sertel-Berk.^[24] The PBQ consists of two scales, being “organic” (8 items) and “psychological” (4 items).^[23] The Organic Pain Beliefs scale (PBQ-O) contains items attributing pain to negative organic causes, such as “pain is the result of damage to bodily tissues,” while the Psychological Pain Beliefs scale (PBQ-P) emphasizes the emotional component of pain, for example, “feeling depressed makes the pain seem worse.” PBQ-O scores can range from 0 to 32, and PBQ-P from 0 to 16, with higher scores indicating that the participants endorsed the items

in that scale more strongly.^[25] In the Turkish version of the questionnaire, the Cronbach's alpha and test-retest reliability scores were 0.71 and 0.74 for PBQ-P and 0.66 and 0.51 for PBQ-O, respectively.^[23] In the present study, the internal consistency coefficient of the questionnaire was found to be $\alpha = 0.66$, while for the scales, the Cronbach's alpha reliability coefficient was 0.68 for PBQ-P and 0.55 for PBQ-O.

Statistical analysis

The data analysis was performed using the IBM Statistical SPSS 23. The distribution of variables was examined with the Kolmogorov–Smirnov and Shapiro–Wilks tests. The evaluated data were presented as a mean \pm standard deviation, and the categorical data included the number of observations and relative frequencies. A nonparametric Mann–Whitney U-test was used for the data without normal distribution in the two independent groups. For a comparison of more than two independent groups, the analysis of variance method and nonparametric Kruskal–Wallis test (for data without normal distribution) were used. The results were evaluated at a 95% confidence interval and a $P < 0.05$ significance level.

Ethical approval

Ethics committee approval was obtained from the Bozok University Medical Faculty Clinical Research Ethics Committee (Approval No. 2017-KAEK-189_2018.02.21_04). Permission from the City Hospital, and the Provincial Health Directorate was obtained for the field application of the study. The participating nurses were informed about the subject of the study, and verbal consent was obtained. Written permission was received from Sertel-Berk for the use of the Turkish version of the PBQ.

Results

Participants' demographics

The mean age was 29.0 ± 2.0 years. Most of the nurses (31.8%) were employed in the medical inpatient clinics. Most (85.7%) worked in mixed shifts, and in a single shift, each of the nurses cared for an average of 5–10 patients (43.9%), while 5.8% cared for ≥ 20 patients, predominantly those working in the emergency room. The nurses providing care to no patients (8.5%) were mostly the head nurses of the clinic, who usually do not care for patients directly [Table 1].

The opinions of nurses regarding the assessment of pain as a fifth vital sign

The majority of nurses (77.1%) reported being unaware of pain as a fifth vital sign. Most of those who had previously heard of the concept gained the information

Table 1: Sociodemographic characteristics of nurses (n=223)

Sociodemographic characteristics	n (%)
Age (years)	
19-25	94 (42.2)
26-30	55 (24.7)
31-35	28 (12.6)
36-40	29 (13.0)
≥ 41	17 (7.5)
Gender	
Female	184 (82.5)
Male	39 (17.5)
Educational qualification	
Vocational school of health (health high school)	52 (23.3)
2 years associate degree program	44 (19.7)
Undergraduate degree	103 (46.2)
Distance education	21 (9.4)
Graduate degree	3 (1.3)
Years of experience	
< 1	49 (22.0)
1-5	72 (32.3)
6-10	43 (19.3)
11-15	29 (13.0)
16-20	13 (5.8)
> 20	17 (7.6)
Wards nurses work	
Medical inpatient clinics	71 (31.8)
Surgical inpatient clinics	33 (14.8)
Women and children inpatient clinics	40 (17.9)
Intensive care units	27 (12.1)
Emergency room	21 (9.4)
Operation rooms	18 (8.1)
Outpatient treatment units	13 (5.8)
Work position	
Head nurse of the clinic	21 (9.4)
Co-head nurse of the clinic	6 (2.7)
Clinic nurse	196 (87.9)
Working pattern	
Always day shifts	32 (14.3)
In mixed shifts	191 (85.7)
Average number of patients per nurse care in one shift	
5-10	98 (43.9)
11-15	86 (38.6)
16-20	7 (3.1)
> 20	13 (5.8)
No patients	19 (8.5)

during a university education (84%) or from the quality unit of the hospital (16%).

While 58.3% of nurses stated that they assessed each patient for pain once a day, 5.4% assessed pain only during admission, 2.2% assessed pain both after a procedure and once a day thereafter, 0.9% assessed pain after a procedure, 0.9% assessed pain both during admission and after a procedure, 0.9% assessed pain during admission and after a procedure, but only once a day, and 31.4% had not been assessing pain at all.

The nurses stated a belief that pain should be evaluated only when a patient reports it (66.8%), alongside vital signs (25.1%), after 30 min–1 h from analgesic given (22.0%), before and after a painful procedure (21.1%), at admission (19.7%), if needed according to diagnosis (17.9%), before and after nursing applications (15.7%), and once each shift (14.8%).

Of the total, 56.5% of the nurses stated that pain should not be evaluated as a fifth vital sign, for the main following reasons: if patients are in pain, they already report it (40.5%); due to overwork and a lack of time and staff (34.9%) [Table 2].

Of the total, 43.5% stated that pain should be evaluated as a fifth vital sign. The main reasons for their answers were: it will be beneficial for the patients' well-being (56.7%), pain affects other vital signs (56.7%), and it can help with diagnosis and treatment (46.4%) [Table 2].

The nurses who stated that pain should be evaluated as a fifth vital sign reported that pain should be evaluated in all patients (48.5%), in patients receiving narcotic analgesics (20.6%), in patients with pain (41.2%), in patients after surgery (38.1%), in intensive care patients (9.3%), and in the elderly (5.2%).

Regarding the obstacles preventing effective pain assessment, the nurses stated the following: overwork, due to the nurses being engaged in tasks other than caregiving (49.3%), the inability of patients to report pain accurately or objectively (45.3%), patients intentionally giving false statements about the level of pain (28.7%), nurses ignoring the assessment (20.2%), the shortage in the number of nurses and the large number of patients (19.3%), problems communicating with patients (17.5%), not using the correct pain assessment tool (8.5%), and long shifts and working hours (7.6%).

Pain beliefs of the nurses

Besides the nurses' opinions, based on the pain beliefs of the nurses that guide care practices related to the symptoms of pain, the mean score of PBQ-P (4.70 ± 0.05) was higher than the mean score of the PBQ-O (3.94 ± 0.04) [Table 3].

No statistically significant difference ($P > 0.05$) in the pain beliefs scores was identified between the nurses who stated that pain should not be assessed as a fifth vital sign (56.5%) and those who stated the opposite (43.5%). That said, the mean pain beliefs scores of the nurses that stated that pain should be assessed as a fifth vital sign were higher [Table 4].

There was no significant difference between the education levels of the nurses and pain beliefs scores ($P > 0.05$). Education level had no effect on the pain beliefs scores. Despite not being statistically significant, the nurses with undergraduate and postgraduate degrees recorded higher

Table 2: Nurses' opinions about pain assessment as a fifth vital sign

Nurses' opinions about pain assessment as a fifth vital sign	n (%)
Pain assessment must be made when taking vital signs	
No	126 (56.5)
Yes	97 (43.5)
Reasons for nurses answering NO*	
If patients are in pain, they already report it	51 (40.5)
Overwork, lack of time, and number of nurses	44 (34.9)
Patients give false statements, report pain often	34 (27.0)
Not needed in every patient or in every clinic	28 (22.2)
It would not be an effective evaluation	13 (10.3)
It is not a vital sign and should be included in the care plan	11 (8.7)
It does not affect vitals or indicate any serious situation	10 (7.9)
It must be removed from the care plan and assessed by a physician	10 (7.9)
Increases unnecessary analgesic intake	5 (4.0)
Reasons for nurses answering YES*	
For the patients' well-being	55 (56.7)
Pain affects other vital signs	55 (56.7)
Helps with diagnosis and treatment	45 (46.4)
The patient should have no pain during hospitalization	34 (35.1)
Helps with medication decisions	25 (25.8)
Encourages the patient to report pain	24 (24.7)
Provides baseline information for treatment or medication	24 (24.7)
It shows that pain reported by the patient has been addressed	22 (22.7)
It improves patient-nurse communication	19 (19.6)
It is required for recording procedures	10 (10.3)

*Nurses stated more than one reason

Table 3: Pain beliefs questionnaire scores of nurses

Pain beliefs questionnaire scores	Minimum	Maximum	Mean \pm SD	Median
Total pain beliefs scores	2.83	5.17	3.98 ± 0.03	4.00
PBQ-P scores	2.25	6.00	4.70 ± 0.05	4.75
PBQ-O scores	2.17	5.50	3.94 ± 0.04	3.83

SD: Standard deviation, PBQ-P: Psychological pain beliefs scale, PBQ-O: Organic pain beliefs scale

Table 4: Comparison of nurses' opinions of pain assessment as a fifth vital sign and pain beliefs questionnaire scores

Pain beliefs questionnaire scores	Pain assessment must be done when taking vital signs (mean \pm SD)		Test statistics
	Yes	No	
Total pain beliefs scores	4.01 ± 0.05	3.95 ± 0.05	$t = 1.073, P = 0.284^*$
PBQ-P scores	4.77 ± 0.08	4.65 ± 0.07	$Z = -0.971, P = 0.331^{**}$
PBQ-O scores	3.97 ± 0.06	3.92 ± 0.06	$Z = -0.026, P = 0.979^{**}$

*Results of independent two-group comparison, **Results of Mann-Whitney U-test.
SD: Standard deviation, PBQ-P: Psychological pain beliefs scale, PBQ-O: Organic pain beliefs scale

organic pain beliefs scores. When the pain beliefs scores of different wards (e.g., medical, surgical inpatient, intensive care unit, emergency room) were compared, statistically significant difference in the total pain beliefs score and the organic pain beliefs score were found. The total pain beliefs score and the score of the organic pain beliefs of the nurses

working in the emergency room were lower than those of working in the other wards ($P < 0.05$). It was found that the nurses working in the other wards had similar scores.

Discussion

Pain management is complex and multifactorial, and hence, a deeper understanding of the barriers to proper and optimum pain management needs to be gained to remedy deficiencies among professionals and to improve patient care.^[18,26,27] In the present study, the majority of nurses (77.1%) reported that they had not heard about pain as a fifth vital sign before. In addition, most of the nurses were assessing pain only once a day per patient in line with the quality policy of the institution, and some were not assessing it at all. These results indicate that nurses are unaware of pain assessment as a fifth vital sign, and therefore do not apply it in the care settings.

Ogwa and Ndie evaluation of nurses' opinions on pain assessment revealed that "nurses assess patients' pain routinely, whenever other vital signs are checked, during the initial health assessment on admission, when they complain of pain, before and after undergoing pain relieving therapy."^[19] In this study, very few of the participating nurses reported that pain should be evaluated in every vital sign follow-up (25.1%).

The findings related to the opinion of nurses about pain assessment as a fifth vital sign showed that the majority (56.5%) were skeptical. The main reasons given by nurses do not support the routine assessment of pain alongside other vital signs, as declared by the APS.^[2]

In the article by Ogwa and Ndie, the respondent nurses stated that they did not assess pain in detail, in that, they have too many patients requiring their attention.^[19] This result is consistent with the second reason stated by the nurses that because of overwork, there is a lack of time and staff. Ogwa and Ndie showed further that nurses assert the overreporting of pain levels by patients to attract attention. The majority fear that patients would become addicted to pain relief drugs if their verbal reports were to be relied on. Hence, nurses are of the opinion that visible physiologic or behavioral signs must accompany any verbal pain reported by the patient as a verifier.^[19] Similarly, in the present study, the nurses reported that if patients are in pain, they already report it, and if asked frequently as a fifth vital sign, patients report pain more often, thus abusing the situation, with false statements suggested to increase unnecessary analgesic intake. Peter and Watt-Watson stated that nurses would appear to distrust self-reported pain among patients, which suggest that they may have their own benchmark of what is acceptable and when and how patients should express pain. These nurses were of the opinion that patients would

become addicted to pain relief drugs if nurses were to rely only on verbally reported pain.^[28]

In this study, no statistically significant difference was found between pain beliefs scores and opinions regarding the assessment of pain as a fifth vital sign. However, the pain beliefs scores of the nurses (56.5%) that stated that pain should not be assessed as a fifth vital sign was lower.

Less than half of the nurses (43.5%) reported that pain should be assessed as a fifth vital sign. With regard to the reasons for assessing pain, the following stated reasons were of particular note: it is beneficial for the patient's well-being; pain affects other vital signs; and it can support diagnosis and treatment decisions. The findings agree with those of do Nascimento and Kreling who identified that the main reasons given by professionals for the importance of pain assessment were patient well-being (21.1%); the patient should not feel pain in the hospital, if not strictly necessary (18.7%); it serves as a parameter of the patient's progress (14%); the patient can feel pain and not report it, due to a culture or fear of "bothering" professionals, thus making it important to ask them about the presence of pain (12.5%); and the importance of measuring pain (10.1%).^[20]

There are some factors that can make it difficult to assess pain effectively, including patient-based, health professionals-based and organizational barriers. Rose *et al.* reported that hemodynamic instability, nursing workload, and the inability of the patient to communicate were barriers considered mostly by nurses to interfere with pain assessment and management most frequently.^[21] In the present study, the patient being unable to report pain accurately or objectively, the patient giving intentionally false statements were among the most common patient-related barriers affecting the effective evaluation of pain. Nurse-related barriers, on the other hand, were overwork due to being involved in tasks outside their roles as caregivers, nurses ignoring such assessments, the insufficient numbers of nurses, not using the correct pain assessment tool, and long shifts and working hours. The intensive workload and time limitations on nurses are defined as a significant obstacle in the way of pain assessment. Nurses often neglect pain assessment while meeting more urgent patient requirements.^[22] However, the nurses who took part in this study and who stated that pain should be assessed as a fifth vital sign (43.5%) had higher mean pain beliefs scores.

It can be concluded that nurses hold the general opinion that "pain should not be assessed as a fifth vital sign," in that it will not be an effective assessment as long as the reasons emphasized above continue. In some clinics and in some patients, routine assessment may lead to a more effective evaluation. In addition, pain beliefs would appear not to

influence the opinions of nurses about pain assessment as a fifth vital sign.

Limitations

This study was restricted to a single center, and so the results can only be applied only to the population studied in this center. Another limitation may be the different educational levels of the nurses, which can affect the nurses' perception of the evaluation of pain as a fifth vital sign. Another limitation is that no categorization was made depending on the departments, in which the nurses were working.

Conclusion

It is a known fact that the opinions of health professionals are needed before deciding on any new application. This need becomes more apparent given the subjectivity of pain in the assessment of pain as a fifth vital sign, and the importance of assessing all pain complaints. In the present study, it was found that most nurses do not want to evaluate pain in routine with other vital signs. Although future studies are needed, we believe that the results may be useful in steering the decision of whether or not to introduce the evaluation of pain as a fifth vital sign into practice, and the garnered data can serve as a guide for nursing care practices related to pain. As long as the reasons emphasized continue, no effective assessment will be possible, although in some clinics and in some patients, a routine assessment may provide a more effective evaluation. The need for studies showing the functioning of pain as a fifth vital sign in clinical practice is emerging. It is recommended that future studies be carried out involving larger nurse populations, and with different departments in the hospital, for example, oncology, surgery, and emergency.

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Conflicts of interest

There are no conflicts of interest.

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