



RESEARCH PAPER

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Unveiling pain quality descriptors of chronic pain mechanisms in northern India: An observational study

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Key words: Chronic pain, Descriptors, Mechanism indicators, Northern pain quality

<http://dx.doi.org/10.12692/ijb/25.4.54-59>

Article published on October 04, 2024

Abstract

Pain is a subjective feeling and most of aspects of pain assessment relies on description of one's experience. Various mechanism of pain lead to varying sensory effect among individuals that lead to variation in description of pain. Language in the form of pain description is the key for mental representation and explanation of pain. Acknowledgement of these descriptors indicating toward mechanism can enhance the efficacy of the chronic pain assessment and management. The study was aimed to evaluate descriptors for various chronic pain mechanisms mostly provided by patients to the doctors. Sample of 50 medical specialists including physiotherapist and orthopedicians dealing with chronic pain were enrolled from Rohtak district. Data regarding descriptors providing indication for various mechanism of pain was collected. Among the findings of descriptor indicating toward various mechanism nociceptive mechanism was indicated by "Throbbing", neuropathic by "Tingling", mixed by "Heavy" and centralized pain by "Aching" as the most reported descriptor. The findings of the study provide Hindi pain descriptors indicating toward various pain mechanism that can assist the therapists dealing with chronic pain and raises the need of development of Hindi pain quality measure focusing on these descriptors.

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Introduction

Pain is an important sensation and signals the mind to give attention to specific area of our body. It has been recommended to be considered as fifth vitals sign (Morone and Weiner, 2013). Chronic pain due to its unsettling nature lasts for prolong period of time that affect one's living as well as their working capacity. Multidimensional nature of chronic pain requires thorough assessment to explore that underlying pathology behind its persistence. With the growing interest in evidence based management not only the pain intensity, various domains of pain including sensory quality assessment also became an integral part of assessment and management (Jensen *et al.*, 2006; Jensen *et al.*, 2013).

As there is no laboratory test to obtain the pain intensity, quality and other characteristics of pain, clinician have to rely on what patients tells as language of pain (Agnew and Merskey, 1976). This description of pain can be in form of words or in form of sentences and varies among different cultures and languages. Description of pain experiences can help in differentiating various chronic pain conditions, pain sensations, and mechanism of pain and effectiveness of treatment (Rau *et al.*, 2018).

One of the main purposes of multidimensional assessment of pain is to understand the underlying pathophysiological processes contributing towards pain. Various pain mechanisms have been described to understand the pathological processes involved in pain.

The mechanism based classifications include nociceptive pain arising from actual or potential tissue damage, neuropathic pain caused by dysfunction in nervous system. Nociplastic pain arising from altered nociception and mixed pain which have an overlap of nociceptive and neuropathic symptoms (Chimenti *et al.*, 2018; Trouvin and Perrot, 2019). Understanding the pain mechanism has direct implication for the assessment of underlying pathology. Various mechanisms of pain lead to varying sensory effect among individuals that lead to

variation in description of pain. Thus, these pain descriptors can have a direct indication towards pain mechanism and can be the key to pain assessment (Mystakidou *et al.*, 2007).

Various studies have been conducted for pain quality descriptors for different musculoskeletal conditions, neurological conditions, region based conditions that suggest that the descriptors of pain may indicate toward mechanism (Mystakidou *et al.*, 2007; Dworkin *et al.*, 2007; Heraughty and Ridehalgh, 2020). These descriptors are obtained in different languages, but none of the study has provided Hindi language descriptors indicating towards various pain mechanisms. Language and culture put significant impact on content validity of the measures developed in different cultures (Wild *et al.*, 2005). As providing these common descriptors indicating toward pain mechanism can contribute to mechanism based approach for pain management and can help the therapist dealing with pain to make individual treatment approach to a problem.

So, in the light of above discussion, it is clear that it is important for the clinicians to know the descriptors used to describe different mechanisms that can provide clue for the underlying etiology behind persistent pain. To satisfy the above said need, acknowledging the descriptors of chronic pain used by Northern Indian population will help clinicians and researcher to assess the pain in their own cultural context with relevant and meaningful questions. Thus, the aim of the study was to find out various Hindi pain descriptors specific for different pain mechanisms for chronic pain.

Materials and methods

Overview of study design: The study was an exploratory research design in which medical specialists including physiotherapists and orthopaedicians dealing with chronic pain were approached to obtain Hindi descriptors indicating toward various mechanisms of pain. The study was conducted in tertiary care hospital, Pandit Bhagwat Dayal Sharma University of Health Sciences and

sample was drawn from different hospitals of Northern India.

Participants

The study enrolled 50 medical specialists including physiotherapists and orthopaedicians dealing with chronic pain by random lottery sampling method. The participants were included if they had at least 2 years of clinical experience post PG and working in Northern India. Sample size was calculated as per the study done by Vasileiou *et al.* which suggest no more than 50 interviews are required for qualitative study (Vasileiou *et al.*, 2018).

Procedure

All participants of the study were interviewed face to face by study investigator. Initially sociodemographic details of participants including age, gender, education, years of experience and highest education status were recorded in self-structured questionnaire.

Through a self-structured questionnaire preference of pain intensity and pain quality scale was assessed. To obtain the common Hindi pain descriptors used by patients with chronic pain, every individual was asked for descriptors specific for various mechanisms of pain.

The collected data of descriptors indicating toward various mechanisms was noted in excel sheet and translated into their appropriate English translation to enhance the comprehension by study investigator and research supervisor. Descriptors with the frequency of more than 10 were considered as most indicating descriptors for that mechanism.

Results

Of the 50 participants enrolled in study, 31 of the participants were female and 19 were male. Mean age of the participants was 31.66 ± 5.88 years. Almost more than half of the sample (74%) enrolled in the study were physiotherapists. As most of the participant belongs to late adult age group 70% of the participants had experience of 2 to 6 years as presented in Table 1.

Table 1. Participant descriptive information

Variables	Mean (SD)	N (%)
Age	31.66 ± 5.88	
Sex		
Male		19 (38)
Female		31 (62)
Profession		
Physiotherapists		37 (74)
Orthopaedicians		13 (26)
Years of experience		
2-6 years		35 (70)
7-12 years		8 (16)
13-18 years		5 (10)
19-24 years		2 (4)

Various pain measures are being used by medical specialists in their daily routine for pain quality and pain intensity. Table 2 shows VAS (Visual Analogue Scale) and NPRS (Numeric Pain Rating Scale) are the most preferred measure for assessing pain intensity i.e., 58% and 42% respectively for Northern population. 50% of the respondents do not use any measure for pain quality for Northern Indian population where as 26 % preferred McGill pain questionnaire. 92% of the respondents felt the need of development of Hindi pain quality measure.

Table 2. Preference of pain measures

Pain intensity measures	N (%)
VAS	29 (58)
NPRS	21 (42)
FPS-R	1 (2)
HPPS	3 (6)
Pain quality measure	
None	
McGill Pain Questionnaire (MPQ)	25 (50)
Pain Quality Assessment Scale (PQAS)	13 (26)
12 (24)	
Need of Hindi pain quality measure	
Yes	46 (92)
No	4 (8)

All the participants of the study mentioned that descriptors indicate toward the mechanism of pain. Nociceptive pain was described by 29 descriptors, out of them descriptors with the rating of more than 10 were selected as indicator such as "Throbbing, Pricking and Tearing". Neuropathic pain was described with 18 descriptors but only 5 descriptors with rating more than 10 such as "Tingling, Like ant moving, Numb, Like thread moving and Like needle prick" were the most frequent.

Table 3. Descriptors indicating toward pain mechanism

Nociceptive frequency (%)	Neuropathic frequency (%)	Mixed frequency (%)	Centralized/Nociplastic frequency (%)
Throbbing- 38 (76%)	Tingling-31 (62%)	Heavy-24 (48%)	Aching-31 (62%)
Pricking-29 (58%)	Like ant moving-24(48%)	Stiffness-15(30%)	Dull-11 (22%)
Tearing – 17 (34%)	Numb-23 (46%)	Tugging/Pulling-12 (24%)	Unbearable-7 (14%)
	Like thread moving-7(34%)	Quivering-11(22%)	
	Like needle prick-11 (22%)		

27 descriptors were provided for mixed pain but only 4 had frequency of more than 10 such as “Heavy, Stiffness, Tugging/Pulling and Quivering” were the most frequent. Centralized or nociplastic was provided by 32 descriptors but only 3 were selected as most frequent and “Aching, Dull and Unbearable” were most frequent indicators as presented in Table 3.

Discussion

The current study explored descriptors indicating towards various mechanisms behind chronic pain. Findings of the current study enhance the role of mechanism based approach for pain assessment and management. The medical specialists reported VAS as most preferred measure for measuring pain intensity. Breivik *et al.* reported that VAS and NPRS were one of the commonest measures to assess the pain intensity (Breivik *et al.*, 2008). Whereas a few studies reported the FPS as most preferred and valid than VAS among Nepalese population due to comprehension issue with VAS in less educated and elderly population (Pathak *et al.*, 2018; Sayin and Akyolcu, 2014; Atisook *et al.*, 2021). The higher usability of VAS among Northern Indian population was due to difference in prevalence age of musculoskeletal pain study population studied by Bihari *et al.* than what was tested in previous studies (Bihari *et al.*, 2011). The study participants reported that half of the sample does not use any pain quality measure for assessing the chronic pain patient. Unavailability of Hindi pain quality measure for chronic pain may be the reason for so. Participants of the study highly reported the need of a Hindi measure of pain quality.

As described by previous studies, the current study found that pain descriptor provides an indication toward pain mechanisms. Pain mechanisms describes

the factors that can play part in the development, persistence, or worsening of pain. According to the latest International Classification of Disease, there are mainly four mechanism behind different kind of pain including nociceptive, neuropathic, mixed and nociplastic type (Chimenti *et al.*, 2018). Nociceptive pain is associated with pain due to altered nociception due to actual or threatened tissue damage.

Neuropathic is the one caused due to damage to somatosensory tissue. Mixed concept is due to overlap in nociceptive and neuropathic symptoms. Nociplastic pain also known as centralized where the pain is due altered nociception despite of no exact evidence of actual or threatened tissue damage and due to increase neural signaling leading to hypersensitive presentation of regional pain rather than discrete for duration of more than 3 month (Perrot *et al.*, 2019; Nijs *et al.*, 2021).

In present study descriptors indicating various pain mechanism were reported by the participants where nociceptive pain was provided by descriptor “Throbbing (76%), Pricking (58%) and Tearing (34%)” and neuropathic pain by “Tingling (62%), Like ant moving (48%), Numb (46%), Like thread moving (34%), Like needle prick (22%)”. A previous Study by Mystakidou *et al.* reported descriptors for nociceptive pain as "Shooting, crushing, exhausting, suffocating, piercing, heavy, lacerating, stinging" and for neuropathic pain as "sharp, hurting, tiring, wretched, annoying, pricking and punishing" (Mystakidou *et al.*, 2007).

Mixed pain was described by “Heavy (48%), Stiffness (30%), Tugging/Pulling (24%) and Quivering (22%)” in our study. No other study have reported such descriptors for mixed type of pain. Nociplastic pain or

centralized pain was described by descriptors that indicate hypersensitive conditions, in present study it was described by “Unbearable (14%)”. Though good quality assessment tool like McGill Pain Questionnaire, Pain Quality Assessment Scale are available but till date no studies are available that provide descriptors as indicator of various pain mechanism. As pain is completely a subjective experience identification of commonly used words in native language is essential. The findings of the current study provide only a preliminary guidance regarding development of Hindi measure of pain quality and mechanism. Various treatment strategies may be used for mechanism based management of pain. The concepts like explain pain which use instructional design and multimedia principle to present pain biology information for treatments to alter patient’s thinking about pain. The availability of commonly used pain descriptors in native language will provide help in these treatment strategies.

The present study was though conducted in streamline manner there were few limitation to the study. The sample size was though adequate for exploratory study but can be more reliable if more number of clinicians were enrolled. The final findings of the study can be judged by collecting data from patients.

Conclusion

As all of the respondents in medical specialists group felt that pain quality descriptors provide an indication towards the mechanism of the pain, there is a need to develop Hindi pain quality assessment tool. The specific descriptors indicating toward various mechanisms may be use for mechanism based approach to pain by clinicians.

Acknowledgements

The authors would like to thank the study participants for being a part of study.

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