Concept Analysis of Pain

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ABSTRACT

The purpose of this paper is to expand the understanding of the concept of pain. The authors intent to clarify the defining attributes of pain and identify antecedents that influence the perception of pain and the possible consequences of pain by using Walker and Avant's (1995) concept analysis. A model case demonstrates how pain is tied to these critical attributes. A borderline case and a contrary case are presented to differentiate the concept of pain from other concepts. Empirical referents demonstrate the current perspective of the concept of pain. (Tzu Chi Nursing Journal, 2003; 2:3, 20-30.)

Key words: pain, concept analysis, discomfort, suffering.

Introduction

Pain is the most frequent nursing diagnosis and the most common problem for which patients in the clinical setting seek help (Mobily, Herr, & Kelley, 1993). In general, pain refers to an unpleasant, distressful and uncomfortable feeling. Studies have showed that unrelieved pain can affect the quality of life of the individual, cause physical and emotional effects, impact family, as well as increase the costs for health care, the individual and society (Ferrel, 1995). Thus, pain is a critical problem in the health care system.

Nursing researchers have studied children's pain for the last three decades, including pain experiences, pain measurement, outcome of pain and so on. Recent studies note that pain may not be controlled completely even with state-of-the-art technology and pharmacologic therapies (Kotzer, 2000; Kotzer, Coy, & LeClaire, 1998; Kotzer & Foster, 2000). Beyer (2000) concluded that 71% of the children she interviewed who has sickle cell disease had moderate to severe pain. It seems all the efforts of researchers still cannot adequately relieve children's pain. Children still continue to suffer. Health care providers' lack of knowledge of pain management has been documented as one of the major reasons for this gap (Hester & Foster, 1993). Another reason may due to broadly define the concept of
pain. Mahon (1994) and Montes-Sandoval (1999) used Walker and Avant's method of concept analysis and defined critical attributes for pain. These two concepts analyses of pain are currently the only ones found in the CINAHL data search. The similarities of both analyses are that pain is a personal experience, an unpleasant, distressful, unwanted, uncomfortable experience. Mahon's critical attribute of a dominating force can be linked to Montes-Sandoval's psychological, socio-cultural response to a noxious stimulation. However, other components in relation to pain were not described clearly or even did not mention, such as the meaning of pain, function of pain, state of feeling in pain, pain responses and consequent of pain. These unclear understanding of pain may effect how people view pain. Thus, prior to relieve children's pain, it is important to understand what pain is defined. Concept analysis is one way to clarify the definition of pain. Therefore, the purpose of this paper is to expand the understanding of the concept of pain. The aim of this analysis is to clarify the defining attributes of pain and identify antecedents that influence the perception of pain and the possible consequences of pain. Walker and Avant's (1995) concept analysis serves as a guideline to direct this paper.

According to Walker and Avant (1995), concept analysis allows nursing scholars to examine the attributes or characteristics of a concept. Their concept analysis was originally adapted from Wilson (1969). The purpose of using concept analysis is to distinguish between the defining attributes of a concept and its irrelevant attributes. It is a process of determining the similarities and differences between concepts. Since concepts, such as suffering, are closely related to pain, it is important to distinguish the concept of pain from other related concepts. There are eight steps for concept analysis in their procedure, including (a) selecting a concept; (b) determining the aims or purposes of analysis; (c) identifying all uses of the concept; (d) determining the defining attributes; (e) constructing a model case; (f) constructing borderline, related, contrary, invented and illegitimate cases; (g) identifying antecedents and consequences; and (h) defining empirical referents.

### Identifying Uses of the Concept of Pain

To identify what pain is, general and specific health care definitions are used to explore basic information about pain. The use of pain from a general and professional dictionary, a philosophical perspective, a theoretical perspective of pain, and the use of the concept in sociology and professional fields are also presented.

### Definitions of Pain from Dictionaries

The Oxford English Dictionary (OED) was used to explore the general definition of pain because the OED includes the etymology of the word. Pain is defined in the OED as (a) the sensation which one feels when hurt (in body or mind); (b) suffering, distress, the opposite of pleasure; (c) in specifically physical and psychical senses: bodily suffering; mental suffering, trouble, grief, sorrow; (d) trouble as taken for the accomplishment of something difficult. Pain was originally defined as suffering or loss inflicted for a crime or offence; punishment; penalty; a fine. However, this definition of pain was identified in use only from 1297 AD to 1859 AD. Pain is rarely related to punishment or crime.

In O'Toole's Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing and Allied Health (1997), pain is defined as "a feeling of distress, suffering or agony, caused by stimulation of specialized nerve endings. Its purpose is chiefly protective, it acts as a warning that tissues are being damaged and induces the suffer to remove or withdraw from the source" (p. 1181).

### Philosophical Perspectives of Pain

The philosophical perspectives of Plato (427-347 BC), Aristotle (384-322 BC) and Descartes' (1596-1650) most influenced the development of pain theories. Plato proposed the idea of the soul, pain and pleasure. He believed that pain arose not only from peripheral stimulation but also as an emotional experience in the soul. Pleasure derived from pain relief. Both pain and pleasure affect the whole body (Bonica, 1990). Aristotle incorporated Plato's thoughts into...
Aristotle's idea of sensation and pain. Aristotle viewed pain as an emotion, a state of feeling, a quality or passion of soul, the experience opposite to pleasure; pain is unpleasantness (Bonica, 1990; Montes-Sandoval, 1999). Descartes emphasized the relationship between mind and soul in relation to pain. Some authors interpreted Descartes's ideal in opposite way. Whether mind and body are separate or integrated represented is reported by different authors (Montes-Sandoval, 1999; Rey, 1993). The experience of pain exists not only in the body but also external to the body (Rey, 1993). In summary, philosophical perspective defines pain as unpleasant, including physiological stimuli and an emotional feeling. Soul or mind is involved in the perception of pain.

Theoretical Perspectives of Pain

Four major theories discuss pain: specificity theory, pattern theory, gate control theory and psychological/behavioral theory. The Gate Control Theory (GCT), which is developed based on the specificity theory and the pattern theory, is the most commonly used in the professional field. Fordyce's (1990) psychological/behavior theory is used as well.

Melzack and Wall (1965) proposed the GCT. The perception of pain involved three interactive cerebral processes: sensory-discriminative, motivational-affective, and cognitive-evaluation dimensions. The sensory-discriminative dimension refers to the nerve transmission from the periphery to the brain via the spinal cord. The neospinothalamic projecting system in the brain serves to process sensory discriminative information about the location, intensity and duration to the stimulus. The motivational-affective dimension refers to the brainstem reticular formation and the limbic system which tend to provoke the motivation and aversive drive. The cognitive-evaluation dimension refers to cognitive activities, such as cultural values, anxiety and attention. This dimension is based on analysis of multi-modal information, past experience and different response strategies. The cognitive-evaluation dimension may affect either of the other two dimensions.

Melzack and Wall concluded that pain is not a single sensation and response system, pain is an ongoing process. It includes a sequence of responses by the action system, beginning with a series of reflex responses and continuing with complex strategies to terminate the pain (Bonica, 1990; Melzack & Wall, 1977).

Psychological/behavior theory of pain emphasizes knowledge of the role of learning, personality, culture, and cognitive, psychological, emotional and environmental factors. Fordyce (1990) views pain as learning from respondent and operant conditions. In the respondent condition, pain is elicited by an antecedent stimulus, such as nociception. In the operant condition, pain occurs as a response to cues in the environment, which reinforce consequences. When the environment is reinforced, pain behavior will be reinforced and more likely to persist (Fordyce, 1990). Fordyce (1990) identified learned responses to clinical pain, including avoidance learning, superstitious learning, and contingent reinforcement of pain behavior.

In summary, one agreement in defining pain from theoretical perspectives is that pain involves physiological stimulus. However, the presence of a physiological stimulus cannot determine the ensuing pain behavior. Cognitive evaluation, and cultural, psychological, emotional and environmental factors should be considered to view pain as a complete concept.

Use of the Concept of Pain in Sociology

The sociological perspective of pain emphasizes pain in cultural inheritance. Pain experience includes not only pain sensation and automatic response but also certain associated feeling states. Zborowski (1969) believed the social and cultural patterns of the individual have significant influence on pain experience. He used pain expectancy and pain acceptance to express the individual's attitude toward pain. These attitudes are learned in part from parents, siblings and peer groups of the individual's society. Each individual is expected to conform to this pattern of attitude. Zborowski emphasized pain response more than reactions.
These pain responses are more on emotional and behavioral levels. However, how individuals respond to pain also depend on specific social situations and their culture background.

Use of the Concept of Pain in Professional Fields

The definition of pain based on McCaffery (1977) and the International Association for the Study of Pain (IASP) (1986) are used most frequently. McCaffery (1977) defined pain as "whatever the experiencing person says it is, and exists whenever he says it does" (p.11). The IASP defined pain as "an unpleasant sensory or emotional experience associated with actual or potential tissue damage or described in terms of such damage... Pain is always subjective. Each individuals learns the application of the word through experiences related to injury in early life" (p.217). However, some scholars argued that pain is not always unpleasant. Ross and Ross (1988) stated that pain serves both positive and negative functions. Pain can act as a warning sign for tissue trauma or as a diagnosis and treatment aid. In nursing diagnosis, pain is defined as when "an individual experiences and reports the presence of severe discomfort or an uncomfortable sensation" (Carroll-Johnson, 1989, p. 553).

In summary, sensation of pain depends more on physical stimulus; however, the perception and/or expression of pain seems to emphasize a more psycho-socio-cultural aspect. Both sociology and professional fields view pain as containing positive and negative functions.

Distinguishing the Concept of Pain From Other Closely Related Concepts

Concepts of suffering, and discomfort are closely related to pain. However, these concepts are not the concept of pain.

Suffering

Loeser and Egan (1989) defined suffering as "the negative affective response to pain or to other emotionally laden events, such as fear, anxiety, isolation or depression" (p. 6). Thus, pain may induce suffering; however, not all pain will induce suffering. Rey (1993) also states that suffering refers more to the subjective, and pain is more the objectification of this suffering. He considered suffering a moral issue. Cassell (1992) believed that suffering is "the state of distress induced by the threat of the loss of intactness or the disintegration of a person from whatever cause. Suffering is a consequence of personhood - bodies do not suffer, persons do" (p.3). People may suffer even if they have no pain; suffering may be relieved even when pain continues. Ferrell (1996) defined suffering as "an individual's experience of threat to self" (p. 5). Suffering is a unique experience to each person.

Discomfort

Discomfort is another concept related to pain. However, no nursing literature directly defines what discomfort is, although the term is used. Sheridan (1992) stated that mild pain is referred to as discomfort. In the McGill Pain Questionnaire, discomfort is used to state the intensity of pain. Pain intensity in McGill Pain Questionnaire ranges from 0 to 5; discomfort ranks 2; it is more than mild pain, but less than distressing (Melzack, 1975). How pain relates to discomfort presents a contrary viewpoint. Rhoten (1982) attempted to differentiate the terms fatigue and discomfort. She defined discomfort as an unpleasant sensation in muscles. Thus, discomfort is a sensation of an unpleasant feeling; it is linked to the intensity of pain.

In summary, some attributes of pain, suffering, and discomfort overlap; the most obvious overlapping attribute is unpleasantness. These concepts all involve negative and positive responses to events. The major difference in these concepts is that pain involves both physical and psychological phenomena. Although there is a physiological component, the psychological aspect of both suffering and anxiety tend to be predominant. The level of discomfort is viewed as part of pain, but an individual can still distinguish the differences between pain and discomfort. These three concepts could be interrelated, but it is not necessary
that the concepts appear at the same time or are related.

**Determining Defining Attributes**

Defining attributes is to list the characteristics that are associated with a concept. Any concept analysis will consist of more than one defining attribute; however, one needs to determine which attributes are appropriate for the purpose of exploration of the concept (Walker & Avant, 1995). Based on this principle, the critical attributes of the concept of pain include: (a) unpleasant and distressful experiences originating from physical sensation and having both positive and negative meanings for an individual; (b) an individual human experience; (c) a state of feeling in both sensation and emotion (verbal), and behavioral components; (d) physical and psychological responses to the stimulus; (e) function of pain, including protective and warning signs; (f) pain responses are learned and influenced by personality, environment, emotions, social and culture.

**Constructing A Model Case**

A model case should include all attributes of the concept and should be a paradigmatic example. It also illustrates the attributes of the concept (Walker & Avant, 1995). The following example presents a model case for the concept of pain.

Mr. M is a 42-year-old single Taiwanese male who was diagnosed with colon cancer several years ago. Recently, his tumor was found to be enlarged and his doctor advised him have surgery which would include colostomy. When he was hospitalized for the surgery to remove the tumor, Alice was the nursing student assigned to take care of him. When Alice went to Mr. M's bedside, she found Mr. M lying on his right side with his knees bent. He was holding his arms close to his chest. His eyebrows were furrowed, and he looked very tired. He closed his eyes when Alice talked to him, but was very cooperative. Mr. M's blood pressure and heart rate were slightly elevated. Mr. M told Alice that he was in pain and pointed to the lower left abdominal area. So Alice gave Mr. M pain medications. Two hours later, Alice asked Mr. M how he felt and Mr. M said, "I feel better." Mr. M. paused for a few seconds and said, "I had abdominal pain and bloody stool when I was having bowel movements a few years ago. I was worried that I might have cancer, so I went to the hospital and was checked. I was diagnosed with colon cancer (he pauses for a few seconds). My family had bad genes. My father died of lung cancer and my brother died of leukemia. I am the only one left in my family. I was diagnosed with cancer as well." He shook his head and continued, "I knew what would happen to me sooner or later, and I accepted this fact. It is better that I am not married; otherwise, I would be a burden to my wife and my children."

**Analysis**

This case illustrates all attributes of pain. Mr. M complained about having pain and showed the protective position and facial expression of pain. Thus, he showed his pain as an unpleasant and distressful experience through both verbal and behavioral responses. The avoidance learning response to pain was present as well; this is a sign of psychological responses to pain. Colon cancer requiring surgery is evidence of physical tissue damage from the stimulus. Mr. M suspected his colon cancer because of his abdominal pain with bloody stool a few years ago; this abdominal pain presented the warning signs for Mr. M, so he went to hospital for a check up. In addition, Mr. M's response about the bad genes demonstrated the social and cultural dimensions of pain. In Taiwanese culture, cancer is viewed as an incurable disease that causes extreme physical pain. Taiwanese believe a good man has responsibility to take care his family. Mr. M was only 42 years old, a young age for a man. However, he had been diagnosed with life threatening cancer. Nonetheless, he felt relieved that he was not creating a burden for his family. Mr. M's responses seem to accept his illness and pain; his learned pain responses may be influenced by his personality, past
experience, environment, and social and cultural factors. This example is also Mr. M's personal experience.

**Development of Additional Cases**

Additional cases may not involve the same concept as the model case but may be similar to the main concept or not (Walker & Avant, 1995). In this paper, a borderline case and a contrary case are used to clarify the concept of the model case.

**Borderline Case**

The borderline case contains some of the same critical attributes of the main concept but not all of them. Or the borderline case may contain most of the criteria but differ substantially in one of them (Walker & Avant, 1995). The following example presents a borderline case.

Mr. A is a 62-year-old Taiwanese man who was a minister. He was diagnosed with renal cancer. His doctor recently found that the cancer cells had metastasized to his left femoral bone. When Alice took care of him, she found Mr. A always closed his eyes and lay on his right side with his legs bent. He usually held a cross and prayed. When his family was with him, they prayed together. When Alice asked Mr. A how he was doing, Mr. A always said he was doing fine. When Alice asked Mr. M whether he was in pain, he always said no, and thanked her for her concern. Mr. A's pulse rate and blood pressure were slightly elevated. Alice was curious about Mr. A’s response because Alice's clinical experience told her that the patient whose cancer cells metastasized to the bone usually experienced pain and asked for pain medication. She wondered why Mr. A did not have this response and raised this question. Mr. A responded, "God was crucified on the cross and died for the mankind. He suffered for all human beings and His love is more than anything else in the world. I only have physical discomfort. This kind of discomfort cannot compare to how God has suffered for us. So I would like to experience how God suffered for us and understand how God loves people." Mr. A never answered Alice's question about whether or not he was in pain. One week later, Mr. A died.

**Analysis**

This example does not represent all the critical attributes of pain, but it does relate to pain. Mr. A never expressed his pain verbally, but his behavioral cues of pain were noted. He did present the psychological pain with avoidance learning behavior. Alice observed that when his family was with him, they prayed together. This action represents how the family social pattern influenced the patient's pain responses. In Taiwan, approximately 80 -90% of people practice either Buddhism or Taoism. How culture influences Mr. A's pain response was not clearly represented. The family and religious factors influenced Mr. A more than other factors.

**Contrary Case**

A contrary case is the example which presents "not the concept." People can easily recognize this concept as not the main concept (Walker & Avant, 1995).

Mary is a 3-year-old girl whose mother brought her to the clinic for a hepatitis B immunization last month. Her mother brought her to clinic again for a routine well-child check. When Mary arrived at the clinic and saw the nurses, she held her mother very tightly with her eyes closed and would not let her mother put her down. When the nurses talked to her, she began to cry and said, "I don't want to come to the clinic. I want to go home." The nurse explained to her what she was going to do during the visit that day. However, Mary seemed not to pay attention to the nurse and kept crying and saying "Let's go home."

**Analysis**

The defining attributes of pain are absent from this example. It presents the concept of fear. Fear is a reaction to a specific danger or event which is identifiable. Once the threat is removed, the feeling of fear is forgotten easily (Yocom, 1984). The cause of the fear for Mary is what will take place in the clinic. Mary recalled her experience of
being in the clinic, and probably recognized that she was in the clinic for a shot, which would make her feel pain. Thus, she rejected staying there. This situation may be associated with pain, but it is the concept of fear when closely examined.

**Identifying Antecedents and Consequences**

Antecedents are the events or incidents that happen before the existing concept (Walker & Avant, 1995). Environmental, personal and cultural values act as antecedents related to the concept of pain. These three antecedents are interrelated.

Environment is related to the event that triggers pain. The individual's body, mind or both may be affected by this event, which causes actual or potential tissue damage for the individual, such as venipuncture, noxious stimulus or hospitalization. The individual's knowledge and attitude related to the event also play an important role (Nelson, 1993). This knowledge and attitude, such as past pain experience, may affect how the individual expects and accepts pain, and later it will influence how the individual copes with pain.

The personal issue includes the individual's current physical and emotional condition, personality, gender and socio-economic class. The physical condition includes sleeping pattern, degree of muscle tension, and whether the individual is capable of feeling the stimuli. The emotional condition includes the individual's stress and anxiety level. If the person has a higher stress and anxiety level, the person will feel pain more easily. In addition, the individual's personality also will influence how s/he perceives pain. The individual who has a positive attitude toward pain tends to use positive methods to deal with that pain. Females tend to be more sensitive to perceive pain and are allowed to express their pain more often than males (East, 1992). From a social cultural perspective, individuals from different socio-economic classes may discuss pain differently. Interestingly, East (1992) notes that people in a higher socio-economic class tend to express more and be more aware of their pain than individuals in lower socio-economic classes.

Cultural value is the other antecedent of pain. Leininger (1990) viewed culture as a lifeway of a particular group, people in this particular group can learn and share their values and believe together. Sheridan (1992) states that culture determines how people interpret and live with pain as well as react to pain. Thus, pain and its perception are always culturally shaped. While the recognition of pain is influenced by culture, Zborowski (1969) emphasizes pain expectancy and pain acceptance to express the individual's attitude toward pain. Pain expectation is defined as "anticipation of pain as being unavoidable in a given situation", and pain acceptance is "characterized by a willingness to experience pain (p.18)." These attitudes are learned in part from parents, siblings and peer groups of the individual's society. Thus, family plays an important role in affecting the individual's response to pain.

Consequences are the events or incidents that happen as results of the concept (Walker & Avant, 1995). The consequences of pain are related to pain reaction and the individual's own interpretation of the meaning of pain. Pain reaction has a more physical and biological focus; coping with pain refers to the perception of pain and is psychologically focused.

Pain reaction is viewed as pain behavior. Pain behavior is categorized into involuntary and voluntary responses. Involuntary responses are not under direct conscious control of the individual. These responses focus on involuntary, non-verbal evoked responses, usually in the autonomic nervous system, such as reflex reactions and heart rate (Wolff, 1986). Voluntary responses require consciousness and motor activity. Usually these responses contain verbal and nonverbal reactions. Individuals will complain about their pain or moan or cry (verbal). They may rub the pain site or change position to avoid pain (non-verbal). Verbal pain expression includes three levels of symbolization: an intrapersonal communication (recognizing something is wrong), interpersonal communication (crying for help) and a more complex symbolic communication to others (Wolff,
These voluntary responses can be integrated to active, passive or accommodative coping (Lazarus & Folkman, 1984).

Another consequence of pain is that the individuals may develop a meaning for their pain experience. Individuals may transfer the pain experience and give the meaning to pain experiences either positively or negatively (Ross & Ross, 1988). This meaning of pain also reflects individuals’ coping with their pain. Ferrell (1995) described three processes for seeking the meaning of pain, including immediate causes (such as the pain indicates potential cancer metastasis), immediate effects (such as, the pain means I cannot go to work) and ultimate causes (such as the pain is God’s will). The individual or the health care providers may or may not be aware the meaning of the pain experience. However, the meaning of the pain experience will influence how individuals interact with the environment and their relationships with others (East, 1992).

As people present pain reactions, their pain may remain the same, decrease or increase depending on how individuals react to their pain (Montes-Shavedol, 1999). A continuously present pain will result in a feedback loop. The individuals will quickly re-evaluate their pain and utilize coping strategies to relieve their pain.

Defining Empirical Referents

The final step of Walker and Avant’s method of concept analysis is empirical references. Empirical references present how the concept is to be measured or what the observation of a phenomenon should in reality be. It is the event that demonstrates the existence of the concept. Determining is the final step in concept analysis. From the analysis of pain, the critical attributes may be abstract; thus, empirical references present how these attributes exist in reality. Thus, analysis of the concept can be used for instrument development.

Because pain is an unpleasant, uncomfortable and distressful personal experience, the clients’ own verbalizations are the most reliable pain indicators. However, relying on verbalization may not be adequate for all people. In cases of some patients whose verbal capabilities are restricted, other methods need to be used to evaluate pain. Measuring pain should include the location, intensity and quality of the pain. Behavioral cues are used to assess patients’ pain and include crying, restlessness or avoidance of movement, and alterations in muscle tone. One of the most preferred tools used is the McGill Pain Questionnaire which was developed by Melzack (1975). This tool contains three major measures of pain, including pain rating index, the number of words chosen, and present pain intensity.

Conclusion

In summary, the concept of pain was selected for concept analysis because pain has been recognized as a serious problem by both patients and health care providers. Nursing studies and literature also present evidence of the consequences of unrelieved pain. However, learning about providing pain relief seems to be an ongoing process. It’s the desire of the authors that this concept analysis of pain is beneficial to nurses and other health care providers in gaining a better understanding of the concept of pain and in implementing appropriate nursing activities to relieve patients’ pain.

Nursing scholars, Mahon (1995) and Montes-Sandoval (1999), have both written concept analyses of pain using Walker and Avant’s concept analysis methods as a guide. Mahon believes pain is a dominating force, endless in nature and related to negative responses to pain experience. Montes-Sandoval believes pain is unwanted. However, the authors of this paper believe pain includes both positive and negative meaning. Pain is not necessarily unwanted, and involves psycho-social perspectives. In addition, Mahon’s analysis focuses on the term pain as it is used in nursing and medical literature, and this may narrow the understanding of the concept of pain. Although Montes-Sandoval viewed the term more broadly than Mahon’s analysis, the psychological, social and cultural aspects of pain were not clearly described. The author of this paper...
views pain from Fordyce’s psychological perspective (1990); pain as learned is identified as a critical attribute. Because the concept of pain is related to the concepts of suffering and discomfort, these two concepts should be distinguished from the concept of pain.

Furthermore, the antecedents and consequences of pain are viewed somewhat differently in all three concept analyses. Mahon and Montes-Sandoval emphasize noxious stimuli as the antecedents for pain. The author of this paper believes noxious stimulus is one possible antecedent; the antecedents of pain should include environmental and personal issues, and culture values. Mahon’s consequences of pain focus on tiring, giving meaning to life, and interfering with relationships, but the immediate response to pain was not clearly stated. Montes-Sandoval emphasizes coping and neurophysiological, psychological and/or sociocultural responses to pain perception. However, how these responses relate to pain perception was not clearly described. The author of this paper used pain behavior and coping as the consequences of pain. How pain influences the individual is discussed.

References


疼痛之概念分析
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摘要


关键词：疼痛、概念分析、不舒服、痛苦。