The influence of ethnic concordance and discordance on verbal reports and nonverbal behaviours of pain

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ABSTRACT

This study's aim was to examine the influence of ethnic concordance on Chinese participants' pain report and nonverbal pain expression in a laboratory setting. Participants ($n = 102$) were exposed to a cold pressor task under 1 of 2 conditions: Chinese milieu ($n = 52$; participants exposed to Chinese experimenters and language), or European Canadian milieu ($n = 50$; participants exposed to Euro-Canadian experimenters and English language). A reference group with 86 Euro-Canadian participants, exposed to the Euro-Canadian milieu only, was included for comparison. The Chinese groups did not differ on pain intensity during the pain task. However, Chinese participants in the Chinese milieu reported significantly higher affective pain and displayed more nonverbal behaviour of pain than the Chinese participants in the Euro-Canadian milieu. In addition, compared to the Euro-Canadian group, both Chinese groups reported higher pain intensity during the pain task and greater affective pain after immersion. The results demonstrated that an ethnically concordant milieu is associated with increased nonverbal pain displays and affective pain report. These findings suggest that research on ethnic disparities in pain treatment should examine ethnic concordance between observer and individual in pain.

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1. Introduction

Ethnic disparities in pain assessment and treatment exist for all types of pain [1], with minorities receiving less analgesic treatment than white patients after medical procedures [44,58,66]. Several intrapersonal factors that may contribute to ethnic disparities, such as pain thresholds, tolerances, and intensities, have been investigated [4,5,16,25,54,68]. However, the current focus on the intrapersonal features of pain fail to capture the complex sociocultural nature of pain experience [12].

Evolutionary theories have suggested an increase in pain expression in the presence of people who are familiar or similar to us [70]. Models such as the Sociocommunications Model of Pain [12,19,20] have highlighted the importance of social environment, suggesting that an observer's presence can influence a suffering person's pain expression. For example, laboratory studies showed that males report higher pain tolerance and lower pain intensity when reporting to a female vs a male observer [17,30,39]. Also, when in the company of experimenters of high professional status, people display greater pain tolerance and lower pain unpleasantness [6,30]. If an observer's gender and professional status can influence pain experience, it is important to consider how pain expression may be related to ethnic concordance.

The importance of healthcare provider's ethnicity in shaping patient's evaluations of their care has been documented. When the patient-care provider dyad is ethnically concordant, both blacks and whites rate the care they received as more positive [11,36,42]. Patient's satisfaction and involvement in decision making also have been reported higher in ethnically concordant dyad [11,34,37,38,59]. However, little research has investigated the impact of ethnic concordance on pain experience. One notable exception is the study of Weisse et al. [69], which found that neither ethnic (ie, African American vs Euro-American) nor gender concordance influenced verbal pain report and pain tolerance. This study, however, did not examine nonverbal expression.

To date, ethnic pain research has primarily focused on African Americans with little data available for other groups, such as the Chinese. Chinese culture has been influenced by Buddhism, Confucianism and Taoism, all of which discourage emotion display [8]. The prevalent view is that Chinese may be more emotionally stoic and thus report less pain compared to North Americans [9]. However, surprisingly little is known about the display rules governing pain expression. Therefore, an important research area is whether Chinese individuals would display less nonverbal pain behaviours than Euro-Canadians.

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The objective of this study is to examine the effect of ethnic concordance on Chinese participants' pain report and behaviours. A "reference" group with Euro-Canadian participants was included in the comparisons. It was hypothesized that the Chinese in the Chinese milieu (ie, Chinese experimenter and Chinese language) would report greater pain and display more pain behaviours than the Chinese in the Euro-Canadian milieu (ie, Euro-Canadian experimenter and English language). Further, on the basis of previous comparisons of cold pressor (CP) pain between Chinese and Euro-Canadians [25], it was expected that both Chinese groups would report higher verbal pain reports and displayed more nonverbal pain behaviours than would Euro-Canadians. Depressive symptoms and beliefs about pain behaviours were also examined because of their associations with pain reports and behaviour [33,47].

2. Methods

2.1. Participants

Eighty-two European Canadian(M = 19.07 years, SD = 2.24 years) and 102 Chinese (M = 19.57 years, SD = 2.21 years) undergraduates participated in the study. Participants were recruited from undergraduate psychology classes at the University as well as through advertisements posted on the campus. All participants were University full-time students fluent in English. Chinese participants were from Mainland China, Hong Kong, or Taiwan. Most of the Chinese participants were immigrants rather than visa or international students. The length of time that Chinese participants had lived in Canada ranged from 1 month to 9 years (M = 4.76 years, SD = 2.85 years). Because of the design of the experiment, for the Chinese participants, only those who could speak, read, and write Chinese fluently were recruited for the experiment. Further, language proficiency is a powerful indicator of involvement with the heritage culture [31,35]. Chinese participants were randomly assigned to 1 of 2 conditions: (1) Chinese milieu (n = 52; Mainland China = 20, Hong Kong = 23, Taiwan = 9), or (2) Euro-Canadian milieu (n = 50; Mainland China = 16, Hong Kong = 22, Taiwan = 12). The Euro-Canadian participants (n = 82), all born and raised in Canada and have not lived outside of Canada for more than 6 months, were assigned to the Euro-Canadian milieu. Potential participants who had reported pain lasting more than 3 months, or whose pain symptoms might be exacerbated by exposure to pain-provoking stimuli, were excluded from the study. Participants who had reported previous frostbite on their nondominant hand were also excluded.

2.2. Experimenters

Six Euro-Canadian (aged 20–23 years) and 6 Chinese (aged 20–24 years) female research assistants wore a white lab coat throughout the entire experiment. The Euro-Canadian experimenters, all born and raised in Canada, were responsible for running the Euro-Canadian participants and the Chinese participants in the Euro-Canadian milieu. The Chinese experimenters tested all of the Chinese participants in the Chinese milieu. The Chinese experimenters, speaking fluent Mandarin or Cantonese, were born in mainland China, Hong Kong, or Taiwan. They were responsible for running the Chinese milieu.

The experimenters were either "instructors" or "observers." The instructors were responsible for administering questionnaires and explaining the CP task to the participants but were not present during the CP task. The "observers," who could not be seen by the participants, communicated with the participants during the CP task through intercom and recorded their verbal pain reports. This was done to eliminate potential effect of the variation of experimenter's appearance and nonverbal cues on participants' pain reports and behaviours during the CP task [50,57].

2.3. Apparatus, materials, and measures

2.3.1. CP machine

Acute pain was induced with a CP machine, which is a recirculating, double-bucket system with a built-in refrigeration unit. The temperature of the water was kept constant at 2–3 °C by an internal thermostat. The CP machine consisted of a 22 inch by 29 inch outer casing that houses a 10 by 12 inch bucket which was filled to the brim with water.

2.3.2. Video recorder

Participants' nonverbal actions were videotaped with a digital video camera located 10 feet away from the participant, providing a live feed to a monitor located in an adjoining room. This setup allowed the experimenter to view and ensure the body and facial position of participants during the pain induction task are fully captured by the camera so that coding of behaviour can be successfully performed after the study.

2.3.3. Depression

Depressive symptoms were assessed with the 20-item Centre for Epidemiological Studies Depression Scale (CES-D), which inquires about depressive symptoms within the last week [53]. Response options on the CES-D were rated on a 4-point Likert scale (0 = rarely, 3 = most of the time). Higher score represented more symptoms of depression. In the present study, the Cronbach's alpha was .88 for the Euro-Canadians, .92 for the Chinese in the Chinese milieu, and .85 for the Chinese in the Euro-Canadian milieu.

2.3.4. Pain beliefs

The Appropriate Pain Behaviour Questionnaire (APBQ), a 14-item self-report questionnaire, was used to measure individual beliefs in the social acceptability of various pain expressions in the presence of others [47]. These expressions include grimacing, crying, talking about the pain, bending over or holding painful site. The original questionnaire was developed to explore gender differences and has 2 forms (eg, which best describes what you believe are appropriate ways for *males/females* to respond to pain in the presence of others). For the present study, the questionnaire was modified to make it gender neutral. Participants indicated their agreement on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). A high total score (maximum 98) indicate that the belief that behavioural responses to pain in the presence of others are appropriate. In the present study, the Cronbach's alpha was .84 for the Euro-Canadians, .82 for the Chinese in the Chinese milieu, and .78 for the Chinese in the Euro-Canadian milieu.

2.4. Verbal report of pain

2.4.1. Pain intensity

Participants rated the intensity of their pain during the CP task on a numerical rating scale (NRS). In the present study, an 11-point NRS was used (0 = no pain, 10 = extreme pain). Participants were prompted to rate their pain every 15 s until they reached the 1-min ceiling time. All NRS ratings for each participant were then averaged to give a global pain intensity score. The validity and ease of administration of NRS has been well documented with a variety of populations [27].

2.4.2. Short Form-McGill Pain Questionnaire

The sensory and affective components of pain were assessed with the Short-Form McGill Pain Questionnaire (SF-MPQ [45]). This