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Gender differences in pain perception-a pilot study on young Romanian students

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Abstract

The objective of this research is to highlight that the male undergraduate self-perception of pain is statistically significant higher than female undergraduate students. Method: The participants were 42 subjects participated at this study, 17 males and 25 females, undergraduate students at Faculty of Psychology and Educational Sciences, University of Bucharest. The participants are between 19 and 23 years old ($M=21.74$; $S.D=1.46$). Instrument: FSV Questionnaire on Reaction to Pain (Vienna Test System, 2007). Findings confirmed the research hypothesis: There are statistically significant gender differences in cognitive control ($p<0.05$). Conclusions showed that both groups' results were higher to cognitive control (more than 80%).

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Keywords: avoidance; activity; social support; cognitive control.

1. Theoretical framework

The difference between pain and nociception (the initial sensation of the contact with the painful stimulus) represents a basis for focusing on pain as a psychological phenomenon. Nociception refers to the neuropsychological processing of events that stimulates nociceptors, the phenomenon being perceived as pain (Hadjistavropoulos & Craig, 2004 apud. Turk & Melzack, 2000). The instigation of the nociceptive system and the brain processing represent the biologic substrat of experience.

Pain represents a perceptual process associated with the state of consciousness, selective capturing and learning (Hadjistavropoulos & Craig, 2004; Melzack & Casey, 1968). The motivation and excitability states are important for understanding the nature of pain (Price, 2000). Pain requires central integration and modulation for a number of central processes. Sending messages to the central nervous system and interacting with its most

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important components could be a example. The existance of gender differences in pain perception is a disputed subject. It has been discovered that men have a high sensitivity threshold and a emphasized pain tolerance than women. On the other hand, many scientists have failed to obtain the same results. Discrepancies between studies can occur from various reasons. Expectations from gender roles could anticipate pain perception.

Expectations regarding gender roles are learned from males or females. Although evidence of hormonal factors is associated with gender role, social models and learned experiences from family and culture can give a certain form to the personality and behavior regarding the gender of the child. For example, female social roles could encourage awareness and expression of pain. These roles could increase women's willingness to report pain threshold and increase their sensitivity to it. On the other hand, male social roles could encourage stoicism and could decrease the pain threshold. Wiesenfeld-Hallin (2005) highlighted that pain sensitivity is mediated by sociocultural, psychological, and biological factors and at the genetic and receptor levels there is the need to engage gender-specific drug therapies.

The feminin sex role mediated the relationship between gender and pain (Sanford, Kersh, Thorn, Rich, Ward, 2002). Meyers et al. (2001) reported moderated influences of sex role regarding pain with pressure applied to a cold stimulus. Filingim et al. (1999) could not demonstrate a relation between sex role and pain report. These controversies between studies may arise because there aren't any methods or an appropriate tool with which we can measure exactly the sex-role. A tool that can mesure this variable was introduced by Robinson et al. (2001) named GREP – gender role expectation of pain questionnaire. It suggests that the sex role stereotype expectations of pain are divided in three categories: pain sensitivity, pain resistance and the willing to report pain.

Robinson et al. (2001) highlighted the fact that both genders think that males are more unlikely to report pain than females. Also, both genders think that females are more sensitive to pain. The majority of clinical studies demonstrated the fact that women blame more pain for a longer period of time than man do (Unruh, 1996), on the other hand, experimental studies were less consistent regarding differences between genders depending on partially used pain (Fillingim et al., 1997; Lautenbacher & Strain, 1991; Lautenbacher & Rollman, 1993).

1. Objective and hypotheses

1.1. Objective

- The general objective of this present research is to demonstrate that males are more resistant to pain and tolerate it more than females.

1.2. Hypotheses

1.2.1. General hypothesis

- There are statistically significant gender differences in pain perception.

1.2.2. Specifically hypotheses

- There are statistically significant gender differences in avoidance.
- There are statistically significant gender differences in activity engagement.
- There are statistically significant gender differences in social support.
- There are statistically significant gender differences in cognitive control.

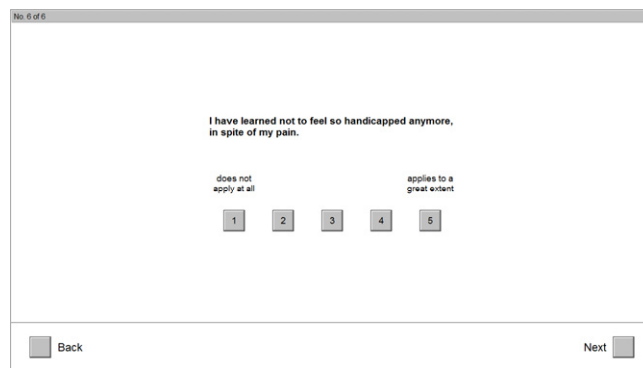
2. Method

2.1. Participants

The participants were 42 subjects participated at this study, 17 males and 25 females, undergraduate students at Faculty of Psychology and Educational Sciences, University of Bucharest. The participants are between 19 and 23 years old ($M=21.74$; $S.D=1.46$). They were randomly selected.

2.2. Instruments and materials

FSV Questionnaire on Reaction to Pain (Vienna Test System, 2007) is a multi-dimensional instrument for evaluating the behavior of persons experiencing pain. An item example can be seen in Fig. 1.



The screenshot shows a computer window titled "No. 6 of 6". The main text reads: "I have learned not to feel so handicapped anymore, in spite of my pain." Below this text is a horizontal Likert scale with five numbered boxes (1 to 5). Above box 1 is the text "does not apply at all" and above box 5 is the text "applies to a great extent". At the bottom left of the window is a "Back" button and at the bottom right is a "Next" button.

Fig. 1. Example of item from FSV Questionnaire on Reaction to Pain (Vienna Test System, 2007).

1.3. Procedure

Participants were exposed to brief instruction about using the computer accessories. The general instructions were presented by test instructions on the computer screen. For each item presented the participants were rating the five-point rating scale ranging from “does not apply” to “applies to a great extent” as presented on the computer screen (Fig. 1).

1.4. Experimental design

The dependent variables are: avoidance; activity; social support; cognitive control. These variables (dimensions) are based on the theory of effective learning processes in pain (FSV catalog, 2007). In this way the experience of pain is intensified by negative reinforcement and might be reduced by confrontation.

2. Results

After data collection the Kolmogorov-Smirnov test was applied for showing the distribution of data. Hence, for the variables avoidance, activity and social support the data were normally distributed for each group by gender ($p > 0.05$). For the variable cognitive control the data were not distributed normally ($p_{\text{female}} = 0.038 < 0.05$; $p_{\text{male}} = 0.005 < 0.05$). Hence, for the variables avoidance, activity and social support was applied t-test for independent group and for the variable cognitive control was applied the Maan Whitney nonparametric test for independent groups. The results can be seen in table 1.

Table 1. Descriptive statistics, t-test, Maan Whitney test values and p-values

Variable	Gender	Mean	Standard deviation	t-test value	p-value
Avoidance	Female	42.76	32.86	-0.85	0.39
	Male	49.71	19.88		
Activity	Female	37.56	27.40	0.092	0.92
	Male	36.82	22.46		
Social Support	Female	54.20	21.21	-.27	0.78
	Male	55.82	15.46		
Variable	Gender	Mean	Standard deviation	Maan Whitney test	p-value
Cognitive control	Female	80.04	15.43	104.500	0.003
	Male	91.23	4.38		

As it can be seen in table 1 there are statistically significant gender differences in self-perception of cognitive control. Hence, the specifically hypothesis “There are statistically significant gender differences in cognitive control” has been confirmed and male undergraduate students have statistically significant higher the self-perceived cognitive control than female undergraduate students ($91.23 > 80.04$; $p = 0.003 < 0.01$) measured in percentile. Also, from table 1 can be seen that the other three specifically hypotheses has not been confirmed: “There are statistically significant gender differences in avoidance; There are statistically significant gender

differences in activity engagement; There are statistically significant gender differences in social support” ($p > 0.05$).

3. Conclusions

This study was chosen because of the interesting perspective it has. It is known that women and men are different in terms of brain function, but until recently it was thought that these differences are due to behavior and sex hormones. Studies performed on differences between men and women demonstrated that the two genders are influenced by the sex role assigned to each sex.

As the international research studies presented in the theoretical framework highlighted there are not clear evidence about gender differences in self-perception of pain. Evidence regarding differences between genders in pain perception are related to cultural environment, education, family and genetic resources. Hence, this study is focused to evidence gender differences in self-perception of pain at young students at psychology. We have to take in consideration that students at psychology are learning how to control the pain in different situations and to assume the psychologists role. Applying FSV Questionnaire on Reaction to Pain (Vienna Test System, 2007) the findings (table 1) confirmed the hypotheses “There are statistically significant gender differences in cognitive control” ($91.23 > 80.04$; $p = 0.003 < 0.01$). The results highlights that males undergraduate students at psychology have a cognitive control of pain stronger than female undergraduate students. Furthermore, observing the percentile means for both female and male (table 1) we may assume that are very high (higher than 80%). Cognitive control in the modern life is strategically applied in adaptation to different situation: family life, work place, academic life.

The gender differences in pain perception is a controversy starting topic, therefore a very interesting subject to study and discuss.

In other researches and studies in which the main topic was the same with this present study draw the conclusion that differences between sexes can have a big influence on pain perception, a conclusion that is highlighted in this present study.

A main conclusion is drawn and it stipulates the fact that male students have a higher pain tolerance than female students do and the most plausible reason for this result that can be considered is the sex role.

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