

Headache sufferers' drawings reflect distress, disability and illness perceptions

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Abstract

Objective: Drawings have recently been used with patients with heart problems to assess their perceptions of their illness. This study aimed to investigate whether drawings could be a useful way to assess headache patients' perceptions of their headaches and their reactions. **Methods:** In a cross-sectional study, 65 university students who experienced persistent headaches were asked to draw a picture of how their headaches usually affected them. Drawings were assessed in three ways: they were categorized based on content; their size was measured; and image analysis software assessed their darkness. Associations between drawings, illness perceptions, mood, and health outcomes were assessed. **Results:** Twenty-seven people drew an external force to the head and these people had greater ratings of average pain and were more likely to attribute their headache to

stress. Darker drawings were associated with greater emotional distress and lower vitality. Larger drawing size was associated with perceptions of worse consequences, worse symptoms, worse emotional representations, lower vitality, higher pain, and more days of restricted activity, lower happiness, and higher sadness. **Conclusion:** Drawings offer an additional way to assess peoples' experience of their headaches and reflect illness perceptions and distress. People draw how they see themselves experiencing their headache and often include expressions and reactions. The inclusion of force to the head, darker drawings, and larger drawings are associated with worse perceptions of the headache and higher pain. Drawings may be a useful way for clinicians to understand patients' experience of pain.

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Introduction

Recent work has shown that patients' drawings of their illness can reveal their perceptions about the physiology and nature of their illness. Myocardial infarction patients'

drawings of their heart captured the extent to which they believed their heart had been damaged, which predicted speed of return to work and self-reported recovery [1]. Furthermore, patients whose drawings of their heart increased in size over the recovery period reported greater anxiety and poorer recovery at follow-up than those whose drawings got smaller [2], suggesting that drawing size can indicate the extent to which the patient is thinking about the illness. This is supported by other research that has shown that larger sizes of heart failure patients' drawings of their heart are associated with higher levels of cardiac anxiety [3].

Using drawings as a technique to assess patients' perceptions of an illness relies on patients' abilities to

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visualize the affected organ. The heart is a well-known part of the body and more easily drawn than more obtuse organs such as the pancreas or spleen. In this study, we were interested in whether drawing could be a useful method to assess perceptions in another part of the body, the head.

Headaches are commonly experienced in the general population, with about 30% of the Western population experiencing at least one headache per year [4]. Annually in the UK, about 3 million days are taken off work due to headache. Research has shown that patients' illness perceptions are important in headache patients. Headache patients who believe that their condition will last a long time and that it has severe personal consequences are more likely to be depressed [5]. The most common attributions for chronic daily headache are psychological, such as stress or overwork.

Previous work with children suggests that drawings may be a useful way to assess perceptions in headache patients. Unruh et al. [6] asked children to draw their pain. Thematic analysis revealed themes including actions and instruments causing pain, personification of the pain, physiological representation of the pain, perceptual disturbance associated with the pain, abstract representation of the pain, and location of the pain. The content of children's headache drawings can reliably differentiate migraine from non-migraine headaches, and changes in drawings over time reflect clinical improvements [7,8]. Children who have migraines tend to include sharp objects, while those with tension-type headaches include compression, and those with somatoform disorders sometimes include whirls in the head [9].

Chronic pain patients are often asked to draw the location of their pain onto provided outlines of the body, and these drawings can indicate unusual diseases or show changes in experienced pain over time [10]. Asking patients to draw more general pictures of how they experience their pain (without any outlines) may reveal additional information about the patients' perceptions.

In this study, we aimed to investigate adults' perceptions of their headaches using drawings as an assessment method. We were interested in studying how features of the drawings were associated with individuals' illness perceptions, levels of pain, disability, and number of doctor visits. From our previous work, we hypothesized that bigger drawings would be associated with poorer illness perceptions and poorer physical and mental functioning.

Method

This cross-sectional study was conducted at the University of Texas, Austin. Sixty-five introductory psychology students were recruited for the study by online invitation. The only restrictive criteria were that the student had to experience persistent headaches. The study was approved by the Institutional Review Board.

Participants were asked to draw their headache as it most commonly affected them. The instructions were adapted from previous studies with heart attack patients and read, "While many patients suffer from headaches, headaches are rarely experienced by different people in the same way—in location, intensity and the nature of the pain. As a result, people picture their headache in different ways. In this project, we are interested in the way you see your headache. We would like you to draw your image of your headache. We are not interested in your drawing ability—a simple sketch is fine. We are interested in how you see your headache. In the space below, please draw your headache as it most commonly affects you." These instructions were printed on an otherwise blank A4 size piece of paper as part of a larger questionnaire. Participants completed the form with a ballpoint pen.

The questionnaire included the Brief Illness Perception Questionnaire (Brief IPQ) [11], a nine-item scale that assesses participants' views of the timeline, consequences, causes, symptoms, personal control, helpfulness of treatment, concern, emotional reactions, and understanding of their headaches. The vitality and mental health scales of the SF36 were included [12]. The questionnaire also included two questions asking participants to rate the worst pain and average pain from their headaches on scales from 1 (*no pain*) to 10 (*extreme pain*). Participants reported the number of doctor visits they had made in the past year, as well as the number of days in the past month they restricted their activities due to headaches.

The drawings were analysed by laying out all the pictures and identifying common aspects of the drawings that differentiated between them. The four raters were health psychology academic staff and postgraduate students. These aspects were recorded and the drawings were subsequently scored along these dimensions. Scoring was performed as a collective group process with high agreement within the group; κ statistic was not calculated. Similar to previous work, we measured the size of the drawings in millimetres from top to bottom and from side to side [2,3].

Statistical analyses

Previous research with heart attack patients found correlations between drawings and illness perceptions ranging between $r=.33$ and $r=.45$. A two-tailed power analysis with $r=.35$, $\alpha=.05$, and power=.80 showed that 61 participants were required [13].

Data were analysed using SPSS (version 14). The normality of the data was checked using Kolmogorov–Smirnov tests, and nonparametric statistics were used where data were not normally distributed. Vertical and horizontal size of drawings, control, identity, vitality, and mental health were normally distributed, and Pearson's r was used for correlations between these items; in all other correlations, Spearman's ρ was used. Differences between groups were analysed using Mann–Whitney and Kruskal–Wallis tests.

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