

The emotive impact of medical language

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Abstract

Background Words can shape or reinforce a patient's coping strategies. We measured the emotional content of hand surgery words and some synonyms or alternatives in five categories (19 words total).

Methods Healthy adult companions of 100 patients presenting to an orthopedic hand surgical practice were asked to score five hand surgery words and some synonyms and alternatives (19 total words) on three dimensions: affective/emotional (ranging from pleasant to unpleasant), arousal (ranging from calm to aroused), and dominance/control (ranging from dominated to feeling in control) using a validated methodology. Ratings were done using the self-assessment manikin—a validated graphic affective rating system.

Results The emotional reaction to “discomfort” and “ache” was more positive than “pain.” The words “tear” and “defect” were more positive than “rupture.” The words “tight” and “stiff” were more positive than “locked” and “frozen.” The word “faded” was more positive than “degenerated,” “diminished,” and “wasted.” The words “overused” and “worn” were more positive than “cracked,” “inflamed,” and “broken.”

Conclusions Some common hand surgery words have a relatively negative emotional content. Given that psychological

distress is an important predictor of pain intensity and disability, additional research is merited to develop optimally positive language for describing musculoskeletal pathology.

Keywords Emotional content of words · Hand illness · Coping strategies

Introduction

Health care provider communication style affects patient outcomes [9–11]. Effective communication involves awareness of emotions, tone, affect, behaviors, and facial expressions [13, 15]. Key elements of good communication include trust, empathy, confidence in one's own skills, awareness of one's own biases, and an approach that accounts for the context of the patient's circumstances and preferences [12, 16].

Previous research has established that the words used by health care providers affect patient response to medical procedures and coping with illness [3, 6, 8, 17]. Specifically, statements with distressing emotional content have an adverse physiological effect [1, 2, 14]. In one study, statements intended to warn patients before a noxious stimulus were associated with greater pain and anxiety, and sympathetic statements after the stimulus were associated with greater anxiety compared to no statement [8].

We studied the emotional content of hand and upper extremity surgery words (e.g., “frozen,” “rupture,” “tear,” “overuse”) and possible alternatives on three emotional dimensions: affective/emotional valence (ranging from pleasant to unpleasant), arousal (ranging from calm to aroused/anxious), and dominance or control (ranging from dominated to feeling in control) using a validated methodology [4]. Based on our clinical experience and prior

Level of Evidence: Not applicable.

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research, we formulated the following hypotheses: (1) within the pain/discomfort/ache category, we hypothesized that the words “discomfort” and “ache” would be preferred to the word “pain,” (2) within the rupture/tear/defect category, we hypothesized that the word “defect” would be preferred to the words “rupture” and “tear,” (3) within the locked/stiff/tight/frozen category, we hypothesized that the words “stiff” and “tight” would be preferred to the words “locked” and “frozen,” (4) within the degenerated/faded/diminished/wasted categories, we hypothesized that the words “faded” and “diminished” would be preferred, and (5) within the inflamed/cracked/overused/broken/worn category, we hypothesize that the word “worn” would be preferred.

Methods

Some healthy companions of patients (100) presenting to an orthopedic hand surgical practice agreed to participate under a protocol approved by the Human Research Committee. The study was described in detail, and study staff obtained informed consent.

The study employed an observational, cross-sectional design. Participants were asked to rate a series of words frequently used by hand and upper extremity surgeons, along with several synonyms or alternatives. We evaluated a total of 19 words in five categories presented in a random order.

Each word was rated using a graphic affective rating system called the self-assessment manikin (SAM) [7]. This system was used to develop a standardized material used for the study of emotion: affective norms for English words [5]. For the affective dimension, patients select from faces that range from happy (low score) to frowning (high score). The arousal dimension ranges from an excited/worried (low score) face to a relaxed face (high score). The dominance dimension ranges from a large figure (in control; low score) to a small figure (dominated; high score). A word with a positive emotional effect would score low on the affective scale and high on both the dominance and arousal scales.

Table 1 Comparison of “pain,” “discomfort,” and “ache” on the three dimensions: pleasure, arousal, and dominance

	Pain	Discomfort	Ache
Pleasure	7.54 (1.37)#####	6.38 (2.01)###	6.28 (1.71)***
Arousal	4.46 (2.05)*	5.08 (1.92)	5.34 (1.57)*
Dominance	3.98 (1.99)#####	5.60 (2.11)###	5.48 (1.82)***

Data shown as mean (standard deviation). Degrees of significant difference based on *t*-test analyses, two-tailed, are depicted as follows: * $p < .05$, ** $p < .01$, and *** $p < .001$. Each pair of words has been assigned a symbol as follows: # pain–discomfort pair, + ache–discomfort pair, * pain–ache pair

Within each category, we compared the mean affective, arousal, and dominance of the various words using *t*-tests.

Results

The word “pain” had a significantly higher means on the affective and a significantly lower means on the dominance and arousal dimensions, indicating a relatively negative emotional effect compared to alternatives such as “discomfort” and “ache” (Table 1).

The word “rupture” had a significantly higher mean on the affective, a significantly lower mean on the dominance dimension compared to “tear” and “defect,” indicating a relatively negative emotional effect of the word “rupture” (Table 2). The means for all three emotional components preferred “defect” to “tear,” but the differences were not significant with the numbers available.

The words “locked” and “frozen” had a significantly higher mean on the affective dimension and significantly lower mean on the dominance and arousal dimensions compared to “tight” and “stiff,” indicating a relatively negative emotional reaction to the words “frozen” and “locked” (Table 3).

The word “faded” had a significantly lower mean on the affective dimension compared to “degenerated” and “diminished” and significantly lower arousal and dominance compared to many of the other words in the category indicating a relatively positive emotional effect of “faded” (Table 4).

The word “overused” had the highest mean on the arousal and dominance and lowest mean on the affective domain, suggesting a relatively positive emotional reaction to this overuse (Table 5).

Discussion

These data demonstrate that some of the words frequently used by orthopedic surgeons have alternatives with more positive emotional content. Consistent with our hypotheses,

Table 2 Comparison of “tear,” “defect,” and “rupture” on the three dimensions: pleasure, arousal and dominance

	Tear	Defect	Rupture
Pleasure	7.96 (1.02)++	7.68 (1.67)**	8.38 (0.96)+++
Arousal	3.40 (1.95)	4.00 (2.28)	3.30 (2.25)
Dominance	3.58 (1.88)+	3.66 (2.18)	3.18 (2.07)+

Data shown as mean (standard deviation). Degrees of significance difference based on *t*-test analyses are depicted as follows: * $p < .05$, ** $p < .01$, and *** $p < .001$. Each pair of words has been assigned a symbol as follows: # tear–defect pair, + tear–rupture pair, * defect–rupture pair

Table 3 Comparison of “tight,” “locked,” “stiff,” and “frozen” on the three dimensions: pleasure, arousal, and dominance

	Tight	Locked	Stiff	Frozen
Pleasure	5.61(1.65) ^{###+****}	7.51(1.38) ^{####\$\$}	6.18(1.96) ^{+\$\$\$^^}	7.34(1.36) ^{****^^}
Arousal	5.52(2.13) ^{####}	4.54(1.78) ^{####}	5.81(2.07) ^{\$\$\$^^}	4.33(2.02) ^{***^^}
Dominance	5.72(2.15) ^{####}	3.82(2.08) ^{####}	5.50(2.35) ^{\$\$\$^^}	3.31(2.14) ^{****^^}

Data shown as mean (standard deviation). Degrees of significance difference based on *t*-test analyses are depicted as follows: * $p < .05$, ** $p < .01$, and *** $p < .001$. Each pair of words has been assigned a symbol as follows: # tight–locked pair, + tight–stiff pair, * tight–frozen pair, \$ locked–stiff pair, % locked–frozen pair, and ^ stiff–frozen pair

Table 4 Comparison of “faded,” “degenerated,” “diminished,” and “wasted”

	Faded	Degenerated	Diminished	Wasted
Pleasure	5.88 (1.53) ^{#####}	7.51 (1.44) ^{####}	6.94 (1.71) ⁺⁺⁺	7.40 (1.69) ^{***}
Arousal	5.76 (1.94) ^{####}	4.60 (2.18) ^{##}	5.04 (1.85) ⁺	4.64 (1.99) ^{**}
Dominance	4.86 (1.57) ^{####}	3.74 (2.03) ^{####}	4.64 (2.01) ^{\$\$\$^^}	3.92 (2.00) ^{***^^}

Data shown as mean(standard deviation). Degrees of significance difference based on *t*-test analyses are depicted as follows: $p < .05$ is X^* , $p < .01$ is X^{**} , and $p < .001$ is X^{***} . Each pair of words has been assigned a symbol as follows: # faded–degenerated pair, + faded–diminished pair, * faded–wasted pair, \$ degenerated–diminished pair, % degenerated–wasted pair, ^ diminished–wasted pair

Table 5 Comparison of “cracked,” “inflamed,” “overused,” “broken,” “worn,” and “ruptured” on the three dimensions: pleasure, arousal, and dominance

	Cracked	Inflamed	Overused	Broken	Worn
Pleasure	7.24 (1.43) ^{+++*\$\$}	7.02 (1.58) ^{^!!!}	5.95 (1.74) ^{+++^= ?}	7.95(1.17) ^{**!!!=βββ}	6.48(1.50) ^{\$\$βββ}
Arousal	3.85(1.93) ⁺⁺⁺	4.38(1.68) [^]	5.04(1.60) ⁺⁺⁺	3.77(2.00) ^{=ββ}	4.86(1.71) ^{\$\$ββ}
Dominance	3.55(1.99) ^{#####}	4.64(1.93) ^{##^!^!}	6.06(1.87) ^{+++^= ???}	3.81(2.05) ^{! =ββ}	4.78(1.78) ^{\$\$\$ββ}

Data shown as mean (standard deviation). Degrees of significance difference based on *t*-test analyses are depicted as follows: * $p < .05$, ** $p < .01$, and *** $p < .001$. Each pair of words has been assigned a symbol as follows: # cracked–inflamed pair, + cracked–overused pair, * cracked–broken pair, \$ cracked–worn pair, ^ inflamed–overused pair, ! inflamed–broken pair, @ inflamed–worn pair, = overused–broken pair, ? overused–worn, and β broken–worn pair

“ache” and “discomfort” were preferred to “pain,” “stiff” and “tight” were preferred to “frozen” and “locked,” “faded” was preferred to “degenerated,” and “defect” was preferred to “rupture.”

“Defect” was rated as more pleasurable and more dominating and anxiety-provoking than “tear” although differences were small and not statistically significant with the numbers available. This is contrary to our hypothesis. We speculate that patients that are injured or in pain might have different emotional reactions than healthy companions of those patients. Another possible explanation for the relatively positive emotional reaction to the word “tear” is that it may connote the potential for repair.

We were surprised to find that the word “overused” had a relatively positive emotional content. Perhaps the word overused implies a minor condition caused by repeated activity, which can be fixed by stopping that activity. This finding is consistent with the popularity of and comfort with the word “overuse” in lay language. One of the reasons that arm use is

often unfairly stigmatized may be that the concept of overuse can—in some contexts—be soothing. On the other hand, the concept of “overuse” risks reinforcing maladaptive automatic thoughts and fostering ineffective coping strategies such as avoidance. A person whose vocation or avocation requires frequent arm use may find the concept of “overuse” positive in the sense of hope and control, but it will mean that they must place hope for recovery in giving up valued activities, which will ultimately increase illness and disability.

Our results should be viewed in light of several limitations. First, we used companions of patients presenting to orthopedics departments, which may limit generalizability. Second, we have tested a relatively small number of words and a limited number of synonyms and alternatives. It may be that there are other words that have a better emotional reaction than those that we have chosen for this investigation. Third, we have not collected data on demographic information, in general, and sex, in particular. It may be that men and women, for example, respond differently to

orthopedic words. Future studies should replicate our results using patients and representative populations, testing additional orthopedic words and assessing cultural variations.

Given that words that diminish affective, peace of mind, and control may reinforce (1) inaccurate perceptions of disease severity, (2) negative coping strategies such as pain catastrophizing, avoidance and anxiety, and (3) overall disability, it is important to choose the best words to foster effective coping strategies. The adoption of optimal word choice may be of relatively high importance in the treatment of orthopedics conditions, most of which are electively treated quality-of-life issues that are strongly influenced by psychosocial factors.

Conflict of interests Each author certifies that he or she has no commercial associations (e.g., consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted article.

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