

Wayne State University  
DigitalCommons@WayneState

---

Psychology Faculty Research Publications

Psychology

---

1-1-2010

# Social Interaction in Pain: Reinforcing Pain Behaviours or Building Intimacy?

Annmarie Cano

Wayne State University, [acano@wayne.edu](mailto:acano@wayne.edu)

A. C. de C. Williams

University College London

---

## Recommended Citation

Annmarie Cano, Amanda C. de C. Williams

**Social interaction in pain: Reinforcing pain behaviors or building intimacy?**

PAIN, Volume 149, Issue 1, April 2010, Pages 9–11

<http://dx.doi.org/10.1016/j.pain.2009.10.010>

Available at: <http://digitalcommons.wayne.edu/psychfrp/13>

This Article is brought to you for free and open access by the Psychology at DigitalCommons@WayneState. It has been accepted for inclusion in Psychology Faculty Research Publications by an authorized administrator of DigitalCommons@WayneState.

This article is the author's final version after peer-review. A publisher version (Elsevier) of this article previously appeared in *Pain*, (149(1), 2010), available at [http://www.painjournalonline.com/article/S0304-3959\(09\)00607-1/abstract](http://www.painjournalonline.com/article/S0304-3959(09)00607-1/abstract).



This article is licensed under a Creative Commons license

<http://creativecommons.org/licenses/by-nc-nd/3.0/us/>

# **Social interaction in pain: Reinforcing pain behaviours or building intimacy?**

**A. Cano <sup>a</sup> and A.C. de C. Williams <sup>b</sup>**

<sup>a</sup>Dept. of Psychology, Wayne State University, USA

<sup>b</sup>Dept. of Clinical, Educational & Health Psychology, University College London, UK

Keywords: Spouse responses, social support, intimacy, emotional disclosure, pain behaviors, operant models, chronic pain

# Social interaction in pain: Reinforcing pain behaviours or building intimacy?

A. Cano and de C. Williams

## 1. Introduction

To date, pain research has focused almost exclusively on operant models to interpret the function and predict the consequences of pain-related interaction in chronic pain couples. However, evidence suggests that intimacy models of interaction may provide additional and alternative explanations for pain interaction. Specifically, intimacy models conceptualise verbal complaints about pain-related distress as emotional disclosure, which the partner may validate or invalidate. This review compares and contrasts models of pain-related interaction in chronic pain couples, describes limitations of the existing research, and offers directions for future research drawing upon a social support framework.

## 2. Operant Models of Pain-Related Interaction

Operant models<sup>7</sup> as well as cognitive-behavioural<sup>28</sup> models of pain posit that interactions between patients and their significant others affect pain-related behaviours, and ultimately disability. Spouses' responses to pain behaviours may reinforce (e.g., by providing help or attention) or punish (e.g., by expressing negative affect) those behaviours. A great deal of self-report and observational research has supported the operant model of pain in couples<sup>25</sup>, although not without problems of interpretation<sup>21</sup>. Evolutionary refinements of the operant approach have suggested that pain behaviours may function to communicate to close others or kin the need for help and the mobilization of resources<sup>30</sup>. Indeed, certain pain behaviours-particularly facial expressions and paraverbal verbalizations-appear to effectively communicate distress to close others<sup>26, 27</sup>. According to the sociocommunications model of pain<sup>10</sup>, sensations, cognitions, and emotions in the context of one's learning history, biology, relationships, and culture contribute both to expressive behaviours, including self-reports about pain, and to observers' responses. Individuals with pain may or may not intend to use pain behaviours to obtain particular consequences and, in any event, pain behaviours might be interpreted differently than intended<sup>10, 29</sup>. Furthermore, intentionality may differ by the modality of expression<sup>10</sup>. For instance, deliberate, verbal communications (e.g., rating pain on a self-report scale) are under greater cognitive and emotional control than facial expressions.

However, the potential range of verbal communications is broad. In addition to providing verbal pain ratings, individuals with pain may describe their pain experience (e.g., “I had a lot of difficulty today”) and their pain-related distress (e.g., “This pain is really getting me down”). There have been few attempts to distinguish these types of verbal communications from verbal pain ratings or to examine the meaning of and reactions to these more elaborate communications. The close relationships literature offers us an interesting way to conceptualize these communications.

### **3. Intimacy Models of Interaction**

Reis and Shaver’s<sup>24</sup> interpersonal process model of intimacy has contributed to a growing interest in the meaning of couples’ interaction behaviours. According to this model, intimacy develops when one person’s self-disclosure of emotions is met with the partner’s empathic and validating responses. Indeed, one’s self-disclosure of emotions as well as the partner’s responsiveness and empathy predict intimacy and satisfaction in couples<sup>17-19</sup>. With this in mind, certain pain behaviours, including verbalizations about pain experiences and of pain-related distress, may entail deliberate attempts to disclose emotion and build intimacy, as may an empathic and concerned response from the partner.

As noted above, intimacy also depends on the interaction partner’s responses to emotional disclosure. Emotional validation, including empathic responses, enhances the emotion regulation process for both partners because such responses allow each person to process stressful or aversive stimuli<sup>8</sup>. In contrast, interactions characterised by invalidation, such as hostility or ignoring a partner’s emotional responses, indicate rejection and disregard for the partner and, in turn, disrupt emotion regulation. For example, sadness and anger expressed by both partners during a problem-solving interaction was associated with greater depressive symptoms and pain severity in chronic pain couples<sup>11</sup>.

## **4. Using Intimacy Models in Pain Research**

### ***4.1 Verbal and Nonverbal Communications about Pain***

The foregoing review suggests that there are several aspects of pain communication worth addressing in further research on the social interaction of pain. Researchers may wish to integrate an intimacy approach into the study of verbal communications about the pain experience and pain-related distress. In contrast to operant models, in which talking about

pain constitutes pain behaviour that should be extinguished, emotion regulation and intimacy models of interaction<sup>8, 17</sup> conceptualize talking about pain as emotional self-disclosure. In some respects this formulation of pain talk resembles the communal coping model of pain catastrophizing<sup>27</sup>, in which catastrophizing might communicate the need for instrumental and emotional support, consciously or not.

However, an emotional disclosure framework encompasses a wide array of disclosure types beyond catastrophizing. In addition, one hypothesis that could be generated from such a conceptualization is that repetitive expressions of helplessness and negative emotional disclosure (as in repeated catastrophizing statements) are the result of low-level validation or overt invalidation of the individual's emotional experience. Research has shown that some individuals may conceal pain or limit pain talk to preserve relationship harmony, reduce burden on close others, or prevent negative reactions<sup>20, 23</sup>. Thus, an examination of motives behind disclosure can inform research on particular patterns of verbal communications among individuals with pain.

Models of pain empathy suggest that facial expressions also convey important information concerning pain<sup>9</sup> and other emotions. We do not yet know whether these communications can be understood using the same frameworks as for verbal expression.

#### **4.2 Responses to Verbal and Nonverbal Communications**

Neither the operant model nor the communal coping model situates the interaction fully within a relationship between two people, each with emotions and motives directed towards the other. The study of partner responses to pain can make little progress without an integration of models and clarification of concepts. Just as there is a broad array of pain-related emotional disclosures, there are many types of partner responses to these disclosures. For instance, a qualitative self-report study of chronic pain couples found that solicitous spouse responses are not necessarily received favourably, as evidenced by a hostile-solicitous category<sup>22</sup>. Yet, emotional validation in response to verbal pain behaviours is construed in pain models as solicitous spouse responses, which are expected to contribute through reinforcement to pain behaviour. Preliminary work suggests that solicitous responses and validation are distinct types of interaction. In a factor analytic study of couples who discussed the impact of pain in their lives, observations of spousal validation and invalidation loaded on a factor with self-reports of punishing spouse responses<sup>2</sup>. That is, punishing responses are invalidating to patients. Solicitous and distracting spouse responses loaded on a separate factor, suggesting that validation and

solicitousness are related but distinct types of spouse reactions with different implications for pain adjustment.

Newton-John<sup>21</sup>, in a critical review of solicitousness, reminded researchers that operant models define solicitous behaviours based on the consequences of those behaviours. Specifically, behaviour is solicitous only if it results in increased pain behaviour. Much of the research defines solicitousness based on researchers' expectations of the responses that are most likely to reinforce pain behaviours as well as the researchers' existing definitions of verbal pain behaviours. This is understandable given the difficulty in recruiting couples and conducting this type of research. However, it may be more appropriate to label these responses topographically<sup>21</sup>. Research is needed to determine the extent to which these responses constitute social support, attention, validation, or some combination rather than relying on a definition that relies on what succeeds the response. Researchers should also keep in mind that interactions about topics other than pain may also be relevant to pain adjustment<sup>11</sup>.

Furthermore, it may be useful to examine partners' responses to verbal and nonverbal communications in light of partners' motives, intentions, and personal and relationship history. For nonverbal expression, interpretation is affected by accompanying verbal communication<sup>12</sup>, and attributions about intentionality and truthfulness of the disclosures are even more likely to influence observers' choice of other-focused (e.g., empathic response) or self-focused (e.g., distancing) behaviours<sup>9,13</sup>.

### ***4.3 Social Support and Opportunities for Intervention***

Research is needed to examine the function of verbal and nonverbal pain communications and spouse responses based on operant and intimacy-based models. It is also necessary to draw on social support research, which consistently demonstrates the health benefits of social and spousal support across a variety of health conditions<sup>4,16</sup>. The optimal matching theory of social support<sup>5</sup> suggests that spousal behaviours are most beneficial when they match the needs of the support seeker because they demonstrate that one's needs are being met. In other words, they validate the experience of the support seeker. In a study of couples' support interactions, optimal matching of support mattered more when partners disclosed emotion than when partners sought instrumental support<sup>6</sup>. It appears that empathy, caring, concern, and closeness are desired when one discloses emotion, not "expertise" or problem-solving, which could signal invalidation of emotion. Not surprisingly,

negative dyadic coping, which consists of support delivered in hostile or negative way and is similar to the concept of hostile solicitousness, also signals invalidation <sup>1</sup>.

These findings generate interesting hypotheses for pain researchers. For instance, it may be appropriate to reduce instrumental or so-called solicitous responses to emotional disclosure because such spouse behaviours do not meet the emotional need. In contrast, we should be cautious about reducing emotional support in response to pain-related emotional disclosure. Researchers could test whether it is useful to distinguish between instrumental and emotional support responses by the demand that is being made. Furthermore, responses and intentionality could be examined to determine the demand: does the person with pain want instrumental help or emotional validation? To conduct this research, it will be necessary to develop better measures that tap into couples' motivations and intentions, responses, and impact.

Several existing interventions incorporate partners into the pain treatment process. For instance, spouse-assisted coping skills training<sup>14</sup> and other cognitive-behavioural and systems approaches<sup>15, 28</sup> provide couples with the opportunity to build communication and pain coping skills in order to improve pain adjustment. However, direct attempts to build emotional support and empathy are lacking, which is problematic because couples experiencing problems with emotional support and hostility may need more than skills training <sup>3, 15</sup>. These couples may need guidance on developing empathy and perspective-taking <sup>3</sup> as well as the importance of meeting expressions of pain-related emotional disclosure with matching support. Thus, intervention research is also likely to benefit from an intimacy and support approach.

## 5. Conclusions

The hegemony of the operant model in conceptualising pain-related interactions is perhaps partly attributable to its good fit with the western ideal of stoical suffering. However, a purely operant approach to social interaction does not appear to capture the broad range of pain-related communications. We suggest that some pain-related interaction behaviours-particularly verbal communications-can be reconceptualised in an intimacy process model of interaction, which suggests that emotional disclosure and validating responses serve to enhance intimacy. The optimal matching model of support also provides new directions for researchers interested in social interaction in pain.



In pursuing this work, researchers must continue to consider the context of interaction. For instance, each partner's history with respect to emotion regulation, pain experiences, and interaction skills contributes to current interaction patterns. Furthermore, situational factors including current pain, life stressors, and time constraints may affect one's ability to actively engage in supportive and intimacy-enhancing interaction at any given time. Researchers must also decide if they are interested in the topographical or functional features of interaction. Both types of features may provide insights about emotion regulation, reinforcement contingencies, and intimacy processes. We do not advocate that researchers dispose of operant conceptualisations of pain-related interaction. Yet, drawing on the strongest available models of interaction processes, and a more dyad-centred approach appears to be a promising way forward for both pain communication research and treatment development.

## **6. Acknowledgements**

Annamarie Cano was supported by grant MH61569 while working on this paper.

## 7. References

1. Bodenmann G. Dyadic coping and its significance for marital functioning, in *Couples Coping with Stress*, TA Revenson, K Kayser, and G Bodenmann, Editors. 2005, American Psychological Association: Washington, D.C. p. 33-49.
2. Cano A, Barterian JA, Heller JB: Empathic and nonempathic interaction in chronic pain couples. *Clinical Journal of Pain* 678-684, 2008.
3. Cano A, Leonard M: Integrative behavioral couple therapy for chronic pain: Promoting behavior change and emotional acceptance. *Journal of Clinical Psychology: In Session* 62: 1409-1418, 2006.
4. Cohen S, Wills TA: Stress, social support, and the buffering hypothesis *Psychological Bulletin* 98: 310-357, 1985.
5. Cutrona CE, Russell D. Type of social support and specific stress: Toward a theory of optimal matching, in *Social support: An interactional view*, IG Sarason, BR Sarason, and GR Pierce, Editors. 1990, Wiley: New York. p. 319-366.
6. Cutrona CE, Shaffer PA, Wesner KA, Gardner KA: Optimally matching support and perceived spousal sensitivity. *Journal of Family Psychology* 21: 754-758, 2007.
7. Fordyce WE: *Behavioral methods for chronic pain and illness* 1976.
8. Fruzzetti AE, Iverson KM. Mindfulness, Acceptance, Validation, and “Individual” Psychopathology in Couples, in *Mindfulness and acceptance: expanding the cognitive-behavioral tradition*, SC Hayes, VM Follette, and MM Linehan, Editors. 2004: Guilford Press: New York. p. 168-191.
9. Goubert L, Craig K, Vervoort T, Morley S, Sullivan MJL, Williams ACdeC, Cano A, Crombez G: Facing others in pain: the effects of empathy. *Pain* 118: 285-288, 2005.
10. Hadjistavropoulos T, Craig, K.D.: A theoretical framework for understanding self-report and observational measures of pain: a communications model. *Behaviour Research and Therapy* 440: 551-570, 2002.
11. Johansen AB, Cano, A.: A preliminary investigation of affective interaction in chronic pain couples. *Pain* 132: S86-S95, 2007.
12. Kappesser J, Williams ACdeC: Pain and negative emotions in the face: judgements by health care professionals. *Pain* 99: 197-206, 2002.
13. Kappesser J, Williams ACdeC: Pain judgements of patients' relatives: Examining the use of contract theory as theoretical framework. *Journal of Behavioral Medicine* 31: 309-317, 2008.
14. Keefe FJ, Caldwell DS, Baucom D, Salley A: Spouse-assisted coping skills training in the management of osteoarthritic knee pain. *Arthritis Care & Research* 9: 279-291, 1996.
15. Kerns RD, Otis JD: *Family therapy for persons experiencing pain: Evidence for its*

- effectiveness. *Seminars in Pain Medicine* 1: 79-89, 2003.
16. Kiecolt-Glaser J, Newton T: Marriage and health: His and hers. *Psychological Bulletin* 127: 472-503, 2001.
  17. Laurenceau J, Barrett, LF, Pietromonaco, P: Intimacy as an interpersonal process: The importance of self-disclosure, partner disclosure, and perceived partner responsiveness in interpersonal exchanges. *Journal of Personality and Social Psychology* 74: 1238-1251, 1998.
  18. Long ECJ, Angera JJ, Carter SJ, Nakamoto M, Kalso M: Understanding the one you love: A longitudinal assessment of an empathy training program for couples in romantic relationships. *Family Relations* 48: 235-242, 1999.
  19. Mitchell AE, Castellani AM, Herrington RL, Joseph JI, Doss BD, Snyder DK: Predictors of intimacy in couples' discussions of relationship injuries: An observational study. *Journal of Family Psychology* 22: 21-29, 2008.
  20. Morley S, Doyle K, Beese A. Talking to other about pain: Suffering in silence, in *Proceedings of the ninth world congress on pain: Progress in pain research and management*, M Devor, M Rowbotham, and Z Wiesenfeld-Hallin, Editors. 2000, IASP Press: Seattle. p. 1123-1129.
  21. Newton-John TRO: Solicitousness and chronic pain: A critical review. *Pain Reviews* 9: 7-27, 2002.
  22. Newton-John TRO, Williams ACdeC: Chronic pain couples: Perceived marital interactions and pain behaviours. *Pain* 123: 53-63, 2006.
  23. Porter LS, Keefe FJ, Wellington C, Williams ACdeC: Pain communication in the context of osteoarthritis: patient and partner self-efficacy for pain communication and holding back from discussion of pain and arthritis-related concerns. *Clinical Journal of Pain* 24: 662-668, 2008.
  24. Reis H, Shaver, P. Intimacy as an interpersonal process, in *Handbook of Interpersonal Relationships*, S Duck, Editor. 1988, Wiley: Chichester. p. 367-389.
  25. Romano JM, Turner JA, Friedman LS, Bulcroft RA, Jensen MP, Hops H, Wright SF: Sequential analysis of chronic pain behaviors and spouse responses. *Journal of Consulting and Clinical Psychology* 60: 777-782, 1992.
  26. Sullivan MJL, Thibault P, Savard A, Catchlove R, Kozey J, Stanish WD: The influence of communication goals and physical demands on different dimensions of pain behavior. *Pain* 125: 270-277, 2006.
  27. Sullivan MJL, Thorn B, Haythornthwaite JA, Keefe F, Martin M, Bradley LA, Lefebvre JC: Theoretical perspectives on the relation between catastrophizing and pain. *Clinical Journal of Pain* 17: 52-64, 2001.
  28. Turk DC, Meichenbaum D, Genest M. *Pain and behavioral medicine : A cognitive-behavioral perspective*. 1983, New York Guilford Press.
  29. Wilkie DJ, Keefe FJ, Dodd MJ, Copp LA: Behavior of patients with lung cancer: Description

- and associations with oncologic and pain variables. *Pain* 51: 231-240, 1992.
30. Williams ACdeC, Craig KD: A science of pain expression? *Pain* 125: 202-203, 2006.