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## Chronic pain in the context of the lives of dyads

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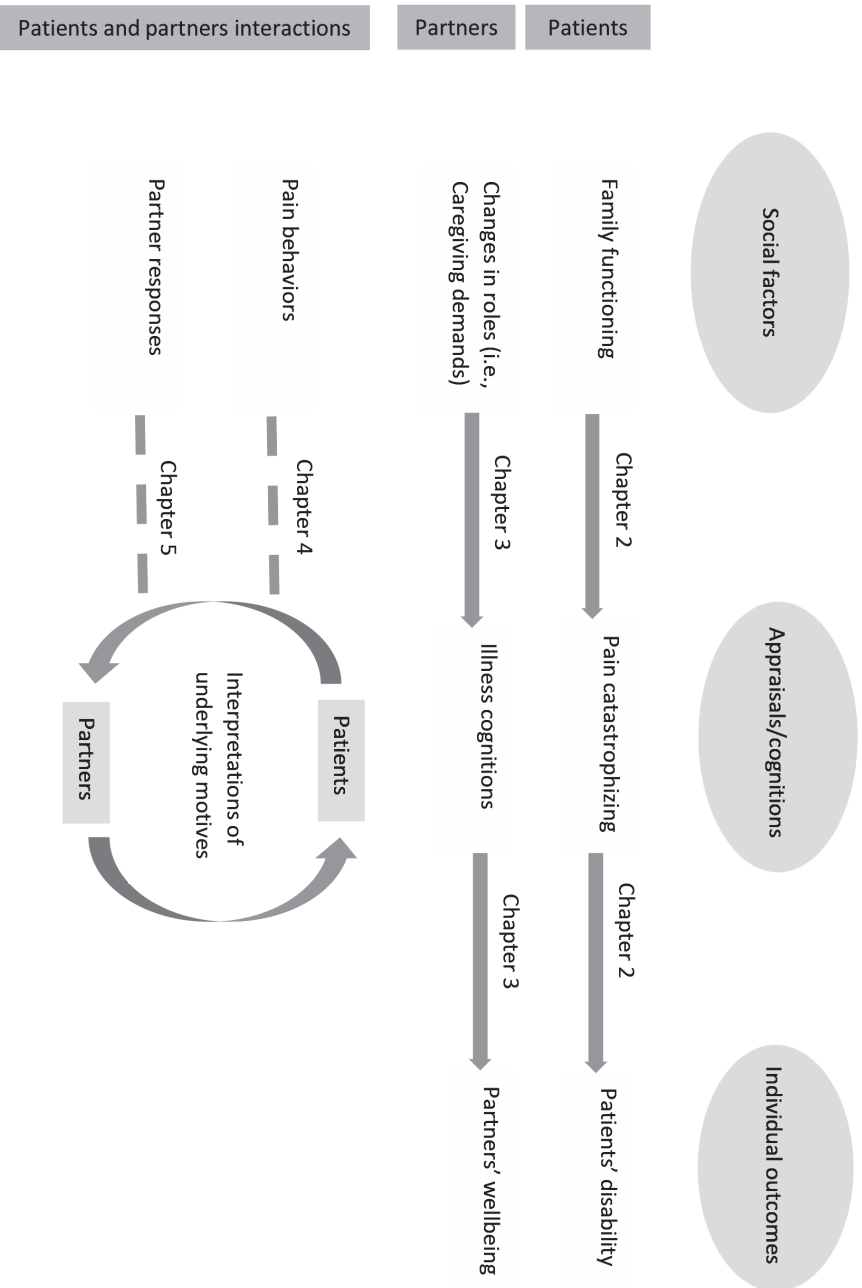
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## Chapter 6

# **General Discussion**



The current thesis focused on social factors in chronic pain. More specifically, the aim was to examine the role of patients' significant others in the pain experience and shed light on the cognitive processes underlying interactions between patients and partners. First, we examined the role of family functioning and the mechanism through which it might contribute to pain-related disability (Chapter 2). Second, we investigated the impact of chronic pain on partners with specific attention to the role of partners' illness cognitions (Chapter 3). Finally, patients' and partners' interpretations of each other's behaviors and possible discrepancies between their interpretations were explored (Chapters 4 and 5). In the current chapter, I begin with providing an overview of the key findings of the present thesis, followed by a reflection on the theoretical and clinical implications of these findings. Figure 1 summarizes the main concepts that were investigated in the current thesis.



Figures 1. Guiding framework of this thesis

## **The main findings of the current thesis**

### **Family functioning and patients' well-being**

Patients with lower levels of family functioning (i.e., indexed by hampered family roles, less effective communication, and deteriorated problem-solving within the family) tend to catastrophize more about their pain. In turn, patients who catastrophize more about their pain experience more fear of movement and depression, which is subsequently associated with their increased disability. These findings indicate that family functioning plays an important role in the pain experience. While the literature supports the importance of the social context in patients' physical and psychological adjustment to chronic pain, it has mainly focused on the spousal interactions (Burns et al., 2018; Cano et al., 2012; Heyman et al., 1994). In the current thesis, we demonstrated that the interactions between family members (i.e., family functioning) besides spouses play a role in the experience of pain.

The family context has been shown to have associations with chronic pain patients' perceptions of pain severity and pain-related disability. Particularly, children with lower functional families reported more intensive pain and more disability (Kaczynski, Gambhir, Caruso, & Lebel, 2016; Lewandowski, Palermo, Stinson, Handley, & Chambers, 2010). However, these associations have been mostly examined in pediatric populations. The current study represents the first attempt at testing a structural model evaluating the pathways linking these variables in middle-aged and older adults with chronic pain.

Family Systems Theory (Patterson & Garwick, 1994) provides a framework for conceptualizing the role of family functioning in the patients' illness. As postulated by this theory, when a family member is experiencing chronic pain, it is possible that changes in family dynamics will occur. For instance, the patient may not be able to maintain daily activities/roles, which can in turn deteriorate communication within the family (Patterson & Garwick, 1994). Lower levels of family functioning defined by inadequate role divisions, poor communication, and problem-solving are stressful for patients and presumably exacerbate their focus on the pain. It is also likely that when patients perceive more problems in the family environment, they will not receive the help and support they need, which can induce helplessness and catastrophic thinking. Our study not only underscores the important role of family functioning in pain-related disability,

but also proposes that intrapersonal factors (e.g., pain catastrophizing, fear of movement) mediate the relationship between family factors and pain-related disability. This suggests that both intrapersonal and interpersonal factors need to be taken into account to have a better understanding of adjustment in chronic pain patients.

## **Research and clinical implications**

Based on the results of the current study and those of other studies (Kaczynski et al., 2016), family-based interventions may provide an important component in the treatment of patients with chronic pain. The current findings suggest that interventions that target family roles, communication, and problem-solving may be of particular benefit. The results of the studies in which family therapy interventions have been applied are promising (Grondin et al., 2014). More specifically, Grondin, Bourgault, and Bolduc (2014) showed that patients assigned to a family-centered educational intervention experienced less postoperative pain and less anxiety after hip arthroplasty surgery. Based on the findings of the current study, family interventions should not only focus on health-related issues (e.g., pain management) but should also examine the family structure and environment. To improve family functioning, interventions should encourage family members to discuss their concerns, express their feelings, and support each other. Therefore, future research should be focused on interventions that directly target family functioning to improve the well-being of chronic pain patients. Also, less is known about the mechanisms underlying such changes. Future studies might benefit from investigating the effects of family-based interventions on patients' maladaptive cognitions (e.g., pain catastrophizing), as an important precursor of pain-related fear and disability. Investigating the influence of cultural background is also important. Asian cultures, for instance, prioritize families and the relationships among all family members due to collectivism (Chao & Tseng, 2002). Therefore, it is likely that family functioning has a stronger effect on a patient's psychological adjustment in those collectivistic cultures than the interactions between patients and a specific family member.

## **Illness cognitions and partners' well-being**

As indicated above, chronic pain leads to substantial changes in the family environment, including role divisions among family members. More specifically, partners who have to fulfill the unexpected role of caregiver of a loved one with chronic pain may be confronted with challenging demands, such as providing assistance with daily tasks and providing emotional care that can be stressful and deteriorate one's well-being (Mohammadi et al., 2017). The findings of chapter 3 showed that demands associated with caregiving might impact partners' appraisals about the patients' condition (i.e., illness cognitions). Particularly, higher levels of caregiving demands were related to lower levels of acceptance and higher levels of helplessness and perceived benefits among partners of patients with chronic pain. Seemingly, partners with more caregiving demands tend to appraise the patients' condition more negatively (especially more helplessness and less acceptance), which in turn was found to be associated with lower emotional well-being.

The heavy load of demands on caregivers translated into negative appraisals about patients' pain (e.g., partners' feelings of helplessness about patients' pain), which might eventually impact both patients' and partners' well-being. Previous research suggests that partners' helplessness catastrophizing is associated with their invalidation of the patients' disclosures (Cano et al., 2012). Therefore, it is possible that partners with higher levels of helplessness and lower levels of acceptance engage in invalidating responses toward patients, or they are less willing to provide the needed support for the patient.

## **Research and clinical implications**

Previous studies have focused on caregivers' appraisals of their own condition. For example, these studies suggest that caregivers' positive perceptions about their condition (e.g., experiencing personal growth) can improve their adjustment (Cohen et al., 2002). In contrast, caregivers' negative perceptions about their condition (e.g., perceived injustice) are related to their experience of burden and distress (Mohammadi et al., 2017). We suggest that partners' perceptions about patients' pain (i.e., illness cognitions) should also be taken into account to better understand partners' adjustment. Therefore, considering psychological interventions to target partners' illness cognitions might be important for the well-being of the partners and eventually for the well-

being of patients with chronic pain. Several interventions, such as acceptance-based treatments, have been applied to target illness cognitions in patients with chronic pain (McCracken et al., 2005). However, none of these interventions has been applied to partners of patients with chronic pain. Given that there is a flow of information between partners regarding the illness experience (Karademas, 2014), it is important to investigate whether joint intervention programs can result in more adaptive illness cognitions among both patients and partners and improve their psychological well-being.

### **How are pain behaviors and partner responses in a couple's interaction interpreted?**

In the previous sections, we explained that problems in the social context (i.e., deteriorated family functioning) contribute to chronic pain patients' disability through augmenting pain catastrophizing, fear of movement, and depression. Besides considering the influence of social factors on patients' pain well-being, we focused on how the pain condition and associated demands can affect partners' psychological adjustment. In this thesis, we also focused on the interaction between patients and partners as another important aspect of social context. More specifically, we examined how patients and partners interpreted each other's behaviors.

Patients might engage in pain behaviors for different reasons, which may be interpreted differently within a couple. In a similar vein, a specific partner response to a patient's pain behavior might be perceived in various ways by both patients and partners. The findings of this study revealed that pain might not always serve as interactive communication where the patients and partners accurately interpret the intended message of one another. Pain complaints might be misinterpreted, sometimes leading to accusations about malingering, which results in frustration in both patients and partners. That is, when partners impute an undesirable motive to patients' pain behaviors (e.g., gaining advantage), they may dislike the patient, or they may be less inclined to provide support to the patient. Such discounting responses can be detrimental to the patient's well-being (Kool et al., 2013).

Our findings that partners tend to ascribe negative motives to pain behaviors are in line with evidence highlighting the presence of stigma in the lives of



patients with chronic pain (De Ruddere & Craig, 2016; Newton et al., 2013). Specifically, qualitative evidence suggests that sometimes patients do not feel taken seriously by their partners (Holloway et al., 2007). The findings of the current study raise the question of why partners may misinterpret the intended message of patients' pain behaviors? Different factors might contribute to such misinterpretations. For example, the absence of a clear medical explanation for chronic low back pain may lead partners to make negative attributions about pain behaviors such as gaining advantages from pain. Other factors that might prompt partners' negative interpretations of pain behaviors include partners' exhaustion, personal characteristics of the partner (e.g., suspicion concerning the unauthenticity of pain complaints), and relational problems, which require further examination.

Similarly, patients might also interpret partner responses negatively, which can further amplify negative interactions between patients and partners. Interestingly, whether or not patients considered a particular response as positive or negative did not rely solely on the content of that response. That is, some of the responses were perceived as invalidation despite having a positive content, while some other responses were perceived as validation despite having a negative content. These findings challenge the operant models of pain in which certain responses are considered as inherently rewarding or punishing (Fordyce, 1976). Therefore, factors such as the patient's interpretation of the partner's response should be taken into account before employing a predetermined set of partner responses classified as solicitous or punishing.

Despite the variety of interpretations that patients provided about each partner response category, they showed consensus on their interpretation of two particular response categories (i.e., ignoring and encouraging pain talk). That is, ignoring was perceived as either invalidation or an expression of resentment toward patients. This suggests the possible harmful effect of this partner response on patients' well-being, therefore indicating that such responses should be discouraged despite the clinical recommendations based on the operant model. On the other hand, encouraging pain talk was the only response category that was perpetually interpreted positively by both patients and partners. This finding is consistent with the results of previous research indicating the importance of emotional disclosure within couples (Cano et al.,

2012). Yet, it should be noted that emotional disclosure of pain-related distress might give rise to co-rumination (i.e., extensively talking about pain-related worries; Cano & Goubert, 2017), which is maladaptive. These seemingly inconsistent findings raise the question as to whether chronic pain couples should be encouraged to engage in pain talk? Evidence suggests that when emotional disclosure is rooted in catastrophizing and increases co-rumination, it can be related to adverse outcomes (Müller et al., 2019). However, as long as patients' motives for engaging in pain talk are meant to relieve patients' pain or validate their pain experience, and it doesn't end in co-rumination, this might not result in adverse outcomes. Therefore, engaging in pain talk may serve a stress-relieving function by allowing patients to process difficult thoughts and feelings, or it may enhance intimacy with one's partner (Lumley et al., 2012).

## Research and clinical implications

The findings of the current study have important theoretical and clinical implications. First, this study provides a preliminary understanding of the motives of different types of pain behaviors and interpretations of partner responses. Second, the findings suggest that patient-partner interactions should not be conceptualized in solely behavioral terms (i.e., operant models). That is, operant models consider pain behaviors as maladaptive, and partner responses to pain behaviors (e.g., solicitous responses and negative responses) are framed as inherently rewarding or punishing. Yet, partners tend to interpret each other's behavior continuously during their interactions, which is barely taken into account in the current models. There are indeed many variations regarding the meaning/motives that patients and partners attribute to the behaviors manifested in their interaction. To fill this gap, we recommend that future studies might benefit from distinguishing the adaptive motives of pain behaviors from maladaptive ones. This means new measures must be developed to capture the motives of pain behaviors from both patients' and partners' perspectives. This new approach helps to move beyond conceptualizing pain behaviors as detrimental to patients' well-being as indicated in current models of pain (e.g., fear-avoidance models). Consequently, not all pain behaviors need to be diminished. The third important implication of the present study is the crucial role of patients' and partners' interpretation of partner responses in the experience of support. Previous

research suggests partners' motives for support may impact the experience of support in an interaction (Kindt et al., 2016). In particular, partners' autonomous motivation for helping (i.e., providing support because of considering it as interesting) has been shown to be positively related to relationship-based need satisfaction in patients. That is, whether or not patients experienced the received support as need-satisfying depended on the partners' motivation for support. The current study suggests that patients' and partners' interpretations of each other's behavior might also affect the experience of support. That is, as long as patients and partners misinterpret the intended message of each other's behaviors, they are more likely to engage in negative interactions (e.g., reacting with hostility). Particularly, when partners do not perceive the intended message of patients' pain behaviors accurately, they are less likely to provide the support that matches patients' needs. In a similar vein, patients might also misattribute partners' behaviors. Notably, a response stemming from partners' exhaustion or other motives that are not negative in essence might be interpreted negatively by patients, and therefore, contributing to their feelings of resentment toward the partner, which may in turn increase the degree of negativity contained in a partner response.

Of clinical relevance, the findings of the current study inform existing interventions (e.g., couples communication training) in terms of effective pain communication. To this aim, interventions need to be more individualized and tailored to a couple's specific needs, where patients and partners are able to acknowledge the motives of each other's behaviors and thereby respond more appropriately to each other's needs. This new approach is likely to turn pain communication into interactive communication, where patients' motives for engaging in pain behaviors are better understood, and therefore lower the risk of patients being stigmatized. Apart from communication training, our findings highlight the importance of restructuring patients' and partners' negative attributions of each other's behavior using cognitive behavioral techniques. In sum, patients might not receive their desired support because they may not effectively communicate their desired support, or they might make negative attributions of their partners' provided support. It is helpful to inform patients that a response sometimes stems from partner exhaustion, where the partner's empathy and ability to provide support is beginning to run down. Thus, mutual constructive communication within couples could help prevent possible misunderstanding regarding the intention of a partner

response. A question that may inspire clinicians in their work with patients with chronic pain and their partners is: Is it always helpful to encourage couples to hold congruent interpretations about pain behaviors and partner responses? The present data indicate that patients and partners may share a similar but maladaptive interpretation about a specific behavior. Accordingly, sometimes both patients and partners need to be informed that a particular response (e.g., encouraging task persistence) is not intended to take the patient's pain for granted, but instead it is meant to keep the patient active and thus facilitate recovery. Finally, given that there is much variety in interpretations of a specific response, a focus on reducing emotional and instrumental support may not be a beneficial approach in treatment for everyone. Therefore, whether or not a particular partner response is adaptive needs to be determined for each couple.

### **Methodological issues**

The results of the present thesis should be considered in light of some strengths and limitations. In general, the strengths of this thesis include using of relatively large samples consisting of a wide range of people in terms of gender, age, and education. The sample used for chapters 4 and 5 included both distressed and non-distressed couples, which is a particular advantage. Another strength of this thesis lies in applying a qualitative design that allows gaining insight into the context and meaning of pain behaviors and partner responses from the perspectives of both patients and partners. The study conducted in chapter 2 is one of the few studies that incorporated both individual and family correlates of disability (i.e., family functioning). This study enriches the current theoretical models (e.g., fear-avoidance model) by incorporating family functioning as an important construct in explaining patients' disability. Although this new approach encourages taking a broader perspective on family dynamics in coping with pain, it remains to be seen whether the interactions among all family members (i.e., family functioning) are more important than the interactions between patients and primary caregivers (e.g., partners).

Chapter 2 and chapter 3 used a cross-sectional methodology to examine the role of family functioning in pain-related disability and the role of illness cognitions in the well-being of partners of patients with chronic pain. This

method produced findings that are correlational in nature and thus precluded conclusions about the direction of effects. However, in chapter 2, we used structural equation modeling to examine the relationship among variables and tested alternative models to explore the best model, which could better explain patients' pain-related disability. Future studies employing a longitudinal design are needed to investigate further the role of family functioning and illness cognitions in patients' and partners' well-being. Furthermore, both studies in chapter 2 and chapter 3 were conducted using self-reports. This may have inflated some of the observed associations due to recall biases and shared method variance. These disadvantages encourage researchers to use observational methods in which one studies the participants' true behaviors (e.g., interactions among family members). Besides, the results provided in chapter 2 solely relied on patients' self-report measures. However, chronic pain imposes a strain on other members of the family, especially the main caregivers. Therefore, it is interesting to investigate how caregivers of patients with chronic pain evaluate family functioning and how changes in family functioning might affect their well-being. Another limitation of the current thesis concerns our sample characteristics. Three out of four empirical studies included Iranian participants. Some of the findings might have been influenced by the cultural context of Iran (e.g., being collectivistic).

In chapter 4 and chapter 5, we employed a qualitative design, which allowed us to assess the beliefs and intentions that are associated with both patients' and partners' behaviors, without utilizing a priori categorizations. Using qualitative tools to probe for personal interpretations, we could gain insight into the context and personal meaning of patients' and partners' behaviors that are not readily available through quantitative methods. However, social desirability bias might have contaminated the findings mainly because in both studies (i.e., chapter 4 and chapter 5), we found that patients and partners rarely provided negative interpretations about their own behaviors. We tried to avoid this bias by interviewing patients and partners separately. Also, the tools we used in both studies (i.e., video sequences of pain behaviors and vignettes) facilitated the interviews and allowed the participants to reflect on another patient's condition, thereby acting as projective mirrors. Therefore, with the aid of such tools in qualitative studies, social desirability bias is less of an issue. The social desirability bias might be more considerable when patients and partners are asked to fill in questionnaires about the intention of their behaviors. Besides,

in chapter 4 and chapter 5, we examined the perspectives of both patients and their partners on both patient's and partners' behaviors. While interviewing both members of the dyad was an advantage of these studies, it should be noted that partners' appraisals about behaviors might differ from other people's appraisals. Therefore, future studies might benefit from including some contrast groups to make the differences more explicit (e.g., strangers' appraisals).

## Clinical implications

In the following, the clinical implications of our research findings are discussed in more detail. Our results indicate that interactions with family members play a crucial role in the adjustment of patients with chronic pain. That is, patients who have family strain tend to focus more negatively on their pain and thus experience more disability (Chapter 2). As patients' psychological adjustment appears to be amenable to the family's functioning, both patients and family members should be targeted in interventions aiming to reduce patients' disability. Interventions should integrate an intrapersonal and interpersonal perspective, which acknowledges that multiple aspects of family life (i.e., communication, problem-solving, and division of labor) contribute to the patient's pain experience. Based on the results of the current thesis, clinicians should be aware that changes in the family environment resulting from pain (e.g., caregiving demands) impact caregivers' well-being. Particularly, our results indicate that when dealing with the challenging role of caregiving, partners are prone to shape maladaptive cognitions regarding the consequences of a patient's pain condition, such as the notion that the patient's pain controls their life, which in turn deteriorate their psychological well-being (Chapter 3). Given that patients might also develop such maladaptive cognitions about the consequences of pain, couple-based interventions focusing on improving communication among couples are encouraged to educate couples to identify such negative thoughts and replace them with more adaptive ones (e.g., learning to accept the limitations imposed by the patient's pain).

Apart from the interactions among family members, the results of this thesis inform us about the processes underlying the interaction between patients and partners, particularly the motives/meanings underlying pain behaviors and partner responses (Chapters 4 & 5). The present data indicate that the motives

underlying patients' and partners' behaviors are diverse. Therefore, clinicians are advised not to consider patients' pain behaviors as inherently maladaptive and avoid categorizing specific partner responses based on their content (e.g., solicitous versus punishing responses). Instead, whether or not a particular pain behavior is adaptive needs to be determined for each couple. Similarly, patient's and partners' interpretations of a partner response determine whether that response is rewarding or punishing regardless of the content of that response. The results of this thesis suggest that patients and partners are likely to misinterpret the intended message of each other's behaviors. In order to avoid such misinterpretations and plausible negative interactions resulting from them, patients and partners need to receive guidance on how to engage in constructive mutual communications, where they are able to explicitly communicate the motives underlying their behaviors. Encouraging such clear communication among couples increases patients' chance of receiving the support they desire (e.g., for Nick, the need to be listened to, see Figure 1, chapter 1) and prevents partners from responding negatively to the patients (e.g., Nina blaming Nick for his pain behaviors as illustrated in Figure 1, chapter 1). Another critical issue is that patients and partners might share similar but maladaptive views about the intended message of each other's behaviors. For instance, both patients and partners may agree that protective behaviors are functional as they prevent worsening the pain condition. Yet, this shared belief is dysfunctional as it is related to fear-avoidance beliefs and detrimental to patients' well-being (Chapter 4). Therefore, another target for the interventions should be identifying and restructuring shared but maladaptive views/cognitions.

### **General conclusion**

In conclusion, this thesis emphasizes the important role of the broader social context (i.e., family functioning) in augmenting pain catastrophizing, thereby playing a role in patients' disability. This finding confirms the role of biopsychosocial perspective in understanding the effects of pain on patients. This study particularly indicates that the impact of emotions and cognitions upon pain-related disability, which was previously addressed in fear-avoidance models, can be better understood when patients' social context (e.g., family functioning) is considered. Second, this thesis sheds light on the

associations between partners' cognitions about patients' condition, caregiving responsibilities, and partners' well-being. Third, this thesis elucidates the cognitive processes underlying the interaction between patients and partners and underscores the importance of considering patients' and partners' interpretations of each other's behaviors. In particular, the findings of this thesis inform the current models of pain (e.g., the operant models) in terms of diverse motives underlying patients' and partners' behaviors.



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