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# Caregiving demands and caregivers' psychological outcomes: the mediating role of perceived injustice

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## Abstract

**Objectives:** This study hypothesized that higher caregiving demands are related to higher perceived injustice. Furthermore, this study investigated the mediating role of perceived injustice in the link between caregiving demands and caregivers' psychological well-being.

**Design:** A cross-sectional design.

**Setting:** The Pain Centre of the university medical centre.

**Subjects:** Participants were 184 family caregivers of patients with chronic musculoskeletal pain.

**Main measures:** Participants completed questionnaires that assessed caregiving demands (i.e. The Dutch Objective Burden Inventory), perceived injustice (i.e. The Injustice Experience Questionnaire), how much they considered different sources responsible for the injustice they experienced (i.e. A newly developed inventory), perceived burden (i.e. The Zarit Burden Interview), distress (i.e. The Depression, Anxiety, and Stress Scale), and anger (i.e. The Hostility subscale of the Symptom Checklist-90-Revised).

**Results:** The findings showed that caregiving demands are significantly related to perceived injustice in family caregivers ( $r = .44$ ;  $P < .001$ ). Only a small group of family caregivers considered the patient or themselves responsible, but more than half of the caregivers considered healthcare providers at least somewhat responsible for the unjust situation. Finally, perceived injustice mediated the association between caregiving demands and burden ( $b = .11$ , CI: .04-.23) and distress ( $b = .05$ , CI: .006-.12), but not anger ( $b = .008$ , CI: -.01-.06).

**Conclusion:** The findings suggest that perceived injustice plays an important role in the well-being of family caregivers and caregivers' well-being may be improved by changing their perceptions about their caregiving tasks and their condition.

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Injustice, family caregivers, demands, distress, chronic pain

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## Introduction

In addition to emotional and physical suffering, patients with chronic pain may experience various losses, such as losing their job, savings, efficiency, and even their independence.<sup>1</sup> Experiencing pain-related losses and suffering, for which patients may often blame others, contributes to the perception of injustice.<sup>2,3</sup> This perception has been recently introduced as one of the determinants of the psychological well-being of patients with chronic pain. Specifically, research among patients with pain has shown that perceived injustice is related to higher burden, distress, and anger,<sup>2,4,5</sup> and to lower perceptions of control over life and less pain acceptance.<sup>3</sup>

Chronic pain not only has a considerable impact on the lives of patients, but also on the lives of family caregivers.<sup>6,7</sup> To fulfil caregiving responsibilities, family caregivers often need to tolerate significant changes and losses in their lives as well, including quitting their jobs and reducing social activities.<sup>8-10</sup> Given the potential losses and suffering resulting from caregiving responsibilities, family caregivers might consider their situation as unfair. In addition, since caregiving responsibilities are often imposed on family caregivers, they might have the tendency to blame others for their situation. Hence, higher caregiving responsibilities and demands may be related to more losses, a greater sense of unfairness, and the tendency to blame others. In other words, it is likely that perceived injustice can be observed not only in patients but in family caregivers as well.

Furthermore, studies have shown that family caregivers who have more caregiving responsibilities reported lower levels of psychological well-being, i.e. higher burden,<sup>11</sup> distress,<sup>12,13</sup> and anger.<sup>14,15</sup> As we argued that higher caregiving demands might be associated with perceptions of injustice, and studies among other groups (e.g. patients with pain) have shown that perceived

injustice is associated with more negative psychological outcomes, such as higher depression, anxiety, and anger,<sup>2,5,16,17</sup> it seems logical to consider perceived injustice as a mediator in the link between caregiving demands and family caregivers' psychological well-being. Finally, different sources might be considered responsible for the perceived injustice. For example, family caregivers might believe that their situation results from the negligence of doctors who failed to treat pain adequately, or they might blame the patient for not taking good care of themselves. Yet, it is not clear which sources family caregivers consider to be responsible most often for their caregiving situation.

In sum, this study hypothesizes that caregiving demands and perceived injustice are positively correlated. In addition, we expect family caregivers who perceive more injustice to report more burden, distress, and anger than family caregivers who perceive less injustice. Next, this study will examine the proposed mediating effect of perceived injustice in the association between caregiving demands and psychological well-being in family caregivers (i.e. burden, distress, and anger). Finally, the sources of perceived injustice among family caregivers will be investigated.

## Method

### Procedure

The data were collected from November 2014 until June 2015. Family caregivers of patients with musculoskeletal chronic pain (i.e. pain that lasts more than 12 weeks) who were referred to the Pain Centre of the University Medical Centre Groningen (Groningen, the Netherlands) were invited to participate in the study. The inclusion criteria for the participants were being a family caregiver of a

patient with chronic pain, being over 18 years of age, and having sufficient literacy to complete the questionnaires. In the first three months of the data collection two research assistants were responsible for recruiting the participants at the Pain Centre. The Pain Centre provided a private room for two days per week where research assistants could personally invite those family caregivers who accompanied patients to the Pain Centre to participate in the study. We checked if they indeed considered themselves as family caregivers. In the case that patients arrived at the Pain Centre alone, the researchers approached the patients and asked them to invite their family caregivers (i.e. a family member that they considered as their caregiver) to participate in the study. In both situations, the researcher provided an information letter for the family caregiver, a consent form, a questionnaire, and a pre-stamped envelope. Since research assistants were only allowed to be in the Pain Centre two days per week, they could not approach all the patients of the Pain Centre. Therefore, from February 2015 till June 2015, envelopes containing the same materials as described above were sent directly to the home addresses of the patients who had an appointment at the Pain Centre in February and April 2015. An accompanying letter for the patient explained the study and asked the patients to hand out the questionnaire to the person who they considered as their family caregiver.

The study (Code: M14.159557) was reported to the Research Registry of the University Medical Centre Groningen; the Medical Ethical committee of the University waived institutional research board approval. The study has been conducted in compliance with the APA ethical principles regarding research with human participants.

### Measures

First, family caregivers were asked to provide information about their age, gender, marital status, their occupation, their relationship with their family member with pain and whether they were living in the same house. In addition, family caregivers provided some demographic information about their family members with pain,

including patients' age, gender, and location of pain. Furthermore, family caregivers were asked to report their perception of the current health level of their family member with pain (0 = The worst imaginable health condition to 10 = The best imaginable health condition) and the current pain intensity of their family member with pain (0 = No pain at all to 10 = The most intensive pain) on a visual analogue scale. Next, participants completed a number of questionnaires. For all multi-item scales, item scores were averaged into a single index for the particular variable.

**Caregiving demands.** The 38-item Dutch Objective Burden Inventory<sup>18</sup> was used to measure the family caregivers' care activities in the past three months, including personal care (e.g. helping with eating and drinking), practical care (e.g. buying groceries), motivational care (e.g. motivating to quit or reduce smoking), and emotional care (e.g. showing understanding). A higher average score (ranging from 1 to 3) indicates more caregiving demands.

**Perceived injustice.** Family caregivers' perceptions of injustice were measured by an adapted version of the Injustice Experience Questionnaire.<sup>2</sup> We used the authorized version of this scale that was formally translated into Dutch at the University Medical Centre Groningen.<sup>19</sup> This 12-item scale assesses different elements of injustice: severity and irreparability of loss (e.g. "My life will never be the same"), and blaming others and sense of unfairness (e.g. "it all seems so unfair"). In this study, participants were asked to consider their situation as a family caregiver of an individual with chronic pain and then answer to each statement in the questionnaire (0 = Never to 4 = All the time). When necessary, the wording of the items was changed (e.g. "Most people don't understand how severe my condition is" was changed to "Most people don't understand how severe my situation is").

**Burden.** The 12-item version of the Zarit Burden Interview<sup>20</sup> was used to assess family caregivers' burden. An example item is "Do you feel that your social life has suffered because you are caring for your relative?" (0 = Never to 4 = Nearly Always).

**Distress.** To assess distress, participants were asked to complete the 21-item version of the Depression, Anxiety, and Stress Scale.<sup>21</sup> Examples are “I couldn’t seem to experience any positive feeling at all”, “I was worried about situations in which I might panic and make a fool of myself”, and “I found it hard to wind down” (1 = Never to 3 = Always).

**Anger.** Family caregivers’ anger was measured by the Hostility subscale of the Symptom Checklist-90-Revised.<sup>22</sup> This subscale has 6 items (e.g. “Feeling easily annoyed or irritated”) that were answered on a scale ranging from 1 (Not all) to 5 (Extremely). All psychological well-being variables referred to the past week.

**Sources of injustice.** Family caregivers were asked to indicate how much they consider different sources, i.e. the patient, themselves, health care providers, and others (e.g. other family members, the patients’ employer or any other person who may have caused the pain) responsible for the injustice that they perceive. Family caregivers were asked to rate the amount of responsibility for each source on a visual analogue scale ranging from 0 (Not at all) to 10 (Completely responsible).

### Statistical plan

The links between caregiving demands, perceived injustice, and psychological well-being (i.e. burden, distress, anger) were assessed by Pearson product-moment correlations. The demographic variables that showed a significant correlation with the main variables in each mediation model were controlled in the analyses.

To test the mediating role of a defined mediator (i.e. perceived injustice) in the relationship between an independent variable (i.e. caregiving demands) and dependent variables (i.e. burden, distress, and anger) the model 4 in the PROCESS computation tool (a SPSS macro)<sup>23</sup> was used. The total effect of an independent variable on a dependent variable is shown by weight *c* and consists of the direct effect of an independent variable on a dependent variable (weight *c'*) plus the indirect effect of an independent variable on a dependent variable through a

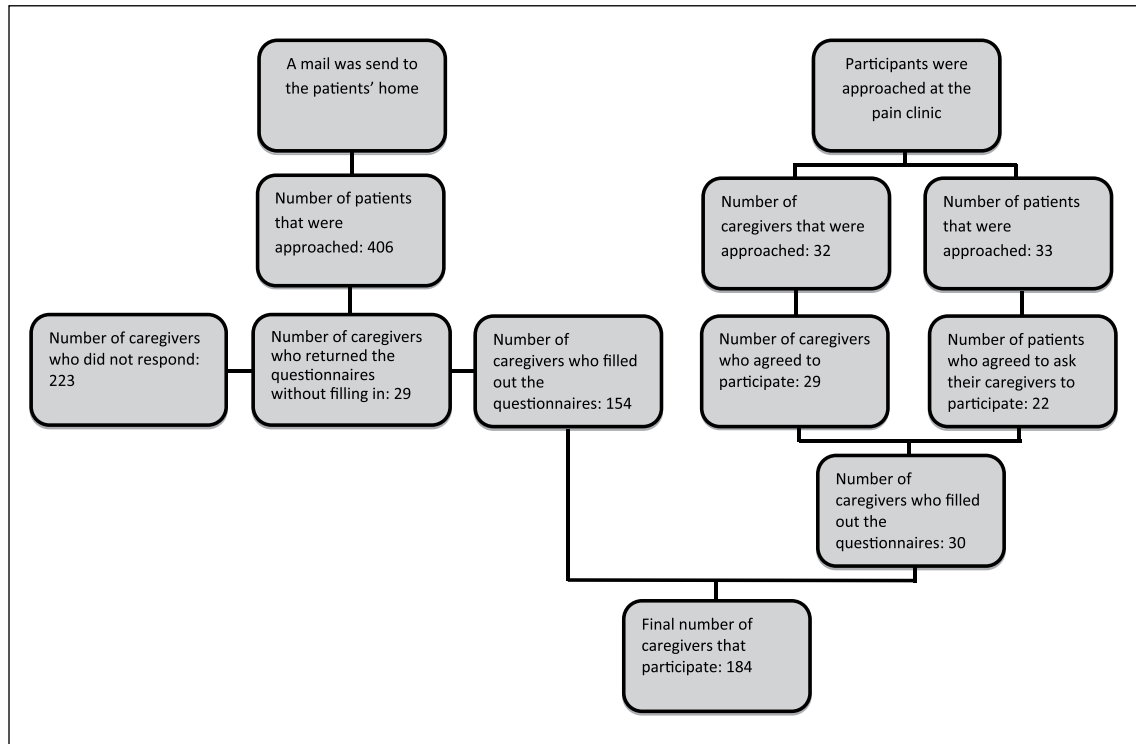
defined mediator (weight *ab*). The effect of an independent variable on a defined mediator is presented by weight *a*. Finally, weight *b* represents the effect of a defined mediator on a dependent variable while excluding the effect of an independent variable. In the mediation analyses, following Preacher and Hayes,<sup>24</sup> we used a bootstrap test (with 5000 resamples) to assess the significance of the indirect effect.

To investigate how frequently family caregivers select a source of perceived injustice, we dichotomized the four visual analogue scales. A “0” meant that family caregivers did not consider that source to be responsible for the perception of injustice, selecting a score between 1-10 indicated that family caregivers considered that source to be responsible for the perception of injustice at least to some degree. In addition, to study the difference in the level of perceived injustice between family caregivers who considered a source responsible and the ones who did not, separate independent t-tests were conducted for each source.

## Results

### Descriptive information and correlations

Figure 1 shows the flow of participants in the current study. The final sample consisted of 184 family caregivers of patients with chronic pain. The mean age of the family caregivers was 60.23 (SD = 13.88) years, 53% of the family caregivers were male ( $n = 97$ ) and married (81.8%;  $n = 148$ ). Most family caregivers were retired (30.8%;  $n = 56$ ) or had a full time (28.6%;  $n = 52$ ) or part time job (17.6%;  $n = 32$ ). In more than two thirds of the cases, family caregivers were the spouses of patients (81.8%;  $n = 148$ ) and living with the patients (84.5%;  $n = 153$ ). The family caregivers were taking care of patients who were on average 61.67 (SD = 13.66) years old. In addition, based on family caregivers’ reports, 76 (42.2%) patients were male and 104 (57.8%) were female. Sixty-one (34.1%) patients had pain in more than one location, 16.8% ( $n = 30$ ) had back pain, 10.1% ( $n = 18$ ) had pain in legs and knees, 8.9% ( $n = 16$ ) experienced pain in shoulder and neck, and 30.2%



**Figure 1.** The flowchart of participants.

**Table 1.** Means (SDs) and Cronbach Alphas of the variables and correlations among all the variables in the model.

Main variables in the study <sup>a</sup>	Mean (SD)	Cronbach's Alpha	1	2	3	4
1. Caregiving demand	1.55 (.29)	.90	1			
2. Injustice	1.16 (.85)	.90	.44**	1		
3. Burden	0.77 (.65)	.89	.60**	.58**	1	
4. Distress	0.36 (.44)	.94	.44**	.55**	.66**	1
5. Anger	1.18 (.31)	.79	.26**	.40**	.50**	.64**

<sup>a</sup>Caregiving demands was assessed by the Dutch Objective Burden Inventory; Injustice was assessed by the Injustice Experience Questionnaire; Burden was assessed by the Zarit Burden Interview; Distress was assessed by the Depression, Anxiety, and Stress Scale; Anger was assessed by the Hostility subscale of the Symptom Checklist-90-Revised.

\* $P < .05$ ; \*\*  $P < .01$ .

( $n = 54$ ) had pain in other locations. The average health level of patients assessed with the visual analogue scale based on family caregivers' perception was 4.96 (SD = 1.60) and the average score of pain intensity measured with the visual analogue scale for pain intensity based on family caregivers' perception was 6.13 (SD = 2.10). Table

1 presents the means (SDs) and the Cronbach alphas of the variables, and the correlations between the main variables in the study.

No association was found between demographic variables (i.e. family caregivers' and patients' age, family caregivers' and patients' gender) and the main variables in the study. The variables measuring

psychological well-being (i.e. burden, distress, and anger) were correlated. Therefore, we controlled for these variables in the mediation analyses in which they were not the outcome variable. Importantly, a significant positive correlation was found between the Dutch Objective Burden Inventory and the Injustice Experience Questionnaire.

### *Investigating the mediating role of perceived injustice in the link between family caregivers' demands and family caregivers' psychological well-being*

**Burden as an outcome.** The results presented in Table 2 showed that the total effect of caregiving demands on burden (i.e. weight  $c$ ) and the direct effect of caregiving demands on burden were significant (i.e. weight  $c'$ ). Finally, the indirect effect (i.e. weight  $a*b$ ) was significant, indicating the mediating role of perceived injustice on the link between caregiving demands and burden.

**Distress as an outcome.** The analysis revealed that the total effect of caregiving demands on distress (i.e. weight  $c$ ) and the direct effect of caregiving demands on distress did not reach statistical significance (i.e. weight  $c'$ ). The indirect effect was significant (i.e. weight  $a*b$ ), indicating a mediating effect of perceived injustice on the link between caregiving demands and distress (see, Table 2).

**Anger as an outcome.** The total effect of caregiving demands on anger (i.e. weight  $c$ ), and the direct effect (i.e. weight  $c'$ ) did not reach statistical significance. Importantly, the indirect effect was also not significant (i.e. weight  $a*b$ ), showing no significant mediating effect of perceived injustice (see, Table 2).

### *Investigating the sources of perceived injustice among family caregivers*

In total, 106 (62%) family caregivers blamed at least one source for their situation. Sixty-five (38%) family caregivers did not consider anyone to be responsible. The separate investigation of each

source showed that 48 family caregivers (28.6%) out of 168 participants held their family member in pain at least to some extent responsible for their caregiving situation. However, 91 family caregivers (53.5%) out of 170 participants considered doctors and health care providers responsible for their situation. Finally,  $t$ -tests showed that family caregivers who considered someone responsible had significantly higher perceptions of injustice than family caregivers who did not consider anyone to be responsible ( $P$ -values  $< .01$ ). Table 3 presents the results of the frequency analyses and  $t$ -tests.

## **Discussion**

This study examined the perception of injustice in family caregivers of patients with musculoskeletal chronic pain. Although, on average, our findings showed relatively low levels of perceived injustice in family caregivers, those who performed more caregiving tasks were more likely to report such perceived injustice. Furthermore, our findings revealed that 62% of the family caregivers held at least one source to some extent responsible for their situation. Of note, despite the low level of perceived injustice among family caregivers, the results showed that perceived injustice was significantly related to more burden, distress, and anger, supporting the role of perceived injustice in the psychological well-being of family caregivers. As hypothesized, perceived injustice mediated the relationship between caregiving demands and psychological well-being (i.e. burden and distress, but not anger). Finally, only a minority held the patient or themselves responsible, but more than half of the family caregivers held doctors and care providers at least to some degree responsible for the caregiving situation.

The average score of perceived injustice among family caregivers of patients with chronic pain may be seen as relatively low (mean = 1.16). However, it is not much below the range of means reported in studies that investigated perceived injustice among patients with chronic pain. Specifically, previous studies reported scores ranging from 1.3 to 2.5.<sup>3,25</sup> As we did not assess patients' perceptions of injustice in the current

**Table 2.** Results of the mediation analyses.

	Outcome of each step <sup>a</sup>	Predictors	Coefficient	SE	t	P-value	95% LL CI	95% UL CI
Mediation analysis with burden as an outcome variable	Injustice	Caregiving demands (Weight a)	0.77	0.19	3.93	<.001	0.38	1.15
		Distress	0.71	0.16	4.33	<.001	0.38	1.03
		Anger	0.26	0.21	1.26	.20	-0.14	0.68
Burden	Injustice (Weight b)	Caregiving demands (Weight c')	0.14	0.04	3.07	.002	0.05	0.24
		Distress	0.79	0.12	6.21	<.001	0.54	1.04
		Anger	0.45	0.10	4.24	<.001	0.24	0.67
Burden	Caregiving demands (Weight c)	Anger	0.28	0.13	2.16	.03	0.02	0.55
		Distress	0.91	0.12	7.24	<.001	0.66	1.15
		Anger	0.56	0.10	5.37	<.001	0.35	0.76
Mediation analysis with distress as an outcome variable	Injustice	Anger	0.32	0.13	2.41	.01	0.06	0.59
		Indirect effect (a*b)	0.11	0.04*	-	-	0.04**	0.23**
		Caregiving demands (Weight a)	0.51	0.22	2.33	.02	0.07	0.95
Distress	Burden	Anger	0.49	0.11	4.44	<.001	0.27	0.71
		Anger	0.45	0.18	2.40	.01	0.08	0.82
		Injustice (Weight b)	0.09	0.03	2.93	.003	0.03	0.16
Distress	Anger	Caregiving demands (Weight c')	0.09	0.09	1.00	.31	-0.09	0.28
		Burden	0.21	0.05	4.24	<.001	0.11	0.31
		Anger	0.54	0.08	6.75	<.001	0.38	0.70
Mediation analysis with anger as an outcome variable	Injustice	Caregiving demands (Weight c)	0.14	0.09	1.51	.13	-0.04	0.33
		Burden	0.25	0.04	5.37	<.001	0.16	0.35
		Anger	0.59	0.08	7.25	<.001	0.43	0.75
Anger	Indirect effect (a*b)	Indirect effect (a*b)	0.05	0.02*	-	-	0.006**	0.12**
		Caregiving demands (Weight a)	0.42	0.21	1.95	.05	-0.003	0.85
		Burden	0.37	0.11	3.26	.001	0.14	0.60
Anger	Distress	Distress	.56	0.15	3.76	<.001	0.27	0.86
		Injustice (Weight b)	.02	0.02	.71	.47	-0.03	0.07
		Caregiving demands (Weight c')	-.13	0.08	-1.70	.09	-0.29	0.02
Anger	Burden	Burden	.09	0.04	2.16	.03	0.008	0.18
		Distress	.38	0.05	6.75	<.001	0.27	0.50
		Caregiving demands (Weight c)	-.12	0.08	-1.61	.10	-0.28	0.02
Anger	Distress	Burden	.10	0.04	2.41	.01	0.01	0.18
		Distress	.40	0.05	7.25	<.001	0.29	0.51
		Indirect effect (a*b)	.008	0.01*	-	-	-0.01**	0.06**

<sup>a</sup>Caregiving demands was assessed by the Dutch Objective Burden Inventory; Injustice was assessed by the Injustice Experience Questionnaire; Burden was assessed by the Zarit Burden interview; Distress was assessed by the Depression, Anxiety, and Stress Scale; Anger was assessed by the Hostility subscale of the Symptom Checklist-90-Revised.

\*Bootstrapped SE with 5000 resamples; \*\* Bias corrected bootstrapped confidence interval with 5000 resamples.



**Table 3.** Results of the comparison between those who held a source responsible and who did not hold a source responsible.

Source of injustice	Degree of responsibility for each source <sup>a</sup>	Frequency	Percentage	Means of Perceived injustice (SDs)	t	P-value
Family member with chronic pain	Not at all	120	71.4%	1.04 (.86)	-3.01	.003
	Between 1-10	48	28.6%	1.47 (.70)		
Caregivers themselves	Not at all	129	76.3%	1.03 (.84)	-3.80	< .001
	Between 1-10	40	23.7%	1.59 (.70)		
Doctors, nurses, and other health care providers	Not at all	79	46.5%	0.94 (.75)	-3.00	.003
	Between 1-10	91	53.5%	1.31 (.84)		
Others (e.g., patients' employers, other family members)	Not at all	121	72%	1.00 (.76)	-4.62	< .001
	Between 1-10	47	28%	1.64 (.86)		

<sup>a</sup>Caregivers were asked to rate the amount of responsibility for each source on a VAS ranging from 0 (Not at all) to 10 (Completely) responsible.

study, we cannot compare the level of perceived injustice within caregiver-patient dyads. In addition, the low level of perceived injustice might point out the existence of a group of family caregivers that used various adaptive coping techniques, such as problem-focus strategies, acceptance, and seeking social support that resulted in perceiving lower levels of injustice. In addition, they might have given a positive meaning to their caregiving experience and therefore did not perceive much injustice and unfairness. We did not include any measure to assess family caregivers' coping strategies but it might be an interesting avenue for future studies. Furthermore, although we did not test this, it might be that perceptions of injustice are more frequent in other illness contexts, such as the context of dementia. For example, it is not unlikely that caregivers of patients with dementia experience higher levels of injustice than caregivers of patients with chronic pain because they do have more caregiving responsibilities.

In line with our hypothesis, the findings showed that higher levels of caregiving demands are related to higher levels of perceived injustice. Demanding caregiving tasks may increase family caregivers' beliefs that they do not have time for themselves and instead have to spend their time on attending to the needs of their family members

with chronic illness.<sup>11</sup> Therefore, family caregivers who perform more tasks and responsibilities are more likely to report losses and unnecessary suffering in their life, to consider their condition as unfair and to blame other individuals for their unjust situation. As we emphasized, the perception of losses and suffering is one of the main elements of perceived injustice. While the findings indicated that family caregivers who performed more tasks perceived more injustice, the domains in which family caregivers experience losses and suffering are yet to be explored.

Furthermore, we investigated family caregivers' perceptions about who they consider responsible for their situation as a family caregiver. First, the results showed that family caregivers who did hold someone responsible, regardless of the type of the source, reported higher levels of perceived injustice. Second, more than half of the family caregivers held doctors and health care providers responsible, at least to some degree. This was not the case for other sources. For example, while 28.6% of the family caregivers held the patients responsible for their situation, 71.4% of the family caregivers did not hold the patients responsible at all. We did not inquire about the reasons for holding a source responsible and the consequences of holding a specific source responsible. Knowing such reasons and consequences could help us to

provide effective interventions for reducing perceptions of injustice and the negative consequences that blaming an individual might cause. For example, family caregivers who blame doctors because they believe doctors did not provide proper treatment might not comply with the requests of doctors and may also discourage their family members with illness from following the recommendations of the doctors. Future studies need to explore family caregivers' reasons for and the consequences of blaming each source.

In addition, the current study showed that the relationship between caregiving demands and family caregivers' psychological well-being, which has previously been demonstrated in other studies (e.g.<sup>11-13</sup>) is mediated by perceived injustice. This means that higher levels of caregiving demands are associated with more perceived injustice in family caregivers, which in turn is related to family caregivers' lower psychological well-being. The findings of studies on family caregivers' resentment and forgiveness appear to be in line with the current findings. For instance, Cheng and colleagues<sup>26</sup> showed that severe behavioural problems, which might increase caregiving demands among patients, reduced family caregivers' ability to forgive patients (or maybe increase family caregivers' tendency to blame patients). In turn, family caregivers' lower level of forgiveness was found to be related to a lower level of psychological well-being in family caregivers. Therefore, forgiveness may play an important role in increasing the psychological well-being in family caregivers who perceive higher levels of injustice. In addition, some studies with non-caregiver populations have proposed that acceptance-based interventions can decrease individuals' focus on losses and unfairness.<sup>27,28</sup> It is also suggested that helping individuals to give a positive meaning to their suffering may reduce the perception of injustice.<sup>29,30</sup>

Despite significant associations among caregiving demands, family caregivers' perceptions of injustice, and anger, we failed to show a mediating role of perceived injustice in the link between demands and anger, while controlling for burden and distress. It appears that burden and distress are more important in predicting anger than perceived injustice.

The findings of the current study need to be considered keeping several limitations in mind. First, the cross-sectional nature of data limits our ability to infer causal relationships. Furthermore, we did not include any measure assessing the quality of relationship between family caregivers and their family member with pain. It is not unlikely that family caregivers, who have better relationship with their family member with pain, perceive less injustice and find more positive meaning in providing care for their family members with pain even if caregiving demands are high. In addition, to investigate the sources of injustice, we provided a list of sources for the participants including patients, family caregivers themselves, healthcare providers and others. When family caregivers chose "others", we did not ask them to provide detailed information about who these "others" were. It would be interesting to provide the opportunity to family caregivers to name other individuals or organizations that they consider responsible. It is likely that we did not include all potential sources and missed relevant information about the other sources that family caregivers often blame for their situation. Finally, we only have information about the family caregivers who completed the questionnaires. Considering the relatively low level of perceived injustice in our participants, it might be that those family caregivers with higher perceived injustice and resentment confronted with more caregiving demands did not accept to participate in the study. However, the findings of one recent study suggest that this might not be the case as they showed that informal caregivers with more demands were more inclined to participate.<sup>31</sup>

Despite these limitations, the findings have important clinical implications. First, the relationship between performing more caregiving tasks, higher perceptions of injustice, and lower levels of psychological well-being, might suggest that higher levels of pressure on family caregivers can endanger their health and consequently their ability to provide support to their family members in pain. Therefore, it is highly important to evaluate the number of tasks that are carried out by family caregivers and to assess their perceptions about

performing these tasks to avoid potential burden on family caregivers. Second, we showed that the performance of more caregiving tasks has a significant correlation with lower psychological well-being in family caregivers. This may indicate a higher need for support in these family caregivers. Health care providers should evaluate family caregivers' psychological well-being regularly and be aware of their needs for support. Third, measuring the sources of perceived injustice showed that a considerable number of family caregivers blame doctors and health care providers for their unjust condition. This can disturb the alliance between family caregivers and health care providers, which may be a serious barrier in patients' treatment. Hence, doctors and health care providers should be aware that family caregivers of patients with chronic pain might consider them as one of the main sources of perceived injustice. Blaming health care providers might be simply caused by differences in perceptions and expectations between family caregivers and health care providers regarding optimal outcomes of medical treatments. If so, it is important to correct any misunderstandings and to facilitate direct and clear communication between health care providers and family caregivers.

#### Clinical messages

- Family caregivers who perceive their condition as unjust have lower levels of psychological well-being.
- A considerable number of family caregivers consider doctors and health care providers as the source of perceived injustice.

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