Struggling With Adversities of Life

The Role of Forgiveness in Patients Suffering from Fibromyalgia

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Objectives: We compared the magnitude and direction of associations between forgiveness and pain, mental and physical health, quality of life, and anger in a sample of fibromyalgia syndrome (FM) participants and healthy controls. In addition, we compared FM and controls on mean levels of these variables.

Materials and Methods: A total of 173 individuals with FM and 81 controls completed this study. FM participants and controls were residents of Germany recruited with the support of the German Fibromyalgia Patient Association and several self-help groups. FM participants and controls were about 53 years of age, mostly married (70%), Christians (81%), with levels of education ranging from 9 to 13 + years. All participants completed assessments of forgiveness, pain, health, quality of life, and anger.

Results: Analyses revealed that FM participants reported higher pain and anger and poorer health and quality of life. FM participants also reported lower levels of both forgiveness of self and others. Size and direction of associations of forgiveness with pain, health, quality of life, and anger in were not significantly different between healthy individuals and individuals with FM.

Discussion: Forgiveness of self and others is beneficially associated with pain, health, quality of life, and anger in FM participants at levels that are of similar size and direction as in healthy controls. However, FM participants manifest lower levels of forgiveness of self and others. Therapeutic promotion of forgiveness as a psychosocial coping strategy may help patients with FM to better manage psychological and physical symptoms, thereby enhancing well-being.

Key Words: fibromyalgia, anger, forgiveness, chronic pain, coping, stress

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Fibromyalgia (FM) is a common and chronic syndrome of unknown etiology characterized by diffuse pain, increased tenderness to palpation and additional symptoms (eg, disturbed sleep, fatigue, and psychological distress)[1] resulting in major effects on function, health, work status, and quality of life[2–4] as well as high rates of health care utilization.[5]

It has been proposed that FM is a complex, multi-dimensional disorder with both biomedical and psychosocial-behavioral dimensions.[6] Past research has shown that these 2 dimensions are relatively independent in different chronic pain syndromes, suggesting the importance of considering heterogeneity of patients in each of the dimensions when planning treatment.[7] Turk et al[8] have suggested, for example, that psychological characteristics may be important factors in the identification of FM patients who are more or less likely to benefit from an interdisciplinary intervention and in the customization of treatment plans for individual patients.

There is growing evidence that FM is a stress-related syndrome. Studies in FM have generally demonstrated altered functioning of the hypothalamic-pituitary-adrenal axis and autonomic nervous system.[9,10] However, studies have revealed both hypoactivity and hyperactivity of the hypothalamic-pituitary-adrenal axis and the autonomic nervous system in FM, and often the degree of abnormality is small or occurs in a subgroup of patients with substantial overlap between patients and controls. Some researchers have proposed that FM can in fact be viewed as a failed attempt of our complex adaptive system to accommodate to a perceived hostile external environment. FM is, in this view, a disease in which distress is transformed into pain through sympathetic nervous system hyperactivity.[10]

The results noted above are corroborated by FM patients' reports of symptom exacerbation when they are exposed to physical (eg, acute infections, physical overload) or psychosocial stressors (eg, bullying at work place, conflicts with partner). This notion has recently been endorsed by Fischer et al[11] who showed that higher stress at a given measurement time point (ie, cortisol and α-amylase in saliva samples) was associated with higher reported pain levels at a subsequent timepoint. As well, it is well-established that negative emotions such as anger or hostility have detrimental effects on health.[12]

Psychotherapeutic strategies for pain, including Acceptance and Commitment Therapy and various other cognitive-behavioral therapies, aim to reduce negative

emotions and stress resulting from pain catastrophizing, fear avoidance behaviors, and other maladaptive thoughts that contribute to disabling aspects of chronic pain.[13–15] Psychotherapy also aims to promote active coping strategies like pain acceptance, physical activity, and structured relaxation.[16,17] Forgiveness might be a component of the larger part of the positive, health promoting thoughts, feelings, and behaviors encouraged by these types of therapies and could be considered an important target of therapy.[18,19] Indeed, the process of forgiveness is consistent with and can be readily incorporated into acceptance-based treatment modalities, such as Acceptance and Commitment Therapy, Dialectical Behavior Therapy, and mindfulness-based cognitive therapy.[20] Moreover, some specific methods for facilitating forgiveness as a direct focus of therapy, including stand-alone forgiveness interventions have already been developed and have sound evidence of effectiveness.[21]

Forgiveness is a multidimensional construct[22] that can be directed toward oneself or others and is considered both a state and a trait. Trait forgiveness is often of greater interest in studies of health and well-being because it is thought to have its influence across time and situations and consequently has greater impact than a momentary state experience.[23] In healthy populations, forgiveness has been linked to a variety of indicators of psychological well-being including less anger, lower depression, and lower anxiety.[24] Forgiveness has been associated with decreased sympathetic arousal, increased parasympathetic tone, and improved physical health and longevity.[25–27] At present, only 2 known studies have examined forgiveness in pain patients. The first study examined a diverse sample of pain patients with various causes, locations, and durations of pain.[28] Results showed that pain patients' average levels of forgiveness of self and others did not differ from a healthy sample, and forgiveness was related to less time in pain, less pain intensity and interference, and better mental health. The second study examined forgiveness in a sample of chronic low back pain patients and showed that forgiveness was related to less pain, anger, and psychological distress.[29] The salutogenic associations with pain, health, and anger are potentially due to the coping benefits of forgiveness[30] that impact the stress-disease connection.[31] Dealing with adversities of life through forgiveness may be especially useful for individuals with FM who are interpersonally distressed[6,32] as forgiveness applies well to inter-relational challenges in multiple life-domains that patients commonly struggle with.[33]

Forgiveness and pain, mental and physical health, quality of life, and anger have not been previously examined simultaneously in FM patients compared with controls, and this was the goal of the current study. On the basis of the above review of the literature, we hypothesized that, compared with controls, individuals with FM would show higher pain, anxiety, depression, and anger, lower levels of health and quality of life, and equal levels of forgiveness of self and others. Because FM is a stressful condition and forgiveness has been proposed to be useful for managing the stresses of FM,[32,34] it was hypothesized that the beneficial associations of forgiveness with pain, health, quality of life, and anger outcomes that have been demonstrated in other pain patients and healthy populations would extend to with FM. Hence, beneficial associations of forgiveness with pain, health, quality of life, and anger should not be different for controls versus individuals FM.

MATERIALS AND METHODS

Patients and Controls

In total 320 questionnaire sets were sent out to several FM self-help groups that were recruited with the support of the German Fibromyalgia Patient Association. A total of 173 individuals with (response rate = 54%) filled out the set. The group leaders were contacted by the first author (M.O.) and were then sent the participant materials including the questionnaires, an information letter regarding the study objectives, and a consent form. Group leaders were asked to distribute the materials and to collect and return them when completed. Pain-free controls (N = 81) were a German convenience sample of volunteers without FM that completed the questionnaire set. Controls were recruited using similar snowball sampling methods to reach individuals of a variety of ages. Initial surveys were delivered to students who then delivered surveys to people they knew.

Measures

Forgiveness of Self and Others

The forgiveness of self and others scales, originally developed by Mauger et al,[35] consist of 30 items. They are designed to assess general tendencies toward a forgiving disposition with regard to both oneself (eg, "I feel guilty because I do not do what I should for my loved ones") and others (eg, "It is hard for me to forgive those who hurt me"). Forgiveness of self is measured with 15 items, and forgiveness of others is measured with 15 items. Each item is responded on a 1 (strongly disagree) to 5 (strongly agree) response scale. Both scale scores range from 15 to 60 and possess acceptable reliability and good construct validity.[35] Higher scores indicate higher forgiveness. Because there is no German version of the forgiveness scales, a back-forward translation from English according to scientific guidelines was performed.[36] Mauger's original psychometric analyses were replicated to evaluate the translated German instrument. Mauger reported internal consistency of English forgiveness of self and others scales to be 0.82 and 0.79, respectively, and the present study estimates from the German scales were 0.88 and 0.81, respectively. Mauger reported correlations of forgiveness of self and others with age, sex, and education that ranged between −0.06 and −0.21, and present study estimates similarly ranged between 0.09 and −0.21. Translation to German appears to have not affected the integrity of the scales and psychometric estimates are similar or better than the original English version.

Pain

Duration of symptoms in years, and current and past (last 3 month) pain levels, were measured on a numerical rating scale from 0 (no pain) to 10 (extreme pain). Pain severity (range, 0 to 120) and distribution (range, 0 to 24) were assessed with the regional pain scale.[37] Higher scores indicate higher levels of pain.

Hospital Anxiety and Depression Scale

The Hospital Anxiety and Depression Scale (HADS) is a brief (14-item) self-report questionnaire measuring anxiety and depression.[38] It was developed for use in general medical out-patient clinics but is now widely used in clinical practice and research. The HADS have good reliability and construct validity.[39] Responses are based on the relative

frequency of symptoms over the past week, using a 4-point Likert scale ranging from 0 (not at all) to 3 (very often). The total score for each of the depression and anxiety scales can range from 0 to 21 and higher scores indicate higher depression and anxiety.

Quality of Life Scale

The Quality of Life Scale is a 16-item questionnaire designed specifically for use in chronic disease patients including patients with FM.[40] Items assess various aspects of life such as physical and material well-being, relationships with other people, social, community, and civic activities, personal development and fulfillment, recreation, and independence. Satisfactory construct validity has been shown for the German version in a sample of FM patients.[41] The items are scaled from 1 to 7 and aggregated into a sum score where a higher score indicates higher quality of life (possible sum score range, 16 to 112).

Short Form 12

The Short Form 12 is a multidimensional general measurement instrument assessing health-related quality of life. It has become widely used in clinical trials and as a standard outcome assessment instrument because of its brevity and psychometric performance.[42] Both mental and physical health composite scores were used in this study ranging from 0 to 100 with higher scores indicating better mental and physical health.

State-Trait Anger Inventory-II

The State-Trait Anger Inventory-II (STAI-II) is one of the most widely used measures of anger.[43] It contains 5 subscales measuring: (1) state anger (raw score range, 10 to 40), (2) trait anger (10 to 40), (3) anger-in (holding in or suppressing) (8 to 32), (4) anger-out (expressing anger toward other people or objects in environment) (8 to 32), and (5) anger-control (controlling retention or expression of anger) (8 to 32). The STAXI-II contains 57 items responded to on a 1 (almost never) to 4 (almost always) response scale with higher scores indicating higher levels of anger.

Sociodemographics

Age, education, religion, sex and marital status were assessed. Two questions concerning the degree of religiosity (How religious are you?) and spirituality (How spiritual are you?) were included. The latter were measured with an 11-point rating scale (0 = not religious/spiritual at all to 10 = extremely religious/spiritual).

Statistical Analysis

One-way multivariate analyses of covariance were used to examine FM participant versus control differences on all health and well-being outcome variables while holding constant the effects of age, marital status, education, religiosity, and spirituality. Subsequent univariate 1-way analyses of covariance were computed on each separate outcome. Wilk λ and F statistics are reported for the multivariate test and F is reported for the univariate tests. Partial η^2 (η_p^2) is reported as the effect size for both multivariate and univariate tests. Partial correlations (r_p) controlling sociodemographic and religious/spiritual variables, are reported for associations between forgiveness and health and well-being outcomes and to determine if the healthy associations expected to be present in control participants extended to FM participants. Differences between FM patients and controls in the magnitude of partial correlations were assessed using Cohen Z test for differences between independent correlation coefficients.[44] Missing data were imputed using expectation maximization methods. Before imputation, missing data were determined to be missing at random. Missing values on any given variable were not related to missing values on any other variable (average $r = 0.11$). Results remain substantively unchanged in original and imputed datasets. Statistical significance was set at $P < 0.05$.

RESULTS

Sociodemographic Analyses

FM participants and controls did not differ in terms of religious affiliation (ie, mostly Christian) or sex (ie, mostly female) (Table 1). Patients were about 12 years older, less

TABLE 1. Sociodemographic Summary Statistics for Individuals With Fibromyalgia Patients and Controls

	FM	Controls	F/χ^2	P
Age (y)*	58 (8.8)	47 (14.2)	57.76	< 0.001
Sex (female/male)†	161/9	76/5	0.09	0.78
Religion†			5.96	0.11
Christian	138	65		
Muslim	1	4		
Other	1	0		
No religion	30	12		
Marital status†			14.26	< 0.01
Married/with partner	130	59		
Single	8	8		
Widowed/divorced	32	11		
Education (y)†			68.76	< 0.001
9 or less	74	7		
10 or 11	65	23		
12 or more	16	44		
Advanced	12	5		
How religious are you?*	4.9 (2.7)	4.1 (2.7)	5.29	0.02
How spiritual are you?*	3.8 (2.8)	3.0 (2.8)	4.72	0.03

*Mean (SD) and F test.
†N and χ^2 test.

likely to be single and living alone, more likely to have been widowed, less educated, and more religious and spiritual.

Main Analyses

As hypothesized, there was a large difference between FM participants and controls on the overall multivariate composite of pain, anxiety, depression, anger, health, and quality of life ($\lambda = 0.19$, $F_{14,234} = 69.28$, $P < 0.001$, $\eta_p^2 = 0.81$). Not as hypothesized, there was a moderate difference between FM patients and controls on the overall multivariate composite of forgiveness of oneself and others ($\lambda = 0.92$, $F_{2,246} = 10.90$, $P < 0.001$, $\eta_p^2 = 0.08$). Examining the univariate tests (Table 2) revealed that the largest differences between FM participants and controls were on pain and physical health followed by mental health and quality of life. Differences on anger and forgiveness were smaller but statistically significant. Differences on anger out and anger control were not statistically significant.

Partial correlations (r_p) between forgiveness and all outcomes are presented in Table 3. Associations between forgiveness of self and severity and number of regions of pain approached statistical significance ($p_s < 0.10$) for both FM participants and controls. Statistically significant correlations between forgiveness of self and mental health, quality of life, and anger ranged between -0.23 and -0.56 for FM participants and between -0.45 and -0.62 for controls (Table 3). Statistically significant correlations between forgiveness of others and mental health, quality of life, and anger ranged between -0.19 and -0.48 for FM participants and between -0.21 and -0.55 for controls. Magnitude of associations of forgiveness of self and others with all outcomes did not differ significantly ($Z_s < 1.96$, $p_s > 0.05$) between FM participants and controls.

DISCUSSION

This is the first study, to our knowledge, to compare levels of forgiveness of oneself and others between individuals with FM and controls. It is also the first time that the associations between forgiveness and pain, health,

quality of life, and anger have been examined and directly compared between individuals with FM and controls to examine the robustness of potentially beneficial associations between forgiveness and these outcomes.

Confirming prior research, individuals with FM showed significantly higher levels of pain, anxiety, depression, and anger, and lower levels of health and quality of life, as compared with controls.[1–5] A new finding though was small to moderate and statistically significant differences between individuals with FM and controls on forgiveness. FM participants showed lower levels of forgiveness of oneself and others compared with controls. Given the number of interpersonal stressors and challenges that individuals with FM face,[32] it is important to consider that lower forgiveness may be an important point of intervention for coping with these experiences. Most associations between forgiveness of self and others with anxiety, depression, anger, health, and quality of life were statistically significant, in the predicted direction, of moderate size, and consistent in direction and magnitude with much previous research in pain patients and healthy populations.[28,29,45] Associations between forgiveness of self and pain severity and number of pain regions approached statistical significance and remain clinically significant issues to address. There were no differences between FM participants and controls in the magnitude of associations suggesting that potentially beneficial associations of forgiveness with these outcomes is equally available to individuals with FM as the healthy.

As compared with forgiveness of others, associations between forgiveness of self and pain, anxiety, depression, anger, health, and quality of life were stronger in both FM participants and controls. This is consistent with previous research[46,47] in healthy populations and may reflect the especially difficult and chronic nature of not forgiving oneself. In essence, when an individual is considered one's own offender, it may be very difficult to escape lingering feelings of guilt, shame, and remorse and this may be associated with poor health and well-being.[48] Because one cannot escape oneself as an offender this might be a constant reminder of wrongdoing that stimulates continued guilt, shame, and

TABLE 2. Means and SE for Individuals With Fibromyalgia and Controls on Pain, Mental and Physical Health, Quality of Life, Anger, and Forgiveness

	Controls		FM			
	M	**SE**	**M**	**SE**	**F**	η_p^2
Pain today	0.69	0.20	6.10	0.13	449.33***	0.65
Pain severity (last 3 mo)	0.90	0.20	6.78	0.13	518.49***	0.68
Regional pain scale—severity	2.33	1.21	31.84	0.77	364.08***	0.60
Regional pain scale—number of regions	1.58	0.44	14.18	0.28	501.50***	0.67
HADS Anxiety	5.05	0.52	10.47	0.34	65.36***	0.21
HADS Depression	2.90	0.45	9.31	0.29	121.60***	0.33
Quality of life	89.13	2.02	66.06	1.29	79.44***	0.24
Short Form 12 physical health	54.50	0.80	30.14	0.51	572.15***	0.70
Short Form 12 mental health	50.77	1.09	35.71	0.70	116.00***	0.32
STAXI state anger	11.74	0.75	15.29	0.48	13.71***	0.06
STAXI trait anger	19.50	0.66	21.59	0.42	6.06*	0.02
STAXI anger-in	15.42	0.62	20.38	0.40	38.88***	0.14
STAXI anger-out	13.57	0.50	13.41	0.32	0.06	0.00
STAXI anger-control	23.08	0.54	22.28	0.34	1.38	0.01
Forgiveness of others	41.58	1.14	38.33	0.73	5.00*	0.02
Forgiveness of self	44.61	1.38	36.52	0.88	21.13***	0.08

*$P < 0.05$.
***$P < 0.001$.
HADS indicates Hospital Anxiety and Depression Scale; STAXI, State Trait Anger Inventory.

TABLE 3. Partial Correlations of Self and Other Forgiveness With Pain, Mental and Physical Health, Quality of Life, and Anger

	Forgive Others			Forgive Self		
	Controls r_p	FM r_p	Z	Controls r_p	FM r_p	Z
Pain today	0.15	−0.05	−1.37	−0.16	0.03	1.37
Pain severity (last 3 mo)	0.02	−0.04	−0.39	−0.17	−0.06	0.76
Regional pain scale—severity	−0.06	0.06	0.85	−0.19 +	−0.14 +	0.41
Regional pain scale—number of regions	−0.02	0.05	0.46	−0.21 +	−0.14 +	0.47
HADS Anxiety	−0.16	−0.19**	−0.23	−0.60***	−0.56***	0.43
HADS Depression	−0.21 +	−0.21**	0.01	−0.62***	−0.42***	1.88
Quality of life	0.30**	0.28***	−0.15	0.54***	0.41***	−1.19
Short Form 12 physical health	−0.14	−0.02	0.82	0.03	0.05	0.15
Short Form 12 mental health	0.30**	0.10	−1.49	0.56***	0.39***	−1.57
STAXI state anger	−0.39***	−0.22**	1.29	−0.49***	−0.28***	1.75
STAXI trait anger	−0.55***	−0.48***	0.73	−0.48***	−0.39***	0.80
STAXI anger-in	−0.27*	−0.28***	−0.08	−0.49***	−0.51***	−0.14
STAXI anger-out	−0.45***	−0.31***	1.14	−0.45***	−0.23**	1.74
STAXI anger-control	0.32**	0.21**	−0.87	0.18	−0.05	−1.61

Age, education, marital status, religiosity, and spirituality are controlled in all analyses. Z test for the significance of the difference between fibromyalgia syndrome patients and controls on correlations of forgiveness and outcomes.

+ $P < 0.10$.
*$P < 0.05$.
**$P < 0.01$.
***$P < 0.001$.

HADS indicates Hospital Anxiety and Depression Scale; STIX1, State Trait Anger Inventory.

remorse that may become a self-focused ruminative style. Self-forgiveness may, more so than forgiveness of others, offer the relief needed most from perfectionistic[49] and self-critical and uncompassionate tendencies.[50,51]

Individuals with FM exhibited significantly lower forgiveness of others and self, compared with controls. Recently the role of forgiveness in chronic pain and FM[33] has been comprehensively reviewed and several identified biographical incidents and life domains where (the lack of) forgiveness could potentially play a role in FM groups has been discussed including, to name only a few, family, workplace, social situations, and medical interactions. This list, however, provides only a brief mention of some of the most obvious places where forgiveness might offer helpful relief for individuals with FM, and other domains certainly exist (eg, sociocultural stigma).

Knowing that forgiveness is lower in individuals with FM, and yet, that its potential for benefiting pain, health, and quality of life is equally strong for individuals with FM as for healthy controls, invites the question of how to promote forgiveness in FM. Unfortunately, limited attention has been devoted to designing FM-specific programs for enhancing forgiveness as part of a means of ensuring good mental health and quality of life in these individuals. Two small scale studies[34,52] suggest that forgiveness promotion can be systematically delivered and well-received by FM patients and that these patients can enjoy and benefit (eg mental health) from the experience. More extensive forgiveness education research is required to fully address this issue to provide evidence-based programs to support the development of this coping skill in patients. Perhaps evidence-based forgiveness psychoeducational programs that have been repeatedly proven to be beneficial in healthy populations[53,54] will be adopted and more regularly used in both clinical treatment and research with FM patients. Similarly, focused clinical and research efforts incorporating the process of forgiveness into conceptually related treatments (eg, acceptance-based modalities)[20] will likely prove useful. These methods, whether stand-alone or conceptually-related interventions, offer

effective techniques for facilitating empathy, compassion, altruism, and commitment, which are in and of themselves likely to be helpful to FM patients, but all the more so to the extent that these experiences promote forgiveness and its health benefits. Given the growing evidence that forgiveness is connected to health,[15,22,31] promoting forgiveness in individuals with FM may offer new avenues for encouraging healthy adjustment and health.

As with all observational studies, the present investigation has some limitations. First, our measurements are based on self-reports and response bias (ie, faking good) is a possibility. Second, as an observational study, causal inferences cannot be made but can only be suggested or theorized. Third, this is a self-selected sample from only one region of the world. Last, forgiveness may reflect other positive coping strategies (eg, problem-focused coping) and our analyses do not control these variables.

To conclude, forgiving oneself and others is one aspect of psychosocial care in FM that could potentially be used to help promote enhanced mental health and quality of life and reduced anger. The present findings indicate that individuals with FM report lower forgiveness of self and others than healthy controls, and yet, the beneficial associations of forgiveness with mental health, quality of life, and anger are equally strong in individuals with FM as in healthy controls. Our findings may have clinical implications; bolstering forgiveness levels in FM patients may result in improvements in other areas of healthy functioning for FM patients. Although future randomized controlled studies will have to bear out cause and effect relationships, this initial work provides the first known evidence that forgiveness is lower in individuals with FM patients and that beneficial associations with pain, health, and quality of life are present and not diminished by FM. Continued attention to building psychosocial resources for coping with FM will bring greater attention to protective mechanisms such as forgiveness that hold potential to ameliorate symptoms of pain and psychological distress and improve quality of life.

ACKNOWLEDGMENT

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