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SHORT REPORT

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Predictors of forgiveness in cancer patients after treatment

BACKGROUND
The aim of the present study was to investigate the level of forgiveness in the context of emotional experience and existential aspects of the life of cancer patients after treatment.

PARTICIPANTS AND PROCEDURE
One hundred and twenty-eight cancer patients aged 22-83 years completed methods administered to measure forgiveness (Heartland Forgiveness Scale), hope (Adult Dispositional Hope Scale), positive and negative affect (Positive and Negative Affect Schedule), anxiety (General Anxiety Disorder-7), depression (Patient Health Questionnaire-9), and gratitude (Gratitude Questionnaire GQ-6) and questions measuring the perceived importance of the spiritual aspect of life and the practice of religious faith.

RESULTS
Levels of forgiveness were related to levels of hope, gratitude, positive and negative affect, depression, anxiety, and rating of the importance of the spiritual aspect of life. Using a regression model, the rate of forgiveness was significantly predicted by gratitude and anxiety.

CONCLUSIONS
It was concluded that gratitude and anxiety could explain 35.4% of the variance in forgiveness.

KEY WORDS
spirituality; gratitude; emotional experience; forgiveness; cancer patients after treatment

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AUTHORS' CONTRIBUTIONS – A: Study design · B: Data collection · C: Statistical analysis · D: Data interpretation · E: Manuscript preparation · F: Literature search · G: Funds collection

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BACKGROUND

Cancer patients are confronted with different types of hurt at every stage of the disease (diagnosis, treatment, survivorship, recurrence, terminal stage). Alongside the "battle" with a life-threatening disease comes a reflection on their life so far, which for many reveals past grievances. Cancer patients receive support from their loved ones, but they can also face negative reactions from those around them, namely rejection, avoidance or cutting ties. These reactions cause even more pain. Anger at the disease or "fate" are quite common as well. Through interviews with cervical cancer patients, Shinan-Altman et al. (2022) identified persistent self-blame in 11 of 15 participants. The experience of self-blame was mainly centered on neglect of health care and loss of intimacy in the relationship with their partner. However, we find it encouraging that the authors also identified self-forgiveness in the remaining patients, which contributed to managing the disease in a positive way and gave them the strength to move on with their lives. We appreciate the importance of forgiveness in the lives of cancer patients and, relatedly, the need to explore it in this population.

Everyone has their own idea of what they themselves, other people, and the world they live in should be like. If these ideas are distorted, they perceive these situations as injustice or hurt. The reactions then manifest themselves on three levels, namely cognitive, emotional, and behavioral. Forgiveness is an intrapsychic process that involves reframing how the hurt person perceives the injustice, by changing negative reactions (negative thoughts, feelings, behaviors) into positive or at least neutral ones. Our focus is on forgiveness as a predisposition, i.e. a tendency and willingness to forgive. Our thoughts, feelings, and motivations define how we respond to injury or the transgressor, for example, negative or empathic response, overlooking attempts, vengefulness, or rumination about the hurtful experience (Thompson et al., 2005; Worthington, 2005). This way of responding to transgression reflects how we usually deal with forgiveness (Worthington, 2005), and how we manage and resolve conflicts and injuries, which can be intrapersonal, interpersonal, and stemming from a situation beyond our control (Thompson et al., 2005).

Instruments that measure forgiveness and forgiving are primarily focused on others or self. Forgiving others relates to an action one considers wrong and hurtful, yet they are eventually able to overcome the disappointment, stop thinking badly of the offender and wanting to punish them, start seeing them as a good person in the first place, and show forbearance and understanding toward them. Forgiving oneself helps to leave behind negative feelings towards our own self, alleviates self-criticism, facilitates acceptance, letting go, and finding understanding towards oneself, if one makes a mistake or does something judged to be wrong (Thompson et al., 2005). In the context of examining the experience of people whose lives have been disrupted by cancer, we see it as meaningful to extend the construct under investigation to include forgiveness towards situations. Situational forgiveness represents coping with circumstances that are beyond one's control. This includes, for example, natural disasters, an illness, or a genetic predisposition. In the process of forgiveness, one comes to understand, accept, and embrace these situations, and is able to let go of negative thoughts and overcome disappointment. According to Kaleta and Mróz (2022), forgiving in a situation that is beyond one's control is more difficult for women than men.

In the present study, we examined forgiveness primarily in the context of cognitive characteristics and emotional experience. We focused on hope, which is defined as the ability to have a strong enough will and motivation to achieve a desired goal (agency), and the ability to find a way to achieve it (pathway) (Snyder, 2000). The personality predisposition to gratitude represents the ability to be aware of the benefits received and the good things that happen, and subsequently to experience and express gratitude (McCullough et al., 2002). Both gratitude (Toussaint & Friedman, 2008) and hope (Thompson et al., 2005) have been associated with higher levels of forgiveness. Mróz and Kaleta (2017) concur that positive disposition and hope are significant predictors of forgiveness. We also focused on the relationship between forgiveness, spiritual life and religious practice in cancer patients after treatment. The existence and strength of this relationship are related to the importance one places on spiritual life (Worthington & Jiménez Robles, 2022) and religious faith (van Laarhoven et al., 2011).

Cancer patients continue to experience symptoms of depression and anxiety long after treatment (Fardell et al., 2023). Forgiveness is related to lower levels of depressive experience, anxiety and anger (Seki-Öz, 2022; Thompson et al., 2005; Záhorcová & Dočkal, 2022). Research by Kaleta and Mróz (Kaleta & Mróz, 2022; Mróz & Kaleta, 2017) has supported the potential for a relationship between forgiveness, negative affect and anxiety. Conversely, higher levels of forgiveness are associated with higher levels of well-being, experiencing happiness (Toussaint & Friedman, 2008; Záhorcová & Dočkal, 2022), and positive affect (Kaleta & Mróz, 2022; Mróz & Kaleta, 2017).

Forgiveness within psycho-oncology has been predominantly investigated in palliative care patients (e.g., Renz et al., 2020), but empirical investigation in the post-treatment population is relatively rare. The aim of the present study was to explore the level of forgiveness of cancer patients after treatment in the context of gratitude, hope, positive and

negative emotions, anxiety, and depression, as well as the importance of the spiritual aspect of life and the practice of religious faith. Seki-Öz (2022) found that younger people find it more difficult to forgive. Romero et al. (2006), who focused on breast cancer patients, did not find an association with age. Following these background findings, we also included the association of forgiveness with patients' age in our analyses.

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

The study involved 200 post-treatment cancer patients. Clients of helping organizations, members of self-help groups, as well as post-treatment patients undergoing treatment in selected spa facilities in Slovakia were approached with the request to participate in the research. Part of the data collection took place via an online questionnaire. Out of this number, 139 participants completed the questionnaire battery in full. The size of the research sample was set at 136 participants with a priori power analysis taking into account the number of predictors, the power of the test at the .90 level, the expected minimum mean effect size (f^2 = .15), and the level of statistical significance (p = .05). Since only 11 men participated in the research, to homogenize the sample, we only processed data from female oncology patients (N = 128).

Patients aged 22-83 years (M = 53.98, SD = 11.54) participated in the research. The length of time since treatment completion ranged from 1 to 396 months (median [Mdn] = 14.00; interquartile range [IQR] = 28.50). Breast cancer patients formed the majority of the cohort (71.1%, n = 101). Patients with skin, lymph node, colon, ovarian, renal, cervical, bone, thyroid, head and neck cancer, leukemia, or other oncological diagnosis were represented in smaller numbers. A history of comorbidity of two or three oncological diagnoses was present in 12 participants. Recurrence was reported by 9.4% (n = 12) of participants.

MEASURES

The Heartland Forgiveness Scale (Thompson et al., 2005) measures levels of overall dispositional forgiveness (ω = .82), as well as forgiveness on three dimensions: forgiveness of self (ω = .70), forgiveness of other people (ω = .71), and forgiveness of situations or events beyond one's control, including serious illness (ω = .65). The questionnaire contains 18 items with a 7-point response scale. A score of 18 to 54 indicates that one is usually unforgiving of oneself, others, and uncontrollable situations. A score of 55 to 89 indicates that one is about as likely to forgive as not forgive, and a score of 90 to 126 indicates that one is usually forgiving of oneself, others, and uncontrollable situations.

The Adult Dispositional Hope Scale (Snyder et al., 1991) contains 12 statements with a 4-point Likert scale (ω = .81). It measures hope as a cognitive characteristic, and individual items reflect goal-oriented thinking and behavior (goal pathway). The importance of the spiritual aspect of life and the practice of religious faith was measured by two separate items with a 7-point Likert scale (ranging from *don't agree at all* to *strongly agree*).

Emotional experience over the past two weeks was measured using the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). The questionnaire contains 20 adjectives that are descriptors of positive (ω = .90) and negative (ω = .90) emotional experience. Negative experience was further measured by two unidimensional questionnaires. The General Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006) questionnaire allows for the assessment of the degree and severity of symptoms associated with long-standing anxiety or nervousness. The participants record the frequency of experiencing seven anxiety symptoms over the past two weeks. We measured depression severity using the 9 items of the Patient Health Questionnaire-9 (PHQ-9, Kroenke et al., 2001), which reflect core symptoms of depression. McDonald's ω values were satisfactory (ω = .90 for GAD-7 and ω = .88 for PHQ-9). Participants also completed the Gratitude Questionnaire (GQ-6; McCullough et al., 2002), a scale designed to measure "dispositional gratitude", or the general tendency to respond with the emotion of gratitude to other people's benevolence and kindness (ω = .79).

DATA ANALYSIS

Spearman's rank correlation coefficient was the indicator of the strength of the relationship between the scores from each questionnaire. We performed the comparative analysis using the t-test. Cohen's d was used as an indicator of effect size.

Multivariate analysis of our measures was conducted through hierarchical regression analysis with forgiveness as the dependent variable. We calculated the coefficient of determination to establish the percentage of variability explained by the relationship with the predictors in the model. Cohen's f^2 was used as a measure of effect size. Standardized residuals were evaluated prior to conducting the regression analysis. Cook's distance was used to find influential outliers in a set of predictor variables. The presence of multicollinearity was detected through correlation analysis and calculation of the variance inflation factor (VIF). In this paper, we present the reliability estimate expressed by the McDonald's ω coefficient.

ETHICAL ASPECTS OF THE RESEARCH

The research was conducted within the grant task GA/3/2019 Predictors of Post-Traumatic Growth in Cancer Survivors, which was approved by the Ethics Committee of the Pan-European University. The study was performed in accordance with the ethical standards as set forth in the 1965 Declaration of Helsinki and its later amendments. Participants were provided with information about the aim of the research and the essentials of their participation.

RESULTS

Participants scored an average value of M = 82.18 (SD = 14.35) on the forgiveness scale. The most frequently occurring category was the group of post-treatment cancer patients who are likely to forgive themselves, others, and uncontrollable situations in various contexts (75.00%). We can assume the usual tendency to forgive for the thirty participants (23.40%) with the highest score. For two participants, the obtained score indicates a tendency not to forgive. Levels of forgiveness on each scale were as follows: forgiving self M = 25.38 (SD = 5.95), forgiving others M = 28.53 (SD = 6.25), and forgiving the situation M = 28.27 (SD = 5.96).

The relationship between the rate of forgiveness and age was not significant (r_s = .06, p = .546). We did not find a difference in the level of forgiveness between the patients with a primary diagnosis of breast cancer (M = 81.41, SD = 13.96) and another oncological diagnosis (M = 85.07, SD = 15.59) ($t(126)$ = −1.12, p = .240, d = .26).

The empirical range for the spiritual aspect of life scores was 1-7 (M = 5.40, SD = 1.99). The average rating for the importance of practicing religious faith was M = 4.06 (SD = 2.36). The presence of anxiety symptoms could be observed in approximately half of the participants: 35.20% of the participants were found to have mild anxiety, 8.60% moderate anxiety, and 6.30% severe anxiety. The distribution in terms of severity of depression symptoms was as follows: 35.90% minimal depression, 35.90% light depression, 16.40% mild depression, 6.30% moderate depression, and 5.50% severe depression. The basic descriptive statistics and correlation coefficient values are presented in Table 1. Forgiveness was weakly to moderately correlated with the measures investigated, except for the importance of practicing religious faith, which was not significantly correlated with forgiveness.

We excluded seven outliers in the dependent variable (forgiveness) from the set before performing the regression analysis. Analysis of standard residuals was conducted and showed that the data contained no outliers (std. residual min = −2.03, std. residual max = 2.54). In addition, we also examined Cook's distance (max = .05). The assumption of normality of the distribution for the dependent variable was not significantly violated, with the shape coefficients taking the following values: skewness = .51 and kurtosis = .05. The presence of multicollinearity was detected through correlation analysis. The importance of practicing religious faith correlated very weakly with forgiveness (r_s = −.01, p = .929), so the variable was not included in the regression analysis. The strength of the relationship between measures of negative emotion and anxiety (r_s = .74, p < .001) and between anxiety and depression (r_s = .72, p < .001)

Table 1

Means, standard deviations, medians, and correlations for major study variables

	M	*SD*	*Mdn*	1	2	3	4	5	6	7	8
1. Forgiveness	82.18	14.35	79.50								
2. Spiritual aspect of life	5.40	1.99	7.00	.26**							
3. Practice of religious faith	4.06	2.36	4.00	−.01	.64**						
4. Hope	23.10	3.32	23.00	.33**	.09	−.10					
5. Gratitude	33.20	6.10	34.00	.41**	.45**	.16	.22*				
6. Positive emotions	29.78	8.17	29.00	.27**	.03	−.10	.48**	.16			
7. Negative emotions	19.03	7.49	18.00	−.28**	.09	.12	−.34**	−.05	−.37**		
8. Anxiety	5.61	4.67	4.50	−.46**	.05	.09	−.40**	−.19*	−.44**	.74**	
9. Depression	7.52	5.60	7.00	−.30**	.09	.14	−.44**	−.16	−.50**	.59**	.72**

Note. *p < .05, **p < .01.

Table 2

Hierarchical regression results for forgiveness

	β	*t*	*p*	*F*	R^2 (ΔR^2)
Step 1					
The importance of the spiritual aspect of life	.22	2.51	.013	10.13***	.15
Hope	.30	3.46	.001		
Step 2					
The importance of the spiritual aspect of life	.09	0.99	.321	8.85***	.35 (Δ = .20)
Hope	.14	1.57	.120		
Positive emotions	−.04	−0.39	.696		
Negative emotions	.23	1.79	.076		
Anxiety	−.66	−4.19	< .001		
Depression	.13	0.99	.326		
Gratitude	.22	2.54	.013		

Note. ***$p < .001$.

were at the borderline of acceptability. Tests to determine whether the data met the assumption of collinearity indicated that multicollinearity was not a concern. The VIF factor for each variable ranged from 1.01 to 4.38.

In the first step, cognitive characteristics were included as predictors in the analysis. The model explained 14.7% of the variance in forgiveness ($F(2, 118) = 10.13$, $p < .001$, $R^2 = .15$, adjusted $R^2 = .13$, $f^2 = .17$). The importance of the spiritual aspect of life (β = .22, $t(120) = 2.51$, $p = .013$) and the level of hope (β = .30, $t(120) = 3.46$, $p = .001$) were significant predictors of forgiveness. After adding emotional experience, the model explained 35.4% of the variance in the data ($F(7, 113) = 8.85$, $p < .001$, $R^2 = .35$, adjusted $R^2 = .31$, $f^2 = .55$). Cognitive characteristics remained as non-significant predictors. In the final model, the rate of forgiveness was significantly predicted by gratitude (β = .22, $t(120) = 2.54$, $p = .013$) and anxiety (β = −.66, $t(120) = -4.19$, $p < .001$). The results of the regression analysis are presented in Table 2.

DISCUSSION AND CONCLUSIONS

Forgiveness and working to forgive has been of interest to psychologists but is gradually coming to the attention of physicians and other helping professions as part of psycho-oncological care, and is an effective non-pharmacological means of managing cancer treatment (Kotouček et al., 2021a). The aim of this study was to approach the concept of forgiveness in the context of psychological variables (hope, gratitude, positive and negative emotions, depressive experience, and anxiety), the importance of the spiritual aspect of life, the importance of practicing religious faith, and age.

Research conducted in non-clinical populations suggests that younger people find it more difficult to forgive (Seki-Öz, 2022). We find it interesting that in the present research, we did not find an association with age, similar to Romero et al. (2006). The discrepancy with the currently available findings may be a consequence of the different composition of the research sample (participants at a younger age were not sufficiently represented in the research sample).

According to our findings, forgiveness was related to hope, gratitude, and positive emotions. We thus found support for previous research findings conducted primarily in non-clinical populations (e.g., Thompson et al., 2005; Toussaint & Friedman, 2008). However, we cannot determine the direction of this relationship based on the findings from the cross-sectional research. In our research, we considered positive emotions as a possible predictor of forgiveness. We assumed that dispositional and more stable characteristics such as hope and gratitude might increase willingness to forgive. Following the Broaden-and-Build theory, we also assumed that experiencing positive emotions helps to expand an individual's repertoire of thinking and behavior and thus allows building and broadening his personal resources. According to the mentioned theory, experiencing positive emotions enables a new view of the world, perception of new possibilities, spontaneity, and openness (Fredrickson, 2009). These characteristics can facilitate the process of forgiveness. However, we cannot rule out that positive emotions are a consequence and one of the numerous benefits of forgiveness.

Forgiveness was negatively related to anxiety, depressive symptoms, and negative emotions. The above findings suggest that the more engrossed patients are in negative experience, the more difficult it is for them to forgive. We find it important to note that almost 50% of the participants showed anxiety symptoms, and 64% of the participants presented depressive symptoms of varying severity. Anxiety, which was prominent in our participants, manifests as nervousness, tension, restlessness, worry, irritability, or fear (Spitzer et al., 2006). All of these reactions may prevent a person from being active or may even paralyze their normal functioning. This may explain the significant negative relationships between forgiveness, hope, and negative experience. If a person is largely overwhelmed by it, they might not have the energy to exercise their own strength. Forgiveness as an intrapersonal process is demanding for the person doing the forgiving (Enright & Fitzgibbons, 2015) and requires a lot of mental energy.

A moderately strong relationship between depression and forgiveness was also found by Rahmandani et al. (2022) in a university student population. Forgiveness in their research was also a mediator of the relationship between traumatic childhood experiences and depression. In future research, we consider it beneficial to verify the role of forgiveness as a mediator of the relationship between the existence and processing of a traumatic event in the form of oncological disease and the current emotional experience in the population of post-treatment oncology patients.

In the context of linking forgiveness to the teachings of all the world's religions, we find it interesting that forgiveness, according to our findings, was not related to the practice of religious faith. However, the more significant the spiritual aspect of life was for the participants, the easier it was for them to forgive. The present findings are not consistent with the findings of Romero et al. (2006), who found no association of forgiveness with spirituality. Moroń (2022) stated that people practicing religion find it easier to forgive others than themselves.

Of the variables we examined, gratitude and anxiety were significant predictors of forgiveness. As anxiety decreased and gratitude levels increased, patients were more willing to forgive themselves, others, or a situation over which they had no control. The resulting model explained 35.4% of the variance in forgiveness. Research findings suggest a stronger association of forgiveness with emotional experience, compared to hope as a cognitive characteristic, or the perceived importance of practicing religion and spirituality. The percentage of explained variance after taking into consideration the number of included predictors is relatively low; nevertheless, from the point of view of practical significance, we can consider the result to be significant.

Relationships between forgiveness and the variables we studied have been identified in different populations (e.g. Seki Öz, 2022; Toussaint & Friedman, 2008). However, we perceive the specific meaning of forgiveness for oncology patients. Patients' responses to upcoming life circumstances, their attitude to life, their mindset, and also their current positive or negative experiences are important not only for the recovery from the disease itself but also for the revealed injuries, as well as new injuries related to the disease. Almost 90% of palliative oncology patients expressed, in addition to interpersonal injuries and conflict with God or fate, injuries related to the disease itself (Renz et al., 2020). Decreasing levels of anger and anxiety (e.g. Zhao et al., 2017) or hope (e.g. Haroon et al., 2021) related to forgiving could also be beneficial for recovery from trauma.

The relationship between forgiveness and positive psychological changes after experiencing trauma in the form of posttraumatic growth was confirmed, for example, by Ye et al. (2022) and Martinčeková and Klatt (2017). According to Worthington and Jiménez Robles (2022), forgiveness has an important role in recovering from trauma, especially if it is not dependent on the person experiencing it. We therefore consider it important in future research to focus on forgiveness in relation to the positive and negative consequences stemming from surviving a traumatic event (in our case, an oncological disease).

We present and interpret the findings from the conducted research with several limitations in mind. First, there was an unequal age distribution in the research sample. The second limitation is the majority representation of breast cancer patients after treatment. These limitations do not allow us to generalize the findings to the population of all cancer patients after treatment. Determining the importance of the spiritual aspect of life and the practice of religious faith was carried out using only one question for each domain. Therefore, the present findings need to be validated using a more comprehensive instrument to evaluate spirituality, religiosity, and the meaningfulness of life in cancer patients. Another limitation of the research is the small number of variables and the failure to take into account other characteristics related to forgiveness, e.g. altruism (Naeem & Akhtar, 2016), empathy, or self-efficacy (Baghel & Pradhan, 2014).

In light of uncovering older hurts, as well as the emotional wounds that cancer patients encounter during and after treatment, we find working with forgiveness in this population to be meaningful. In this regard, we perceive a need to further explore forgiveness not only through cross-sectional quantitative and qualitative research, but also through intervention studies or case studies detailing the specific process of forgiveness in cancer patients.

Forgiveness reduces the negative emotions (especially anger) that stem from grievance (Enright

& Fitzgibbons, 2015). Reduction in anger, on the other hand, has the potential to strengthen the psycho-neuro-immune system of cancer patients (Kotouček et al., 2021b). We consider it beneficial to conduct research in multidisciplinary teams, and to complement the measurement of psychological aspects with immunological markers.

Disclosure

The authors declare no conflict of interest.

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