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Meaning in Life and Violations of Beliefs and Goals: Reciprocal Relations Among Individuals With Congestive Heart Failure

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Abstract

Background and Objectives—In the context of highly stressful experiences, violations of beliefs and goals and meaning in life may have a reciprocal relationship over time. More violations may lead to lowered meaning, whereas higher meaning may lead to lowered violations. The present study examines this relationship among congestive heart failure patients.

Design—A cross-lagged panel design was used.

Methods—CHF patients ($N = 142$) reported twice, six months apart, on their meaning in life and the extent to which CHF violates their beliefs and goals.

Results—Overall, results were consistent with a reciprocal relationship, showing that greater goal violations led to negative subsequent changes in meaning, whereas, greater meaning led to favorable subsequent changes in violations of beliefs and goals.

Conclusions—Meaning in life and violations may contribute to one another, and therefore, in understanding the adjustment process, it is important to consider their interrelationship. The results are also broadly informative regarding the experience of meaning, showing that disruption of beliefs and goals may undermine meaning.

Keywords

stress; coping; violations; meaning in life; congestive heart failure (CHF)

The violation of beliefs and goals by highly stressful events may undermine a sense of meaning in life (Park, 2010). Conversely, meaning in life may better equip individuals to deal with violations caused by highly stressful experiences. This reciprocal relationship between violations and meaning has, to date, received little empirical attention. The present study aims to address this gap by studying this relationship in the context of individuals living with a highly stressful experience, congestive heart failure (CHF).

Individuals go through life holding certain beliefs and goals (Baumeister, 1991; Koltko-Rivera, 2004). Beliefs refer to propositional statements regarding what an individual considers to be true. Goals refer to cognitive representations of desired states or endpoints. Beliefs and goals together outline for individuals how things are in the world and what is worth pursuing (Baumeister, 1991; Carver & Scheier, 1998; Koltko-Rivera, 2004). They inform people of what to expect and what to strive towards in their lives. Beliefs and goals thus structure individuals' perceptions and direct their behaviors; they add form and shape to their experiences and actions.

Beliefs and goals contribute to a sense of meaning in life (Baumeister, 1991; Carver & Scheier, 1998). Meaning in life can be defined as "the extent to which one's life is experienced as making sense, as being directed and motivated by valued goals, and as mattering in the world" (Author, 2015, p. 7). Individuals higher in meaning have a greater sense of understanding, and a clearer sense of what they are moving towards in their lives. Beliefs and goals contribute to meaning as they help people make sense of things and provide them a sense of direction and significance in their lives (Baumeister, 1991). By outlining for individuals how things are and what is worth striving for, beliefs and goals contribute to meaning in life.

The occurrence of highly stressful events may violate individuals' beliefs and goals (Carver & Scheier, 1998; Koltko-Rivera, 2004). This concept of violations is considered central in the stress and coping literature, and is, in fact, at the heart of many meaning-making models of adjustment (Park, 2010). Stressors may violate preexisting beliefs to the extent that they are discrepant or inconsistent with those beliefs. For example, being diagnosed with a serious illness or being the victim of a violent crime may violate the belief that one lives in a safe and just world (Janoff-Bulman, 1989). Stressors may similarly violate individuals' goals. People hold many explicit and implicit goals with varying levels of abstractness and concreteness (e.g., getting an A in class, being successful in life, being healthy; Carver & Scheier, 1998). Such goals may be violated by the occurrence of stressors that are discrepant with those goals and interfere with or block individuals' ability to achieve them. For example, a serious illness would be discrepant with the goal to live a long and successful life.

Both theoretical and empirical literature suggest that violations is an important concept distinct from other related concepts such as severity of the stressor or its impact on one's quality of life (Park, 2010). The violations construct refers to the experienced discrepancy between the stressor and one's beliefs and goals, which reflects a unique aspect of experience. For example, a stressor of the same severity could befall two individuals but disrupt one's beliefs to a greater extent due to more rosy beliefs held by him/her. Similarly, two individuals diagnosed with the same medical condition with similar impacts on quality of life may experience differing levels of goal violations if one individual holds goals that are more inconsistent with the effects of that particular condition (e.g., the goal to be a parent in the face of infertility). Thus, violations is a crucial concept in the context of stress and coping.

In the context of coping with stressors, violations and meaning in life may have a reciprocal relationship. Violations of beliefs and goals may undermine meaning in life. Disruptions in beliefs and goals could lower the sense of understanding and direction within individuals' lives, undermining their sense of meaning (Baumeister, 1991). The causal arrow may, however, also flow in the opposite direction. Meaning in life may be a determining factor of the extent to which violations are perceived. Individuals with higher meaning may be better equipped to manage the impact of stressors on their beliefs and goals (Authors, 2015; Frankl, 1959/2006; Krause, 2007). Their greater sense of understanding and valued goals may allow them to appraise stressors in such a way that they experience less violations (Carver & Scheier, 1998). They may be better equipped to alter their beliefs and goals such that there is less discrepancy with the stressor. In contrast, those low in meaning, may find it harder to make sense of their stressor and find goals that can be pursued in the face of the stressor. Thus, higher meaning in life may contribute to less violations.

Examining the reciprocal relationship between violations and meaning is important from both a theoretical and clinical stand point. Both of these concepts are considered crucial variables in the adjustment process with substantial effects on well-being (Park, 2010). A better understanding of the reciprocal relationship could facilitate a better understanding of when a sense of violations and meaning are increased or decreased. This could in turn provide insights into the adjustment process and inform clinical work with patients coping with stressors.

Despite the importance of the violations-meaning link, the possible reciprocal relationship between them has received scant empirical attention. Some studies have looked at trauma or stress exposure and how it impacts meaning in life. For example, meaning has been negatively related to wartime stressors exposure among veterans (Blackburn & Owens, 2015). However, such studies do not directly address how violations of beliefs or goals relates to meaning, as exposure to stressors do not equate to violations (Park, 2010). One recent study of Vietnam veterans did directly examine the relationship between violations and meaning, finding that the extent to which participants' most stressful military event violated their beliefs and goals was inversely related to their meaning (Steger et al., 2015). This study's cross-sectional nature, however, limits its illumination of the reciprocal relationship between violations and meaning.

Some health psychology literature, albeit not directly examining the reciprocal relationship between violations and meaning, has examined relationships relevant to the violations-meaning link. Health related stressors present an apt context in which to study the violations-meaning relationship as beliefs, goals, and a sense of meaning, are often disrupted in the face of illnesses (Hullmann, Robb, & Rand, 2015). A large body of research, for example, has examined how life goals are disrupted in the context of cancer (see Hullmann et al., 2015, for a review). Further, studies among testicular cancer (Hoyt, Nelson, Darabos, Marín-Chollom, & Stanton, 2016) and metastatic cancer patients (Thompson, Stanton, & Bower, 2013) have found that a better ability to adjust one's goals is related to higher levels of meaning in life.

In the present study, we aimed to extend the existing literature by directly examining the reciprocal relationship between violations and meaning in life. Specifically, we study this relationship among CHF patients. We focus on CHF patients as they face significant adversity, making them a suitable group in which to study the relationship between violations and meaning. CHF is a progressive syndrome resulting from the heart's impaired ability to maintain normal blood circulation (Whang, 2013). Symptoms of CHF include difficult and painful breathing, fluid retention and swelling of lower extremities, and weakness and fatigue. As the disease progresses, functioning and quality of life are increasingly compromised. CHF is associated with high mortality rates, with approximately 50 percent dying within five years of diagnosis (American Heart Association, 2014). As has been shown in other health populations such as cancer (Hullmann et al., 2015), CHF may pose serious violations to one's beliefs and goals. Due to the significant and progressive difficulties associated with CHF (Whang, 2013) this disease often entails increasing limitations on enjoyable life activities and increasing feelings of disability and sickness (Juenger et al., 2002). Thus, CHF likely disrupts patients' beliefs and goals and their sense of meaning.

In the present study, we utilize a cross-lagged panel design to examine the violations-meaning link. Within the cross-lagged panel design, violations and meaning are both assessed twice, six months apart. Cross-lagged panel analysis is a "classic strategy" for examining reciprocal effects between two variables (Cohen, Cohen, West, & Aiken, 2003, p. 157). The analysis involves predicting violations and meaning at the latter time points using baseline scores from both variables. The estimated cross-lagged effects convey the relationship between violations and meaning over time, after controlling for baseline levels of both variables. The cross-lagged effects test whether those with higher violations have subsequent negative changes in their meaning, and conversely, whether those with higher meaning have subsequent negative changes in their violations. Thus, the cross-lagged panel analysis could examine the existence of a reciprocal relationship between violations and meaning.

Methods

Data for the present study came from a larger study on heart failure and quality of life. Participant recruitment took place in a large cardiology practice in the greater Cincinnati, OH/Northern Kentucky region. Eligibility criteria included having diagnosed left-sided, systolic CHF of at least moderate severity per medical records; being ineligible for transplantation; speaking and reading English; being over 45 years of age; and showing no indications of psychosis or severe cognitive impairment. During office visits, patients who met eligibility criteria were approached by research staff. Those interested completed a survey packet. Six months later (Time 2), these participants were asked to complete a second survey packet. Participants were given \$10 for completing each packet.

The present analyses were only focused on those participants who had complete data on the meaning and violations variables for both time points ($N = 142$; the initial Time 1 sample consisted of 191 participants, of which 29 were lost to Time 2 follow-up). Mean age of the final sample was 68.7 ($SD = 10.13$). The sample was mostly male (65%), White (82%),

Christian (89%) and married or cohabiting (63%). Twenty two percent of the sample reported having some high school education, 37% reported having a high school diploma, and the remainder reported some college education or more. Family income distribution for the sample was as follows: less than \$10,000 (11%), between \$10,000 and \$25,000 (27%), between \$25,000 and \$50,000 (41%), above \$50,000 (17%).

Violations was assessed using the Global Meaning Violations Scale (Park, Mills, & Edmondson, 2012; Steger et al., 2015) which explicitly asks participants the extent to which their stressor has violated specific commonly held beliefs and goals. In the present study, participants were asked how much their CHF violated four beliefs regarding a “sense of being in control over your life,” “sense that God is in control,” “sense of the world being fair or just,” and the “sense that the medical profession has control of your health.” Participants were also asked how much CHF interferes with their ability to accomplish a list of 12 goals (e.g., “companionship,” “physical health,” “inner peace,” “financial security,” “achievement in career or work life”). Participants rated violation of each belief and goal from 1 (*not at all*) to 5 (*very much*). The belief items and goals items were averaged separately to arrive at a belief violations and goal violations score, with higher scores indicating greater violations. Cronbach’s alpha for the belief violations subscale was .69 (Time 1) and .67 (Time 2) and for the goal violations subscale was .89 (Time 1) and .93 (Time 2).

The Perceived Personal Meaning Scale (PPMS; Wong, 1998) was used to assess meaning in life. The PPMS contains face valid items pertaining to meaning (e.g., “At present, I find my life very meaningful”). Previous research supports the scale’s validity (Edmondson et al., 2011; Park, Malone, Suresh, Bliss, & Rosen, 2008; Wong, 1998). In the present study, three items from the PPMS were used (“feel your life as a whole has meaning,” “derive a great deal of meaning from your past,” “find your life very meaningful”). Participants rated their agreement with each item from 1 (*not at all*) to 10 (*extremely*). A total meaning score was created by averaging items. Cronbach’s alpha for the PPMS was .82 at Time 1 and .84 at Time 2.

Disease severity and physical health-related quality of life were also assessed and served as control variables in the analyses. Disease severity was assessed using an objective measure of heart functioning, ejection fraction, which was collected from participants’ medical records. Physical health-related quality of life was assessed using the Physical Component Summary score from the SF-12 Health Survey (Ware, Kosinski, & Keller, 1996). This measure asks participants to rate the extent to which their mental or physical health has limited their daily activities in the last month as well as perceptions of their health status.

Results

Prior to conducting the primary analyses, attrition analyses were conducted. Participants who participated in both time points were compared to those who were lost to Time 2 follow-up on key study variables (including violations, meaning, disease severity and quality of life) and key sociodemographic variables (including age, gender, education and race) using independent samples t-test and chi-square analysis. No significant differences were found between the two groups.

Repeated measures t-tests showed that average belief violations did not change significantly from Time 1 ($M = 1.97$, $SD = .75$) to Time 2 ($M = 1.99$, $SD = .76$), $t(140) = -.26$, $p = .80$. Average goal violations similarly showed no change from Time 1 ($M = 2.12$, $SD = .87$) to Time 2 ($M = 2.06$, $SD = .77$), $t(141) = .90$, $p = .37$. Finally, meaning remained constant as well from Time 1 ($M = 6.77$, $SD = 2.63$) to Time 2 ($M = 6.79$, $SD = 2.50$), $t(141) = -.09$, $p = .93$. Thus, as a group, participants' levels of violations or meaning were stable. Bivariate correlations between study variables can be found in Table 1. Notably, violations and meaning were interrelated cross-sectionally and longitudinally, but the magnitude of these correlations was modest. For example, at baseline, meaning was correlated with belief violations at $-.17$ ($p = .05$) and goal violations at $-.27$ ($p < .01$).

Using path analysis in Amos 21, two cross-lagged models were computed, within which the interrelationship between meaning and the two types of violations was examined separately (see Figure 1). Cross-lagged effects from the two models showed that baseline meaning negatively predicted Time 2 belief ($\beta = -.20$, $p < .01$) and goal violations ($\beta = -.17$, $p < .05$). In other words, individuals with higher baseline meaning were more likely to report lower belief and goal violations, even after controlling for their baseline belief and goal violations. Thus, higher baseline meaning predicted subsequent negative changes in violations.

Cross-lagged effects from the model that included goal violations showed that baseline goal violations negatively predicted Time 2 meaning, even after controlling for baseline meaning ($\beta = -.23$, $p < .01$). Thus, higher goal violations predicted subsequent negative changes in meaning. In contrast, the other model showed no cross-lagged effect between baseline belief violations and Time 2 meaning ($\beta = -.10$, $p = .17$). Thus, higher belief violations showed no relationship with subsequent levels of meaning, after controlling for baseline meaning.

In order to rule out confounds, the above cross-lagged models were repeated with several covariates included. Age, time since diagnosis, disease severity (i.e., ejection fraction), and physical health-related quality of life were included in the models as additional predictors of Time 2 variables. However, the results did not change substantially: Baseline meaning continued to negatively predict Time 2 belief ($\beta = -.22$, $p < .01$) and goal violations ($\beta = -.16$, $p < .05$); baseline goal violations negatively predicted Time 2 meaning ($\beta = -.20$, $p < .01$) but baseline belief violations did not ($\beta = -.04$, $p = .57$)¹.

Discussion

The present study examined if violations of beliefs and goals and a sense of meaning in life have a reciprocal relationship among CHF patients. Results supported the notions that violations may lower meaning in life, and that meaning in life may lower violations. These

¹Some exploratory analyses were conducted examining potential moderation by these covariates (age, time since diagnosis, ejection fraction, and quality of life). Interaction terms were computed between the covariates and baseline meaning and belief and goal violations and used to predict the endogenous variables. Out of the numerous moderation effects considered, there were significant interaction effects between age and ejection fraction and goal violations in predicting Time 2 meaning. Probing the moderation suggested that as age and ejection fraction increased, the effect of goal violations on meaning decreased. However, considering the number of interaction effects that were tested, inflated Type I error is a possible explanation for these significant effects, and future research should verify and replicate these possible moderations.

results have important implications for understanding the adjustment process, understanding the experience of meaning in life, and clinical work with people coping with major stressors.

Cross-lagged effects showed that those with higher baseline meaning had lower violations at Time 2, even after accounting for their violations at Time 1. In other words, those with higher meaning had subsequent negative changes in their belief and goal violations. This finding is consistent with the idea that those with higher meaning may be better suited to experience less violations in the face of major life stressors (Authors, 2015). The greater sense of understanding of one's life that is part of a sense of meaning may have allowed for more adaptive reappraisals of the illness or changes in beliefs such that perceived disruptions in one's beliefs were reduced (Frankl, 1959/2006; Krause, 2007). Similarly, the greater sense of direction and goals among those high in meaning may have allowed for better ability to adjust goals or pursue new goals thereby reducing perceptions of goal violations (Carver & Scheier, 1998).

The favorable relationship found between meaning and violations supports the notion that meaning is an important variable in the adjustment process. The central tenets of many meaning-making models of adjustment is that violations of beliefs and goals by stressors drives distress, and reducing such violations is crucial to successful coping (see Park, 2010 for a review). The present results indicate that meaning could be one factor that helps individuals reduce violations, thereby highlighting the importance of meaning in adjustment. Although some theoretical models have included meaning as a key variable in adjustment (Park, 2010; Folkman, 2008), many studies tend to only look at meaning as an outcome variable, one that reflects successful coping. The present study results, in contrast, suggest that meaning may not just reflect successful coping, but may also contribute to successful coping. Thus, the present results suggest that a view of meaning as a key variable in the adjustment process is warranted.

Cross-lagged effects also showed that those with higher baseline goal violations had lower meaning at Time 2, even after accounting for their baseline meaning. Thus, higher goal violations predicted subsequent negative changes in meaning. This finding is consistent with a view of goals as an important contributor to meaning in life (Carver & Scheier, 1998; Wrosch et al., 2003). Goals are cognitive representations of desired endpoints that energize and direct behavior, and structure perceptions and interpretations of the world (Baumeister, 1991; Carver & Scheier, 1998). Goals thus contribute to a sense of understanding and direction (i.e., meaning). The disruption of such goals could however undermine meaning.

Contrary to expectations, belief violations did not show a significant cross lagged effect on meaning. This is inconsistent with various theoretical perspectives that suggest beliefs contribute to a sense of understanding, and further, disruptions in beliefs undermine that understanding (i.e., undermine meaning; Baumeister, 1991; Koltko-Rivera, 2004). One possible reason for this inconsistency is that a type II error has occurred — that is, we have failed to find an effect that truly exists. The belief violations scale we used had some limitations such as low internal consistency and brevity, with only a limited number of global beliefs assessed. Measurement error may have increased the possibility of a type II error. It is worth noting that the estimate for the effect was in fact in the negative direction (β

$= -.10, p = .17$), and further the bivariate correlation between Time 1 belief violations and Time 2 meaning was significant ($r = -.22, p < .01$). Further research is needed before strong conclusions can be drawn regarding the effect (or lack of effect) of belief violations on meaning.

The present study has a few limitations. Meaning and violations were both assessed using self-report, which is vulnerable to numerous biases and motivational influences. Additionally, the sample demographics were rather narrow due to the nature of individuals afflicted with CHF (e.g., older men). Future research needs to examine more diverse and representative samples to assess the generalizability and replicability of current findings. The present results must also be considered in the context of the specific stressor we studied (i.e., CHF). Future research needs to examine diverse types of stressors with varying characteristics. Future research should also control for relevant confounds (e.g., stressor severity) to show that the present results are in fact attributable to violations and meaning in life and not another confounding variable. Finally, as a non-experimental study, the present study is limited in the inferences that can be drawn regarding attributing change in one variable to another. While cross-lagged panel analyses have advantages in teasing apart changes in variables and attributing them to one another (Cohen et al., 2003), to truly establish a causal relationship between meaning and violations, experimental designs are warranted.

Despite its limitations, the present study results are informative from a theoretical and clinical standpoint. To our knowledge, no prior studies have examined the reciprocal relationship between violations and meaning in life. The present study thus provides the first line of evidence that violations and meaning — two factors widely discussed as central to adjustment and well-being (Park, 2010; Steger, 2012) — may contribute to one another. When working clinically with individuals adjusting to stressors, it may be important to attend to their levels of meaning and how stressors violate their beliefs and goals. Intervening to improve meaning or violations may have subsequent positive effects on one another and on overall adjustment.

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Figure 1.

Results of cross lagged panel analyses. Outside of parentheses are the beta values and inside of parentheses are the associated p values.

Table 1

Intercorrelations Among Study Variables

	Pearson correlations				
	1	2	3	4	5
(1) Belief violations T1					
(2) Goal violations T1	.43**				
(3) Meaning T1	-.17*	-.27**			
(4) Belief violations T2	.50**	.33**	-.28**		
(5) Goal violations T2	.41**	.61**	-.32**	.55**	
(6) Meaning T2	-.22**	-.36**	.56**	-.25**	-.38**

*
p=0.05
**
p<0.01