

Spiritual Transcendence and Psychological Adjustment: The Moderating Role of Personality in Burn Patients

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Abstract The current study examined the moderating role of personality traits (neuroticism and extraversion) on the relationship between spiritual transcendence and positive change, and spiritual transcendence and distress in burn patients. The sample ($N = 98$) comprised adult burn patients (age = 25–50) admitted to three hospitals in Lahore, Pakistan. They were assessed according to a demographic information sheet, the NEO Personality Inventory (McCrae and Costa in *J Personal Soc Psychol* 52:81–90, 1987), the Spiritual Transcendence Index (Seidlitz et al. in *J Sci Study Relig* 41:439–453, 2002), the Depression, Anxiety, Stress Scales-21 (Lovibond and Lovibond in *Manual for the Depression Anxiety Stress scales*, Psychology Foundation, Sydney, 1995), and the Perceived Benefit Scales (McMillen and Fisher in *Soc Work Res* 22(3):173–186, 1998). Stepwise moderated regression analysis showed that both personality traits (neuroticism and extraversion) played a moderating role in the relationship between spiritual transcendence and positive change, and spiritual transcendence and distress in burn patients. The findings highlight the potential role spiritual transcendence may have in understanding and improving the psychological adjustment of burn patients.

Keywords Burn patients · Neuroticism · Extraversion · Spiritual transcendence · Depression · Anxiety · Positive change

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Introduction

Burn injury is often a shocking event with prolonged physical and psychological effects (Asgjerd et al. 2007). Burns are the fourth leading cause of injury following road traffic injuries, falls, and interpersonal violence, accounting for 5–12% of all injuries worldwide and around 11 million patients requiring medical attention (World Health Organization 2008; Olaitan and Olaitan 2004; Peck 2011). The burden of burn injury is one that falls predominantly on the shoulders of the world's poor (Forjuoh 2007; Park et al. 2009). It has been estimated that over 90% of burn accidents occur in low- and middle-income countries (Siddiqui et al. 2015), and almost half occur in the South-East Asia Region (World Health Organization 2016). Within this group of countries, not only are burn deaths and injuries more common in people with lower socioeconomic status, but among those who suffer severe burns, the most economically vulnerable are more likely to be thrown into further poverty as a consequence. Further, WHO has reported the world's highest incidence of burns occurs in Pakistan, amounting to 1388/100,000 cases annually, compared to the global incidence of 110/100,000 per annum (Aslam et al. 2012).

As the number of survivors increases year by year due to advances in medical technology, the question of their psychological adjustment to massive burn injuries emerges (Young 2002; Bousfield 2003). It is important to note that as burn patients face catastrophic changes (e.g., physical disfigurement, functional loss, changes in their relationships with other people and employment) in their lives, their psychological adjustment becomes the focus of attention because the psychological aspect usually affects their compliance with long-term treatment and the recovery process (Pallua et al. 2003).

As a result of traumatic burn injuries, many patients frequently have psychological symptoms of depression, anxiety, or a specific post-traumatic symptom (e.g., Fauerbach et al. 2007; McKibben et al. 2009; Davydow et al. 2009). Although it is important to focus on the negative symptoms following a burn injury, it is equally important to study the positive emotions and growth that can develop (Linley and Joseph 2004). Further, though the literature (Noronha and Faust 2007; Helgeson et al. 2006, p. 797) highlights the existence of positive psychological adjustment after burn injury, this appears insignificant in comparison with the breadth of research supporting the high prevalence of poor adjustment. Therefore, it is essential to explore the various psychological reactions to burn injury. In the present study, the presence of post-burn negative psychological symptoms is defined as psychological distress and the positive psychological post-burn symptoms as positive changes (Helgeson et al. 2006, p. 797).

The theoretical framework related to the adjustment to traumatic events reveals that “resilience–recovery variables” (personality, coping styles and social support) play a more important and instrumental role compared to the actual physical burn factors (severity or degree, locus of injury) in determining the psychological adjustment of burns survivors (Gilboa et al. 1999). Further, it has been argued that the interaction of both physical and psychosocial factors, including personality or coping, contributes toward psychological and physical outcomes (Lawrence and Fauerbach 2003). These assumptions have been supported by several empirical studies (Kimmo et al. 1998; Victorson et al. 2005).

Researchers have investigated how the relative importance of individual's perception of the stressful event, the effect of their personality, and their person–environment relationship may influence somatic health status (Lawrence and Fauerbach 2003) and psychosocial adjustment in burn populations (Victorson et al. 2005; Kimmo et al. 1998). For example, researchers and clinicians dealing with health and trauma populations frequently observe that following a trauma, there are elements of growth and positive emotions that may

indicate the process of positive psychological adjustment, personal growth, and better mechanisms to cope the results of an adverse event (Barskova and Oesterreich 2009). Positive change refers to the experience of a reconfiguration of the burn subject's goals, beliefs, and worldviews as a result of their struggle with trauma (Helgeson et al. 2006, p. 797; Tedeschi and Calhoun 1995).

Earlier literature (McMillen and Fisher 1998; Bluth and Blanton 2014) suggests that compassion for others and enhanced self-efficacy appears to be strongly related to positive change (McMillen and Fisher 1998; Bluth and Blanton 2014) in mental health across a wide range of traumas. It suggests that self-efficacy is central to the belief that one is capable of exercising control over traumatic adversity (Bnight and Bandura 2004). Though positive change after a traumatic incident has been studied in several populations, little research has been conducted so far with burn patients. For example, the authors have found only one study (Rosenbach and Renneberg 2008) that examined post-traumatic growth or positive change following burn injuries in burn patients and the factors that facilitate or prevent positive change.

Another often untapped resource for burn survivors is their religious or spiritual belief system, which may help them to cope with illness and distress (Koenig et al. 2001; Larson and Larson 2003). Though empirical research has mostly focused on religious beliefs or practices, there is a paucity of research on spiritual or exceptional experiences and their impact on health (George et al. 2000). Piedmont (2010) regards spiritual transcendence as a personality trait and religiosity as a sentiment. In broad terms, spiritual transcendence refers to a perceived experience of the sacred that affects one's self-perception, feelings, goals, and ability to transcend one's difficulties (Seidlitz et al. 2002).

There is concrete evidence that spirituality contributes to well-being (Miller et al. 2007; O'Connor et al. 2007), coping (Pargament et al. 1995), and the quest for meaning (Ardelt et al. 2008) following health issues and other challenging life events. In a recent study of patients admitted to hospital with varying degrees of burn injuries, 65% of the patients surveyed documented that they would like their physician to talk to them about religion, while 75% wished to pray with their doctor (Arnoldo et al. 2006). Even if patients believe in the need for the integration of spirituality into their care, not much empirical data are available examining the role or impact that religion or spirituality may play in recovering from burn injuries. Although the contribution of religion to psychological health benefits is very well recorded (Koenig et al. 2001; Seybold and Hill 2001), yet a great amount of confusion exists about the process by which these effects take place.

It has been found that adjustment to the traumatic experience of a burn injury is strongly related to specific personality traits rather than to the physical features of the injury (Saroglou 2002). These personality traits concern individual differences in tendency to display consistent patterns of thought, feelings, and actions across developmental periods and contexts (McCrae and Costa 2003). These traits have been discussed along five broad dimensions of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Neuroticism (N) is conceptualized as a tendency to experience aggression, self-pity, anxiety, impulsivity, self-consciousness, depression, irrational thinking, and nervousness (John 1989; McCrae and Costa 1987; McCrae and John 1992), whereas extraversion (E) is defined as a tendency to be energetic, assertive, show positive emotions, be talkative, and warm (John 1989; Watson and Clark 1997).

Many studies (Fauerbach et al. 2000; Lockenhoff et al. 2009) suggest burn survivors who display a high level of neuroticism and a low level of extraversion trait found it difficult to adjust following their injury, whereas a low level of neuroticism and a high level of extraversion has been shown to facilitate psychological adjustment. For example,

Willebrand et al. (2001) found that burn patients with the highest ratings on neuroticism and aggression showed the lowest health status ratings. In another exploratory study (Fauerbach et al. 2000), it was found that neuroticism was a risk factor for developing PTSD during the first year after the burn injury, while extraversion seemed to be a protective factor. Moreover, Gilboa et al. (1999) found that successful coping strategies were positively related to the personality dimensions of extroversion, optimism, self-mastery, and hope, and negatively related to neuroticism and social anxiety.

It is also important to mention that research into positive change and personality traits including extraversion and neuroticism, is quite limited. Nevertheless, a few studies which addressed this topic reported noticeable links. Further, studies have also indicated the negative effects of neuroticism from the perspective of positive change after a traumatic event. Thus, personality factors may play a major role in the development of symptoms in the period between acute care and long-term recovery after burns. However, this subject has not been widely researched, and there is a lack of research analyzing the association between personality traits and recovery in burn populations. Further, previous studies (Saroglou 2002) have examined the mental health benefits of personality characteristics and spirituality regardless of their effect on each other, and it is unclear whether these variables are jointly related to adjustment. Moreover, most of the research on the relationship between personality traits and religiousness has been done with healthy and well-adjusted populations, and little is known about their association in vulnerable populations. To help fill these gaps in the research record, the present study examined the association between personality traits and spirituality and mental health in a burn sample. This brief review of the literature into the link between personality and spirituality and their association with mental health provides the basis of the research and findings in this paper (Tables 1, 2, 3, 4).

The Current Study and Hypotheses

The current study aimed to examine the associations between personality traits, spiritual transcendence, positive change, and psychological distress. In this study, measuring both the negative (psychological distress) and positive (positive change) aspects of mental health offered a complete understanding of the current patients' psychology.

The following hypotheses were put forward in the present study:

1. Spiritual transcendence is positively associated with positive change and negatively associated with psychological distress.
2. The personality traits of neuroticism and extraversion moderate the relationship between spiritual transcendence and psychological distress.
3. The personality traits of neuroticism and extraversion moderate the relationship between spiritual transcendence and positive change.

Measures

Demographic Information Sheet

In the current study, data regarding socio-demographic characteristics (age, sex, marital status, employment status, and income comfort level) and injury characteristics (the percentage of body surface area affected by burns, the number of days in hospital, and the

Table 1 Study sample characteristics (burn patients admitted in hospitals, Lahore, Pakistan, aged 25–50 years, $N = 98$, data collected in 2016)

Variables	Mean	SD	Frequency	Valid %
Age	30.42	13.08		
<i>Gender</i>				
Male			68	73.5
Female			28	72.5
<i>Education</i>				
Primary or less			40	51.3
Middle			12	15.4
Matriculation			12	15.4
FA			2	15.4
BA			2	2.6
<i>Marital status</i>				
Married			56	
Unmarried			22	
<i>Profession</i>				
House wife			22	28.2
Unskilled laborers			28	35.9
Skilled laborers			6	7.7
Small business			10	12.8
Employees			6	7.7
Professional			4	5.1
Students			2	2.6
<i>Income comfort level</i>				
Not at all			26	33.3
To some extent			32	41.0
Moderate			16	20.5
Very much			4	5.1
<i>Total body surface</i>				
Total body area burned (TBSA)				
Twenty percent			38	48.7
Forty percent			18	23.1
Sixty percent			16	20.5
Eighty percent			6	7.7
<i>Duration of incidence or length of stay (LOS)</i>				
Day one to 1 week			26	33.3
7–15 days			26	66.7
16–30 days			12	15.4
More than 1 month to 3 months			10	13
4–10 months			4	5.2

The numbers do not always lead up to $N = 98$ due to some missing data

Table 2 Descriptive statistics and correlations between study variables ($N = 98$)

	Neuro	Extra	S. trans	P. dis	P. change
Neuroticism	1				
Extraversion	-.27	1			
Spirituality	-.24	.26	1		
Distress	.35	-.28	-.34	1	
Positive change	-.37	.35	.28	-.22	1
<i>M</i>	23.46	24.07	39.87	20.00	27.64
<i>SD</i>	3.11	2.49	2.98	5.44	3.79
α	.82	.87	.89	.86	.85

The numbers do not always lead up to 98 due to some missing data

Neuro neuroticism, *Extra* extraversion; *S. trans* spiritual transcendence, *P. dis* psychological distress, *P. change* positive change

Table 3 Moderating role of personality (neuroticism, extraversion) between spirituality and psychological distress ($N = 98$)

	Dependent variable: psychological distress		
	<i>B</i>	<i>SE</i>	β
<i>Step 1</i>			
Age	.05	.03	.14
Duration of incidence	-.02	.009	-.25**
<i>Step 2</i>			
Spirituality	-.58	.14	-.39**
<i>Step 3</i>			
Neuroticism	.38	-.21	.20*
<i>Step 4</i>			
Neuroticism \times spirituality	-.16	.07	-3.40*
<i>Step 1</i>			
Age	.05	.03	.14
Duration of incidence	-.02	.009	-.25**
<i>Step 2</i>			
Spirituality	-.58	.18	-.39*
<i>Step 3</i>			
Extraversion	-.49	.16	-.27**
<i>Step 4</i>			
Extraversion \times spirituality	-.21	.069	-3.43*

B = unstandardized coefficients; β = standardized coefficients; *SE* = standard error

* $p < .05$; ** $p < .01$; *** $p < .001$ or less

severity and nature of the injury) were assessed using a structured demographic information sheet. Further, the data concerning medical considerations (e.g., previous psychiatric history) were obtained from the hospital medical records along with an ad hoc-structured clinical interview.

Table 4 Moderating role of personality (neuroticism, extraversion) between spirituality and positive change ($N = 98$)

	Dependent variable: positive change		
	<i>B</i>	SE	β
<i>Step 1</i>			
Age	−.06	.02	−.25**
Duration of incidence	.01	.006	.16*
<i>Step 2</i>			
Spirituality	.37	.10	.26*
<i>Step 3</i>			
Neuroticism	−.45	.09	−.36**
<i>Step 4</i>			
Neuroticism \times spirituality	.04	.04	1.41
<i>Step 1</i>			
Age	−.06	.02	−.25**
Duration of incidence	.01	.006	.16*
<i>Step 2</i>			
Spirituality	.37	.12	.26**
<i>Step 3</i>			
Extraversion	.27	.12	.21*
<i>Step 4</i>			
Extraversion \times spirituality	−.02	.04	.64

B = unstandardized coefficients;
 β = standardized coefficients;
SE = standard error

* $p < .05$; ** $p < .01$;

*** $p < .001$ or less

Five-Factor Inventory (NEO-FFI)

The NEO five-factor inventory (NEO-FFI) is an abbreviated version of the Revised NEO Personality Inventory (NEO-PI) (Costa et al. 1987). It is composed of 44 items that measure five domains of personality: neuroticism (N), extraversion (E), openness (O), agreeableness (A), and conscientiousness (C). For the purpose of this study, only the neuroticism and extraversion scales were selected. Scores for each subscale are interpreted on a continuum, with higher scores indicating that an individual has a greater probability of exhibiting characteristics associated with that personality trait. Each item (e.g., item 1 assessing extraversion, “I see myself as someone who *is talkative*” item 14 assessing neuroticism, *can be tense*”) is scored on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In the present study, Cronbach’s alphas for these subscales (neuroticism, .82, and extraversion, .87) indicated that each subscale had moderate-to-high internal consistency.

Depression, Anxiety, Stress Scales-21

The Depression Anxiety, Stress Scales-21 (DASS-21; Lovibond and Lovibond 1995) was used to measure the level of psychological distress in the sample. The DASS-21 is a promising screening measure for patients with burn injury in a healing setting. In the current study, only the depression and anxiety subscale were used. Each item was rated on a four-point Likert scale according to the frequency or severity of the participants’ experiences over the previous week to emphasize states rather than traits. Questionnaire items consisted of statements referring to the previous week and each item was scored on a

four-point scale ranging from 0 (did not apply to me at all) to 3 (applies to me most of the time). The depression scale measures dysphoria, hopelessness, devaluation of life, self-depreciation, lack of interest anhedonia, and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, and the situational and subjective experience of anxiety. All items on the scale are positively scored as higher scores on each subscale indicate a higher level of pathology. The alpha values of the Urdu translated scales were .72 and .74 for Depression and Anxiety, respectively (Aslam and Tarqi 2010). In the present study, Cronbach's alphas for depression as well as anxiety were .83 and .86, respectively, indicating moderate-to-high internal consistency.

The Spiritual Transcendence Index (STI; Seidlitz et al. 2002)

The Spiritual Transcendence Index (STI; Seidlitz et al. 2002) comprises an eight-item measuring spirituality construct based on rational considerations. Using a five-point scale, the research participants reported the extent to which they agreed or disagreed with the eight statements concerning their spiritual tendencies. The items included statements such as “maintaining my spirituality is a priority for me” and “I experience a deep communion with God.” The spiritual transcendence scale indicated a solid level of internal consistency (.96) (Seidlitz et al. 2002). Cronbach's alpha was .89 for the current study.

Perceived Benefits Scales (PBS; McMillen and Fisher 1998)

The Perceived Benefits Scales (PBS; McMillen and Fisher 1998) assess life changes that are the result of adverse experiences. This scale is comprised of 30 items that assess commonly reported positive changes following adversity across eight factors, which are enhanced self-efficacy, increased faith in people, increased compassion for others, increased spirituality, increased community closeness and enhanced family closeness, lifestyle changes and material gain. The present study included four items from the enhanced self-efficacy subscale (e.g., “My difficult experiences taught me I can handle anything”) and four items from the increased compassion for others subscale (e.g., “As a result of my difficult experiences, I am more sensitive to the needs of others”) to examine how participants might have been changed as a result of the burn incident. The participants rated each item on a five-point scale that ranged from 0 (not at all like my experiences) to 4 (very much like my experiences). A higher score indicates greater perceived positive benefits following adversity. In the original study sample, Cronbach's alphas were reported to be .88 for the enhanced self-efficacy subscale and .87 for the increased compassion subscale. In the current study, both of these aspects were combined and the Cronbach's alpha was .85 for the combined scales.

Participants

Initially, the heads of the burn wards in the three hospitals in Lahore were contacted and briefed about the nature and purpose of the study. After obtaining their permission, first, nurses in the burns wards were contacted and medical records of burns patients still in hospital at that time were checked. Then, the burn patients and their carers were contacted. After building up a rapport through one or two meetings, they were briefed about the study. They were assured of the confidentiality of their responses. They were also informed of their right to withdraw from the study at any point. A total of 140 participants were

screened, but only 110 participants consented to be the part of the study. After their formal consent had been given, the data were collected. However, the final results were for 98 participants because some participants were eliminated from the study as they could not complete the all the research questionnaires/questions.

The distribution of the sample across the three hospitals was comparable (35:31:34). The whole sample was part of the South Asian Muslim community. The patients were assessed through the demographic information sheet, the Big five Personality Inventory (BFI) (McCrae and Costa 1987), the Spiritual Transcendence Index (STI; Seidlitz et al. 2002), the DASS-21 (Lovibond and Lovibond 1995) and the Perceived Benefit Scales (PBS; McMillen and Fisher 1998).

Procedure

This study was approved by the Research Review Committee, Department of Humanities, COMSATS, Lahore, Pakistan. The sample was comprised of adult burn survivors admitted at three hospitals in Lahore, Pakistan. All the instruments were administered during the first month of hospitalization of the burn patients. The survey was conducted according to the principles of data protection and confidentiality.

Results

The correlations between the demographic and medical variables with all the study variables were calculated. It was found that only age and duration of burn incidence correlated significantly with psychological distress and positive change. Therefore, these two variables were controlled for in the regression analyses. First, the moderating roles of personality traits were assessed through the spiritual transcendence–psychological distress link. For this purpose, when age and duration of burn incidence were entered in step 1, they accounted for 8% of the variance in psychological distress. $F = (2, 98) = 6.89, p < .001$. When spirituality was entered individually in step 2, it turned out to be a significant predictor accounting for 7% of the variance (R^2 increased from 8 to 15%). In step 3, neuroticism had a significant main effect, $F(4, 94) = 8.96, p > .05$, accounting for 4% of variance (R^2 increased from 15 to 19%). In the final step, when the cross-product term of neuroticism \times spiritual transcendence was entered, it turned out to be a significant predictor, $F(5, 93) = 7.82, p < .05$ and accounted for 2% of the variance in psychological distress (R^2 increased from 19 to 21%) suggesting that neuroticism significantly moderated the relationship between spirituality and distress.

Similarly, the moderating role of extraversion was examined in relation to spiritual transcendence and psychological distress. In step 1, age and duration of incidence were entered and accounted for 8% of the variance in positive change. F was significant ($F = 6.89, 2, 96$). In step 2, spirituality was entered and accounted for 5% of the variance as R^2 increased to 13% from 8%. The overall model was significant [$F = 8.17, df = 3 (95)$]. In step 3, extraversion was added and accounted for 3% of the variance as R^2 increased to 16% from 13% ($F = 7.46, df = 4 (94)$). Finally, the interaction term was entered and it accounted for 22% of the variance [$F = 8.34, df = 5 (93)$]. Extraversion and spirituality interaction was significant, suggesting that extraversion significantly moderates the relationship between spirituality and distress.

Second, the moderating role of neuroticism was examined within the relationship between spiritual transcendence and positive change. In step 1, when age and duration of incidence were entered, they accounted for 8% of the variance in the prediction of positive change. In step 2, when spirituality was entered, the overall model was significant [$F = 5.55$, $df = 3$ (95)] and accounted for 1% of the variance (R^2 increased to 9% from 8%). In step 3, when neuroticism was added, the main effect of neuroticism was significant ($F = 8.53$, $df = 4$ (94) and accounted for 9% of the variance (R^2 increase to 18% from 9%). Finally, the interaction term was entered but was not found to be significant.

Similarly, the moderating role of extraversion was assessed within the relationship between spiritual transcendence and positive change. In step 1, age and duration of incidence accounted for 8% of variance in the prediction of positive change ($F = 7.42$, 2, 96). In step 2, spirituality accounted for 1% of the variance (R^2 increased to 9% from 8%), and the overall model was significant ($F = 5.56$, $df = 3$ (95)). In step 3, extraversion accounted for a significant amount of variance ($F = 6.58$, $df = 4,94$, R^2), which increased to 14% from 9%. Finally, the interaction term was not found to be the significant predictor ($F = 5.29$, $df = 5$ (93)).

Discussion

The main objective of the current study was to assess whether spiritual transcendence is associated with psychological adjustment in burn patients and whether this association is moderated by two personality traits (neuroticism and extraversion). The psychological adjustment in the current study was assessed in terms of psychological distress and positive change. To achieve the study goals, first of all, the correlations between spiritual transcendence, psychological distress, and positive change were calculated. The correlation analysis indicated that spiritual transcendence was negatively associated with psychological distress, but positively with positive change. This suggests that level of spiritual transcendence in burn patients is likely to protect them from negative consequences of burn trauma, such as distress, and is more likely to promote post-traumatic growth in terms of positive change, which, in turn, may lead to successful adaptation to the consequences of the burn incident.

Previous studies (e.g., Calhoun and Tedeschi 1999; Koenig et al. 2001; Seybold and Hill 2001) are in line with the current findings that spirituality may play a significant and constructive role in individuals' attempts to cope with stressful medical events, this case, with burn trauma. In a number of studies, spirituality was associated with less severe symptoms of distress and increased positive change over time (Schaefer et al. 2008). The earlier literature (e.g., Calhoun and Tedeschi 1999) suggests that people who rely on religious or spiritual coping strategies (e.g., attend religious gatherings, have intrinsic spiritual beliefs) are more likely to report positive changes (Calhoun and Tedeschi 1999). One way in which religion can exert a positive influence on psychological well-being is through its function as a resource for dealing with stress. For example, Askay and Magyar-Russell (2009) reported that trauma survivors who use their spiritual beliefs to help them cope tend to show a greater ability for positive change after trauma.

The current findings that spiritual transcendence is associated with distress or growth following a threat to a person's physical or psychological health are important and require explanation. First, the findings suggest that burn patients commonly use religious or spiritual beliefs as part of their coping strategies to overcome the stress and trauma of their

burn injuries. Second, spiritual transcendent beliefs may assist in identifying some positive attributions of the traumatic event, thereby preventing adverse mental health consequences and promoting positive growth after the trauma (Clark et al. 1999; Koenig et al. 1997a, b; Rippentrop et al. 2006). Third, spiritual transcendence may reduce the feelings of distress and increase the belief in self-efficacy and feelings of compassion through fulfilling the innate need for relatedness by relating to God (Cobb 1976; House et al. 1988; Kobasa et al. 1985; Lopez et al. 2012; Wallston et al. 1983). Finally, spirituality may help individuals transcend psychological distress or physical suffering by promoting a sense of secondary control, self-discovery, increased inner strength, and justification for emotional healing to take place (Ardelt et al. 2008; Pargament et al. 1998; Seidlitz et al. 2002; Ai and Park 2005).

Though many studies (Seidlitz et al. 2002; Ardel et al. 2008) have found that spirituality can have a positive role in coping with traumatic life events, people with similar levels of spiritual transcendence experiencing the same severity of trauma may differ in their experience of post-traumatic distress or growth. This difference may be attributed to personality traits, which need to be taken into account. Fauerbach et al. (2000) reported findings from a longitudinal cohort study of burn survivors who scored significantly higher on neuroticism and extraversion dimension compared to a normative national sample. Therefore, the secondary goal of the current study was to assess whether two personality traits (neuroticism and extraversion) moderate the link between spiritual transcendence and psychological adjustment in burn patients. The present study indicates that neuroticism positively predicts psychological distress and negatively predicts positive change in burn patients, while extraversion negatively predicts psychological distress and positively predicts positive change in burn patients.

These results are consistent with earlier research (Fauerbach et al. 2000; Linley and Joseph 2004) that investigated the role of neuroticism and extraversion in explaining psychological adjustment after a traumatic experience. Neuroticism, in particular, has been shown to be a significant positive predictor of depression in the literature (Andrews et al. 2010). In a recent study, Pastor et al. (2015) analyzed the role of personality dimensions in burns adults and found that a higher level of neuroticism/anxiety related to a higher depression score after a 6-month follow-up of burn incident. It is important to note that traumatic events change one's pretrauma schema and life style as the sufferer or victim reprioritizes and reconstructs schemas to adapt to new situations (Joseph 2006). People scoring higher on the extraversion trait were more likely to reconstruct their schemas positively to successfully adapt to the physical or psychological harm caused by the burn trauma, whereas people with neurotic tendencies may be less likely to reconstruct their schemas to adapt and cope with the situation. Overall, the current findings are in line with previous research findings (Joseph 2006) that suggest patients' or survivors' personality characteristics—such as extraversion—may be associated with the experience of more growth-related changes, which facilitate the process of disease adjustment.

In addition to the main effects of spiritual transcendence and personality traits on psychological adjustment, it was also found that the interaction between spiritual transcendence and neuroticism significantly predicted psychological distress but not positive change. Burn patients with neurotic personality traits were less likely to benefit from spiritual transcendence to reduce their psychological distress. By contrast, those manifesting extrovert traits were more likely to benefit from spiritual transcendence as a means of controlling their distress. It was found that these two effects were interdependent in predicting post-traumatic psychological distress rather than it being the case that personality traits buffered the effect of spiritual transcendence on psychological distress. In

extrovert individuals, spirituality is more likely to limit the detrimental effects of distress by the survivor developing supportive social networks (Koenig et al. 1997c; Maltby et al. 1999; Waite et al. 1999), while neurotic individuals may not be able to benefit from spirituality due to their limited social support.

Although the evidence from the health-related literature (Seidlitz et al. 2002; Ardel et al. 2008; Van Loey et al. 2013; Andrews et al. 2010; Pastor et al. 2015; Linley and Joseph 2004) supports the independent effects of spirituality and personality traits on post-traumatic psychological adjustment, yet the available literature lacks a description of the interactive effects of both on the psychological adjustment of burn patients. Thus, the current study makes an important contribution to the existing body of knowledge in health psychology. These findings suggest that spiritual transcendence and personality traits play significant roles, independently and interactively, in the psychological adjustment of burn survivors.

Strengths of Study

The current study advances the previous studies in many ways. First, potentially confusing demographic variables were controlled for in the study. By controlling these effects, the findings that spirituality plays a significant role in the psychological adjustment of burn patients are more robust. In addition, the presence of positive change and growth in the aftermath of a burn trauma has been ignored so far, but has been given due consideration in the current study along with psychological distress. The findings of this study are particularly important as they are based on an understudied, culturally different sample (South Asian), whereas previous studies have been mainly based on Western samples.

The limitations of this study include the fact that it was cross-sectional in design, making it impossible to determine for certain the direction of causality. In addition, our findings cannot be generalized beyond this particular ethnic group. In addition, the current study did not use premorbid measures to compare whether spiritual transcendence plays a similar or different predictive role in psychological adjustment before and after trauma.

Implications, Future Directions, and Conclusion

In conclusion, the empirical findings highlight the important role that spiritual transcendence may play in the recovery process following a burn trauma. Overall the results indicate that patients' personality traits such as high levels of extraversion and low levels of neuroticism interacting with high spiritually transcendent beliefs result in better psychological adjustment in terms of low psychological distress and more positive adaptation to change. Hence, extravert and neurotic personality traits of patients moderate the effects of spiritual transcendence on their psychological distress. The findings have implications for clinicians for rehabilitation strategies, and suggest putting greater emphasis on spirituality regarding how to improve the psychological adjustment of patients. Moreover, the current study will help clinicians understand how to create an environment that facilitates positive emotions and encourages patients to explore their spiritual beliefs in the context of the trauma (Askay and Magyar-Russell 2009). Specifically, our results, particularly if confirmed by longitudinal research, suggest that interventions designed to improve spiritual transcendence may lead to improved post-traumatic adjustment in burn patients.

Although the independent effects of spiritual transcendence and personality traits on positive growth were significant, these two factors did not interact enough to predict positive change. It would be interesting if future studies were to examine positive change

as a separate construct, not in conjunction with distress. Thus, future research could focus more directly on the role of spiritual transcendence as well as spiritual or religious coping strategies in predicting positive change.

Compliance with Ethical Standards

Conflict of interest Tahira Jibeen, Musferah Mahfooz, and Shamem Fatima declare that they have no conflict of interest.

Ethical Approval All the procedures undertaken in the study involving human participants were in accordance with the ethical standards of the Research Review Committee, Department of Humanities, COMSATS, Lahore, and with the 1964 Declaration of Helsinki on medical ethics and its later amendments or comparable ethical standards.

References

- Ai, A. L., & Park, C. L. (2005). Possibilities of the positive following violence and trauma: Informing the coming decade of research. *Journal of Interpersonal Violence*, *20*(2), 242–250.
- Andrews, R. M., Browne, A. L., Drummond, P. D., & Wood, F. M. (2010). The impact of personality and coping on the development of depressive symptoms in adult burn survivors. *Burns*, *36*(6), 29–37.
- Ardelt, M., Ai, A. L., & Eichenberger, S. (2008). In search for meaning: The differential role of religion for middle-aged and older persons diagnosed with life-threatening illness. *Journal of Religion, Spirituality & Aging*, *20*(4), 288–312.
- Arnoldo, B. D., Hunt, J. L., Burris, A., Wilkerson, L., & Purdue, G. F. (2006). Adult burn patients: The role of religion in recovery—Should we be doing more? *Journal of Burn Care and Research*, *27*(6), 923–924. doi:[10.1097/01.BCR.0000245476.13597.E1](https://doi.org/10.1097/01.BCR.0000245476.13597.E1).
- Asgjerd, L. M., Tore, W., Lars, S., & Berit, R. H. (2007). Long-term risk factors for impaired burn-specific health and unemployment in patients with thermal injury. *Burns*, *33*, 37–45.
- Askay, W. S., & Magyar-Russell, G. (2009). Post-traumatic growth and spirituality in burn recovery. *International Review of Psychiatry*, *21*(6), 570–579. doi:[10.3109/09540260903344107](https://doi.org/10.3109/09540260903344107).
- Aslam, M., Niazi, M. Z., & Mustafa, G. (2012). Pattern of burns at Lady Reading Hospital, Peshawar. *Journal of Postgraduate Medical Institute*, *26*(2), 221–225.
- Aslam, N., & Tarqi, N. (2010). Trauma, depression, anxiety, and stress among individuals living in earthquake affected and unaffected area. *Pakistan Journal of Psychological Research*, *25*(2), 131–148.
- Barskova, T., & Oesterreich, R. (2009). Post-traumatic growth in people living with a serious medical condition and its relations to physical and mental health: A systematic review. *Disability and Rehabilitation*, *31*, 1709–1733.
- Bluth, K., & Blanton, P. W. (2014). The influence of self-compassion on emotional well-being among early and older adolescent males and females. *The Journal of Positive Psychology*, *10*(3), 219–230.
- Bnight, C. C., & Bandura, A. (2004). Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behaviour Research and Therapy*, *42*, 1129–1148. doi:[10.1016/j.brat.2003.08.008](https://doi.org/10.1016/j.brat.2003.08.008).
- Bousfield, B. C. (2003). *Burn trauma: Management and nursing care* (2nd ed.). London: Baillière Tindall.
- Calhoun, L. G., & Tedeschi, R. G. (1999). *Facilitating posttraumatic growth: A clinician's guide*. Hillsdale, NJ: Lawrence.
- Clark, K. M., Friedman, H. S., & Martin, L. R. (1999). A longitudinal study of religiosity and mortality risk. *Journal of Health Psychology*, *4*, 381–391.
- Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine*, *38*, 300–314.
- Costa, P. T., McCrae, R. R., & Zonderman, A. (1987). Environmental and dispositional influences on well-being: Longitudinal follow-up of an American national sample. *British Journal of Psychology*, *78*, 299–306.
- Davydow, D. S., Katon, W. J., & Zatzick, D. F. (2009). Psychiatric morbidity and functional impairment in survivors of burns, traumatic injuries, and ICU stays for other critical illnesses: A review of the literature. *International Review of Psychiatry*, *21*, 531–538. doi:[10.3109/09540260903343877](https://doi.org/10.3109/09540260903343877).
- Fauerbach, J. A., Lawrence, J. W., Schmidt, C. W., Jr., Munster, A. M., & Costa, P. T., Jr. (2000). Personality predictors of injury-related posttraumatic stress disorder. *Journal of Nervous and Mental Disorders*, *188*, 510–517.

- Fauerbach, J. A., McKibben, J., Bienvenu, O. J., Magyar-Russell, G., Smith, M. T., Holavanahalli, R., et al. (2007). Psychological distress after burn injury. *Psychosomatic Medicine*, *69*, 473–482. doi:[10.1097/psy.0b013e31806bf393](https://doi.org/10.1097/psy.0b013e31806bf393).
- Forjuoh, S. N. (2007). Burns in low-and middle-income countries: A review of available literature on descriptive epidemiology, risk factors, treatment, and prevention. *Burns*, *32*(5), 529–537.
- George, L. K., Larson, D. B., Koenig, H. G., & McCullough, M. E. (2000). Spirituality and Health: What we know, what we need to know. *Journal of Social and Clinical Psychology*, *19*, 102–116.
- Gilboa, D., Bisk, L., Montag, I., & Tsur, H. (1999). Personality traits and psychosocial adjustment of patients with burns. *Journal of Burn Care and Rehabilitation*, *20*(4), 340–346.
- Helgeson, V. S., Reynolds, K. A., & Tomich, P. (2006). A meta-analysis review of benefit finding and growth. *Journal of Consulting and Clinical Psychology*, *74*, 797–816.
- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science*, *241*(4865), 540–545.
- John, O. P. (1989). Towards a taxonomy of personality descriptors. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions* (pp. 261–271). New York: Springer.
- Joseph, E. (2006). Function of a conserved loop of the beta-domain, not involved in thiamin diphosphate binding, in catalysis and substrate activation in yeast pyruvate decarboxylase. *Biochemistry*, *45*(45), 13517–13527.
- Kimmo, T., Jyrki, V., & Sirpa, A. S. (1998). Health status after recovery from burn injury. *Burns*, *24*(4), 293–298.
- Kobasa, S. C., Maddi, S. R., Puccetti, M. C., & Zola, M. A. (1985). Effectiveness of hardiness, exercise, and social support as resources against illness. *Journal of Psychosomatic Research*, *29*, 525–533.
- Koenig, H. G., Hays, J. C., George, L. K., Blazer, D. G., Larson, D. B., & Landerman, L. R. (1997a). Modeling the cross sectional relationships between religion, physical health, social support, and depressive symptoms. *American Journal of Geriatric Psychiatry*, *5*(2), 131–144.
- Koenig, H. G., McCullough, M. E., & Larson, D. B. (2001). *Handbook of religion and health*. Oxford: Oxford University Press.
- Koenig, H. G., Parkerson, G. R., & Meador, K. G. (1997b). Religion index for psychiatric research: 5-item measure for use in health outcome studies. *American Journal of Psychiatry*, *154*(6), 885–886.
- Koenig, H. G., Weiner, D. K., Peterson, B. L., Meador, K. G., & Keefe, F. J. (1997c). Religious coping in the nursing home: A biopsychosocial model. *International Journal of Psychiatry*, *27*(4), 365–376.
- Larson, D. B., & Larson, S. S. (2003). Spirituality's potential relevance to physical and emotional health: A brief review of quantitative research. *Journal of Psychology and Theology*, *31*, 37–51.
- Lawrence, J. W., & Fauerbach, J. A. (2003). Personality, coping, chronic stress, social support and PTSD symptoms among adult burn survivors: A path analysis. *Journal of Burn Care and Rehabilitation*, *24*, 63–72.
- Linley, P. A., & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of Trauma Stress*, *17*(1), 11–21.
- Lockenhoff, C. E., Ironson, G. H., O'Cleirigh, C., & Costa, P. T., Jr. (2009). Five-factor model personality traits, spirituality/religiousness, and mental health among people living with HIV. *Journal of Personality*, *77*, 1411–1436.
- Lopez, J., Romero-Moreno, R., Márquez-González, M., & Losada, A. (2012). Spirituality and self-efficacy in dementia family caregiving: Trust in God and in yourself. *International Psychogeriatrics*, *24*(12), 1943–1952. doi:[10.1017/S1041610212001287](https://doi.org/10.1017/S1041610212001287).
- Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress scales* (2nd ed.). Sydney: Psychology Foundation.
- Maltby, J., Lewis, C., & Day, L. (1999). Religious orientation and psychological well-being: The role of the frequency of personal prayer. *British Journal of Health Psychology*, *4*(4), 363–378. doi:[10.1348/135910799168704](https://doi.org/10.1348/135910799168704).
- McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, *52*, 81–90.
- McCrae, R. R., & Costa, P. T., Jr. (2003). *Personality in adulthood: A five-factor theory perspective* (2nd ed.). New York, NY: Guilford.
- McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. Special issue: The five-factor model: Issues and applications. *Journal of the Personality*, *60*, 175–215.
- McKibben, J. B., Ekselius, L., Girasek, D. C., Gould, N. F., Holzer, C., Rosenberg, M., et al. (2009). Epidemiology of burn injuries II: Psychiatric and behavioural perspectives. *International Review of Psychiatry*, *21*(6), 512–521. doi:[10.3109/09540260903343794](https://doi.org/10.3109/09540260903343794).
- McMillen, J. C., & Fisher, R. H. (1998). The Perceived Benefit Scales: Measuring perceived positive life changes after negative events. *Social Work Research*, *22*(3), 173–186.

- Miller, J. F., McConnel, T. R., & Klinger, T. A. (2007). Religiosity and spirituality: Influence on quality of life and perceived patient self-efficacy among cardiac patients and their spouses. *Journal of Religion and Health, 46*(2), 299–313.
- Noronha, D. O., & Faust, J. (2007). Identifying the variables impacting post-burn psychological adjustment: A meta-analysis. *Journal of Pediatric Psychology, 32*, 380–391.
- O'Connor, M., Guilfoyle, A., Breen, L., Mukhardt, F., & Fisher, C. (2007). Relationships between quality of life, spiritual well-being, and psychological adjustment styles for people living with leukaemia: An exploratory study. *Mental Health, Religion & Culture, 10*(6), 631–647. doi:[10.1080/13674670601078221](https://doi.org/10.1080/13674670601078221).
- Olaitan, P. B., & Olaitan, J. O. (2004). Burns and scalds—Epidemiology and prevention in a developing country. *Nigeria Journal of Medicine, 14*(1), 9–16.
- Pallua, N., Kunsebeck, H. W., & Noah, E. M. (2003). Psychosocial adjustments 5 years after burn injury. *Burns, 29*(2), 143–152. doi:[10.1016/S0305-4179\(02\)00238-3](https://doi.org/10.1016/S0305-4179(02)00238-3).
- Pargament, K. I., Smith, B. W., Koenig, H. G., & Perez, L. (1998). Patterns of positive and negative religious coping with major life stressors. *Journal for the Scientific Study of Religion, 37*, 710–724.
- Pargament, K. I., Van Haitsma, K., & Ensing, D. S. (1995). Religion and coping. In M. Kimble, S. McFadden, J. Ellor, & J. Seeber (Eds.), *Aging, spirituality, and religion: A handbook* (pp. 47–68). Minneapolis: Fortress Press.
- Park, J. O., Shin, S. D., Kim, J., Song, K. J., & Peck, M. D. (2009). Association between socioeconomic status and burn injury severity. *Burns, 35*(4), 482–499.
- Pastor, A. G., Freixanet, M. G., Valero, S., Kinore, S. G. F., Cebria, T., Arguello, J. M., et al. (2015). Personality as a predictor of depression symptoms in burn patients: A follow-up study. *Burns, 41*, 25–32.
- Peck, M. D. (2011). Epidemiology of burns throughout the world. Part I: Distribution and risk factors. *Burns, 37*(7), 1087–1100.
- Piedmont, R. L. (2010). *Assessment of spirituality and religious sentiments, technical manual* (2nd ed.). Timonium, MD: Author.
- Rippentrop, A. E., Altmaier, E. M., & Burns, C. P. (2006). The relationship of religiosity and spirituality to quality of life among cancer patients. *Journal of Clinical Psychology in Medical Settings, 13*, 29. doi:[10.1007/s10880-005-9000-9](https://doi.org/10.1007/s10880-005-9000-9).
- Rosenbach, C., & Renneberg, B. (2008). Positive change after severe burn injuries. *Journal of Burn Care & Research, 29*(4), 638–643.
- Saroglou, V. (2002). Religion and the five factors of personality: A meta-analytic review. *Personality and Individual Differences, 32*, 15–25.
- Schaefer, F. C., Blazer, D. G., & Koenig, H. G. (2008). Religious and spiritual factors and the consequences of trauma: A review and model of the interrelationship. *International Journal of Psychiatry & Medicine, 38*(4), 507–524.
- Seidlitz, L., Abernethy, A. D., Duberstein, P. R., Evinger, J. S., Chang, T. H., & Lewis, B. L. (2002). Development of the spiritual transcendence index. *Journal for the Scientific Study of Religion, 41*(3), 439–453.
- Seybold, K. S., & Hill, P. C. (2001). The role of religion and spirituality in mental and physical health. *Current Directions in Psychological Science, 10*, 21–24.
- Siddiqui, E., Zia, N., Feroze, A., Awan, S., Ali, A., Razzak, J., et al. (2015). Burn injury characteristics: Findings from Pakistan National Emergency Department Surveillance Study. *Biomed Emergency Medicine, 15*(Suppl 2), S5. doi:[10.1186/1471-227X-15-S2-S5](https://doi.org/10.1186/1471-227X-15-S2-S5).
- Tedeschi, R. G., & Calhom, L. G. (1995). *Trauma and transformation: Growing in the aftermath of suffering*. Thousand Oaks, CA: Sage.
- Van Loey, N. E., Oggel, A., Goemanne, A. S., Braem, L., Vanbrabant, L., & Geenen, R. (2013). Cognitive emotion regulation strategies and neuroticism in relation to depressive symptoms following burn injury: A longitudinal study with a 2-year follow-up. *Journal of Behavioral Medicine, 37*(5), 839–848. doi:[10.1007/s10865-013-9545-2](https://doi.org/10.1007/s10865-013-9545-2).
- Victorson, D., Farmer, L., Burnett, K., Ouellette, A., & Barocas, J. (2005). Maladaptive coping strategies and injury-related distress following traumatic physical injury. *Rehabilitation Psychology, 50*, 408–415. doi:[10.1037/0090-5550.50.4.408](https://doi.org/10.1037/0090-5550.50.4.408).
- Waite, P. J., Hawks, S. R., & Gast, J. A. (1999). The correlation between spiritual well-being and health behaviors. *American Journal of Health Promotion, 13*, 159–162.
- Watson, D., & Clark, L. A. (1997). Extraversion and its positive emotional core. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 767–793). San Diego, CA: Academic Press.
- Wallston, B. S., Alagra, S. W., DeVellis, B. M., & DeVellis, R. F. (1983). Social support and physical health. *Health Psychology, 2*, 367–391.

- Willebrand, M., Kildal, M., Ekselius, L., Gerdin, B., & Andersson, G. (2001). Development of the coping with burns questionnaire. *Personality and Individual Differences*, *30*, 1059–1072.
- World Health Organization. (2008). *Burn prevention and care: Prevalence and risk factors*. Geneva: Switzerland. http://apps.who.int/iris/bitstream/10665/97852/1/9789241596299_eng.pdf.
- World Health Organization. (2016). *Fact sheet: Burns*. <http://www.who.int/mediacentre/factsheets/fs365/en/>.
- Young, A. (2002). Rehabilitation of burn injuries. *Physical Medicine & Rehabilitation Clinics in North America*, *13*(1), 85–108.