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# Religious Beliefs, Work Motivation, Risk Perception and Posttraumatic Growth in Healthcare Workers during COVID-19

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**Abstract**

This research was conducted to assess the posttraumatic growth (PTG) experienced by the healthcare workers during the COVID-19 pandemic. The purpose was to observe whether religious beliefs predicted PTG during a pandemic and the mediating role of work motivation for the relationship between religious beliefs and PTG in the healthcare workers. It was also investigated if the risk perception regarding the virus had any implicating effects on the relationship of religious beliefs and posttraumatic growth. The sample (*N*=97) consisted of resident doctors (*n*=56), physicians (*n*=23), surgeons (*n*=03) and a nurse (*n*=01); which was comprised of both men (*n*=52) and women (*n*=45). The Religious Belief Scale (RBS), Work Intrinsic Extrinsic Motivation Scale (WEIMS), and Posttraumatic Growth Inventory-Short Form (PTGI-SF) were employed to collect data. The Perception of Risk was measured through items that had been previously used to assess the risk perception of healthcare workers during Severe Acute Respiratory Syndrome (SARS) epidemic. The responses from participants was collected through both online and in person. The Pearson Product Moment Correlation was used to assess the significance of relationships while Hierarchal Regression was used to assess the role of religious beliefs of healthcare workers. Moreover, PROCESS macro was used to evaluate the presence of mediation and moderation. The results revealed that religious beliefs and self-regulated motivation were significant predictors of PTG while self-regulated motivation also mediated the direct relationship between religious beliefs and PTG. Investigation of possible factors that bring about growth after experiencing trauma is an essential need of these turbulent times.

**Keywords:** COVID-19, Healthcare Workers, Post Traumatic Growth, Religious Beliefs, Risk Perception, Work Motivation

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## Introduction

It has been two years since the outbreak of a highly contagious virus, referred to as Coronavirus Disease (COVID-19). While every individual has had to adapt to the changes, one group of professionals have been doing their best in the face of these adversities, who have also been at a higher risk of contracting the virus i.e. the frontline healthcare sector. Up until 2022, there have been 1,512,175 confirmed cases with 30,248 reported deaths in Pakistan due to COVID-19. According to an approximation, almost 115500 frontline healthcare workers have lost their lives to this virus (United Nations, 2022). Several healthcare workers in

Pakistan have also already lost their lives to the battle of this virus. The ones that are still serving have witnessed an outrageous number of deaths. This is bound to prove as a trauma later and affect their wellbeing. However, while this appears to be a discouraging situation, it has been noted that individuals have the tendency to perceive extremely stressful situations as more meaningful when the need arises. Moreover, a sense of religiosity has been associated with experiencing growth when the conditions seem out of one's control (Garcia et al., 2014).

Post-trauma growth (PTG) has been defined as the constructive modifications that follow a traumatic event (Tedeschi & Calhoun, 1996). Particularly, the changes in one's perspective of life, in their relationships with others and their perception about oneself. The individual who attempts to struggle with trauma, goes through positive change which is subjective, substantial and psychological (Calhoun, 2000; Zoellner & Maercker, 2006). It is symbolized by disrupted perception of expectations and meaning, or a disruption in spirituality. The transformation in the psychological, emotional, spiritual and interpersonal domains in the individual after a traumatic event in referred to as posttraumatic growth (Tedeschi & Calhoun, 2004).

Religion is an institution that entails a connection or a bond with a force and power that is far superior to other beings. This relationship is based on the faith of the individual in the heavenly force (Emblen, 1992). Religion may facilitate overcoming traumatic life events and hardships whether those are physical in nature, psychological or social. It provides people the means to search for the meaning of their lives, allows them to find comfort within this social system for themselves and others around them, and teaches practicing control over oneself (Abu-Raiya & Sulleiman, 2021; Koenig, 2012). People going through distress normally seek the support of a higher being, this assurance of a powerful force governing matters helps them deal with the stress of the situation (Ai & Park, 2005). Experiencing events on a catastrophic proportions, such as a global pandemic, reduces capacity to reach for success, financially or professionally. Higher religiosity leads to feeling of a sense of purpose in one's life. Stronger religious beliefs have been associated with providing meaningfulness to traumatic experiences (Abu-Raiya & Sulleiman, 2021), henceforth, providing them with an intrinsic motivation to carry on, particularly the healthcare practitioners at the frontlines.

Work motivation is a set of forces that are dynamic enough to instigate productivity and work-related duties as well as regulate its duration, direction, and intensity. It begins from within oneself and may also include factors beyond one's control. Motivation is exhibited through perseverance, effort, and devotion (Steers et al., 2004). Self-regulatory motivation is characterized by performing an activity for the satisfaction of it because one may find that task itself to be fundamentally pleasing. However, non-self-regulatory motivation is defined as the motivation to carry out a task solely for the instrumental reasons (Ryan & Deci, 2002). The presence of self-regulatory motivation is crucial for frontline workers to continue when their perception of risk of their working conditions exceeds the potential rewards against their service.

The perception of risk can be stated as one's psychological estimations of a possible imminent threat and the outcome of a threatening event (Sjöberg, 2000). Amidst of a global pandemic, the healthcare sector is among the most vulnerable population who are performing their duties for the infected individuals. They have been at the highest risk of catching the virus or possibly carrying it on to their families. This perception of risk

of infection is detrimental to their wellbeing and psychological health (Leppin, & Aro, 2009; Yıldırım et al., 2021).

**Literature Review**

Healthcare workers who have been on duty during the COVID-19 crisis have reported the experience of trauma, emotional exhaustion leading to PTG. It was noted that trauma and burnout had been reported higher by nurses who were working in COVID-19 assigned departments/hospitals (Chen, et al., 2021).

However, even after going through traumatic experiences, some individuals report quite a number of positive changes. Many professionals such as paramedics, nurses, emergency workers and social workers experience trauma and many have reported to experience growth after it (Chang, et al., 2021; Gibbons et al., 2011; Kwon & Kin, 2006).

Healthcare workers from general and psychiatric hospitals were observed and it was reported that religious groups perceived better psychological wellbeing amid the pandemic (Chang et al., 2021). Intrinsic religiosity has an important contribution in growth after trauma. (Barskova & Oesterreich, 2009; Helgeson et al., 2006). Religious coping has been concluded to help parents through the bereavement of young children (Abu-Raiya & Sulleiman, 2021), and children with the loss of their parents (Shah & Mishra, 2021) that has reportedly led to PTG.

It has been observed that a greater sense of religiosity and spirituality leads to experiencing PTG (Cormio et al., 2015; Hanna, 2021). Strong religious faith can change the appraisal of a traumatic situation so that it is perceived to be a challenge or a minor risk. Stressful or traumatic experiences can lead to a stronger sense of faith as well motivate the perception of traumatic event as more meaningful (Prieto-Ursúa & Jódar, 2020).

Religious beliefs have been reported to lead towards experiencing PTG through the enhanced motivation to care for patients. It was seen that the sense of religiosity among nurses may play an important role in enhancing their professional abilities. Various studies have reported association of religious beliefs of nurses and their professional progress (Chayu & Kreitler, 2011; Ekedahl & Wengstrom, 2006) and their ability to offer care to the patients. Spirituality, an important aspect of religiosity, was related to a lower perception of COVID-19 related trauma and burnout (Feingold et al., 2022), and predictive of intrinsic motivation in healthcare sector (Biswas & Biswas, 2007).

It has been observed in students of medicine, that experiencing distressful conditions of disaster propagated chances of constructive growth on a personal level, as well as on students' professional level (Taku et al., 2018). In nursing students, it was observed that participants who scored higher on PTG also scored high on intrinsic motivation and a desire to help others as opposed to the students who had scored higher on extrinsic motivation (Yun et al., 2020). In fact, PTG has been suggested to be used as an intervention method to increase work motivation in professional nurses in turbulent times (Cunningham & Pfeiffer, 2022).

Frontline healthcare workers have been at a greater risk than any other population during COVID-19 and this perception of risk may hinder the process of achieving growth. If the experience is seen to be too difficult to deal with, it may hinder the process of constructive coping, which plays an essential role in achieving PTG (Zhou et al., 2018). Moreover, increased perception of risk has been shown to lead to poor mental wellbeing and that can hinder individuals to use their psychological resources in dealing with distress. Death anxiety was related to lower level of prosocial motivation in

organizational employees (Jacobsen & Beehr, 2021). Frontline healthcare workers have been observed to be experiencing higher levels of depression, stress and anxiety. There have also been observations of symptoms of PTSD (Lee et al., 2018; Yıldırım et al., 2021). A sense of fear in individuals may lead to a distorted perception of risk, this distortion of present risk has been linked to various psychological concerns such as distress reactions, health risking behaviors, mental health disorders, and poor perceived health (Shigemura et al., 2020).

It is evident from literature that stronger religious beliefs have been reported to facilitate the achievement of posttraumatic growth. In some cases, it may enhance individual's motivation to perform better, which has also been observed to be a determinant of PTG. However, an increased perception of risk may also diminish the role of religiousness and motivation in acquiring PTG. Identifying certain factors that contribute to this growth, can be useful in helping these professionals. The present study aimed to observe the relationship between religious beliefs and posttraumatic growth. Further, the role of motivation as a mediator between religious beliefs and PTG, and the effect of risk perception as a moderator was assessed. It was hypothesized that:

- Stronger religious beliefs will be positively related to posttraumatic growth.
- Work motivation will mediate relationship between religious beliefs and posttraumatic growth.
- Risk perception will weaken the relationship between religious beliefs and posttraumatic growth.

## Method

### Sample

The doctors and nurses who specifically had served in COVID-19 wards were recruited. Non-probability purposive sampling technique was used. Online data was collected through acquaintances and snowballing. A total of 87 participants had been approached online and 67 responded. In person data was collected through hospitals, where 33 participants responded. 3 responses had been discarded due to incomplete information, hence, data of 97 participants were analyzed. Participants who were active-duty during the pandemic outbreak, i.e. the doctors and nurses were recruited.

**Table 1**

*Descriptive Statistics of Demographic Variables (N = 97)*

| ***Characteristics*** | ***f*** | ***%*** | ***M(SD)*** |
|---|---|---|---|
| **Age (22-51)** | | | 27.42(4.32) |
| **Gender** | | | |
| Men | 52 | 53.6 | |
| Women | 45 | 46.4 | |
| **Marital Status** | | | |
| Unmarried | 60 | 61.9 | |
| Married | 32 | 33.0 | |
| In a Relationship | 04 | 4.1 | |
| Separated | 01 | 1.0 | |
| **Religion** | | | |
| Islam | 90 | 92.8 | |
| Hinduism | 05 | 5.2 | |
| Christianity | 02 | 2.0 | |

| | | |
|---|---|---|
| **Monthly Family Income** (PKR) | | 142268.04(1173.94) |
| **Professional Role** | | |
| Resident | 56 | 57.7 |
| Physician | 23 | 23.7 |
| Medical Officer | 11 | 11.3 |
| Surgeon | 03 | 3.1 |
| Pathologist | 01 | 1.0 |
| O.T Manager | 02 | 2.1 |
| Nurse | 01 | 1.0 |
| **Training for COVID-19** | | |
| Untrained | 56 | 57.7 |
| Trained | 41 | 42.3 |
| **Residential Setting** | | |
| Urban | 78 | 70.9 |
| Rural | 32 | 29.1 |
| **Hospital Sector** | | |
| Public | 62 | 63.9 |
| Private | 35 | 36.1 |

## Measures

### *Personal Information Sheet*

The personal information sheet was used to gather information on age, gender, education, employment status, religious affiliation, marital status, number of family members, and residential status. Moreover, their level of medical specialization, experience and the presence or absence of special training regarding COVID-19 was also noted.

### *Religious Beliefs Scale (RBS)*

The Religious Beliefs Scale (RBS), developed by Chiang et al. (2017) contains 17 items of the RBS comprises of further factors, including "religious effects," "divine," "religious query," and "religious stress," A 5-point Likert scale is used for scoring, with 5 indicating "strongly agree" and 1 indicating "strongly disagree." Chiang et al. (2017) established the acceptable reliability and validity of RBS, calculated a Cronbach's alpha of .87, and used Confirmatory Factor Analysis to establish construct validity with acceptable model fit indices.

### *Work Extrinsic and Intrinsic Motivation Scale (WEIMS)*

Work Extrinsic and Intrinsic Motivation Scale (WEIMS) developed by Tremblay et al. (2009) was used. A 7-point Likert scale is used to assess the level of agreement. The internal consistency of the scale (Cronbach Alpha values) ranged from 0.64 to 0.83. The questionnaire contains 18 close-ended questions, three questions assess each of the six types of motivation i.e. intrinsic, integrated, identified motivation that provides the self-determination index for self-regulatory motivation; and introjected, external regulations, and amotivation that constitutes non-self-regulatory motivation index.

### *Perception of Risk Scale*

The scale was used to measure the COVID-19 related perceived risk by adapting a series of questions used to measure the risk perception of the SARS during the outbreak in 2004 (Imai et al., 2005). The reliability of the scale had been reported to be .76. To adapt the scale, we mainly changed the words of the original items such as replacing "SARS" with "COVID-19". There are a total

5 statements that are designed to measure how the risk of contagion is perceived in respect to degree of avoidance of patient, acceptance of risk, little personal control, fear and job change. The items are measured on 5-point Likert scale and the questions are positively scored. Higher score on this scale indicates higher perception of risk and vice versa.

***Post Traumatic Growth Inventory (PTGI-SF)***

A short form of the Post Traumatic Growth Inventory (PTGI-SF) was used to measure posttraumatic growth. The alpha reliability of the scale is .85. This scale has 10 items with five subscales. Participants rate the degree of change they experienced after trauma on a 6-point Likert scale ranging from 0 ("I did not experience this change as a result of this disaster") to 5 (I experienced this change to a very great degree as a result of this disaster"). Higher the score on scale would indicate higher the level of PTG and vice versa (Cann et al., 2010).

**Procedure**

First, prior permission from the authors of the scales was taken. Permission was also taken from the Director of the Institute of the Applied Psychology, University of the Punjab, Lahore, Pakistan as well. The initial participants were contacted through mutual parties involved, such as acquaintances and other personal connections. Those participants were further requested to provide the contact information of other potential individuals they may know of. A questionnaire was constructed on Google Forms and participants were sent the questionnaires through the email or WhatsApp. Researcher also visited hospitals that offered treatments to Coronavirus infected and approached the healthcare workers there on duty. The researcher took consent from the participants and assured that their participation will be completely voluntary, and their confidentiality would be maintained. The measures were administered individually. All the queries of the participants related to research were entertained.

**Ethical Considerations**

Consent form had been developed. The consent was taken from the participants. It was assured that the information obtained from them was to be kept confidential and that they were free to leave the study at any time they wished without any penalty or prejudice. Their personal information such as contact information had been kept strictly confidential as well. It had been ascertained that the information taken would not be used for any commercial purposes or publication other than academic research.

**Results**

Keeping in view the assumption of normality, all variables were checked and it was found that all variables were approximately normally distributed. Assessments of normal probability plots, skewness and kurtosis also verified that assumptions of univariate normality (-1 to +1), linearity between pair of variables and homoscedasticity were generally met. There was no need of transformation of data.

**Table 2**

*Psychometric Properties for Scales and Subscales Used in Study (N=97)*

| Scale | *M* | *SD* | Range | *α* |
|---|---|---|---|---|
| Posttraumatic Growth Inventory | 3.56 | 0.83 | 1.5-4.5 | .85 |
| Religious Beliefs Scale | 3.33 | 0.60 | 1.5-4.5 | .74 |
| WEIMS | 5.18 | 1.06 | 1.6-6.8 | .91 |

| | | | | |
|---|---|---|---|---|
| Self-regulatory Motivation | 5.09 | 1.14 | 1.0-7.0 | .86 |
| Non self-regulatory Motivation | 5.34 | 1.26 | 1.6-7.0 | .85 |
| Perception of Risk | 3.56 | 0.83 | 1.0-5.2 | .54 |

**Table 3**

*Pearson Product Moment Correlation for Post Traumatic Growth, Religious Beliefs, Motivations, Perception of Risk and Demographics Variables (N=97)*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | *M* | *SD* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Post traumatic growth | | .36** | .41** | .32* | .12 | .05 | .06 | .04 | .10 | 3.56 | 0.83 |
| 2 Religious Beliefs | | | .31** | .13 | -.02 | .05 | -.13 | .03 | -.04 | 3.33 | 0.60 |
| 3 Self-regulatory Motivation | | | | .71** | .15 | -.06 | .02 | .05 | .16 | 5.09 | 1.14 |
| 4 Non Self-regulatory | | | | | .49** | -.22* | .16 | .10 | .21* | 5.34 | 1.26 |
| 5 Perception of risk | | | | | | -.19 | .19 | .06 | .16 | 3.56 | 0.83 |
| 6 Gender | | | | | | | -.21* | -.14 | -.19 | - | - |
| 7 Age | | | | | | | | -.02 | .87** | 27.4 | 4.32 |
| 8 Monthly income | | | | | | | | | .02 | 1422 | 1173 |
| 9 Experience | | | | | | | | | | 2.75 | 3.11 |

*Note.* *$p$< .05; **$p$< .01; ***$p$< .001; for Gender (1 = women, 2 = men)

The correlation matrix indicated religious beliefs and both types of motivations were positively related to posttraumatic growth, while risk perception was not significantly related to PTG.

**Table 4**

*Hierarchical Multiple Regression Analysis showing Predictors of Post Traumatic Growth (N= 97)*

| **Variables** | ***B*** | **95%*CI* for *B*** | | ***SE*** | **β** | ***R²*** | **Δ*R²*** |
|---|---|---|---|---|---|---|---|
| | | ***LL*** | ***UL*** | | | | |
| **Step 1** | | | | | | .13 | .13*** |
| Constant | 1.90 | 1.01 | 2.78 | .45 | | | |
| Religious Beliefs | .50 | .24 | .76 | .13 | .36*** | | |
| **Step 2** | | | | | | .23 | .10** |
| Constant | .97 | -.04 | 1.93 | .51 | | | |
| Religious Beliefs | .37 | .11 | .63 | .13 | .27** | | |
| Self-regulatory Motivation | .18 | -.01 | .38 | .10 | .25* | | |
| Non-self-regulatory Motivation | .08 | -.11 | .27 | .09 | .11 | | |

*Note.* *$p$<.05; **$p$<.01; ***$p$<.001; $\beta$ = Standardized Coefficient; *CI*= Confidence interval; *LL*= Lower limit*; UL*= Upper limit.

Table 4 indicates that religious beliefs and self-regulatory motivation positively predicted PTG. The overall model for post-traumatic stress explained 50% of the variance. In step 1, change in variance accounted for ($\Delta R^2$) was equal to .13 which was significantly different from zero ($F_{(1, 97)}$ =14.39, $p$<.05). In step 2, change in variance accounted for ($\Delta R^2$) was significantly different from zero ($F_{(2, 197)}$ =7.22, $p$<.05). Individuals who had positive religious beliefs and were more self-motivated were more likely to experience growth.

**Table 5**

*Indirect Effect of Self-Regulatory Motivation on PTG of Healthcare Workers (N=97)*

| Predictor Variable | Outcome Variable | *B* | 95% CI *LL* | 95% CI *UL* |
|---|---|---|---|---|
| **Total Effect** | | | | |
| Religious Beliefs | PTG | .50*** | .24 | .77 |
| **Direct Effect** | | | | |
| Religious Beliefs | PTG | .35** | .10 | .61 |
| Religious Beliefs | Self-regulatory Motivation | .58** | .22 | .95 |
| Self-regulatory Motivation | PTG | .24*** | .10 | .38 |
| **Indirect Effect** | | | | |
| Religious Beliefs | PTG through SRM | .14* | .01 | .30 |

*Note.* *$p$<.05; **$p$<.01; ***$p$<.001; *B*= Regression Coefficient; *CI*= Confidence interval; *LL*= Lower limit*; UL*= Upper limit.

Significant indirect effects of religious beliefs through self-regulatory motivation on PTG suggest a partial mediation. To further assess the indirect effects, the calculated value was significant as well as the *Sobel test* $z$ = 2.36, $p$ = .02 (Sobel, 1982).

**Table 6**

*Moderation Analysis for Perception of Risk as Moderator for Relationship between Religious Beliefs and PTG (N=97)*

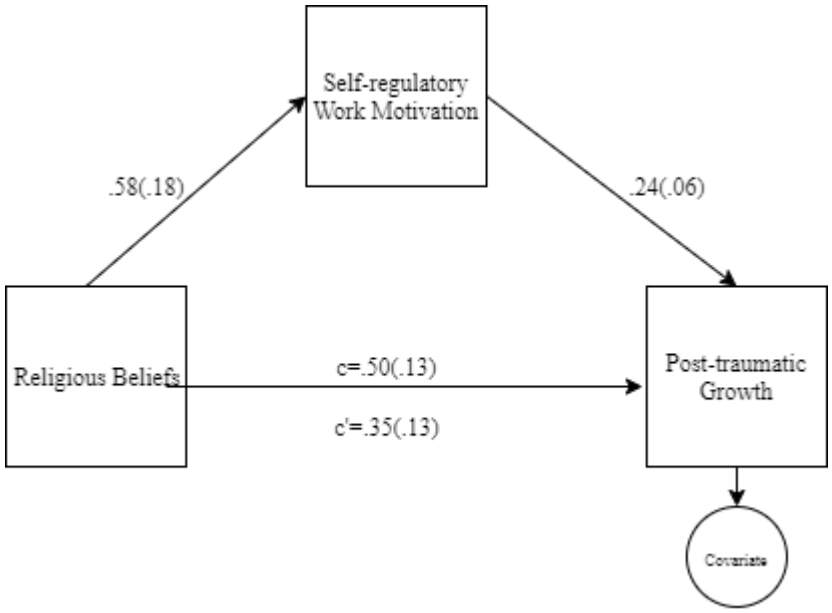
| | Estimates | *SE* | 95% CI *LL* | 95% CI *UL* | *p* |
|---|---|---|---|---|---|
| Intercept | 3.57 | .08 | 3.40 | 3.73 | <.001 |
| Religious Beliefs | .50 | .16 | .17 | .84 | .003 |
| Risk Perception | .13 | .09 | -.06 | .31 | .18 |
| Religious Beliefs X Risk Perception | .04 | .20 | -.35 | .44 | .83 |

*Note. CI*= Confidence interval; *LL*= Lower limit*; UL*= Upper limit; *$p$<.05; **$p$<.01; ***$p$<.001

Table 6 shows that risk perception did not interact with religious beliefs significantly to effect PTG.

**Figure 1**

*Emergent Model for Path Analysis of Study Variables*




*Note.* Self-regulatory motivation partially mediated the relationship between Religious beliefs and PTG of healthcare workers. Path coefficients are shown with standard errors in parenthesis.

**Discussion**

PTG is an indicator towards growth and healthy coping with traumatic experiences, which is important for healthcare workers right now. In line with the hypothesized relationship, it was seen that individuals who had more religious beliefs were not only more likely to experience PTG but may also cause them to exhibit positive indicators of growth. According to King et al. (2013), individuals who experience traumatic events try to find meaning in life through religion. This relationship can also be described as the crisis itself strengthened people's religious beliefs as well as induced PTG which is suggested through evidence that people have reported to being more religious after experiencing the COVID-19 crisis (Pirutinsky et al., 2020).

Along with religious beliefs, there was another variable that was predictive of PTG in healthcare workers i.e. the self-regulatory motivation which is composed of all the factors that intrinsically drive an individual to carry out their work. Being intrinsically motivated drove the healthcare workers to perform diligently during these times. Similar to this finding, there is evidence that suggests that nurses who experienced higher level of PTG also scored higher on intrinsic motivation (Yun et al., 2020). This suggests that to achieve growth in traumatic times, one has to utilize the factors that drive him/her internally rather than material rewards.

Furthermore, self-regulatory motivation played a mediating role between religious beliefs and posttraumatic growth. The presence of an influence from this variable may explain the PTG experienced by healthcare workers and what has still kept them showing up to work. While having religious beliefs enable individuals to experience growth, it may not explain the persistence and resilience of a healthcare worker who went to work daily despite being aware of the risk factors. This indicates that people with more religious beliefs tend to be more intrinsically motivated, and it is through

enhancing the motivation that it further assists the experience of growth despite the risks involved.

It had also been hypothesized that healthcare workers who had more severe perception of risk during the pandemic would find it difficult dealing with trauma and experiencing growth despite having more religious beliefs. However, there was no such effect of risk perception on PTG. Moreover, most of the individuals did not even report too high levels of risk perception. The process of achieving growth itself may have aided the healthcare workers in dealing with the risk as well. According to the theory of Posttraumatic Growth (Tadechi & Callohan, 2014), the trauma experienced should be severe enough to alter the previous schemas, this enables one to experience growth. Rather than hindering the process of achieving PTG, the experience of growth may itself have minimized the perception of risk. An interesting piece of evidence suggests that while a stronger perception of possible risk of COVID-19 is associated with unfavorable psychological outcomes, it was not the same when one comes in actual contact with the infection (Pirutinsky et al., 2020). This is explanatory as the healthcare workers had constantly been among the infected population. However, it was observed that risk perception was related to non-self-regulatory motivation. The healthcare workers who had higher perception of risk were also the ones who were more extrinsically motivated to work. This indicates that individuals who perceive themselves at more risk of contracting an infection are also more likely to be driven by non-self-regulatory incentives i.e. extrinsically motivated rather than an internal drive.

**Limitations**

The study was designed to be cross-sectional, which means the scores reported at the particular time frame may be affected due to the working conditions. The data was collected amidst the 4$^{th}$ wave of COVID-19 and the delta variation wave. Also, concept of PTG is tricky when it comes to objectifying it, because the goal is to assess the experience of growth through past events which cannot be completely objectified. This may translate into the reporting of participants who report according to their current state. The scale of risk perception reported low reliability, which could have translated into the scores as well.

**Suggestions**

The future researches could delve deeper into the aftermath of the pandemic and what level of PTG would be reported after the pandemic. A longitudinal study that carries these constructs further with a similar sample to assess the nature of growth would be useful. Qualitative research can also be helpful.

**Implications**

This study implies that religious beliefs can be used to induce PTG in healthcare workers which will aid them to deal with the aftereffects of this epidemic as well. There can be workshops arranged that train healthcare workers to assist them in PTG.

**Contribution of Authors**

Tehreem Raza: Conceptualization, Methodology, Validation, Formal Analysis, Investigation, Data Curation, Writing - Original Draft, Writing - Review & Editing
Iram Fatima: Supervision, Methodology, Validation, Reviewing Administration, Writing - Review & Editing

**Conflict of Interest**

The authors declared no conflict of interest.

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**References**

Abu-Raiya, H., & Sulleiman, R. (2021). Direct and Indirect Links Between

Religious Coping and Posttraumatic Growth Among Muslims Who Lost Their Children Due to Traffic Accidents. *Journal of Happiness Studies, 22*(5), 2215-2234. https://doi.org/10.1007/s10902-020-00318-5

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. doi:10.1177/0886260504267746

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*(21), 1709-1733. doi:10.1080/09638280902738441

Biswas, S. N., & Biswas, U. N. (2007). Spirituality, religiosity, and work motivation: An empirical exploration. *Psychological Studies, 51*(1), 29–36.

Cann, A., Calhoun, L. G., Tedeschi, R. G., Taku, K., Vishnevsky, T., Triplett, K. N., & Danhauer, S. C. (2010). A short form of the Posttraumatic Growth Inventory. *Anxiety, Stress, & Coping, 23*(2), 127-137. https://doi.org/10.1080/10615800903094273

Chang, M. C., Chen, P. F., Lee, T. H., Lin, C. C., Chiang, K. T., Tsai, M. F, & Lung, F. W. (2021). The Effect of Religion on Psychological Resilience in Healthcare Workers during the Coronavirus Disease 2019 Pandemic. *Frontiers in Psychology, 12.* doi: 10.3389/fpsyg.2021.628894

Chayu, T., & Kreitler, S. (2011). Burnout in nephrology nurses in Israel. *Nephrology Nursing Journal, 38*(1).

Chen, R., Sun, C., Chen, J. J., Jen, H. J., Kang, X. L., Kao, C. C., & Chou, K. R. (2021). A large-scale survey on trauma, burnout, and posttraumatic growth among nurses during the COVID-19 pandemic. *International Journal of Mental Health Nursing, 30*(1), 102-116. doi:10.1111/inm.12796

Chiang, Y. C., Lee, H. C., Chu, T. L., Han, C. Y., & Hsiao, Y. C. (2017). Psychometric testing of a religious belief scale. *The Journal of Nursing Research, 25*(6), 419–428. https://doi.org/10.1097/JNR.0000000000000197

Cormio, C., Romito, F., Giotta, F., & Mattioli, V. (2015). Post-traumatic growth in the Italian experience of long-term disease-free cancer survivors. *Stress and Health, 31*(3), 189-196. doi:10.1002/smi.2545

Cunningham, T., & Pfeiffer, K. (2022). Posttraumatic Growth as a Model to Measure and Guide Implementation of COVID-19 Recovery and Resiliency. *Nursing Administration Quarterly, 46*(1), 81-87. https://doi.org/10.1097/NAQ.0000000000000509

Ekedahl, M., & Wengström, Y. (2006). Nurses in cancer care—coping strategies when encountering existential issues. *European Journal of Oncology Nursing, 10*(2), 128-139. doi:10.1016/j.ejon.2005.05.003

Emblen, J. D. (1992). Religion and spirituality defined according to current use in nursing literature. *Journal of Professional Nursing, 8*(1), 41-47. doi: https://doi.org/10.1016/8755-7223(92)90116-G

Feingold, J. H., Hurtado, A., Feder, A., Peccoralo, L., Southwick, S. M., Ripp, J., & Pietrzak, R. H. (2022). Posttraumatic growth among health care workers on the frontlines of the

COVID-19 pandemic. *Journal of Affective Disorders, 296,* 35-40. https://doi.org/10.1016/j.jad.2021.09.032

García, F. E., Páez-Rovira, D., Zurtia, G. C., Martel, H. N., & Reyes, A. R. (2014). Religious coping, social support and subjective severity as predictors of posttraumatic growth in people affected by the earthquake in Chile on 27/2/2010. *Religions*, *5*, 1132–1145. doi:10.3390/rel5041132

Gibbons, S., Murphy, D., & Joseph, S. (2011) Counter transference and positive growth in social workers. *Journal of Social Work Practice, 25*(1):17–30. doi:10.1080/02650530903579246

Hanna, M. (2021). Religious and Spiritual Coping and Post-traumatic Growth in Response to Youth's Traumatic Grief and Loss (Doctoral dissertation, Université Saint-Paul/Saint Paul University). doi:10.20381/ruor-26312

Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology, 74*(5), 797. doi:10.1037/0022-006X.74.5.797

Imai, T., Takahashi, K., Hoshuyama, T., Hasegawa, N., Lim, M. K., & Koh, D. (2005). SARS risk perceptions in healthcare workers, Japan. *Emerging Infectious Diseases, 11*(3), 404.

Jacobsen, A., & Beehr, T. A. (2021). Employees' Death Awareness and Organizational Citizenship Behavior: A Moderated Mediation Model. *Journal of Business and Psychology, 1*-21. https://doi.org/10.1007/s10869-021-097721

King, M., Marston, L., McManus, S., Brugha, T., Meltzer, H., & Bebbington, P. (2013). Religion, spirituality and mental health: results from a national study of English households. *The British Journal of Psychiatry, 202*(1), 68-73. doi:10.1192/bjp.bp.112.112003

Koenig, H. G. (2012). Religion, spirituality, and health: The research and clinical implications. *ISRN Psychiatry*. doi:10.5402/2012/278730.

Kwon, H.S., & Kin, S.R. (2006) Chang Counselors` vicarious trauma experience from working with Victims of sexual violence. *Korean Journal of Counseling and Psychotherapy*, *18*(3):495–518.

Lee, S. M., Kang, W. S., Cho, A. R., Kim, T., & Park, J. K. (2018). Psychological impact of the 2015 MERS outbreak can on hospital workers and quarantined hemodialysis patients. *Comprehensive Psychiatry, 87*, 123-127.https://doi.org/10.1016/j.comppsych.2018.10.003

Leppin, A., & Aro, A. R. (2009). Risk perceptions related to SARS and Avian Influenza: Theoretical foundations of current empirical research. *International Journal of Behavioral Medicine, 16* (1), 7-29. doi:10.1101/2020.02.24.20027268

United Nations (2022, February 21). COVID-19: Health workers face 'dangerous neglect', warn WHO, ILO. https://news.un.org/en/story/2022/02/1112352

Pirutinsky, S., Cherniak, A. D., & Rosmarin, D. H. (2020). COVID-19, mental health, and religious coping among American Orthodox Jews. *Journal of Religion and Health, 59*(5), 2288-2301.https://doi.org/10.1007/s10943-020-01070-z

Prieto-Ursúa, M., & Jódar, R. (2020). Finding meaning in hell. The role of meaning, religiosity and spirituality

in posttraumatic growth during the coronavirus crisis in Spain. *Frontiers in Psychology, 11*, 3066. doi:10.3389/fpsyg.2020.567836

Ryan, R. M., & Deci, E. L. (2002). Overview of self-determination theory: An organismic dialectical perspective. *Handbook of Self-determination Research, 2*, 3-33.

Shah, H., & Mishra, A. K. (2021). Trauma and children: Exploring posttraumatic growth among school children impacted by armed conflict in Kashmir. *American Journal of Orthopsychiatry, 91*(1), 132–148. https://doi.org/10.1037/ort0000523

Shigemura, J., Ursano, R. J., Morganstein, J. C., Kurosawa, M., & Benedek, D. M. (2020). Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: Mental health consequences and target populations. *Psychiatry and Clinical Neurosciences*, *74*(4), 281. doi:10.1111/pcn.12988

Sjöberg, L. (2000). Factors in risk perception. *Risk Analysis, 20*(1), 1-11. https://doi.org/10.1111/0272-4332.00001

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), Sociological methodology (pp.290-312). San Francisco: Jossey-Bass.

Steers, R. M., Mowday, R. T., & Shapiro, D. L. (2004). The future of work motivation theory. *Academy of Management Review, 29*(3), 379-387. doi:10.5465/amr.2004.13670978

Taku, K., Prioleau, P. G., Anderson, D. S., Takeguchi, Y., Sekine, H., Maeda, M., & Katz, C. L. (2018). Medical studentt reactions to disaster after the 2011 Great East Japan Earthquake: motivation and posttraumatic growth. *Psychiatric Quarterly, 89*(4), 1007-1018. https://doi.org/10.1007/s11126-018-9601-8

Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*(3), 455-471.

Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: conceptual foundations and empirical evidence. *Psychological Inquiry*, *15*(1), 1-18.

Tremblay, M. A., Blanchard, C. M., Taylor, S., Pelletier, L. G., & Villeneuve, M. (2009). Work Extrinsic and Intrinsic Motivation Scale: Its value for organizational psychology research. *Canadian Journal of Behavioral Science*, *41*(4), 213-226. https://doi.org/10.1037/a0015167

Yıldırım, M., Geçer, E., & Akgül, Ö. (2021). The impacts of vulnerability, perceived risk, and fear on preventive behaviours against COVID-19. *Psychology, Health & Medicine, 26*(1), 35-43. doi:10.1080/13548506.2020.1776891

Yun, M. R., Lim, E. J., Yu, B., & Choi, S. (2020). Effects of academic motivation on clinical practice-related post-traumatic growth among nursing students in South Korea: mediating effect of resilience. *International Journal of Environmental Research and Public health, 17*(13), Article. 4901. https://doi.org/10.3390/ijerph17134901

Zhou, X., Wu, X., Li, X., & Zhen, R. (2018). The role of posttraumatic fear and social support in the relationship between trauma severity and posttraumatic growth among adolescent survivors of the Yaan earthquake. *International Journal of*

*Psychology, 53*(2), 150-156. https://doi.org/10.1002/ijop.12281

Zoellner, T., & Maercker, A. (2006). Posttraumatic growth in clinical psychology, A critical review and introduction of a two component model. *Clinical Psychology Review, 26*(5), 626-653. doi: https://doi.org/10.1016/j.cpr.2006.01.008