



## Spiritual struggles and resting pulse rates: Does strong distress tolerance promote more effective coping? ☆



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### ARTICLE INFO

#### Article history:

Received 14 February 2016

Received in revised form 17 April 2016

Accepted 18 April 2016

Available online xxxx

#### Keywords:

Spiritual struggles

Distress tolerance

Resting pulse rates

### ABSTRACT

Research indicates that spiritual struggles (i.e., tensions and strains associated with sacred issues) are associated with greater psychological distress and diminished levels of well-being. However, fewer studies have assessed the relationship between spiritual struggles and indicators of physical health. The purpose of the current study is to see whether spiritual struggles are associated with clinically higher levels of resting pulse rates. In addition, an effort is made to see if the effects of spiritual struggles on resting pulse rates are offset for individuals with a strong sense of distress tolerance. Data from a recent nationwide survey suggest that spiritual struggles are associated with higher resting pulse rates, but only among individuals who do not have a strong sense of distress tolerance.

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A rapidly growing body of research indicates that greater involvement in religion is associated with better physical and mental health (Koenig, King, & Carson, 2012). However, this literature further reveals that the relationship between religion and health is complex. In some instances, greater involvement in religion may benefit health but at other times religion may exert a negative effect on health. We focus on one facet of religion that may potentially erode health – spiritual struggles. Spiritual struggles are defined as conflict about sacred matters that are encountered with the supernatural, other individuals, and the self (Exline, 2013a). But once again, the relationship between spiritual struggles and health is complex, especially if spiritual struggles are viewed as a religious stressor. Cast in this context, spiritual struggles may erode health, but only if an individual does not possess adequate personal resources to deal with it. Once such resource is distress tolerance, which is defined as the perceived ability to withstand negative emotional states as well as aversive physical discomfort (for a review of this research see Leyro, Zvolensky, & Bernstein, 2010). The purpose of the analyses presented below is to see if distress tolerance offsets the noxious effects of spiritual struggles on health.

The literature reveals that spiritual struggles are associated with a range of mental health outcomes including a diminished sense of life satisfaction and happiness (Abu-Raiya, Pargament, Krause, & Ironson, 2015), a number of psychiatric conditions (e.g., phobic anxiety,

paranoid ideation, obsessive-compulsiveness) (McConnell, Pargament, & Ellison, 2006), addictive behaviors (Faigin, Pargament, & Abu-Raiya, 2014), and compromised sleep quality (Ellison, Bradshaw, Storch, Marcum, & Hill, 2011). Some studies also find that spiritual struggles are associated with physical health outcomes, including diminished physical functioning (Park, Wortmann, & Edmondson, 2011) and a greater mortality risk (Pargament, Koenig, Tarakeswar, & Hahn, 2001). However, a good deal of this research has typically been done with patient populations, such as individuals with advanced heart failure (Park et al., 2011) and older adults with a number of physical health problems (Pargament et al., 2001). Working with this type of sample makes it difficult to determine whether the findings can be generalized to the general population.

We aim to contribute to the literature on spiritual struggles, distress tolerance, and health in three potentially important ways. First, our data come from a large nationally-representative sample of adults. This makes it possible to generalize the findings to all adults in the nation. Second, rather than rely on self-reports of health, we assess an important biomarker of cardiovascular problems and mortality risk – resting pulse rate (e.g., Cook, Togni, Schaub, Wenawessner, & Hess, 2006). Other researchers have examined biological outcomes that are associated with spiritual struggles. For example, Ai, Syemour, Tice, Kronfol, and Bolling (2009) report that more intense spiritual struggles are associated with elevated levels of plasma interleukin-6 (i.e., a measure of immune functioning), but this research was conducted with data provided by a sample of patients awaiting cardiac surgery. Third, viewed broadly, spiritual struggles may be construed as a stressor. Assessing spiritual struggles from this perspective makes it possible to take advantage of the well-developed literature on stress. Several

☆ This research was supported by a grant from the John Tempelton Foundation.

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researchers have empirically examined personal resources that moderate the effects of spiritual struggles on health and well-being (Abu-Raiya, Pargament, & Krause, 2015; Ellison, Fang, Flannelley, & Steckler, 2013). However, we strike out in a different direction by assessing a personal resource that has yet to be evaluated in research on spiritual struggles — distress tolerance.

Focusing on the stress-moderating effects of distress tolerance is important because, as Leyro et al. (2010) point out, researchers and clinicians have a long standing interest in the ways in which low levels of distress tolerance trigger and maintain a range of psychological disorders. Moreover, interest in the ways in which distress tolerance operates has served as the impetus for interventions that are designed to promote greater tolerance in the face of internal as well as external risk factors (e.g., Barlow, Allen, & Choate, 2004). By linking distress tolerance with resting pulse rates, we aim to expand the scope of these practical applications to include physiological as well as mental health problems.

Before turning to the mechanics of our study, we briefly discuss the burgeoning literature on distress tolerance, we reflect on why it may help people deal with spiritual struggles, and we examine why spiritual struggles and distress intolerance might be associated with resting pulse rates.

## 1. Spiritual struggles, distress tolerance, and resting pulse rate

Leyro et al. (2010) note that researchers have been studying distress tolerance for over a half century. During this time, distress tolerance has been associated with the development and maintenance of a number of forms of psychopathology including substance use, as well as anxiety, mood, and personality disorders. However, the majority of studies on distress tolerance focus on the effects of stress on mental health outcomes (e.g., O'Cleirigh, Ironson, & Smits, 2007).

Unfortunately, there are two problems with the literature on distress tolerance. First, relatively few studies have assessed the relationship between distress tolerance and physical health outcomes. If spiritual struggles and distress tolerance are associated with physical health, then researchers and clinicians need to be aware of the ways in which the interface between these constructs may affect health and treatment needs. Second, there is also a lack of research on the relationship between spiritual struggles and distress tolerance. This type of research is important because spiritual struggles may be a source of stigma, shame, and guilt, which may make it more difficult for individuals to tolerate the emotional distress that is associated with spiritual struggles. Expanding the scope of distress tolerance to encompass religious factors is important because it opens up new vistas of research and expands the ways in which researchers view this important trait.

Even though we are exploring new territory, there is good reason to expect that distress tolerance may influence the relationship between stressors, like spiritual struggles, and measures of physical health status, such as resting pulse rates. As Leyro et al. (2010) report, people with low levels of distress tolerance try to avoid negative emotions by relying on escape and avoidance coping responses when they encounter stressful events. This pattern of response is noteworthy because a considerable number of studies indicate that use of escape and avoidance responses is associated with more symptoms of physical health problems (Boals, vanDellen & Banks, 2011), faster disease progression (Ironson et al., 2005), a lower health-related quality of life (Whitworth et al., 2013), and an elevated mortality risk (Murberg, Furze, & Bru, 2004).

Viewing distress tolerance as a personal resource that can help people deal with adversity makes it possible to show that distress tolerance is part of the wider literature on resiliency, which is defined as the ability to move forward, and even grow, in the face of misfortune (Jackson, Firtko, & Edenborough, 2007). A wide range of personal qualities and traits have been assessed in the study of resilience, including self-confidence, self-discipline, and flexibility (Giordano, 1997). This range of traits reveal how distress tolerance may operate as a result, it is not

difficult to see why distress tolerance would fit under the broad rubric of resilience, as well.

Research consistently reveals that pulse rates tend to increase when people are exposed to stress (e.g. Johnston, Bell, Jones, Allan, & Ricketts, 2015; Sharpley, 1994). So if spiritual struggles can be construed as a stressor, if stress elevates resting pulse rates, and if distress tolerance is an effective personal resource, then distress tolerance should offset the effects of spiritual struggles on resting pulse rates. The goal of our study is to see if this hypothesis is valid.

The theoretical argument that is developed in this section leads to the following study hypothesis:

**H<sub>1</sub>.** The effects of spiritual struggles on resting pulse rates will be offset for study participants with high levels of distress tolerance.

## 2. Methods

### 2.1. Sample

The data for this study come from the Landmark Spirituality and Health Survey (LSHS), a nationwide face-to-face survey of adults age 18 and older who reside in the coterminous United States (i.e., residents of Alaska and Hawaii were excluded). This survey, which was completed in 2014, were conducted by the National Opinion Research Center (NORC). A more detailed description of the sampling procedures is found on this website: (<http://landmarkspirituality.sph.umich.edu/>).

The response rate for the study was 50%. Information on the calculation of the response rate may be found in the URL provided above (see the document on sampling). The total number of completed interviews was 3010. The sample was broken down into three age groups: 18–40 ( $N = 1000$ ), 41–64 ( $N = 1002$ ), and age 65 and older ( $N = 1008$ ).

The analyses that are presented below are based on a subsample of 1732 study participants. There are three reasons why the analyses were restricted to this group. First, an effort was made in the current study to obtain a range of biomarker data from the study participants. However, as in any study, some participants declined to participate in this phase of the study ( $N = 604$ ). Second, questions on spiritual struggles were not administered to study participants who self-identified as atheists ( $N = 78$ ). Third, the procedures devised by Exline and her colleagues to measure spiritual struggles are used in the current study (Exline, Pargament, Grubbs, & Yah, 2014). Their protocol involves asking study participants to identify the most stressful experience they have encountered in the past 18 months. Following this, study participants are told to keep this event in mind as they answer the questions on spiritual struggles. A total of 707 study participants were excluded from the current study because they did not encounter a major stressor during this time. Consequently, after using listwise deletion to deal with item non-response, complete data were available for 1732 individuals.

Preliminary analyses revealed that the average age of the study participants in the sub-sample of cases that is assessed below is 45.7 years ( $SD = 17.0$ ), 41.3% are men, 42.4% were married at the time of the interview, and the average level of education was 13.5 years ( $SD = 3.1$  years). This descriptive information as well as all the other findings in this study have been based on data that have been weighted.

### 2.2. Measures

#### 2.2.1. Resting pulse rate

Two pulse rate readings were taken by trained interviewers. These readings were obtained when blood pressure cuffs were used to assess blood pressure. Five minutes elapsed between the two readings. Each time, study participants were seated with both feet on the floor. The two readings were averaged for each study participant. Following this,

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