Burnout in Japanese residents and its associations with temperament and character

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ABSTRACT

Aim: High risk of burnout in healthcare workers has long been recognized. However, there are no methods to predict vulnerability to burnout.
Methods: We examined whether temperament and character are associated with burnout and depressive state in residents by using the Temperament and Character Inventory (TCI). The TCI was used for residents at the beginning of clinical training and then the Maslach Burnout Inventory–General Survey (MBI–GS) and the Self-Rating Depression Scale (SDS) were administered at the beginning of clinical training and after four and ten months. Participants were 85 residents who started clinical training after graduating from the University of Miyazaki Hospital in April 2012 and 2013.
Results: After ten months, 23.5% of participants were newly identified with burnout using the MBI-GS and 15.3% of participants were newly diagnosed with depressive state using the SDS. We found that residents with high Cooperativeness were significantly more prone to burnout and that residents with high Harm Avoidance and low Self-Directedness were significantly more prone to depressive states.
Conclusions: Our results suggest that the TCI can predict not only the risk for future depressive state but also the risk for future burnout. We feel it is important for the resident education system to identify residents with these temperament and character traits and to help high-risk residents avoid burnout and depressive state.

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1. Introduction

Burnout is a unique stressful situation characterized by mental and physical exhaustion caused by various occupational issues (Maslach et al., 2001). It has been widely recognized that physicians are at a high risk of burnout due to the stressful conditions under which they often work (Shanafelt et al., 2012). Physician burnout can cause personal mental health problems and can also lead to malpractice and unethical medical behavior. An additional serious concern is that physician burnout may lead to a shortage of physicians at clinical sites and a subsequent collapse of the medical system, especially in Japan. The current system for educating medical school graduates in Japan, introduced in 2003, features a matching system in which training hospitals are matched up with a two-year clinical training program. In this

work, a physician who is participating in a clinical training program is referred to as a "resident". Burnout during clinical training has gained significant attention alongside concerns relating to job performance and patient care (Inaba et al., 2009; Ishak et al., 2009). It seems clear that reducing and preventing resident burnout is key for the avoidance of medical-system collapse in Japan.

Self-administered questionnaires such as the Maslach Burnout Inventory–General Survey (MBI–GS) and the Burnout Measure (BM) are widely used to evaluate burnout, and the reliability and validity of these tests have been verified in different countries and in different types of industries (Maslach et al., 1996; Pines et al., 1981). Physician burnout has been extensively studied using these evaluation scales, suggesting that environmental aspects such as overload and role stress as well as personal details such as age and work experience can be risk factors (Thomas, 2004). The MBI-GS is helpful in identifying physicians who are experiencing burnout. However, there have been no studies evaluating vulnerability or predictors as they pertain to resident burnout (Stoyanov and Cloninger, 2012).

There have been several reports indicating that certain of the personality profiles classified using the Temperament and Character Inventory (TCI), a self-administered questionnaire, might be predictors for future depressive episodes in workers in specific industries (Hansenne et al., 1999; Naito et al., 2000).

In this study, we investigated whether the TCI could be used to predict or to recognize early resident burnout and/or depressive episodes.

2. Methods

2.1. Participants

We targeted 89 residents of the center of clinical training after graduation from the University of Miyazaki Hospital between April 2012 and March 2014. The participants were 85 residents including 47 men and 38 women whose average age was 26.24 ± 3.81 (mean $\pm$ standard deviation) years. This study was approved by the medical ethics committee of the Faculty of Medicine at the University of Miyazaki and conforms to the provisions of the Declaration of Helsinki. Participants provided written informed consent prior to participation. Anonymity of all participants was preserved.

2.2. Procedures

We administered the MBI-GS and the Self-Rating Depression Scale (SDS) at the beginning of clinical training and again after four and ten months. We also examined whether temperament and character are associated with burnout and depressive state in residents by using the TCI results at the beginning of clinical training.

2.3. Temperament and Character Inventory (TCI)

Cloninger et al. (1993) designed the TCI to evaluate personality structure with a 7-factor model of temperament and character under the assumption that personality structure is composed of temperament and character. They proposed that temperament, which includes four dimensions (Novelty Seeking, Harm Avoidance, Reward Dependence, and Persistence), reflects variations in the dopaminergic, serotonergic, and noradrenergic systems in the central nervous system, is influenced by genes, and contributes to behavioral decisions. Novelty Seeking is related to exploratory activity, Harm Avoidance is related to the inhibition of behaviors, Reward Dependence is related to the maintenance of behaviors, and Persistence is related to perseverance. In contrast, character, which includes three dimensions (Self-Directedness, Cooperativeness, and Self-Transcendence), matures in adulthood and influences personal and social effectiveness as people develop their self-concepts. Self-Directedness is related to self-determination, Cooperativeness is related to individual differences in the extent to which people identify with and accept others, and Self-Transcendence is related to spirituality. In this study, we examined whether temperament and character can be used to evaluate vulnerability to burnout using the short Japanese version of the TCI (125 items), where each item is rated as "Yes" or "No". The reliability and validity of the short Japanese version of the TCI have been verified (Kijima et al., 2000).

2.4. Maslach Burnout Inventory–General Survey (MBI–GS)

Burnout was measured with the MBI–GS (developed by Maslach), which consists of 16 items covering three dimensions: exhaustion, cynicism, and professional efficacy (Maslach and Jackson, 1981). All items are scored on a Likert scale from 0 (never) to 6 (every day) based on the frequency with which each indicator occurs. In the process of burnout, exhaustion comes first, followed by cynicism and then diminished professional efficacy. Brennink-meijer and VanYperen (2003) suggested the "exhaustion + 1" criterion, which states that subjects with intense exhaustion and either a high level of cynicism or a low level of professional efficacy, or both, are considered to be burnt out. Maslach and Jackson (1986) designed the MBI-Human Services Survey (MBI-HSS) to evaluate burnout of interpersonal professionals such as medical staff. However, the reliability and validity of the Japanese version of the MBI-HSS have not been verified (Higashiguchi et al., 1998). In this study, we used the Japanese version of the MBI-GS to evaluate resident burnout instead of the MBI-HHS (Kitaoka-Higashiguchi et al., 2004). However, as the MBI-GS does not have clinical cutoffs indicating burnout, the cut-off values in this study were selected in accordance with the previous research (Kitaoka-Higashiguchi et al., 2004; Maslach et al., 1996). For exhaustion, the cut-off value was 4.0 points or higher; for cynicism, the cut-off value was 2.60 points or higher; and for professional efficacy, the cut-off value was 1.50 points or lower.

2.5. Self-Rating Depression Scale (SDS)

Zung (1965) designed the SDS to evaluate depressive state. The original SDS consists of 20 items including melancholy, disturbance of sleep induction, exhaustion, and others. In this study, we used the Japanese version of the SDS, where each item is rated as "a little of the time", "some of the time", "a good part of the time", and "most of the time", to evaluate the depressive state of the residents (Kobayashi, 1987). The reliability and validity of the Japanese version of the SDS have been verified (Fukuda and Kobayashi, 1973). In the Japanese version of the SDS, 20–39 points is regarded as "Normal Range", 40–49 points is regarded as "Mildly Depressed", and 50 points or higher is regarded as "Moderately Depressed". In the previous research, the cut-off value of SDS was 50 points or higher.

2.6. Statistical analysis

Pearson's chi-squared test was used to evaluate relevance between the presence or absence of burnout and the presence or absence of depressive state.

Analysis of variance (ANOVA) was used to compare differences between the group that had been newly identified with burnout using the MBI-GS after ten months and the group that had not been diagnosed. Pearson's product-moment correlation coefficient was used to evaluate the relationship between the presence or absence of burnout and the subordinate items of the TCI in order to determine the temperament and character traits involved in burnout. We excluded participants (n = 6) who had been identified with burnout at the outset.

We also used ANOVA to compare differences between the group that had been newly diagnosed with depressive state with SDS after ten months and the group that had not been diagnosed. Pearson's product-moment correlation coefficient was used to calculate the relationship between the presence or absence of depressive state and the subordinate items of the TCI in order to determine the type of temperament and character traits involved in depressive state. We excluded participants (n = 4) who had been diagnosed with depressive state at the outset. We used SPSS version 22.0J for statistical analyses.

3. Results

Fig. 1 shows the flow of participants performing the TCI, MBI-GS, and SDS as well as the number of participants who had