Hardiness and Attributional Styles as Predictors of Mental Health in Factory Workers

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Abstract: Despite the high costs associated with mental health problems in the workplace, few studies have yet been published concerning the relationship between personality factors and mental health outcomes in industrial settings. The aim of the present study was to investigate the interrelations among hardiness and attributional styles in predicting mental health among a sample of factory workers. Participants were 261 (185 males, 76 females) Quchan industrial zone workers, aged 21 to 49 (M age = 26.81 years, SD = 6.42). Main findings were as follows; (a) There was significant gender differences on hardiness, with male workers scoring significantly higher than female ones (b) Hardiness and optimistic attributional style were significant predictors of mental health (as measured by GHQ-28) and accounted for 28% of mental health variance together; pessimistic attributional style was not a significant predictor for GHQ scores in this regression model. The findings have implications for all professionals who are interested in reducing stress and enhancing mental health among industry workers.

Key words: Hardiness; Optimistic attributional style; Pessimistic attributional style; Factory workers; Mental health

INTRODUCTION

Common mental health problems are widespread amongst working people. 15 - 25% of the general population has a common mental health problem at any one time. The cost, both to the lives of individuals, and to the functioning of workplaces, is vast (Seymour & Grove, 2005). Moreover, people affected with this type of problem are absent from work for longer periods of time than workers whose absences are due to other disorders. Also, the longer the absence, the more difficult the re-entry into the labour market(Briand et al,2007).

Over the past several decades, research has focused on identifying those factors that have direct, indirect or modifying effects on health. More recently, relationship between daily and workplaces stress with mental health shifted toward study of resistance ressource that can neutralized the impact of stressful events. One concept that has emerged against illness and distress is “psychological hardiness”(Koranian, Khorasavi & Smael,2008). The concept of hardiness was first identified by Kobasa as a resistance factor in the late 1970,s, initially used to examine the relationship between health and stress (Jennings & Staggers, 1994). Kobasa (1979) preliminary findings revealed that individuals who experienced high levels of stress, but remained healthy had a different personality structure than individuals who experienced high levels of stress and became ill (Koranian, Khorasavi & Smael,2008). The central domain of this personality structure, labeled hardiness, was subsequently defined as, “ the use of ego resources necessary to appraise, interpret, and respond to health stressors”( Pollock, 1989, p. 53).In this study, Psychological hardiness was examined because there is a growing body of research that has shown hardiness enhances resiliency in response to the ongoing demands and pressures of everyday life (Maddi, 2008).

Another psychological construct associated with health is attributional styles (Cheng, & Furnham, 2001; Fraguas et al, 2008), and comes from the reformulated model of learned helplessness (Abramson, Seligman & Teasdale, 1978). This tradition emphasises the ways in which people habitually or consistently explain events or their attributional style(Poropat, 2002). Attributional style is composed of three dimensions: internality, the
degree to which one perceives oneself as personally responsible for an event; stability, the degree to which one perceives the cause of the event as present throughout time; and globality, the degree to which one perceives the cause as present across conditions (Peterson et al., 1982). An optimistic explanatory style is indicated by attributions for negative events that are external (low internality), unstable (low stability), and specific (low globality), Alternatively, people who have a more pessimistic attributional style attribute negative events to internal, stable and global causes (Seligman, 1991, Peterson, Seligman, Yurko, Martin, & Friedman, 1998).

Aims:
This study intended to identify interaction between hardiness and attributional styles in the prediction of mental health among a sample of factory workers at Quchan industrial zone, and hoped to enhance the current literature. Factory workers are a particularly relevant population for examining such research aims, for factory workers have been identified as being at increased risk for mental health problems (Seymour & Grove, 2005). The primary purposes of this study were (a) to determine the relationships between the main research variables; (b) to examine which combination of variables (hardiness and attributional styles) was the best predictor of mental health in the sample.

2. Method:
2.1. Design:
Correlational design was used to examine the relationships between the predictor variables of hardiness and attributional styles and the criterion variable of mental health.

2.2. Participants and Procedure:
Stratified random sampling technique was used for the selection of the sample. The sample consisted of 261 (185 males, 76 females) factory workers, employed at Quchan industrial zone (in the northeast of Iran). The workers age ranged from 21 to 49 (M age = 29.81 years, SD = 5.42), of which, 9.5% (25) were aged between 21-25, 35.2% (92) 26-34 and 55.1% (35 or older). Almost all workers had full-time jobs and had less than higher education (higher vocational training or university degree). Every participant was informed that (a) data would be kept confidential and anonymous and (b) research findings would be reported only as group data. The participants were assured that their participation was voluntary and that if they chose not to participate in the study they could withdraw from the study at any time. Consent was obtained from the participants before the actual administration of the questionnaires, which was conducted in group format. Participants were asked to complete the three measures in quiet conditions. Each participant was assigned a code number, and data were collected and recorded so as to protect the anonymity of subjects.

2.3. Measures:
Ahvaz Hardiness Inventory: Hardiness was measured with the Ahvaz Hardiness Inventory (AHI). The AHI is a 27-item self report scale developed by Najarian, Kiamarthi & Mehrabi in 2003 (Kiamarthi & Abolghasemi, 2006). AHI is a Likert-type scale ranging from 0 (never) to 3 (very frequently). Narimani et al (2006) reported. 72 Concurrent validity AHI with polti hardiness questionnaire. The Cronbach alpha in the present study for the AHI was 75.

The Attributional Style Questionnaire (ASQ):
The ASQ was developed specifically to assess attributional style in the framework of the reformulated theory of learned helplessness (Peterson et al, 1982). It was used within this study because it is both the most widely used assessment of attributional style and considered to be the most effective for administration to non-clinical populations (Poropat, 2002). The ASQ is made up of 12 different hypothetical situations, consisting of 6 good events (three achievement and three affiliation events) and 6 bad events (three achievement and three affiliation events). Three different types of scores can be obtained with the ASQ: 1.) a composite negative attribution style score (CoNeg) which indicates how participants generally explain bad events; 2.) a composite positive attributional style score (CoPos), which indicates how participants generally explain good events; and 3.) a composite positive minus composite negative attributional style score (CPCN). The ASQ has been used in a variety of studies and has demonstrated substantial validity (Gordon, 2008). In the present study, internal consistencies for CoNeg (α = .78) and CoPos (α = .81) were acceptable.
General Health Questionnaire:

GHQ-28 is a well known and extensively validated screening questionnaire, and it provides a global index of psychological health (a=0.79), and psychopathology across four areas: somatic symptoms, anxiety and insomnia, social dysfunction and severe depression (Goldberg & Hillier, 1979). It consists of 28 items scored on a four-point scale. For research purposes the preferred scoring system is 0–3 with higher scores indicating increased symptoms. The four factors mentioned above can be utilised as sub-scales, but for this study, the total GHQ score was used. Goldberg and Williams (1991) report validity coefficients ranging from 0.32 to 0.70 for each of the four subscales. A test–retest reliability of 0.90 is reported (Beasley, Thompson & Davidson, 2003).

In Iran Palahang, Nasre Esfahani and Baraheni reported a Cronbach alpha coefficient of 0.91 for GHQ (Rahimian Boogar & Asgharnejad, 2008). The Cronbach alpha in the present study for the CRQ was 0.92.

2.4. Data Analysis:

In this study, the data were analyzed by using SPSS 16.0 statistical package. Statistical procedures used in this study include descriptive analysis of means and standard deviations, Pearson’s correlation coefficients and stepwise multiple regression. Also, in order to determine age and gender differences, two-tailed t-tests and univariate analysis of variance (post hoc scheffe test) were used to compare the data.

3. Results:

3.1. Demographics:

There were no significant differences between the demographic Variables (age & gender) on ASQ. The only significant difference was found on hardiness, where male workers reported higher level of hardiness in comparison to female ones (t = -8.12, p=0.009), and older workers scored higher than younger age groups (F = 4.24; P <.0001).

3.2. Correlational Analysis:

Pearson’s correlation coefficients were calculated before regression analyses. Table 1 presents the correlation matrix between all variables included in the analysis. The correlations between the variables are all significant. The results revealed a significant negative association between hardiness and pessimistic attributinal style and GHQ score (\( r = -0.16 \) and \( r = -0.45 \) respectively, \( p < 0.01 \)). This findings supports other studies which have identified similar correlations. Optimistic attributinal style was negatively correlated with pessimistic attributinal style (\( r = -0.30, \) p < 0.01) and GHQ score (\( r = -0.35, \) p < 0.01). In present study, as shown in Table 1, pessimistic attributinal style is positively related to GHQ score (\( r = 0.10 \) p < 0.05).

<table>
<thead>
<tr>
<th>Variable</th>
<th>-1</th>
<th>-2</th>
<th>-3</th>
<th>-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardiness</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimistic attributinal style</td>
<td>-.20**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pessimistic attributinal style</td>
<td>-.16**</td>
<td>-.30**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>GHQ score</td>
<td>-.45**</td>
<td>-.35**</td>
<td>.10*</td>
<td>1</td>
</tr>
<tr>
<td>Mean</td>
<td>53.1</td>
<td>14.8</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>5.5</td>
<td>1.6</td>
<td>1.8</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Note. *p<.05, ** p<.01

3.3. Regressional Analysis:

A stepwise multiple regressions was performed to examining the predictive power of hardiness and attributinal styles in relation to mental health (as measured by the GHQ). Table 2 shows regression results for the prediction of GHQ scores. As we can see, in model 1, the \( R^2 \) indicates that 21 of the variance in mental health was accounted for by hardiness. With .28 of the variance accounted for by hardiness and Optimistic attributinal style in step 2 (F(2,358) = 70.628, p <.001), these criterion variables were significant predictors of mental health. Since the increment in \( R \) with inclusion of pessimistic attributinal style does not reach the necessary statistical criterion, this variable are excluded from final equation. Also, the semipartial correlation coefficients (SC) values for the variables in second step were -.39, -.27 respectively. The coefficients represent the unique contribution made by each variable when the other is controlled. In sum, the results showed that hardiness and optimistic attributinal styles explain significant proportion of variance in mental health, and indicate that hardiness is more predictive of intensity of mental health than two other variables (optimistic and pessimistic attributinal style).
Table 2: Regression of the GHQ score on hardiness and attributional styles variables.

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>β</th>
<th>R</th>
<th>R²</th>
<th>ΔR²</th>
<th>SC</th>
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</thead>
<tbody>
<tr>
<td>Step 1 Model Summary</td>
<td>0.45</td>
<td>0.21</td>
<td>0.2</td>
<td></td>
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</tr>
<tr>
<td>(Constant)</td>
<td>74.2</td>
<td>-0.96</td>
<td>-0.45</td>
<td>-0.45</td>
<td>-0.27</td>
<td></td>
</tr>
<tr>
<td>Step 2 Model Summary</td>
<td>0.53</td>
<td>0.28</td>
<td>0.27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>96.3</td>
<td>-0.84</td>
<td>-0.4</td>
<td>-0.39</td>
<td>-0.27</td>
<td></td>
</tr>
<tr>
<td>Hardiness</td>
<td>Optimistic attributional style</td>
<td>-1.9</td>
<td>-0.27</td>
<td>-0.27</td>
<td>-0.27</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: SC = semipartial correlation coefficient

Discussion:

The results of the current study provide some support for sex and age differences in hardiness for factory workers. Along with Koranian, Kuswati & Esmaeli (2008) the findings detected gender differences on hardiness, with males scoring significantly higher than females. This finding is contrary to those obtained from some other studies (e.g., Chan, 2000; Sheard, Golby & van Wersch, 2009; Rahimian & Asgharnejad, 2008). In Sheard’s study, female subjects reported a significantly higher mean score on hardiness compared to male one (Sheard, 2009). Also, the current findings indicate a significant difference between the three age groups in relation to hardiness. This is in sharp contrast to the original conceptualization of hardiness and the general findings of Kobasa et al. studies, who found no relationship between hardiness and age (Kobasa, 1979). One explanation for this may be that older workers having more experience of work and having encountered many stress-related situations in the past, through successful negotiation and resolution of these situations, are less likely to have either extreme psychological or physiological reactions to similar situations.

At the correlational level, our study found significant relationship between hardiness and mental health (as measured by GHQ score). The result is supported by regresional analysis and is consistent with other literature suggesting a relationship between the variables. For instance, in Heckman & Clay (2005) study, hardiness was significantly associated with psychological health. The plausible reasons for hardiness and mental health significant relationship are that (a) Hardiness reduces appraisal of threat and increases one’s expectation that coping efforts be successful, people high on hardiness are able to cope up with stress better as they are able to reframe and reinterpret adverse experiences (Kaiseler, Polman, & Nicholls, 2009). (b) They give more importance to positive life events (Dibartolo & Soeken, 2003). (c) They behave in a way so that their personal efforts can modify or reduce stressors to a manageable degree (Maddi, 2008). (d) They have the ability to turn adverse events to advantages (Wagnild & Young, 2000). (e) They engage in problem-focused strategies and active support seeking strategies (Azar, Vasudeva, & Abdollahi, 2006).

Also, replicating a number of earlier studies, the results revealed a moderate reversal correlations between optimistic and pessimistic attributional styles (e.g., Herzberg, Glaesmer, Hoyer, 2006) and a meaningful relationship (r = -0.35) between optimistic attributional style and mental health (e.g., Smith; Lee & Young, 2004, Peterson & Bossio, 2001). In their review of optimism and health, Peterson and Bossio (2001) concluded that most relevant studies reported correlations in the range of 0.20 to 0.30 between Optimism and health or health behaviors.

The present study has several limitations that may have affected the outcome, therefore these results should be treated with caution. First, this study was correlational in nature and although using a regression model is a robust choice, it utilizes a predictive, not casual one. Consequently, the results will not follow a causative model between the variables under investigation. Second, the sample of participants used for this study may not be representative of the general population. and their responses might be affected by cultural and Religious factors.

Finally, a further problem is that reciprocal interactions among the variables of the study cannot be determined. Relationships between constructs such as attributional style and hardiness on the one hand, and mental health on the other, are unlikely to be unidirectional.

Implications:

Despite above mentioned limitations, this research resulted in meaningful insights into occupational health. According to Raeve, Jansen and Kant (2007) mental health problems are a major problem in the working population, thus some similar research can be beneficial in increasing awareness about influential factors related to workers mental health and effective stress treatment. The finding that the personality trait of hardiness and attributional style are relatively powerful predictors of mental health suggests that these are necessary...
components of an effective intervention. For example, attributional retraining, a process in which individuals are trained to modify their typical patterns to produce more positive attributions for events, may be beneficial. The study carried out by Seligman confirmed that optimism can be learned (Nicholls, Polman, Levy, & Backhouse, 2008). Teaching workers optimism skills could therefore enhance their mental health. These results have also implications for designing stress reduction workshops concerning the existing adaptive personality characteristics of workers. Finally, interventions targeted at factory workers mental health enhancement should reflect the stronger role of hardiness and optimistic attributional style in the stress–illness relationship.

REFERENCES


