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Health Consequences and Buffers of Job Burnout among Indian Software Developers

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Abstract : This study examines the conceptualisation, health-related consequences, and buffers of job burnout. Analysing the responses of 372 Indian software developers to questionnaire survey, findings suggest that on burnout dimensions, increased exhaustion and cynicism have increased professional efficacy of software developers. Experiencing more burnout, software developers have reported adverse physical, mental, and behavioural health. Subjective well-being, social support, and practising yoga and meditation have partially arrested the adverse effects of job burnout on health-related outcomes. Job burnout has the biggest adverse impact on mental health and social support is the most influential intervening construct to counter the adverse consequences of job burnout.

Keywords: Behavioural symptoms, Job burnout, Mental health, Physical health, Software developers.

Health Consequences and Buffers of Job Burnout among Indian Software Developers

Continuous and extensive exposure to stress in workplace manifests in burnout (Freudenberger, 1974) and fosters an unpleasant state of mind. Job burnout is a gradual erosion of a person's resources and energy which often leads to exhaustion, cynicism, and low professional efficacy in the workplace. It has reached a critical level in today's workforce. The problem of job burnout is catching on globally and it can deteriorate physical, mental, and behavioural health. More and more cases of disability, including chronic physical (Kahill, 1988), mental (Jackson & Maslach, 1982), and behavioural problems (Cords & Dougherty, 1993), are found to be associated with burnout. Because of its repercussions, organisations in the western countries have taken preventive measures to arrest burnout. Barring few exceptions, organisations in Eastern counties including India have so far neglected the preventive measures. Also, burnout has been extensively studied in service professions such as doctors, nurses, educators, social workers, and lawyers (Maslach, Jakson, & Leiter, 1996). But, job burnout has hardly received attention in fast-growing Indian software industries where jobs are continuously stressful and demanding. In such industries, the low-end job holders are programmers/developers. They are more susceptible to job burnout because they work in multiple projects at the same time facing hard deadlines, longer working hours, and changing clients' expectations. In addition, they are subjected to repetitive and monotonous assignments, team conflicts, anxiety over peer-competition, burden of high ambition and family expectations, and uncertainties in the job. These factors push the software developers (SDs) to experience job burnout. While extensive research evidence is available on 'burnout' in the Western context, investigative reports on job burnout, its health-related consequences, and buffers to arrest job burnout are unavailable in Eastern context, particularly in India (Singh, Suar, & Leiter, 2012; Singh & Suar 2010). This study attempts to fill these gaps studying the job burnout among Indian SDs.

Early research on burnout has focused on care-giving and service professions (Burke & Greenglass, 1995; Maslach, 1982; Freudenberger, 1974). During the past decade, research has been extended to all types of professions. Burnout in the context of work, known as 'job

burnout', is a multi-dimensional construct. Its dimensions are emotional exhaustion, depersonalisation, and diminished personal accomplishment. Contemporarily, it includes: (a) exhaustion, (b) cynicism, and (c) professional efficacy (Schaufeli et al., 1996). Work exhaustion refers to feelings of overstrain, tiredness, or fatigue resulting from chronic job stressors (such as role ambiguity and role conflict) (Igbaria & Greenhaus, 1992; Moore, 2000). It adversely affects employees' health. Cynicism is conceptualised as a dysfunctional coping response to job stress. Employees, developing cynicism, distance themselves from exhausting demands. They attribute job-related failures and successes to external factors rather than to themselves and experience helplessness, low self-efficacy, and deficiency of personal resources to meet the job demands. Therefore, cynicism is expected to be positively correlated with exhaustion and negatively correlated with professional efficacy. A high level of job burnout is reflected in high scores on exhaustion and cynicism and low scores on professional efficacy (Schaufeli et al., 1996). While Maslach (1982, 1993) supports this sequential association of the three dimensions of job burnout, Schwab and Iwanicki (1982) argue that one dimension is not an inevitable consequence of another dimension. Therefore, the associations among job burnout dimensions warrant reinvestigation in an Indian sample.

Consequences of job burnout are manifested in health-related outcomes. The burnout dimensions have been linked with a variety of physical and mental health problems in the service professions (Burke & Deszca, 1986; Maslach & Pines, 1977). Deterioration of physical health includes fatigue, insomnia, headaches, gastrointestinal disturbances (Kahill, 1988) and coronary heart disease (Wamala et al., 2000). Burke and Deszca (1986) have assessed the relation between burnout and physical symptoms and found psychosomatic symptoms of poor appetite, headache, backache, and chest pains to be directly related to the burnout dimensions. Stress, anxiety, and depression at mental level manifest in physical symptoms such as back pain, insomnia, migraine, carpal tunnel, cardiac, and thyroid problems. Job burnout, being an unpleasant mental state, can manifest its effects on physical symptoms. Such a mental state becomes so deep-rooted that it eventually affects the body with complex and multiple physical symptoms.

Mental health symptoms are characterised by decrease in feelings of self-esteem, depression, irritability, helplessness, and anxiety (Jackson & Maslach, 1982; Kahill, 1988). Lee and Ashforth (1990), studying supervisors and managers from a public welfare agency,

found that the physical and mental stresses are associated with higher levels of emotional exhaustion and depersonalisation. In a similar vein, in a study of a different population, the police personal Jackson and Maslach (1982) have reported that police personnel who have experienced burnout returned home from work being tense, anxious, and depressed.

Addiction-related behavioural consequences of burnout can include excessive consumption of tobacco, drug, and alcohol. Findings reveal that people experiencing burnout increase their alcohol consumption and drug abuse. People who smoke and consume alcohol tend to do more when they experience burnout (Cords & Dougherty, 1993; Jackson & Maslach, 1982). Police personnel, experiencing high burnout, are found to consume more drug, alcohol, and tobacco (Burke & Deszca, 1986; Burke, Shearer, & Deszca, 1984a). Similar consequences are likely to occur in the context of SDs. In the light of the above discussion on consequences of job burnout, this study poses the following research question and proposes the following hypothesis.

Research question 1: Which will be the most important health-related consequence of job burnout?

Hypothesis 1. Job burnout will deteriorate physical, mental, and behavioural health.

Compared to the earlier study on Indian SDs depicting the work-related consequences and buffers of job burnout (Singh, Suar, & Leiter, 2012), this study incorporating the 'job-demands resources (JDs-Rs) theory', investigates the possible health consequences and buffers of job burnout. Job demands are those aspects of the job that require mental and physical efforts, and as a result, are associated with psychological costs (such as burnout). Conversely, job resources are those physical, psychological, social, or organisational aspects of the job that assist in achieving work goals, reducing job demands that lead to personal growth and development. JDs–Rs theory incorporates many possible working conditions, job demands, and job resources unlike demand control theory (Karasek, 1979) and effort-reward imbalance theory (Siegrist, 1996). In JDs–Rs theory, job resources act as buffers for job demands. But JDs–Rs theory does not recognise non-job resources, particularly personal resources, as buffers. Personal resources can be one's cognitive strength, positive thinking, and contentment in life. They allow individuals to handle external/internal demands in stressful situations (Duran et al., 2006). In accordance with JDs–Rs prediction, we have argued subsequently that personal resources of subjective well-being (SWB), practising

yoga and meditation, and the job resource of social support can counter the adverse effects of job burnout on health-related outcomes.

Earlier findings reveal that the widely used job resources of performance feedback, reward, autonomy, participation in decision making, job security, and supervisory support serve to buffer work- and health-related burnout outcomes (Demerouti et al., 2001; Maslach, Jackson, & Leiter 1996). Unlike job resources, personal resources are self-regulated and controlled (such as practising yoga and meditation and SWB); but are given sparse attention in the software industries. Although the job resources of social support have been studied in past research, it has mostly focused on supervisory support and does not integrate other dimensions of social support such as support from spouse, family, friends, and team members. The support from family members as well as from significant societal and organisational members will increase the 'feel good' within the individuals that will buffer job burnout.

Subjective well-being (SWB) is a positive psychological state characterised by a high level of satisfaction with life. Individuals with high SWB experience joy and hold a positive attitude towards life that can buffer against job burnout by inculcating positive attitudes and emotions. It can also speed the recovery of the psychological response to chronic stress (Chesney et al., 2005; Diener & Lucas, 1999; Salovey et al., 2000). Accordingly, SWB of SDs will buffer against the adverse effects of job burnout on health-related outcomes.

Social support refers to the extent to which an individual can rely on the support of his/her family, friends, or co-workers. Earlier studies have revealed that inadequate social support in the workplace may increase vulnerability to burnout (Baruch-Feldman et al., 2002; Carlson & Perrewe, 1999; Schaufeli & Greenglass, 2000). Individuals with higher social support can cope more effectively with stress at work (Jayaratne & Chess, 1984). Social support can also enhance their confidence that others will provide the necessary resources to cope with a stressful situation (Cohen & Wills, 1985). Such support is likely to be more effective in a vertical collectivist culture of India (Triandis, 1998) to counter the adverse health-related consequences of burnout because Indians value relations, cooperation, and show dependency on seniors (Lenka, Suar, & Mohapatra, 2010).

Yoga is a life style that fosters personal transformation. It uses both Eastern mind-body skills and Western physical therapy/treatment techniques. Yoga and meditation have

tremendous capacity to balance the functioning of the nervous system, relax the body, increase concentration of the mind, and reduce stress levels (Khalsa, 2004; Maharishi, 1996; Malathi et al., 1998; Wicher, 1998). The preconception yoga and meditation can buffer against burnout is strictly an Eastern concept and is overlooked in the Western parts of the world. Fortunately, many software giants like IBM, Microsoft, Infosys, and Wipro have made such practices compulsory for reducing stress and burnout. Therefore, the practice of yoga and meditation can buffer the adverse influence of job burnout on health-related outcomes.

Job burnout can also adversely affect the personal and job resources. Experience of high burnout interferes with goal-attainment affecting life satisfaction and pleasant emotions. Employees with a continuous and severe exposure to the stressful condition may report low SWB, whereas if the condition is occasional and less severe, adaptation is possible. If a person experiences burnout, practices less yoga and meditation, then s/he is likely to have more severe negative impacts of burnout on his/ her mental, physical, and behavioral health against those who experience burnout but practice more yoga and meditation (Singh, Suar, & Leiter, 2012). Burnout infuses the employees with frustration, anger, and anxiety. It tears apart the fabric of social support, making it less likely that people will support each other out when time gets tough. As a result, employees end up distancing from people both psychologically and physically affecting relationships with family, peers, and friends (Maslach, 1993; Maslach & Leiter, 1997).

This discussion suggests that SWB, social support, and practising of yoga and meditation will be the mediators. Mediators explain how and why, personal and job resources can modify the relationships between the predictor (job burnout) and the criterion (physical, mental, and behavioural symptoms). The nature of mediated relationship is such that the independent variable influences the mediator, which, in turn, influences the criterion. There may not be 'causal' relationships among them in a non-experimental, cross-sectional sample study. The prerequisite is that there is significant relationship between the predictor and the criterion before testing for a mediated effect (Barron & Kenney, 1986; Holmbeck, 1997; MacKinnon & Fairchild, 2009). Mediators of personal and job resources can so potently explain the criterion that filtering out their effects can nullify or drop down

the influence of predictors to explain the criterion. Because mediators are modifiers and change agents, they can be used for intervention purposes (Fraizer, Tix, & Barron, 2004).

On the basis of above discussion, establishing the mediational role of SWB, social support, and practising of yoga and meditation implies that: (a) the independent variable (job burnout) must be directly associated with the dependent variables (physical, mental, and behavioural symptoms), (b) the independent variable (job burnout) must be inversely associated with the mediators (SWB, social support, and practising of yoga and meditation), (c) the mediators must be inversely associated with the dependent variable, and (d) the independent variable must be weakly (partial mediator) or nonsignificantly (full mediator) associated with the dependent variable after controlling the effects of mediators (Barron & Kenny, 1986; Holmbeck, 1997, Mishra & Suar, in press). Based on these relations, we raise the following research question and propose the following hypothesis.

Research question 2: Which will be the most influential buffer of job burnout that affects health-related outcomes?

*Hypothesis 2***:** SWB, social support, and practising yoga and meditation will mediate between job burnout and health-related outcomes.

Job burnout, buffers, and health-related outcomes are stated figuratively (see fig. 1). It includes the hypotheses.

Insert Fig.1 about here

This study extends the past research from human service professionals to SDs. This study is carried out in a different cultural context, using different measurement tools, in a different time period, and in a different sample. Such replications and extensions are warranted to establish the external validity of earlier findings and to rebuild the confidence of researchers and practitioners in past evidence (Tsang & Kwan, 1999).

In summary, this study intends to examine the associations among job burnout dimensions, and the effects of job burnout on SDs' health. It also proposes to study the role of intervening variables that can nullify or reduce the adverse effects of burnout on physical, mental, and behavioural health. Finally, it seeks to find out the most important consequence and the most important buffer of job burnout.

1 Method

Sample

Software developers were taken from three IT hubs of New Delhi, Pune, and Bangalore in India. The lists of employees were procured from employers in 12 software firms. Employees (N=2000) were selected through random sample and were contacted through telephones and e-mails. SDs, who had more than one years of experience (and less than five years of experience), were requested purposively to participate and those agreed were given or e-mailed the questionnaire prepared in English the next day. A sample of SDs (N = 1241) having the requisite experience were given the questionnaire. A minimum of one year of service and a maximum of five years of service were kept for inclusion of SDs in the sample to assure that their experience reflected their current job. They were requested to complete and return the questionnaire by postal service or email after a fortnight to the researcher. When the researcher personally approached the employees, 340 employees returned the questionnaire and 32 sent the filled-in questionnaire through e-mails. The return rate was 30%.

The demographic profile of respondents on gender, age, years of service, education, monthly salary, family members' occupation, rural-urban background, and marital status are given in Table 1. Of the 372 respondents, male employees predominated the sample (71.8%), χ^2 (1) =70.54, p<.001, were older, F (1,370) = 20.65, p<.001, had more years of experience, F (1,370) = 6.02, p<.05, and had more monthly salary, F (1,370) = 16.82, p<.001, than the female employees. The female employees were from families who had more members employed in their family compared to male employees, F (1,370) = 23.19, p<.001. Male employees, however, had similar level of formal education as the female employees, F (1,370) =.04, p=.83. The male and female employees were predominately from urban and semi-urban backgrounds compared to rural backgrounds, χ^2 (2) = 152.56, p<.001. Of the total employees, more female employees were married compared to male employees, χ^2 (1) = 73.03, p<.05. (Note: in India females marry at a younger age than males).

Insert Table 1 about here

Measures

Along with the socio-demographic profile of the respondents, the construct of job burnout, the consequences, and mediators of job burnout were also assessed.

Job burnout. The Maslach Burnout Inventory–General Survey (MBI-GS) was used to measure job burnout with a 16-items scale developed by Schaufeli et al. (1996). The scale has three dimensions: (a) exhaustion, (b) cynicism, and (c) professional efficacy. The sample items on (a) exhaustion include, 'I feel emotionally drained from my work' and ' I feel used up at the end of the day'; on (b) cynicism include, 'I have become more cynical about whether my work contributes anything' and 'I have become less enthusiastic about my work'; and on (c) professional efficacy include, 'I can effectively solve the problem that arises in my work' and 'In my opinion I am good at my job'. Responses for each item were on a seven-point Likert scale ranging from 'never' (0) to 'everyday' (6). The items of professional efficacy were negatively coded to assess professional inefficacy (Schaufeli & Bakker, 2004). Job burnout was conceptualised to reflect in higher scores on exhaustion, cynicism, and professional inefficacy (or lower score on professional efficacy).

***Physical health*.** Physical health was measured with a 12-item scale developed by Moos, Cronkite, and Finney (1990). One additional physical symptom of 'wrist pain' was added in the scale by the author because of extensive pressing of computer keys. The items were positively keyed. Sample items include the general symptoms of 'loss of appetite', 'racing heart rate', and 'sleeplessness'. Response categories for each items were on a five-point Likert scale ranging from 'not at all' (= 0) to 'fairly often' (= 4)'. High scores on items indicated high symptomatology.

Mental health. Mental health was measured with a 12-item scale developed by Goldberg and Williams (1988). The scale contained three dimensions: (a) anxiety and depression, (b) social dysfunction, and (c) loss of confidence. Sample items on (a) anxiety and depression include, 'I lost sleep over worry' and 'I am unhappy and depressed'; on (b) social dysfunction include, 'I am able to concentrate' and 'I am capable of making decisions'; and on (c) loss of confidence include, 'I think of my self as worth less' and 'I lack confidence in self. The items of social dysfunction were negatively keyed. Response categories for each items were on a five-point Likert scale ranging from 'not at all' (= 0) to 'fairly often' (= 4)'. High scores on items indicated poor mental health on that dimension.

Behavioural symptoms. A five-item scale was developed to assess behavioural symptoms. Sample items include, 'I drink beer/ wine/ liquor' and 'I smoke'. Response categories for each items were on a four-point Likert scale ranging from 'never' (= 1) to 'always' (= 4). All items were positively keyed. High score on items indicated high behavioural symptoms.

Subjective-well being. SWB was measured with a five-item scale developed by Dienner et al. (1985). Sample items include, 'In most ways my life is close to my ideal' and 'I am satisfied with my life'. All items were keyed positively. Response categories for each items were on a four-point Likert scale ranging from 'strongly disagree' (= 1) to 'strongly agree' (= 4). High scores on items indicated high SWB.

Social support. A 15-item scale was developed to assess social support. Sample items include, 'You can get all the support whenever you are in need from your supervisor' and 'You can share and talk about your problems with your team members'. All items were positively keyed. Response categories for each items were on a five-point Likert scale ranging from 'not at all' (=0) to 'to a great degree' (=5). High scores on items indicated more social support.

Yoga and meditation. A seven-item scale was developed to assess the practice of yoga and meditation. All items were keyed positively. Sample items include, 'I practice yoga and asana' and 'I practice meditation'. All items were positively keyed. Response categories for each items were on a four-point Likert scale ranging from 'not at all' (= 0) to 'daily' (= 3). High scores on items indicated more practice of yoga and meditation.

The convergent and discriminant validity of the constructs was tested by confirmatory factor analysis (CFA). The Amos 4.0 software package was used to analyse the responses. Along with descriptive statistics and standardized regression weights/factor loadings, various fit measures of Goodness of fit index (GFI), Comparative fit index (CFI), Normed fit index (NFI), and Root mean square error of approximation (RMSEA) of the scales were obtained. It was conservatively chosen to eliminate items with factor loading on the variable less than 0.30. The purpose of this stage of the analysis was to identify and eliminate poorly performing items and to reaffirm the convergent validity of items in each construct. The GFI, CFI, and NFI were close to or greater than 0.90, the recommended cutoff criteria suggesting the good fit of items to each construct. RMSEA was close to the required limit of

0.08. All construct had Cronbach alpha greater than 0.60 (Nunnally, 1967) suggesting the internal consistency of items to measure each construct. The sum of value on items of each construct was divided by the number of items in that construct to keep the value of the construct within the range of the response scale (see Table 2).

Insert Table 2 about here

2 Results

The Pearson correlations are presented in Table 3. Variables are designated by variable numbers as well as variable names. Data on all construct were in metric scale. Correlations revealed the following:

- Professional inefficacy (reverse scoring of professional efficacy) correlated negatively with exhaustion and cynicism dimensions. Without reverse scoring of professional efficacy items, professional efficacy correlated directly with exhaustion and cynicism. A high (low) score on professional efficacy was associated with a high (low) score on exhaustion and cynicism, suggesting that when exhaustion and cynicism increased (decreased), professional efficacy also increased (decreased). The direct co-variation among the three dimensions suggested the convergent validity of job burnout dimensions and such dimensionalities were adhered to gauge the job burnout of SDs. Such correlations were not in accordance with the conceptualisation of test developers (Schaufeli et al., 1996) but were in accordance with the experience of burnout among young SDs having two to five years of experience and performing boundary-spanning activities in the complex and dynamic environment, that requires to update their technical and organizational knowledge to be professionally efficient and competent (Rajeshwari & Ananathraman, 2005) and to demonstrate high performance constantly so as to sustain the high stake business. Therefore, the professional efficacy score was retained along with exhaustion and cynicism to gauge the burnout of SDs
- In accordance with Maslach's (1993) marker for high job burnout (exhaustion $\geq$3.5; cynicism $\geq$2.4), 44% of SDs were found to be at risk of job burnout.
- High scores on exhaustion, cynicism, and professional efficacy had increased the physical, mental (anxiety and depression, social dysfunction, and loss of confidence) and

behavioural symptoms. Similarly, increased professional efficacy was found to be associated with deteriorated physical, mental, and behavioural health. Only it did not relate to social dysfunction. In other words, exhausted and cynical employees were more efficacious and had experienced more physical, mental, and behavioural symptoms.

- Subjective well-being, social support, and yoga and meditation were inversely related to exhaustion, cynicism, and professional efficacy.

These correlations were in the hypothesised direction. However, only the high score on professional efficacy associated with high scores on health-related outcomes, and with low scores on SWB, social support, and practising yoga and meditation.

Insert Table 3 about here

Compared to the bidirectional correlations, the latent variable structural equation modeling (LVSEM) was adopted to test the antecedent-consequence relationships proposed in hypotheses. LVSEM tests the sequential relationships between a series of independent and dependent variables. It tests the complex models in a single analysis (Mackenzie, 2001). It also helps in specifying measurement models as well as structural models. In addition, it controls measurement errors—(a) random and (b) systematic. Random errors of each construct were isolated, increasing the fit measures of constructs using confirmatory factor analysis. Systematic errors occur due to factors like social desirability, common method bias (e.g., scale type, rater, or context), and response biases (e.g., leniency, yea-saying, or nay-saying). Systematic errors like common method bias (Podsakoff, MacKenzie, & Podsakoff, 2003) were controlled statistically using LVSEM with indicator variables loading on the latent factor. Thus, the method bias was controlled in measurement model incorporating highly reliable and valid measuring instruments.

The path analytic hypothesised relationships using LVSEM are shown in Fig. 2. This was tested using AMOS 4.0 (Arbuckle, 1995). The path coefficients are equivalent to beta coefficients in multiple regression equation. The unstandardized path coefficients suggested that increase in job burnout deteriorated the physical, mental, and behavioural symptoms among SDs. These results supported the first hypothesis.

Insert Figure 2 about here

In accordance with the specification of mediators in second hypothesis, first, the independent latent variable of job burnout increased the adverse physical, mental, and

behavioural symptoms (see Fig. 2). Second, the independent latent variable of job burnout decreased the mediators of SWB, social support, and practising yoga and meditation (Fig.3), suggesting that SDs experiencing more job burnout had lower SWB, received less social support, and were practising less yoga and meditation. Third, the mediators of SWB, social support, practising yoga and meditation decreased the adverse impacts of job burnout on physical, mental, and behavioural symptoms. Finally, the effects of job burnout to intensify physical, mental, and behavioural symptoms were reduced when the effects of SWB, social support, and practising yoga and meditation were filtered out (Fig. 3). Hence, SWB, social support, and practising yoga and meditation partially intervened and suppressed the effects of job burnout that adversely intensified physical, mental, and behavioural symptoms.

Insert Figure 3 about here

The mediators were generative mechanism through which job burnout effects on physical, mental, and behavioural symptoms were lessened. Findings supported the second hypothesis and the partial mediational role of SWB, social support, and practising yoga and meditation. Results of path coefficients are given in Table 4.

Insert Table 4 about here

The fit measure of the direct and indirect path (including mediators) models (Table 5) indicated that chi-square of the direct model was nonsignificant. However, chi-square of indirect model was highly significant (p<.001), although nonsignificant values were desired for similarity between observed and model-implied covariance matrix. Because of the sensitivity of chi-square to large sample size, relative chi-square (χ^2/df) was estimated. The relative chi-squares of both the models were below the required limit of 3 (Kline, 1998) suggesting the fit of both models. Other fit measures of the models were also considered. GFI is analogous to squared multiple correlation (R^2) in multiple regression. CFI indicates the overall fit of the model relative to a null model and NFI adjusts for the complexity of the model. These fit measures being close to 0.90 implied good fit of the models. The parsimonious fit measure (PGFI, PCFI, PNFI) were acceptable in both the models. RMSEA indicates the approximation of the observed model to the true model. The lower the RMSEA, the better is the model. RMSEA was much below the limit of .08 in both the models. The fit measures of both the models were acceptable and were not widely apart.

But, the indirect model included all possible paths that were specified in two hypotheses (Table 5).

Insert Table 5 about here

In order to gauge the most influential consequences and mediators of job burnout, the direct, indirect, and total effects were estimated (Tari, Molina, & Castejon, 2007). It can be seen from the direct standardized path coefficients (Fig. 2) that job burnout had the most adverse effect on mental health. This answered the first research question. In order to gauge the most influential buffers, the path coefficients were considered. To calculate total effects, we multiplied the standardized path coefficients between job burnout and mediators with standardized path coefficients between mediators and health-related outcomes (see Table 6) (Bollen, 1989). Among the three buffers of job burnout, social support was found to be the most important buffer of job burnout that partially arrested the adverse effects of job burnout on health-related outcomes. This provided reply to the second research question (Table 6).

Insert Table 6 about here

3 Discussions

Using a cross-sectional survey of 372 SDs from IT hubs in India, this study examines dimensions of job burnout, and health-related consequences and buffers of job burnout. On dimensions of job burnout, the more exhausted and cynical the SDs, they are the more efficacious. SDs experiencing job burnout are at a greater risk of physical, mental, and behavioural symptoms. SWB, social support, and practising yoga and meditation are found to be the generative mechanism through which SDs experiencing job burnout have decreased their adverse physical, mental, and behavioural symptoms. Burnout had the most adverse effect on mental health. Social support was the most influential buffer against the effects of job burnout on health-related outcomes.

Conceptualisation of job burnout

Job burnout is reflected in high scores on exhaustion and cynicism and low scores on professional efficacy (Schaufeli et al., 1996). Contrarily, the results of this study reveal that professional efficacy of young SDs unusually increased along with exhaustion and cynicism. One of the test developers of job burnout (M. P. Leiter, personal communication, June 09, 2010) also noticed the same pattern among hospital residents who were experiencing efficacy from their medical training but at the same time increasingly exhausted due to sleep deprivation and had developed cynicism. Similarly, studying executives in an Indian manufacturing industry, Sharma (2007) found that those suffering from burnout do not have low efficacy; on the contrary, high achieving executives were found to suffer from burnout.

It has been reported (Schaufeli & Salanova, 2007, p.179) that reversing the positively worded items of the efficacy scale does not measure inefficacy. Efficacy and inefficacy are likely to be strongly (but not perfectly) and negatively related to each other. For instance, an employee may score low on the efficacy item ‘‘I efficiently solve any problems that may arise in my work.’’ Reversing the score would indicate that the employee is not efficient in solving problems at work; however, this does not necessarily imply that the employee is inefficient in solving problems. This would be the case if the employee agreed with the inefficacy item ‘‘At my work, I think I am inefficient when it comes to solving problems.’’ In other words, although people do not feel happy, they do not necessarily feel sad, and when they do not feel sad they do not necessarily feel happy. It, therefore, follows that

assessing happiness with reversed sadness items, or sadness with reversed happiness items, is not effective. Similarly, reversing the scale of efficacy items cannot capture inefficacy. When the professional efficacy score is reversely coded to assess the inefficacy, it only reversed the direction of correlations of professional efficacy with exhaustion and cynicism (see Table 3).

The positive association found in this study between exhaustion, cynicism, and professional efficacy may not be intuitively appealing but relevant to the sample. However, there is a condition when SDs are overextending themselves: working very hard in a way that they cannot extend forever. They feel that they are accomplishing great things, but they are also becoming increasingly exhausted and discouraged in their work. An increase in professional efficacy with exhaustion and cynicism is not sustainable in the long-run, but can continue for a short period of time. This is particularly true of SDs in this study who are young (Male *M* age=26.46; Female *M age=25.48*), full of zeal, enthusiasm, and determination. Sixty per cent of them are recently married, concerned about material comfort, and have two to five years of experience in same/similar job. Had they had more years of experience in same/similar job, then exhaustion and cynicism may have erupted to retard professional efficacy.

Health consequence

Corroborating earlier findings of employees working in service professions (Lee & Ashforth, 1990; Maslach 1982), this study reaffirms that job burnout has increased physical, mental, and behavioural problems among SDs. The discussion with SDs during survey unfolds several reasons. SDs have to spend more hours on and off the job to achieve the targets and put effort round-the-clock which affect their biological clock. They experience a low degree of routine formation in everyday life and remain in a constantly changing and adapting mode. This forces them to lead an erratic lifestyle where health becomes the last priority. Extended work schedules and erratic hours put tremendous pressure on depleting physical and mental resources. In turn, they feel exhausted and drained out (Singh & Suar, 2010). Furthermore, to keep their energy level up, they take power lunch with more tea and coffee intake. In turn, they compromise on essential nutrients in their food and they end up in ‘anorexia nervosa’ (eating disorder) that pushes them into many health-related problems.

In studies of police personnel, individuals experiencing higher levels of burnout are found to have higher levels of drug, alcohol, and tobacco use (Burke & Deszca, 1986; Jackson & Maslach, 1982). Congruent with these findings, SDs experiencing job burnout report behavioural symptoms and are found to smoke and consume alcohol excessively. Discussion with SDs during data collection reveals their naïve awareness. They opined that consuming alcohol and smoking can relieve them from stressful situations for a while. In reality, those become a habit, and they tend to drink and smoke more when they experience the job burnout. Eventually, their condition deteriorates with more physical, mental, and behavioural problems. Job burnout has most adversely affected the mental health of SDs that may have exaggerated physical and behavioural symptoms.

Buffer

According to Schaufeli and Bakker (2004) and Duran et al. (2006), personal resources play a significant role in reducing the job burnout levels by strengthening the person's mental ability to handle stressful situations. Results of this study support the JDs–Rs prediction that SWB, social support, and practising yoga and meditation decrease the adverse effects of job burnout on physical, mental, and behavioural symptoms of SDs. With respect to the role of coping strategies in job burnout controllability, findings reveal that social support is the most important buffer of job burnout that has partially arrested the effects of job burnout on deteriorating health-related outcomes compared to SWB and practising yoga and meditation. The frequency of social contacts lessens the job burnout by removing loneliness and arresting the sedentary lifestyle of SDs. Social support can directly enhance the most deteriorating mental health by supporting employees' needs for achievement, affection, approval, social contact, and security. It provides SDs with positive experience in social network and reduces interpersonal tensions by strengthening the cognitive functioning and emotional bonding.

Neither the job burnout nor the health-related consequences can be fully controlled in the work environment. However, social support to SDs can bring more physical and mental resilience in them to partial counter the adverse effects of job burnout on their health.

Implications

The identification of the relationship among variables like job burnout, perceived health-related outcomes, and buffers have implication for improving health-related impediments among SDs experiencing the risk of job burnout. While practising of yoga and meditation is found to be the most influential buffer of job burnout adversely impacting work-related outcomes among Indian SDs (Singh, Suar, & Leiter, 2012), social support is found to be the most influential buffer of job burnout adversely impacting health-related outcomes. Social support on human mind is quite instantaneous compared to practice of yoga and meditation. That is why social support can speed the recovery from job burnout that exaggerates adverse health-related outcomes. It is, therefore, recommended that organisations should focus more on building social network or relationships to reduce the job burnout of SDs. For example, organisations can promote electronic-social networking like blogging and social computing because it enables employees to stay connected to friends, family, and peers across and beyond organisational boundaries. Blogs and social computing give people a new way to think mutual concerns. Those allow SDs to share their projects and work experiences and find others with similar interests. Of late, IBM has introduced blogging and social computing to strengthen the social bonding through e-network in order to reduce employees' job burnout. Furthermore, it is one of the fastest ways to integrate work and family life that in turn can contribute to good health, reduce job burnout, and promote productivity among SDs.

Limitations

There are certain limitations of the study that must be acknowledged. First, the self-reported responses obtained from the questionnaire may not be free from social desirability effects. Social desirable responding can be controlled by (a) developing projective-inventory (Puhan, 1995) to assess the constructs and (b) partialling out the effects of social desirability in data analysis (assessing social desirability with other constructs). Second, job burnout creates a situation of learned helplessness where the person may be physically alive, but after continuous experience of job burnout s/he may be mentally inactive. Job burnout may exhibit different effects on different age and gender groups. This study was carried out on young SDs who were likely to experience more job burnout. Females, who made up 28.2%

of the studied sample, are also likely to report more job burnout in comparison to males. We did not do segregated analysis for different age groups because of predominantly young SDs in the sample, and for males and females because of their disproportionate representation in the sample. Future studies may consider different age groups and do separate analyses for males and females to reveal their differing extent of job burnout. Unlike one-time investigation on job burnout in this study, longitudinal research on same SDs can probe the development of job burnout over time. Furthermore, 44% of SDs were at risk of job burnout. In order to have an early diagnosis of job burnout, clinical test can be performed on SDs annually so that it is prevented with early intervention before it is too late.

Notwithstanding the limitations, this study breaks a fresh ground. First, while the phenomenon of job burnout is extensively studied in services professions (Maslach, Jakson, & Leiter, 1996) in the Euro-American cultures, this study has been carried out on Indian SDs. Contradicting the prevailing common sense, on burnout dimensions, increased exhaustion and cynicism have increased professional efficacy, particularly among young and recently married SDs. Second, increased burnout of SDs has found to deteriorate their physical, mental and behavioural health, and most potently the mental health. Third, social support is found to be the most important to partially counter the adverse impacts of job burnout on health-related outcomes. These findings call for intervention in work settings to partially offset the adverse health consequences of job burnout.

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Table 1. Sample profile

Variable	Male		Female	
	M	*SD*	*M*	*SD*
Age	26.46	2.00	25.48	1.46
Experience in present job (in years)	2.55	0.76	2.34	0.67
Experience in previous job (in years)	1.78	1.32	1.88	1.05
Education (in years)	16.64	1.06	16.62	0.92
Monthly salary (in Indian rupees)	46803	18636	38642	13159
Total family members working	2.03	1.16	2.64	0.89
Total employees N (%)	267(71.8)		105(28.2)	
Total married employees N (%)	142 (38.17)		81(77.14)	
Rural N (%)	019 (05.10)			
Urban N (%)	211 (56.72)			
Semi-urban N (%)	142 (38.17)			

Table 2. Scale reliability and validity of job burnout, health-related outcomes, and buffers

Variable	No. of Items		*M*	*SD*	*Cronbach α*	GFI	CFI	NFI	RMSEA	Factor loading range
	Original	Retained								
1. *Job burnout*										
(a) Exhaustion	5	5	3.50	.99	.85					
(b) Cynicism	5	5	2.62	1.17	.93					
(c) Professional inefficacy	6	5	2.20	.17	.62	.85	.90	.88	.08	-0.30-0.89[1]
(d) Professional efficacy	6	5	4.80	.40	.62	.85	.90	.88	.08	0.30-0.89[2]
2. Physical health	13	13	2.99	.88	.92	.92	.96	.94	.07	0.64-0.83
3. *Mental health*										
(a) Anxiety and depression	4	4	3.15	.59	.93					
(b) Social dysfunction	6	6	2.35	.67	.95	.93	.98	.97	.07	0.84-0.93
(c) Loss of confidence	2	2	2.15	.80	.95					
4. Behavioural symptoms	5	5	1.95	.68	.61	.98	.95	.93	.08	0.40-0.67
5.Subjective well-being	5	5	2.35	.61	.80	.98	.98	.97	.03	0.61-0.73
6.Social support	15	15	2.55	.83	.91	.90	.82	.85	.08	0.33-0.80
7.Yoga and meditation	7	7	1.71	.79	.85	.97	.97	.96	.08	0.49-0.90

Note. [1]With exhaustion, cynicism, and professional inefficacy, the fit indices of burnout scale are given as well as with [2]exhaustion, cynicism, and professional efficacy.

Table 3. Pearson correlation among variables of job burnout, health-related outcomes, and buffers

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1.EX	1.00	.76[a]	.23[a]	-.23[a]	.75[a]	.68[a]	.66[a]	.59[a]	.69[a]	-.83[a]	-.83[a]	-.81[a]
2.CY		1.00	.17[a]	-.17[a]	.64[a]	.59[a]	.54[a]	.46[a]	.60[a]	-.69[a]	-.69[a]	-.72[a]
3.PE			1.00	-.1.0[a]	.19[a]	.20[a]	.08	.16[b]	.19[a]	-.26[a]	-.13[b]	-.19[a]
4.PIE				1.00	-.19[a]	-.20[a]	-.08	-.16[b]	-.19[a]	.26[a]	.13[b]	.19[a]
5.PH					1.00	.55[a]	.56[a]	.52[a]	.57[a]	-.69[a]	-.68[a]	-.73[a]
6.AD						1.00	.44[a]	.49[a]	.50[a]	-.59[a]	-.67[a]	-.62[a]
7.SD							1.00	.34[a]	.47[a]	-.57[a]	-.66[a]	-.62[a]
8.LC								1.00	.44[a]	-.54[a]	-.52[a]	-.50[a]
9.BS									1.00	-.64[a]	-.61[a]	-.59[a]
10.SWB										1.00	.70[a]	.71[a]
11.SS											1.00	.72[a]
12.PYM												1.00

[b]$p<.01$. [a]$p<.001$.

EX=Exhaustion, CY=Cynicism, PE=Professional Efficacy, PIE=Professional Inefficacy, PH=Physical Health, AD=Anxiety and Depression, SD=Social Dysfunction, LC=Loss of Confidence, BS=Behavioural Symptoms, SWB=Subjective Well-Being, SS=Social Support, PYM=Practising Yoga and Meditation

Table 4. Path analytic results of hypotheses

Hypothesis1	**Job burnout affecting health outcome**	USTD[a]	SE[b]	CR[c]	Proposition
H_{1a}	Physical health ←Job burnout	0.74	0.03	22.07***	Supported
H_{1b}	Mental health ←Job burnout	0.45	0.02	18.44***	Supported
H_{1c}	Behavioral symptoms←Job burnout	0.51	0.03	18.37***	Supported
Hypothesis 2	**Job burnout affecting mediator**				
H_{2a}	Subjective-well being←Job burnout	-0.55	0.02	-27.36***	Supported
H_{2b}	Social support←Job burnout	-0.74	0.03	-27.78***	Supported
H_{2c}	Yoga and meditation←Job burnout	-0.70	0.03	-26.88***	Supported
	Mediator affecting health outcome				
	Physical health←Subjective-well being	-0.36	0.07	-4.86***	
	Mental health←Subjective-well being	-0.17	0.04	-4.59***	
	Behavioural symptoms←Subjective well being	-0.40	0.07	-5.99***	
	Physical health←Social support	-0.23	0.06	-4.22***	
	Mental health← Social support	-0.27	0.03	-9.33***	
	Behavioral symptoms← Social support	-0.19	0.05	-3.92***	
	Physical health←Yoga and meditation	-0.45	0.06	-7.80***	
	Mental health← Yoga and meditation	-0.17	0.03	-5.78***	
	Behavioural symptoms← Yoga and meditation	-0.14	0.05	-2.79**	
	Job burnout affecting health-related outcome after controlling the effects of mediator				
	Physical health←Job burnout	0.42	0.11	3.78***	Supported
	Mental health←Job burnout	0.30	0.06	5.18***	Supported
	Behavioural symptoms←Job burnout	0.47	0.10	4.68***	Supported
	Latent Construct				
	Exhaustion←Job burnout	1.02	0.05	22.55***	
	Cynicism←Job burnout	1.04	0.05	22.51***	
	Professional efficacy←Job burnout	0.10	0.02	04.75***	
	Anxiety & Depression←Mental health	1.02	0.08	12.89***	
	Social Dysfunction←Mental health	0.98	0.08	12.89***	
	Lack of confidence←Mental health	1.05	0.09	11.55***	

[a]USTD = Unstandardized path coefficient, [b]SE = Standard error, [c]CR =Critical ratio

**p<.01. ***p<.001.

Table 5. Fit measures of two models

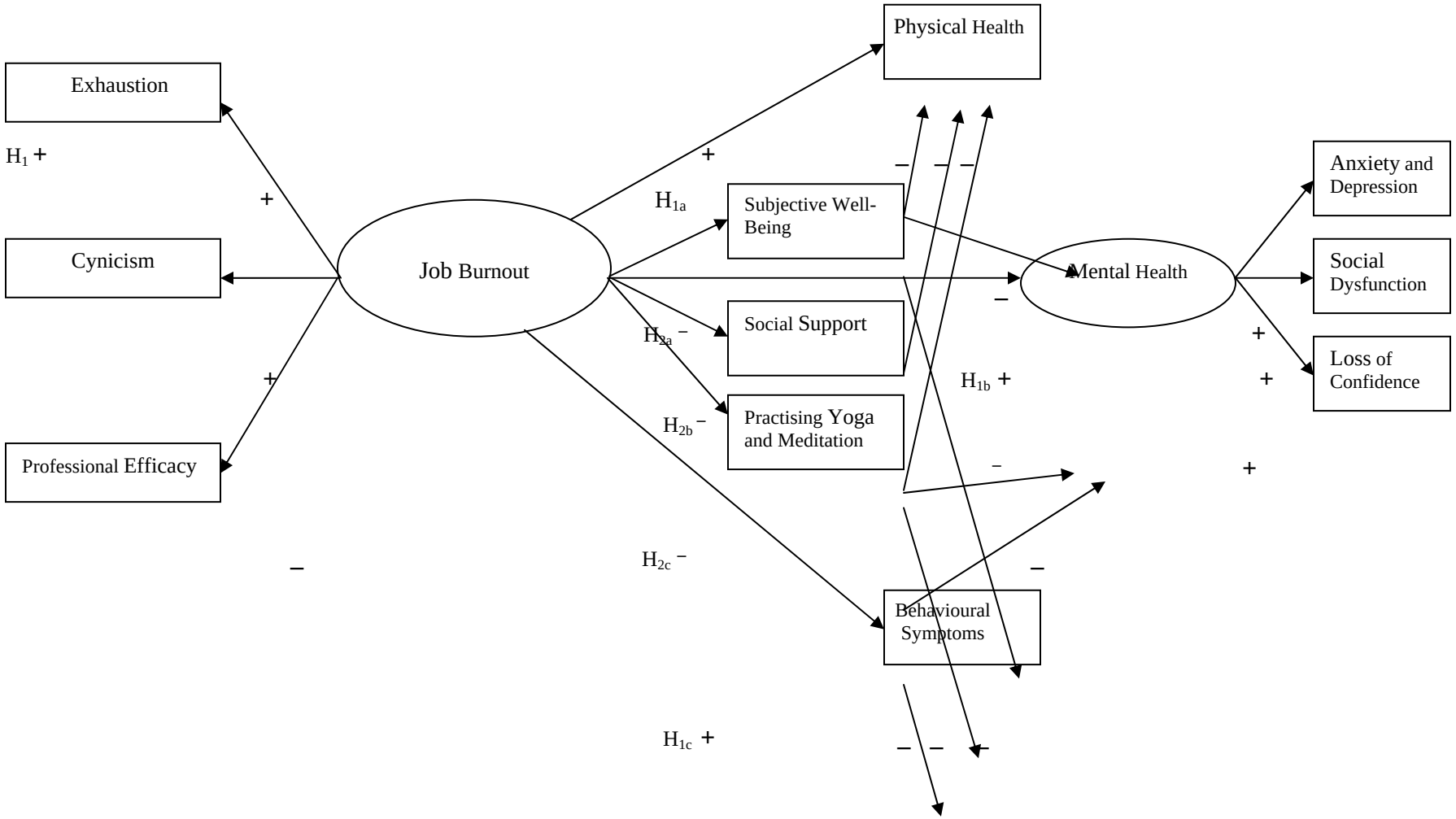
Model	χ^2	*df*	χ^2/ *df*	*GFI*	*CFI*	*NFI*	*RMSEA*	*PGFI*	*PCFI*	*PNFI*
Direct	30.03	20	1.50	.98	.99	.98	.04	.54	.71	.70
Indirect	68.35	35	1.95	.97	.99	.98	.05	.51	.63	.62

Table 6. Direct, indirect, and total effects

Effects	Path	2	3	4	PH[a]	MH[b]	BS[c]
1. Job burnout	Direct	-0.85***	-0.86***	-0.85***	-	-	-
	Indirect	-	-	-			
	Total	-0.85***	-0.86***	-0.85***			
2.Subjective well-being	Direct	-	-	-	-0.25***	-0.25***	-0.36***
	Indirect	-	-	-	-	-	-
	Total	-	-	-	0.21***	0.21***	0.30***
3.Social support	Direct	-	-	-	-0.22***	-0.54***	-0.24***
	Indirect	-	-	-	-	-	-
	Total	-	-	-	0.18***	0.46***	0.20***
4.Yoga and meditation	Direct	-	-	-	-0.40***	-0.31***	-0.17***
	Indirect	-	-	-	-	-	-
	Total	-	-	-	0.30***	0.26***	0.14***

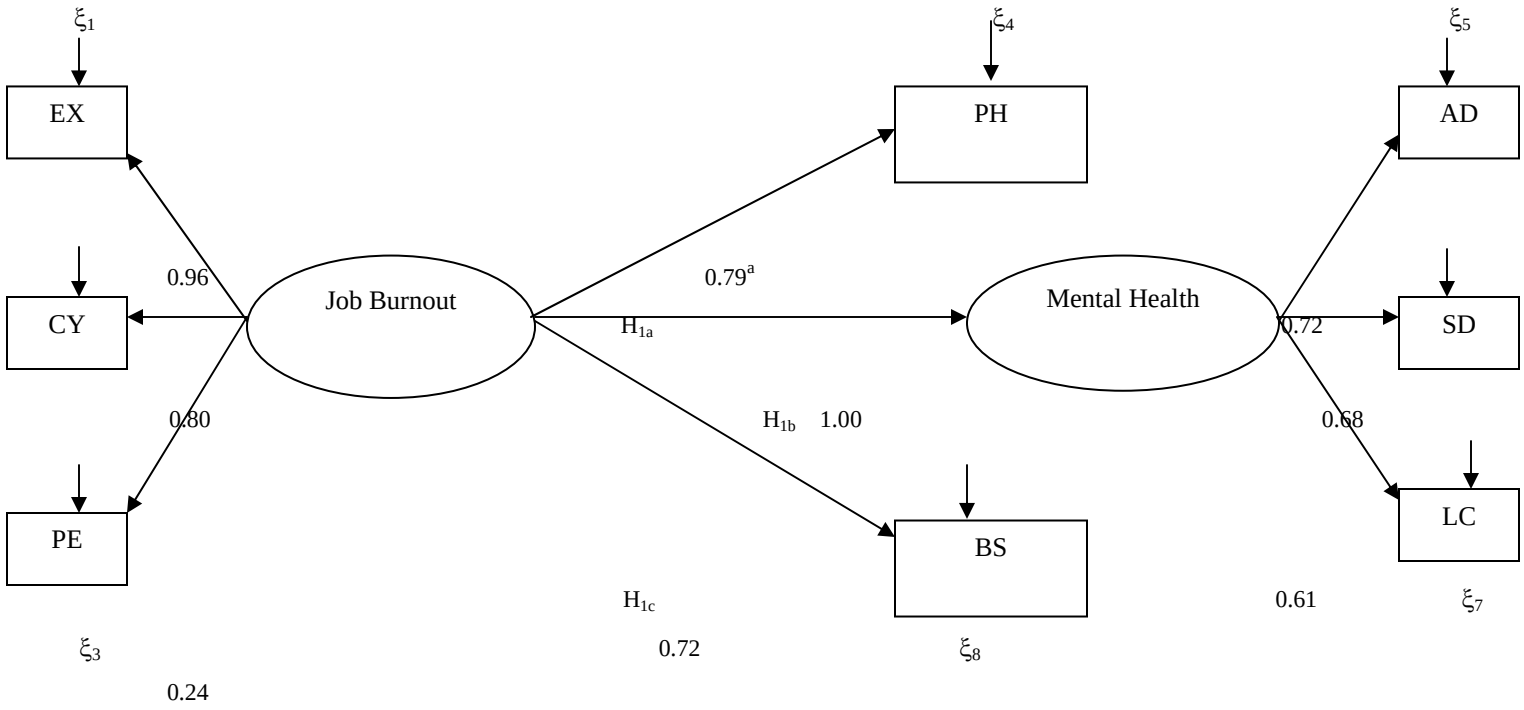
[a] PH=Physical Health; [b] MH=Mental Health; [c] BS=Behavioural Symptoms

***p<.001.



Note: '+' indicates positive impact and '–' indicates negative impact

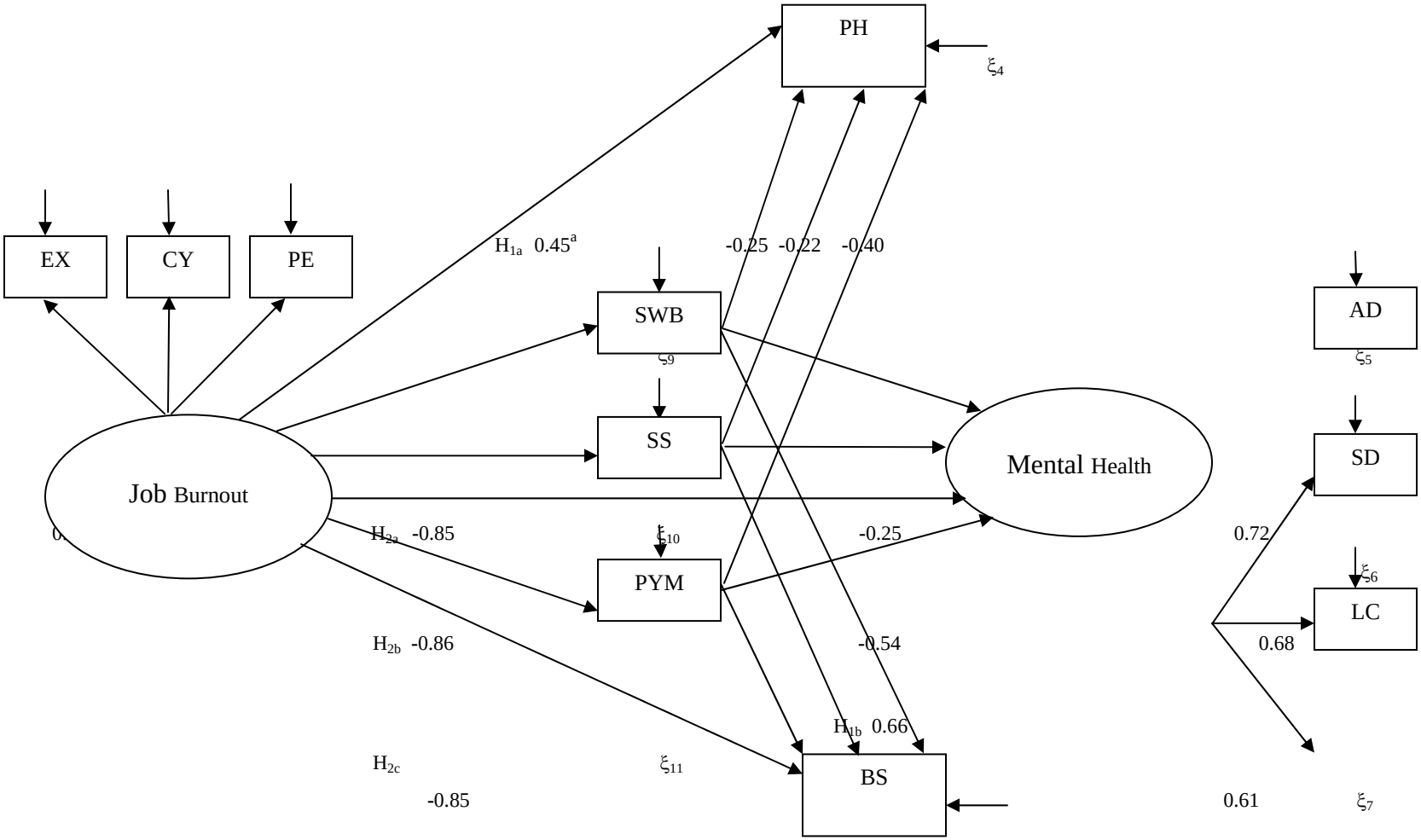
Figure 1. Conceptual model of job burnout, health-related consequences, and buffers



[a] Values indicate standardized path coefficients; ξ = Error term

EX=Exhaustion, CY=Cynicism, PE=Professional Efficacy, PH=Physical Health, AD=Anxiety and Depression, SD=Social Dysfunction, LC=Loss of Confidence, BS=Behavioural Symptoms

Figure 2. Direct path model of job burnout and health-related outcomes


PH
ξ4
EX
CY
PE
H1a 0.45a
-0.25 -0.22 -0.40
SWB
ς9
AD
ξ5
SS
Mental Health
SD
Job Burnout
H2a -0.85
ξ10
-0.25
0.72
ξ6
PYM
LC
H2b -0.86
-0.54
0.68
H1b 0.66
H2c
ξ11
BS
-0.85
0.61
ξ7

H_{1c} -0.36

0.66 -0.24

-0.17

ξ_8

[a] Values indicate standardized path coefficients, ξ = Error term

EX=Exhaustion, CY=Cynicism, PE=Professional Efficacy, PH=Physical Health, AD=Anxiety and Depression, SD=Social Dysfunction, LC=Loss of Confidence, BS=Behavioural Symptoms

Figure 3. Indirect path model of job burnout, health-related outcomes, and buffers