



# Relationship of Mindfulness and Cognitive Defusion to Burnout, Openness to Change and Adaptive Performance with Mediating role of Psychological Flexibility: A Case Study of Iran South Railway Company

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## ABSTRACT

The purpose of this study was to design and test a model of the relationship of mindfulness and cognitive defusion to burnout, openness to change, and adaptive performance, considering the role of psychological flexibility. Participants consisted of 220 employees (186 men and 34 women) from Iran South Railway Company who was selected by stratified random sampling method. The instruments were acceptance and action questionnaire (Hayes *et al.*, 2004), Mindful attention and awareness scale (Brown and Ryan, 2003), Openness to change questionnaire (Metselaar, 1997; Rossel, 2010), Adaptive Performance Questionnaire (Charbonnier-Voirin *et al.*, 2010), Burnout Questionnaire (Maslach, 1981), and Cognitive Fusion Questionnaire (Gillanders *et al.*, 2014). The proposed model was tested through structural equation modeling. Findings showed that the proposed model was fitted to the data. Better fitness was found through the removal of two non-significant paths and making correlation between two errors. The results indicated that psychological flexibility had a meditating role between mindfulness and cognitive defusion with adaptive performance, openness to change and burnout. Therefore, mindfulness training and acceptance and commitment training programs can be a good way to increase adaptive adaptation and greater acceptance of employees against organizational changes and, as well as reducing job burnout in the workplace. Finally, research findings were discussed based on acceptance and commitment therapy.

**Key Words:** mindfulness, cognitive defusion, psychological flexibility, burnout, openness to change, adaptive performance.

**DOI Number:** 10.14704/nq.2019.17.06.2344

**NeuroQuantology 2019; 17(06):22-29**

## Introduction

Organizations need skilled and capable employees to be able to adapt with the today competitive organizational world. One of the capabilities of human resources that could increase the employees' productivity and performance is psychological flexibility (Flaxman *et al.*, 2013). Hayes *et al.*, (2006) conceptualized psychological flexibility as ability to being consciously present at the moment as it is without judgment and avoidance, and changing or

persisting the valued behaviors (see also Harris, 2009). Kashdan and Rottenberg (2010) argued that psychological flexibility is actually a concept recognized as a very important part of targeted behavior, and reflects the mental health and satisfaction with life. One characteristic that might exposure people to mental health risks is psychological inflexibility, because the inflexible people have not helpful control over their cognitions. Conversely, those individuals who are flexible psychologically can

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**Relevant conflicts of interest/financial disclosures:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

**Received:** 12 May 2019; **Accepted:** 20 June 2019



focus on their personal goals and values more than on their internal thoughts, feelings, and physiological sensations that will increase their mental health (e.g. decreased burnout) and behavioral effectiveness (e.g. adaptive performance). Adaptive performance is defined as the ability to change behavior to match the environmental requirements of a new position (Johnson, 2001). Consistently, research in the workplaces revealed that the psychological flexibility improves productivity indices such as absenteeism (Bond *et al.*, 2008), propensity to be innovative (Bond and Bunce, 2000; Bond *et al.*, 2013), and job performance (Bond and Bunce, 2003). Psychological flexibility can predict mental health, job satisfaction and job performance (Hayes *et al.*, 2006). The effect of psychological flexibility was seen, even after controlling one or more of the individual characteristics, such as emotional intelligence and each of the five big factors of personality (Bond *et al.*, 2006).

In recent years clinical psychologists have tried to explore more effective ways to promote and protect people mental health and behavioral effectiveness. Acceptance and commitment therapy (ACT) as a 3rd wave models of therapy is the most identified therapeutic method for managing health-related variables including distress, anxiety and depression (Hayes *et al.*, 2006). Initially the ACT was outlined in a way that to be applied in clinical settings and improve psychological disorders. Recently Bond and Bunce (Bond and Bunce, 2000; Flaxman *et al.*, 2013) extended this method to organizational settings to be applied to promote employees well-being (e. g. reducing job burnout and increasing openness to change) and behavioural effectiveness (e. g. adaptive job performance). Specifically, Bond and Bunce (Bond and Bunce, 2000) believed that the ACT can be applied to non-clinical settings and with normal people. ACT model consisted of six processes including acceptance, defusion, self-as-context, committed action, values, being in the present moment. Based on theoretical principles of this model the outcome of these six processes is psychological flexibility. However, the role of two of them (psychological acceptance and cognitive defusion) is more than others in producing psychological flexibility (Flaxman *et al.*, 2013). Cognitive defusion has been received less attention in the previous research than acceptance. cognitive defusion that is defined as acceptance of negative cognitive content and separate self from negative

thoughts so that these negative thoughts are not able to control the human behavior. Cognitive fusion contrary to cognitive defusion occurs when an individual's negative thoughts effect on his behavior (Hayes and Lillis, 2012).

Studies have shown that ACT processes including cognitive defusion can produce psychological flexibility, well-being and performance, as well as lead to a lower level of stress (Yadavaia *et al.*, 2014; Hoffmann *et al.*, 2014; Wersebe *et al.*, 2017), depression (Fledderus *et al.*, 2014) and burnout (Hayes *et al.*, 2004; Vilardaga *et al.*, 2011; Lloyd *et al.*, 2013). Research evidence has shown that ACT processes including cognitive defusion intervention helps employees to have a more flexible and meaningful life with respect to their own values and empowers them to overcome mental health problems (Powers *et al.*, 2009).

Another trait for improving mental health is mindfulness. The mindfulness is described as a state of consciousness which individuals experience current events without judging them (Hülshager *et al.*, 2016), has received the attention of researchers around the world during recent decade (Bear 2003; Brown and Ryan, 2003), and has become a major issue in promoting health and disease prevention research (Greeson, 2009). People with high mindfulness are able to be flexible so that can keep their awareness continuously on work at hand and entangling themselves from negative beliefs, thoughts, and emotions (Ludwig and Kabat-zinn, 2008). Recently, mindfulness has received much attention in the literature of industrial and organizational psychology. Research on the role of mindfulness in the workplace suggests that mindfulness increases the attention to jobs and reduces the impact of negative thoughts and feelings and potentially increases concentration and flexibility. Therefore, it can be said that those who have higher mindfulness have a higher psychological flexibility. Mindfulness can be helpful in managing employees stress, increasing participation and reducing burnout and helping employees adapt to organizational changes (Hyland *et al.*, 2015).

Mindful employees have a high level of acceptance, which will allow them to have high levels of job control. Therefore, the mindfulness increases job control and reduces the stress that occurs due to the loss of job control during organizational changes (Bond and Bunce, 2003). Also, a higher level of mindfulness leads employees to react less to change



and accept changes in the organization easier (Brown *et al.*, 2008).

Studies about the role of psychological flexibility in organizational behavior and occupational outcomes are very limited. The present study seeks to examine a model of some of the most important antecedents and consequence of psychological flexibility. Fig. 1 shows the proposed model of the present study in which mindfulness and cognitive defusion are considered as antecedents and adaptive performance, job burnout and openness to change are considered as consequences of psychological flexibility. Fig. 1 shows the hypothetical model of the present study.

### Method

**Participants:** Participants were 250 employees from the South Railway Company that were selected by stratified random sampling method. To this end population was divided into different organizational units and participants were selected randomly based on proportion of the population of each unit. After the removal of incomplete questionnaires, 220 useable questionnaires were remained (response rate was 88%). Final sample of this study consisted of 220 participants (186 men and 34 women) with age mean and standard deviation of 37.44, and 9.65, respectively.

### Instrument

**Acceptance and action questionnaire:** Acceptance and action questionnaire (AAQ-II) (Bond *et al.*, 2011) was used to measure psychological flexibility. This scale

consists of 7 short statements that are questions regarding to the unwillingness to experience the unwanted thoughts and feelings, and the inability to be present at current time and the movement towards inner values. Items were rated on a 7-point Likert scale with the minimum and maximum scores of 7 and 49 respectively. The test-retest reliability of the questionnaire was obtained 0.81 (Bond *et al.*, 2011). The Cronbach alpha was 0.86 indicating good internal consistency.

**Cognitive Fusion Questionnaire:** Cognitive fusion questionnaire (Gilandres *et al.*, 2014) is a 12 items questionnaire to measure cognitive fusion, especially in relation to separating thoughts from actions and creating a psychological distance between the individual and his thoughts, beliefs and memories. Items are rated on a 7-point Likert scale. Zare (Zare, 2014) reported the Cronbach's alpha 0.76 which indicates the scale is a reliable.

**Mindful attention and awareness scale:** To assess mindfulness, the mindful attention awareness Scale (MAAS) (Brown and Ryan, 2003) was administered. This scale consists of 15 brief statements includes items such as, "I tend to walk quickly to get where I'm going without paying attention to what I experience along the way" and "I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there". Items are rated on a 6-point Likert scale (one for "almost always" to a score of 6 for "almost never"). Excellent test-retest reliability, good internal consistency, and good convergent and discriminant validity have been found with the MAAS

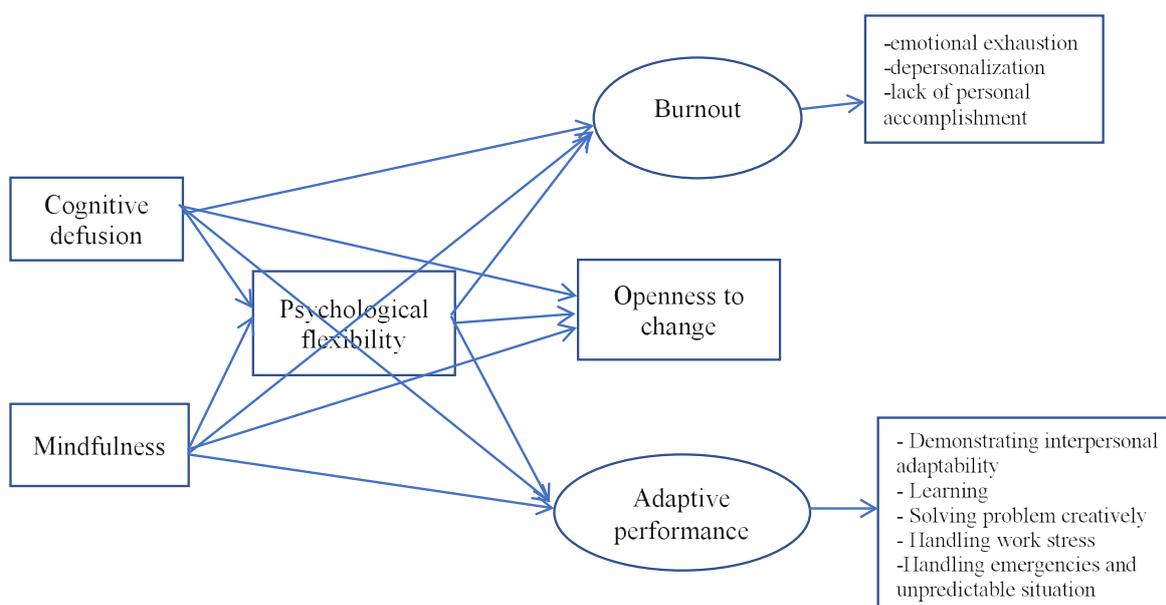


Figure 1. The Hypothetical Model of the Present Study.

(Brown and Ryan, 2003). Cronbach's Alpha for this scale was obtained .81 (Gorbani *et al.*, 2009).

**Openness to change:** Openness to Change (Metselaar, 1997; Rossel, 2010) is a self-assessment scale that measures the amount of enthusiasm and acceptance of change by employees in an organization. 4 items scale were rated on a 7-point Likert scale of 1 (strongly disagree) to 7 (strongly agree). The internal consistency of the scale was good ( $\alpha = .94$ ; Rossel, 2010).

**Adaptive Performance:** Adaptive Performance scale (Charbonnier-Voirin *et al.*, 2010) is a 19 items scale and includes five-factor: handling emergencies and unpredictable situations, handling work stress, solving problems creatively, learning, and demonstrating interpersonal adaptability. Charbonnier-Voirin *et al.*, (2010) in two studies using confirmatory factor analysis examined the factor structure of the scale and showed that the five-factor model was fitted with the data, indicating the construct validity of the scale. They reported Cronbach alpha .84 as a reliability index.

**Burnout:** Job Burnout Questionnaire (Maslach, 1981) is a 22 items, that 9 items are related to emotional exhaustion, 8 items related to the lack of personal accomplishment and 5 items related to depersonalization. Maslach and Jackson (Maslach and Jackson, 1984) reported good internal consistency (alpha .83) for the scale.

### Statistical strategy

The hypothesized model of was analyzed using structural equation modeling (SEM) that is more advantageous in enabling researchers to test *hypothesized models*. Decomposition of effects, similarly, provides clarity into the direct and indirect interrelations between variables. In relation to the goodness-of-fit indices used in this study were as follow: (i) the relative Chi-square (or  $\chi^2$  divided into df), (ii) the Comparative Fit Index (CFI), (iii) the Normed Fit Index (NFI), (iv) the Incremental Fit Index (IFI), and (v) the Root Mean Square Error of Approximation (RMSEA). Testing of mediation role of psychological flexibility was done using bootstrap technique.

### Results and Discussion

Means, standard deviations and the bivariate correlations among the variables are presented in Table 1. As seen, all correlations coefficients between variables are significant at  $p < 0.01$ .

Table 1. Descriptive Statistics and correlation among variables.

	Variables	M	SD	1	2	3	4	5
1	psychological flexibility	35.86	7.51	-				
2	mindfulness	65.38	9.71	.61**	-			
3	Cognitive defusion	49.66	7.49	.64**	.46**	-		
4	Burnout	69.52	10.79	-.67**	-.62**	-.52**	-	
5	openness to change	20.46	4.17	.41**	.39**	.23**	-.54**	-
6	adaptive performance	50.80	10.12	.33**	.43**	.42**	-.61**	.52**

Note: \*\*Correlation is significant at the 0.01 level (2-tailed).

Fit indices for the hypothesized and final models are presented in Table 2. Fit indices for hypothesized model are as  $\chi^2 = 200.67$ , Normed Fit Index. (NFI = .84), Comparative Fit Index (CFI = .85), Incremental Fit Index (IFI = 0.86), and Root Mean Square Error of Approximation (RMSEA = .11), indicating the model is relatively fitted with data. However, better fitness was found by the removal of two non-significant paths (cognitive defusion to adaptive performance and cognitive defusion to the openness to change). As presented in table 2 the fit indices are as  $\chi^2 = 146.26$ , Normed Fit Index. (NFI = .93) and Comparative Fit Index; (CFI = .92), Incremental Fit Index (IFI = .94), Root Mean Square Error of Approximation (RMSEA = .07), indicating the model is fitted with data more than hypothesized model.

Table 2. Fit indices among competing models.

Variable fit indices	$\chi^2$	df	$\chi^2/df$	NFI	CFI	IFI	RMSEA
Acceptable values	-	-	<5	≥ .90	≥ .90	≥ .90	≤ .080
Proposed model	200.67	46	4.36	.84	.85	.86	.11
Final model	146.26	47	3.11	.93	.92	.94	.07

Note: N = 220; RMSEA = Root Mean Square Error of Approximation; CFI=Comparative Fit Index; IFI= Incremental Fit Index; and NFI=Normed Fit Index.

Table 3 displays the direct effects of the model indicating all the effects consistent with predictions are significant, except for two (cognitive defusion on adaptive performance and openness to change with p-values of .16 and .84, respectively). Results also showed that both burnout ( $\beta = -.43$ ,  $P = .001$ ) and psychological Flexibility ( $\beta = .48$ ,  $P = .001$ ) were explained by mindfulness. These findings are consistent with the results of Krasner *et al.*, (2009), Hülshager *et al.*, (2013), Taylor and Miller (2015), and McCracken and Young (2008). Hülshager *et al.* (2013) have shown that mindfulness by reducing emotional exhaustion as one of the three components



Table 3. Standardized and unstandardized direct effects and corresponding p-values.

Paths	Standard Estimates	Non-standard estimation	S.E.	C.R.	P
Mindfulness → Psychological Flexibility	0.48	0.52	0.06	7.93	0.001
Mindfulness → adaptive performance	0.19	0.38	0.11	3.42	0.001
Mindfulness → burnout	-0.43	-0.28	0.02	-7.43	0.001
Mindfulness → openness to change	0.17	0.07	0.04	2.84	0.001
Cognitive defusion → Psychological Flexibility	0.29	0.46	0.07	4.21	0.001
Cognitive defusion → adaptive performance	0.08	0.04	0.09	1.27	0.16
Cognitive defusion → burnout	-0.22	-0.45	0.012	-3.09	0.002
Cognitive defusion → openness to change	0.02	0.05	0.08	0.4	0.84
Psychological Flexibility → Burnout	-0.27	-0.17	0.018	-3.51	0.001
Psychological flexibility → adaptive performance	0.25	1.18	0.14	3.25	0.001
Psychological flexibility → openness to change	0.33	1.16	0.05	4.42	0.002

of burnout prevents job burnout. Mindfulness helps employee to be less reactive and more flexible in stressful work situations. Therefore, under these conditions, it is less probability for employees to involve in burnout.

Results also showed that adaptive performance was explained by mindfulness, positively ( $\beta=.19$ ,  $P=.001$ ). Mindfulness helps employees to clearly understand the situations, and mindful employees are able to behave more flexibly and act according to their work life values. When employees behave according to their values (not to their negative thoughts and emotions), they will be able to focus more on the work at hand and in turn would attain positive reinforcements that led them to physical and mental health and also effective performance in a particular context such as work (Wilson and Blackledge, 1999). In general, mindful employees accept the present events without having judgment about them. These characteristics help employees who are mindful to change their relationship with negative thoughts and emotions so that these negative contents would have no control over their behaviors. As a result, their behaviors are more flexible and able to do more activities based on their values. Accordingly, studies have shown that mindfulness is positively related to job performance and organizational citizenship behavior and safety performance (Auten and Fritz, 2018). Mindfulness empower employees to improve both quantity and quality of their performance, keep high performance continuously, protecting them against disorder and distraction, and motivating them to find the way of goal attainment (Auten and Fritz, 2018). In fact, mindfulness improves job performance by increasing the contact of employees with the current moment; cause them to do their best in the present moment and to achieve their career goals. Mindfulness helps employees ignore

ordinary judgments and interpretations that are in their minds and create intense emotions and reactions that lead to mental and psychological weaknesses in the individual (Marchand, 2012). These characteristics make them more adaptable in working conditions and better performance. Results showed that mindfulness had a negative effect on adaptive performance ( $\beta=.17$ ,  $P=.001$ ); Bond and Bunce (2003) found that employees with a high level of acceptance - a key component of mindfulness - have high levels of job control. Mindfulness can reduce stresses that result from loss of job control that often occurs during organizational change. This shows that more mindful employees show less resistance to changes in the organization and make them to be more responsive to organizational changes.

Other Results showed that Cognitive defusion had a positive effect on Psychological Flexibility ( $\beta=.29$ ,  $P=.001$ ), indicating psychological flexibility can be explained by cognitive defusion. This finding is consistent with the results of Harris (2006), Hayes *et al.*, (2006), Hayes and Lillis (2012), and Deval *et al.*, (2017). Based on acceptance and commitment training, peoples with high cognitive defusion are able to accept that their thoughts are separate from themselves and are temporary private events. This characteristic helps employees to be flexible. Results also showed that Cognitive defusion had a negative effect on burnout ( $\beta= -.22$ ,  $P=.002$ ). Cognitive fusion contrary to cognitive defusion occurs when an individual's negative thoughts effect on his behavior. A person with a long history of disapproval in interpersonal relationships may never be able to forget this thought "no one likes me," but if he is able to separate himself from his negative thoughts, so that thought does not lead to low mental health or depression (Hayes and Lillis, 2012). The direct effect of cognitive defusion on adaptive performance

Table 4. Indirect effects and corresponding p-values of the model using bootstrap procedure.

Indirect paths	Indirect effect	95% confidence interval		P
		Lower	Upper	
Mindfulness → Psychological Flexibility → Adaptive Performance	0.117	0.053	0.178	0.001
Cognitive defusion → Psychological Flexibility → Adaptive Performance	0.158	0.09	0.228	0.001
Mindfulness → Psychological Flexibility → openness to change	0.092	0.035	0.148	0.001
Cognitive defusion → Psychological Flexibility → openness to change	0.129	0.06	0.184	0.001
Mindfulness → Psychological Flexibility → Burnout	-0.412	-0.515	-0.316	0.001
Cognitive defusion → Psychological Flexibility → Burnout	-0.312	-0.428	-0.237	0.001

( $\beta = .08, P = .16$ ) and openness to change ( $\beta = .02, P = .84$ ), were not significant, meaning that psychological flexibility fully mediated the relationships of cognitive defusion with adaptive performance and openness to change.

Based on Table 3, psychological flexibility had a negative effect on Burnout ( $\beta = -.27, P = .001$ ). This finding is consistent with the results of McCracken and Yang (2008). There are always certain situations in the workplace when doing job tasks, which may lead to hard and unwanted psychological events. These situations may include concerns about conflicts with a colleague or an individual’s lack of interest in the job or task, if employees over-focus on trying to overcome their emotions, they may begin to feel uncomfortable and even depressed and burn out, based on acceptance and commitment based treatment, psychological flexibility improves mental health and reduces exhaustion by increasing employees’ acceptance of these concerns and acting towards the goals and values.

Results showed that psychological flexibility had a positive effect on adaptive performance ( $\beta = .25, P = .001$ ), indicating adaptive performance can be explained by flexibility. Bond & Flaxman (2006) argued that psychological flexibility can prevent employees from flooding in negative thoughts and feelings that will lead them to be able to learn new skills in the workplace and adapt with new circumstances. Therefore, flexible employees can have more adaptive performance in their new organizational tasks. As the final direct effect, psychological flexibility had a positive effect on openness to change ( $\beta = .33, P = .002$ ); this finding is consistent with previous studies (Bond and Bunce, 2000; Bond *et al.*, 2013). Employees who are flexible, do not be afraid of risk, it’s easier to cope with changes. These characteristics of the flexible person make the person changeable and adapt to the new conditions easily.

Bootstrap procedure was used to test the mediation role of psychological flexibility. We

generated 5000 samples from the original data set (N=220). As shown in Table 4, all indirect effects are significant ( $p < .05$ ).

As shown in Table 4, mindfulness and cognitive defusion have a significant indirect effect on burnout, openness to change, and adaptive performance through psychological flexibility. These findings are consistent with the results of previous studies (for example, Flaxman & Bond 2010; Brinkborg *et al.*, 2011; Fledderus *et al.*, 2013; Hoffmann *et al.*, 2014; Yadavaia *et al.*, 2014; Wersebe *et al.*, 2017). Based on third wave theories of behavioural therapies such as mindfulness and ACT trainings, mindfulness and cognitive defusion could enable people (including employees in the workplaces) to behave more flexible even when face with high tension situations and focus on their job duties. Hence, it is clear that more mindful and defused employees because of more flexibility can show more adaptive performance, more openness to change, and less burnout.

### Conclusion

The purpose of this study was to design and test a model of some important antecedents (mindfulness and cognitive defusion) and consequences (adaptive performance, openness to changes and job burnout) of psychological flexibility at work. Results showed that psychological flexibility had a mediating role in the relationship of mindfulness and cognitive defusion with adaptive performance, openness to change and burnout.

The findings of this research would have two applications for organizations. First, with regard to the importance of the innovation and change for today organizations, paying attention to psychological flexibility training to employees, specifically the managers (because they are more responsible and at the same time are under stressful decisions) can enable them to be adapting with changes and to learn new required skills. So it is recommended to organizations that have planning to train their employees with psychological flexibility. The second



application is for recruitment and selection of new employees. It is recommended that the organization try to recruit those applicants who are high in mindfulness, cognitive defusion, and psychological flexibility.

A limitation to this research should be noted, however. In line with the cross-sectional nature of this research, the method of self-inquiry and using self-assessment questionnaires has its own limitation. Future the longitudinal and experimental research is therefore suggested to explicate the temporal order of these findings. For example the extent to which high mindfulness can predict psychological flexibility and the latter variable in turn can predict the outcome variables need to more research with longitudinal manner.

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