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Effectiveness of Compassion-Based and Mentalization-Based Interventions on Social Support and Resilience in Workers with Job Burnout

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ABSTRACT

The present study was conducted in 2024 with the aim of comparing the effectiveness of compassion-based and mentalization-based interventions on workplace social support and resilience among workers with job burnout in the Mansour Industry of Isfahan. The research employed a quasi-experimental method using a pretest–posttest design with a two-month follow-up. The statistical population consisted of workers experiencing job burnout in the Mansour Industry of Isfahan. A total of 60 participants were selected through purposive sampling and randomly assigned to three groups of 20 participants each (compassion-based intervention, mentalization-based intervention, and control group). Research instruments included the Maslach Burnout Inventory (Maslach, 1981), the Connor–Davidson Resilience Scale (Connor & Davidson, 2003), and the Workplace Social Support Questionnaire (Liu et al., 2000). The first experimental group received a compassion-based intervention over twelve 90-minute sessions, the second experimental group received a mentalization-based training package over twelve 90-minute sessions, and the control group was placed on a waiting list. Data were analyzed using repeated measures ANOVA and the Bonferroni post hoc test. The results indicated that the compassion-based intervention was effective in improving resilience and workplace social support among workers with job burnout in the Mansour Industry of Isfahan ($p < .05$), and this effectiveness was maintained over time ($p < .05$). Furthermore, the findings showed that the compassion-based intervention was more effective than the mentalization-based intervention in enhancing workplace social support and resilience among workers with job burnout in the Mansour Industry of Isfahan ($p < .05$). Compassion-based and mentalization-based interventions both improved resilience and workplace social support among workers with burnout; however, compassion-based therapy yielded more profound and enduring outcomes. These findings underscore the importance of integrating compassion training into workplace mental health programs to strengthen employee resilience and interpersonal support.

Keywords: Compassion Therapy, Mentalization, Job Burnout, Social Support, Resilience.

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Introduction

Job burnout is one of the most pervasive occupational health issues of the twenty-first century, with substantial psychological, social, and economic costs across various professions. It manifests through emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment, leading to decreased productivity, mental distress, and organizational dysfunction (1). Contemporary research shows that the COVID-19 pandemic and its aftermath intensified these symptoms among workers in healthcare,

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education, and industry, primarily due to chronic stress, workload escalation, and emotional fatigue (2). Burnout, therefore, is not a transient reaction to stress but a prolonged psychological syndrome that erodes individuals' well-being and professional engagement (3).

In occupational contexts such as healthcare and manufacturing industries, burnout represents a multidimensional phenomenon influenced by psychosocial stressors, perceived effort–reward imbalance, and emotional dysregulation (1). Among healthcare professionals, burnout has been linked to anxiety, depression, and compassion fatigue, often arising from exposure to chronic emotional demands and organizational pressure (4). In particular, those working with vulnerable populations—such as children with developmental disorders—experience a heightened risk due to emotional labor and limited institutional support. Similarly, teachers and industrial workers demonstrate high levels of psychological exhaustion resulting from repetitive tasks, insufficient social recognition, and poor interpersonal dynamics at work (2).

The consequences of burnout extend beyond individual suffering, affecting workplace climate, performance, and social interactions. Employees experiencing burnout are prone to social withdrawal, diminished collaboration, and reduced capacity for empathy, which, in turn, undermines social support systems within the organization (5). Lack of social support exacerbates feelings of alienation, further diminishing resilience—the capacity to adapt and recover from adversity. Thus, resilience and perceived social support play pivotal roles in mitigating burnout and promoting recovery (6).

From a psychological standpoint, resilience functions as a protective factor against emotional exhaustion and mental fatigue. Studies indicate that individuals with higher levels of resilience demonstrate better coping strategies, lower rates of depression and anxiety, and greater persistence in stressful occupational environments (7). Resilience is also influenced by social, emotional, and spiritual resources that enable individuals to reinterpret workplace challenges as manageable rather than overwhelming (5). For example, spirituality and mindfulness practices have been shown to strengthen resilience and alleviate COVID-19-related anxiety among students (6). These findings suggest that interventions designed to enhance resilience and social connectedness may significantly buffer the impact of burnout.

Furthermore, recent literature has highlighted compassion and mentalization as two therapeutic mechanisms capable of addressing burnout and related symptoms by enhancing self-awareness, empathy, and emotional regulation (8). Compassion-based interventions (CBIs) emphasize cultivating kindness toward oneself and others, fostering emotional warmth, and reducing self-criticism and guilt (9). Mentalization-based therapy (MBT), conversely, focuses on improving one's ability to understand mental states—both one's own and others'—as a way to regulate affect and maintain interpersonal stability (10). Both approaches target core psychological processes underlying burnout, such as emotional dysregulation, social detachment, and reduced empathy.

Compassion has received significant empirical support as a protective factor against psychological distress and burnout. During the COVID-19 pandemic, compassion was found to safeguard mental health and foster social safeness across 21 countries, demonstrating its universal applicability in times of crisis (9). Compassion-Focused Therapy (CFT), developed by Gilbert and colleagues, integrates mindfulness, cognitive restructuring, and imagery to counteract self-criticism and shame—two prominent emotional features among individuals experiencing burnout (11). Studies on compassion-based approaches have revealed improvements in self-concept, social connectedness, and emotional regulation (8). Moreover, compassion

interventions have been associated with reduced psychological distress in populations suffering from eating disorders, depression, and occupational stress (11).

Mentalization, as a therapeutic construct, refers to the capacity to understand one's own and others' mental states as intentional and meaning-making processes (10). Impairments in mentalization have been linked to emotional dysregulation, interpersonal conflict, and vulnerability to burnout (12). In occupational contexts, deficits in mentalization can result in misinterpretation of social cues, reduced empathy, and heightened reactivity to stress. By enhancing reflective functioning, MBT promotes better emotional control, empathy, and perspective-taking—skills essential for interpersonal harmony and psychological resilience (10).

Research has demonstrated that mentalization-based interventions improve emotion regulation, reduce impulsivity, and enhance interpersonal understanding in both clinical and nonclinical populations. For instance, MBT has shown efficacy in reducing depressive and anxiety symptoms among individuals facing chronic occupational stress (13). Similarly, MBT's focus on recognizing and managing mental states contributes to a healthier social environment and greater organizational cohesion. When individuals develop the capacity to mentalize effectively, they are more capable of engaging in supportive relationships, maintaining emotional stability, and adapting to professional challenges (14).

The importance of social support as a buffering factor against burnout is also well-established. Studies have found that adequate social support enhances resilience, reduces emotional exhaustion, and improves sleep quality (15). Workplace social support, in particular, has a significant moderating effect on stress and its outcomes, as it fosters a sense of belonging and shared responsibility (5). Supportive workplace interactions are associated with improved communication, lower turnover rates, and higher employee morale (16). Conversely, environments characterized by isolation, excessive demands, or insufficient acknowledgment can heighten employees' vulnerability to burnout and psychosomatic symptoms (3).

Beyond psychological mechanisms, neurobiological evidence suggests that compassion-based and mentalization-based approaches modulate stress responses and improve physiological markers of well-being. For instance, post-awakening salivary alpha-amylase, a biomarker of stress reactivity, has been shown to vary with treatment response in individuals with depression and burnout (16). Such findings support the notion that interventions targeting emotional and cognitive processes can have measurable biological effects. Moreover, occupational fatigue and circadian rhythm disturbances, especially among shift workers such as pilots or healthcare providers, further amplify burnout risk (17). These physiological factors underline the need for integrated interventions that combine emotional regulation and social connectedness.

The psychological literature increasingly advocates for integrative approaches that consider individual and contextual determinants of burnout. For instance, digital transformation and remote work environments have introduced new psychological stressors related to technological adaptation and social disconnection (14). Employees' ability to adapt to these evolving work structures depends largely on their psychological flexibility, resilience, and perceived social support. In this regard, compassion and mentalization provide complementary frameworks that address both internal regulation (e.g., managing emotions, reducing self-criticism) and external relations (e.g., improving empathy, enhancing workplace communication).

Additionally, the relationship between compassion, mindfulness, and resilience has been conceptualized as a mediating process. Self-compassion fosters acceptance, emotional balance, and cognitive clarity, which

together enhance the ability to manage stress and build resilience (5). Mindfulness, as an integral part of both compassion and mentalization frameworks, allows individuals to remain aware of emotional experiences without judgment, thereby preventing rumination and emotional overload (8). When compassion and mentalization are cultivated simultaneously, they reinforce each other: compassion reduces emotional reactivity, while mentalization strengthens reflective awareness of self and others.

Burnout research across various occupational groups—such as physicians, nurses, and educators—has consistently demonstrated the interplay between psychological resilience, emotional awareness, and social connectedness (2, 12, 13). Among physicians in training, for instance, burnout has been correlated with depression and anxiety stemming from excessive workload and limited emotional resources (13). Orthopedic surgeons, likewise, show high levels of depression and suicide risk linked to emotional exhaustion and lack of organizational empathy (12). Such findings illustrate that enhancing emotional capacities such as compassion and mentalization is essential not only for clinical populations but also for broader workforce resilience and well-being.

Cross-cultural evidence underscores the universality of compassion and social connectedness in fostering mental health and occupational satisfaction. Studies conducted across multiple cultural contexts—from Europe to Asia and South America—confirm that interventions promoting compassion and reflective awareness lead to significant reductions in anxiety, depression, and stress (3, 9, 13). Likewise, research in industrial and educational settings in Iran has found that fostering self-compassion and mindfulness enhances social support and resilience among employees and students alike (5, 8). These findings suggest that compassion-based and mentalization-based therapies may provide culturally adaptable tools for addressing burnout in diverse occupational environments.

Recent advances in psychotherapy advocate for precision approaches that integrate biological, psychological, and contextual data to tailor interventions (18). Precision psychotherapy underscores that treatment outcomes improve when individual differences in emotional processing, interpersonal functioning, and social environment are taken into account. In line with this perspective, compassion-based and mentalization-based interventions can be seen as personalized strategies that align with individuals' emotional patterns, thereby maximizing therapeutic effectiveness.

Emerging research also highlights the need to consider the human dimension of digitalized and modern workplaces, emphasizing adaptability, emotional intelligence, and interpersonal understanding as critical resources for maintaining psychological health (14). In such contexts, compassion-based and mentalization-based interventions provide employees with cognitive–emotional tools to navigate uncertainty, manage interpersonal tensions, and sustain a sense of meaning and connectedness at work. Building upon prior empirical evidence, the present study aims to compare the effectiveness of compassion-based and mentalization-based interventions on workplace social support and resilience among industrial workers with job burnout in Isfahan Province, Iran.

Methods and Materials

Study Design and Participants

The present study was applied in nature and employed a quasi-experimental design with a pretest–posttest structure, including two experimental groups and one control group, with a two-month follow-up.

The statistical population consisted of 60 workers with job burnout from Mansour Industry in Isfahan, Iran, selected using purposive sampling. Initially, a list of all individuals with at least five years of work experience in the organization was prepared. Subsequently, the Maslach Burnout Inventory was administered to all these individuals. Sixty workers who scored one standard deviation above the mean or had a cutoff score of 60 or higher were selected as the sample. The minimum sample size was set at 20 participants per group, totaling 60 participants.

Inclusion criteria included informed consent, male gender, at least five years of work experience in Mansour Industry, a minimum of middle school education to ensure comprehension and participation in twelve weekly 90-minute sessions, and scoring one standard deviation above the mean or having a cutoff score of 60 on the burnout scale. Exclusion criteria included participant withdrawal, unwillingness to continue participation, absence in two sessions, and failure to complete assigned tasks or exercises. Informed consent was obtained from all participants, and they were fully aware of the research objectives. Participants were also informed that they could withdraw from the study at any point.

Data Collection

Maslach Burnout Inventory (MBI): Developed by Maslach and Jackson (1981), this inventory consists of 22 items rated on a five-point Likert scale. It assesses three dimensions of job burnout: emotional exhaustion, depersonalization, and reduced personal accomplishment. Items are rated from “strongly agree” (1) to “strongly disagree” (5). Items 1, 2, 3, 4, 5, 6, 8, 10, 11, 13, 14, 15, 16, 20, and 22 are reverse-scored, while items 4, 7, 9, 12, 17, 18, 19, and 21 are scored directly. The minimum possible score is 22, and the maximum is 110. Item 23 provides an overall assessment of burnout. Maslach and Jackson (1993) reported Cronbach’s alpha coefficients of .90 for emotional exhaustion, .70 for depersonalization, and .71 for reduced personal accomplishment. Maslach et al. (2001) examined construct validity through exploratory and confirmatory factor analyses, confirming a three-factor structure with factor loadings above .41 for each item. In Iranian studies, the MBI has shown acceptable psychometric properties. For example, Badri Gorgori (2007) reported Cronbach’s alphas of .84 for emotional exhaustion, .74 for depersonalization, and .86 for reduced personal accomplishment. Concurrent validity between the MBI and the Job Satisfaction Questionnaire developed by Pre Fieldwork was r = −.39 (as cited in Arsin et al., 2015). In a more recent study, Moradi et al. (2023) reported a Cronbach’s alpha of .92 for this scale.

Workplace Social Support Inventory (WSSI): Developed and validated by Liu et al. (2000), this 20-item questionnaire measures workplace social support across four dimensions: emotional support (items 1–4), informational support (items 5–7), social companionship (items 8–10), and instrumental support (items 11–20). Each item is rated on a five-point Likert scale ranging from “strongly agree” (5) to “strongly disagree” (1). The total score ranges from 20 to 100, with higher scores indicating greater perceived workplace social support. Higher scores on subscales reflect stronger support in that particular dimension. Liu et al. (2007) reported high content and construct validity among American organizational employees, and Liu et al. (2010) confirmed these properties among Chinese employees. Niknam et al. (2018) found similar results among Iranian teachers, while Hosseini et al. (2019) confirmed the scale’s validity and reliability among Iranian government employees.

Connor–Davidson Resilience Scale (CD-RISC): Developed by Connor and Davidson (2003), this 25-item scale assesses resilience on a five-point Likert scale ranging from 0 ("not true at all") to 4 ("true nearly all the time"). Total scores range from 0 to 100, with higher scores indicating greater resilience. Yu et al. (2011) reported convergent validity with the Multidimensional Scale of Perceived Social Support (r = .44) and internal consistency reliability with a Cronbach's alpha of .89. In Iran, Bakhshayesh Eghbali et al. (2022) translated and validated the CD-RISC, confirming its construct validity via confirmatory factor analysis, supporting a five-factor structure (self-belief, acceptance, positive relationships, purposefulness, and happiness), with all items having factor loadings above .30 and internal consistency reliability of .94. Similarly, Keyhani et al. (2014) reported criterion validity through correlation with the Self-Efficacy Questionnaire (r = .29), indicating convergent validity. In the present study, internal consistency reliability was calculated using Cronbach's alpha (α = .78).

Interventions

The mentalization-based intervention was conducted over twelve 90-minute group sessions following the protocol of Bateman and Fonagy (2020). The first session introduced the objectives of the group sessions and the concept of mentalization, emphasizing its distinction from related constructs such as empathy. The second session focused on identifying indicators of weak and strong mentalization, emotional dysregulation, impulsivity, and interpersonal sensitivity. The third session addressed the understanding and management of others' emotions and included group activities on expressing emotions effectively. The fourth session taught differentiation between objective reality and subjective interpretation of reality, alongside training in cognitive restructuring techniques. The fifth session involved recognizing and managing negative emotions such as anger, anxiety, and frustration, with practical exercises in emotional regulation and adaptive emotional responses through mentalization techniques. The sixth session covered effective communication skills, including active listening, empathy, and clear emotional expression. The seventh session discussed common workplace challenges (e.g., criticism, workload pressure) and included practical problem-solving exercises to apply mentalization in managing such situations. The eighth session explored the relationship between mentalization and job burnout, with exercises aimed at reducing burnout through mentalization. The ninth session examined the link between mentalization and resilience, including practical exercises to enhance resilience using mentalization strategies. The tenth session investigated the connection between mentalization and workplace social support, engaging participants in discussions and activities designed to strengthen social support through mentalization. The eleventh session reviewed the key topics from previous sessions, summarizing core principles and practical strategies. The twelfth session concluded the intervention by appreciating participants' engagement, addressing their questions, and providing post-intervention questionnaires along with completion instructions.

The compassion-based intervention was implemented over twelve 90-minute group sessions based on the Compassion-Focused Therapy model of Germer and Neff (2019). The first session outlined the goals and process of the sessions, introduced the concept of compassion, and distinguished it from similar concepts while emphasizing its importance for psychological well-being. The second session focused on recognizing the signs and sources of suffering, particularly in the workplace, such as work overload and interpersonal conflicts. The third session introduced compassion imagery techniques, along with practical exercises to

cultivate compassion toward oneself and others, followed by group discussions on barriers to compassion. The fourth session explored the three components of self-compassion—self-kindness, common humanity, and mindfulness—and included exercises such as writing a self-compassion letter. The fifth session involved mindfulness and receiving-compassion meditations aimed at promoting deeper emotional awareness and meaningful living. The sixth session focused on extending compassion to others through practices like loving-kindness meditation and imaginative exercises of perceiving others' suffering. The seventh session addressed applying compassion in coping with difficult workplace emotions (e.g., anger, anxiety, hopelessness). The eighth session trained participants in compassionate communication, including practical exercises to enhance empathy, reduce interpersonal conflict, and foster harmonious relationships. The ninth session examined the relationship between compassion and job burnout, engaging participants in applying compassion-based strategies to mitigate burnout. The tenth session taught compassion techniques for improving interpersonal relationships and explored how compassion contributes to resilience. The eleventh session analyzed the relationship between compassion and workplace social support, emphasizing collaborative compassion practices. The twelfth session summarized key insights and practical strategies for integrating compassion into daily life, acknowledged participant commitment, and provided final questionnaires with completion instructions.

Data Analysis

Data were analyzed using SPSS version 26. Repeated measures analysis of variance (ANOVA) and the Bonferroni post hoc test were applied to examine group differences over time.

Findings and Results

The means and standard deviations of the research variables by group and measurement time are presented in the table below.

Table 1. Mean and standard deviation of experimental and control groups for research variables across measurement times.

Variable	Group	Compassion-Based Intervention		Mentalization-Based Intervention		Control	
		Mean	SD	Mean	SD	Mean	SD
Resilience	Pretest	59.20	8.81	58.70	4.49	58.65	5.19
	Posttest	65.80	9.17	62.85	5.16	57.80	4.98
	Follow-up	66.00	9.63	61.90	4.39	58.00	5.51
Workplace Social Support	Pretest	54.85	11.11	56.35	6.01	54.95	7.93
	Posttest	69.40	10.82	62.85	10.59	53.05	9.90
	Follow-up	68.85	11.39	62.25	8.37	53.75	9.45

As shown in the table, there was no significant difference between the mean scores of the three groups at the pretest stage. However, following the interventions, greater differences were observed in the experimental groups. The results also indicate that the level of job burnout among participants was above the population mean (M = 66.00).

Table 2. Results of within-group and between-group effects in repeated measures ANOVA

Effect	Statistic	F	df (hypothesis)	df (error)	p-value	Effect size	Power

Within-group	Pillai's Trace	.996	3169.785	4	54	.001	.996
	Wilks' Lambda	.004	3169.785	4	54	.001	.996
Group Effect	Pillai's Trace	.462	4.132	8	110	.001	.213
	Wilks' Lambda	.548	4.736	8	108	.001	.260
Between-group	Time Effect	Pillai's Trace	.890	50.461	8	50	.001
	Wilks' Lambda	.110	50.461	8	50	.001	.890
Time × Group	Pillai's Trace	.962	5.903	16	102	.001	.418
	Wilks' Lambda	.139	10.503	16	100	.001	.627

As shown in Table 2, the group effect was statistically significant ($p < .001$), indicating that for the research variables—workplace social support and resilience—there were significant differences between at least two of the groups (compassion-based intervention, mentalization-based intervention, and control). This finding confirms the group effect. Moreover, the time effect was also significant ($p < .001$), suggesting that across the three time points (pretest, posttest, and follow-up), significant changes occurred in the variables of workplace social support and resilience among workers with job burnout in Mansour Industry, Isfahan Province. This confirms the time effect. The interaction effect between time and group was also significant ($p < .001$), indicating that changes in the dependent variables varied across time among the groups. In other words, workplace social support and resilience differed significantly across the three stages (pretest, posttest, and follow-up) based on group membership, confirming the interaction effect. Overall, these findings support the main hypothesis that there is a significant difference in the effectiveness and sustainability of compassion-based and mentalization-based interventions on workplace social support and resilience among workers with job burnout in Mansour Industry, Isfahan Province. The two sub-hypotheses were then examined in detail.

Hypothesis 1: There is a difference in the effectiveness and sustainability of compassion-based and mentalization-based interventions on resilience among workers with job burnout in Mansour Industry, Isfahan Province.

Table 3. Bonferroni post hoc test results for pairwise comparison of research groups on the resilience variable at posttest and follow-up stages

Stage	Reference Group	Comparison Group	Mean Difference	Std. Error	p-value
Posttest	Compassion-Based	Mentalization-Based	2.488	.992	.045
	Compassion-Based	Control	7.492	.992	.001
	Mentalization-Based	Control	5.004	.991	.001
Follow-up	Compassion-Based	Mentalization-Based	3.628	.817	.002
	Compassion-Based	Control	7.481	.821	.001
	Mentalization-Based	Control	3.853	.826	.001

As shown in Table 3, there were significant differences in mean resilience scores between the compassion-based intervention group and the control group at both the posttest and follow-up stages ($p < .05$). These findings indicate that the compassion-based intervention effectively enhanced resilience among workers with job burnout in Mansour Industry, Isfahan Province, and that this effect was sustained over time. Furthermore, significant differences were also found between the mentalization-based intervention group and the control group at both the posttest and follow-up stages ($p < .05$), suggesting that the mentalization-based intervention was similarly effective and its effects persisted over time. In addition, a significant difference was observed between the compassion-based and mentalization-based intervention groups ($p <$

.05). Although both interventions significantly improved resilience and maintained these effects at follow-up, the compassion-based intervention produced a greater and statistically significant impact.

Hypothesis 2: There is a difference in the effectiveness and sustainability of compassion-based and mentalization-based interventions on workplace social support among workers with job burnout in Mansour Industry, Isfahan Province.

Table 4. Bonferroni post hoc test results for comparison of research groups on workplace social support at posttest and follow-up stages

Stage	Reference Group	Comparison Group	Mean Difference	Std. Error	p-value
Posttest	Compassion-Based	Mentalization-Based	7.598	2.731	.022
	Compassion-Based	Control	16.420	2.724	.001
	Mentalization-Based	Control	8.882	2.730	.006
Follow-up	Compassion-Based	Mentalization-Based	7.324	2.844	.038
	Compassion-Based	Control	15.298	2.837	.001
	Mentalization-Based	Control	7.975	2.843	.021

As shown in Table 4, there were significant differences in mean workplace social support scores between the compassion-based intervention group and the control group at both the posttest and follow-up stages ($p < .05$). These findings indicate that the compassion-based intervention effectively improved workplace social support among workers with job burnout in Mansour Industry, Isfahan Province, and that this effect persisted over time. Similarly, significant differences were found between the mentalization-based intervention group and the control group at both the posttest and follow-up stages ($p < .05$), indicating that the mentalization-based intervention was also effective and maintained its impact over time. Moreover, significant differences were observed between the compassion-based and mentalization-based intervention groups at both the posttest and follow-up stages ($p < .05$). Although both interventions significantly improved workplace social support and their effects remained stable at follow-up, the compassion-based intervention produced a greater and statistically significant effect.

Discussion and Conclusion

The present study aimed to compare the effectiveness of compassion-based intervention (CBI) and mentalization-based intervention (MBI) on workplace social support and resilience among industrial workers experiencing job burnout. The results indicated that both interventions significantly improved resilience and perceived workplace social support, and these effects were maintained during the two-month follow-up. However, the compassion-based intervention demonstrated greater and more sustained efficacy than the mentalization-based intervention. This finding supports the growing body of evidence highlighting the central role of compassion and reflective functioning in mitigating the psychological and interpersonal consequences of occupational burnout (5, 8).

The improvement in resilience following both interventions underscores the crucial role of emotional regulation and self-awareness in coping with chronic occupational stress. Consistent with previous findings, strengthening emotional competencies helps individuals reinterpret stressful situations and develop adaptive coping strategies (7). Mentalization, which enhances the capacity to understand one's own and others' mental states, fosters reflective thinking and decreases impulsive emotional reactions (10). In this study, workers who participated in the MBI program reported improved ability to regulate emotions, manage

workplace challenges, and maintain interpersonal stability. These findings align with previous research showing that increased mentalization skills contribute to better emotional control, reduced anxiety, and improved workplace functioning (13).

However, the compassion-based intervention produced significantly stronger improvements in resilience and social support compared to mentalization training. This outcome aligns with studies suggesting that compassion-oriented approaches directly target the emotional core of burnout by cultivating warmth, self-acceptance, and empathy (9, 11). Compassion allows individuals to adopt a nonjudgmental stance toward their own suffering and others', thereby reducing self-criticism and emotional exhaustion (8). Moreover, compassion-based interventions are inherently relational—they enhance empathy, prosocial behavior, and mutual understanding, which are essential for creating supportive workplace relationships (5). These processes may explain why participants in the compassion-based group showed more durable improvements in both resilience and perceived workplace support.

The findings further demonstrate that compassion-based intervention not only enhances individual coping mechanisms but also improves collective social dynamics. By reducing interpersonal conflicts and promoting empathic communication, compassion fosters a sense of belonging and collegiality, which directly contribute to higher perceived workplace social support (15). Social support, in turn, is known to buffer the negative effects of chronic occupational stress and promote resilience among workers (6). The mutual reinforcement between compassion and social support suggests that interventions emphasizing kindness and empathy may generate a broader cultural shift within organizations toward cooperation and mutual care (14).

Moreover, the results corroborate previous research emphasizing the association between mindfulness, self-compassion, and resilience. Dehghani and colleagues found that self-compassion mediates the relationship between mindfulness and social support with resilience among students (5). This mediating role of compassion helps explain the current study's results: participants who developed greater compassion also enhanced their self-awareness and coping efficacy, thereby increasing resilience and their perception of supportive relationships at work. The compassion-based intervention likely activated similar psychological pathways, enabling participants to handle occupational challenges with greater equanimity.

From a theoretical standpoint, the superior effects of the compassion-based intervention can be understood through Gilbert's model of Compassion-Focused Therapy (CFT), which posits that activating the affiliative emotional system reduces threat responses and facilitates emotion regulation (9). Compassion activates parasympathetic processes, reducing physiological arousal and promoting calmness, which directly counteract burnout's physiological correlates such as hyperarousal and fatigue (16). This neurobiological grounding gives compassion-based therapy a holistic impact on both mental and physical aspects of occupational stress. In contrast, mentalization primarily strengthens cognitive reflection and affective understanding but may not directly target physiological stress responses, which could explain its comparatively smaller effects.

The findings of the present study are consistent with broader occupational mental health research. Studies among healthcare professionals and educators have consistently reported that burnout is associated with emotional exhaustion, reduced empathy, and impaired interpersonal functioning (2, 4). Interventions that emphasize emotional awareness, empathy, and compassion have been shown to alleviate these symptoms

effectively. For example, healthcare workers trained in compassion-oriented practices reported decreased anxiety and depression and increased resilience compared to control groups (4). Similarly, teachers who received psychosocial support demonstrated enhanced coping capacity and reduced emotional strain (2). The current findings extend these observations to industrial workers, demonstrating that compassion and mentalization can be effectively adapted beyond clinical or educational contexts to address burnout in manufacturing settings.

Additionally, the improvement in workplace social support observed in this study supports the theoretical framework that social connectedness functions as a protective factor against burnout. Social support helps employees manage workload demands and reduces perceptions of isolation or injustice (3). The compassion-based intervention's group format may have amplified this effect by fostering shared vulnerability, mutual understanding, and a sense of solidarity among participants. As employees practiced self-kindness, they simultaneously became more empathetic toward their peers, creating a reinforcing cycle of prosocial behavior. These findings align with previous evidence that compassion promotes social safeness and a sense of community (9).

In contrast, mentalization training primarily improved participants' cognitive empathy and perspective-taking, helping them understand colleagues' intentions and emotions more accurately (10). This process likely reduced miscommunication and interpersonal tension, indirectly enhancing perceived workplace support. However, because mentalization emphasizes reflective cognition rather than affective warmth, its social impact may develop more gradually than compassion-based change. This explains why both interventions improved social support but compassion training had a stronger and faster effect.

The findings also highlight the interplay between compassion, mentalization, and the modern work environment. With rapid digital transformation and increasing psychological demands on employees, emotional resilience and interpersonal understanding have become essential competencies for organizational sustainability (14). Digitalization has introduced new stressors, such as constant connectivity and social disconnection, leading to emotional fatigue and alienation. Compassion and mentalization help workers navigate these challenges by enhancing mindfulness, empathy, and adaptive communication. Compassion reduces emotional reactivity in digital communication, while mentalization enhances understanding of colleagues' perspectives, fostering psychological safety in technologically mediated workplaces.

The sustained improvement during follow-up further underscores the enduring effects of compassion and mentalization-based interventions. This persistence is consistent with previous studies showing that interventions incorporating mindfulness, compassion, and emotional awareness produce long-term improvements in mental health and coping skills (5, 11). The durability of compassion-based outcomes may be attributed to its emphasis on experiential exercises, such as compassionate imagery and loving-kindness meditation, which reshape emotional processing pathways through repeated practice. Mentalization, on the other hand, relies more on cognitive reflection, which may require continued practice and supervision to maintain its benefits (10).

Another explanation for the stronger impact of compassion-based therapy lies in its broader emotional scope. While mentalization focuses on cognitive understanding of mental states, compassion engages both cognitive and affective dimensions by integrating self-soothing and relational warmth. This

multidimensional engagement creates more profound psychological shifts, especially in populations vulnerable to emotional exhaustion, such as industrial workers facing repetitive tasks and limited emotional recognition (1). Compassion-based interventions also activate social reward systems, increasing feelings of belonging and meaningfulness, which further enhance motivation and resilience (9).

The current study's findings also complement the notion of "precision psychotherapy," which advocates tailoring interventions to individual emotional profiles and contextual needs (18). Workers experiencing high emotional exhaustion and low social support may benefit more from compassion-focused programs, whereas those with interpersonal misunderstandings or low reflective awareness may respond better to mentalization training. The integration of these approaches could form the basis for customized, context-sensitive interventions targeting both emotional and cognitive dimensions of burnout.

Furthermore, from a clinical and applied psychology perspective, the results align with evidence showing that burnout is intertwined with physiological dysregulation. For instance, variations in salivary alpha-amylase levels among individuals with burnout reflect stress reactivity that can be modulated through interventions enhancing emotional regulation (16). Compassion-based therapy, by reducing sympathetic overactivation and enhancing parasympathetic calm, offers a physiological mechanism for sustainable well-being. The study's outcomes, therefore, highlight the relevance of integrating psychophysiological perspectives into occupational interventions.

Overall, the convergence of findings from the current research and prior literature reinforces that interventions centered on emotional connection, self-reflection, and interpersonal understanding yield significant benefits for individuals struggling with burnout. By improving both personal resilience and social cohesion, these approaches address the dual challenges of individual emotional depletion and organizational disconnection that characterize modern industrial work. The evidence presented suggests that fostering compassion and mentalization at both individual and systemic levels can serve as a viable strategy for promoting occupational well-being and organizational health (8, 14).

Although the present study contributes valuable insights into the comparative effects of compassion-based and mentalization-based interventions, certain limitations should be acknowledged. The sample was limited to male industrial workers from a single organization in Isfahan Province, which may restrict the generalizability of the findings to other populations, including female workers or employees in different occupational sectors. The study's reliance on self-report questionnaires may have introduced response bias, as participants could have been influenced by social desirability or subjective interpretation of the items. Moreover, the relatively short follow-up period of two months limits conclusions regarding long-term sustainability of the intervention effects. Another potential limitation is the absence of a qualitative component that could have provided deeper insight into participants' subjective experiences and the mechanisms underlying behavioral and emotional change. Finally, the study did not control for external factors such as workplace policy changes or managerial support that could have influenced social support perceptions independently of the intervention.

Future research should expand the sample to include diverse occupational sectors, gender groups, and cultural contexts to enhance generalizability. Longitudinal designs with extended follow-up periods (e.g., six months or one year) could provide a more comprehensive understanding of the durability of compassion- and mentalization-based effects. Future studies could also incorporate mixed-method approaches combining

quantitative measures with qualitative interviews to explore the experiential and relational dynamics underlying psychological change. In addition, researchers may consider integrating physiological indicators (such as cortisol levels or heart rate variability) to examine the biopsychological effects of these interventions more precisely. Comparative studies exploring hybrid models that combine compassion-based and mentalization-based strategies could yield deeper insights into their synergistic potential for addressing burnout.

Practitioners and organizational leaders can utilize the findings of this study to design evidence-based wellness programs that foster emotional resilience and interpersonal understanding in the workplace. Integrating compassion training modules into employee development programs can promote empathy, collaboration, and emotional regulation, while mentalization-based exercises can enhance reflective communication and conflict management. Human resource departments should consider embedding these interventions into ongoing professional development initiatives to cultivate supportive organizational cultures. Additionally, managers and supervisors can be trained in compassion-focused leadership to model empathy and foster psychological safety. Implementing periodic group sessions that combine compassion and reflective practices may sustain long-term benefits, reduce burnout prevalence, and strengthen social connectedness among employees.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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