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Application of mindfulness-based stress reduction to a stress management intervention in a study of a mining sector company

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Purpose. The aim of this article was to check whether mindfulness-based stress reduction (MBSR) is an effective intervention in reducing work-related stress in the case of workers in a copper mine. **Methods.** Sixty six employees were randomized to the experimental group (32 participants) or to the control group (34 participants). Work-related stress was measured using the job content questionnaire (JCQ) and mental health was measured using the general health questionnaire (GHQ-28). Experimental manipulation was 40-h MBSR training. **Results.** Multivariate repeated-measures analysis of variance revealed a significant increase of JCQ decision latitude ($F = 17.36, p < 0.001$) and social support (supervisor $F = 9.00, p < 0.004$; coworker $F = 5.61, p < 0.020$), and a significant decrease in GHQ-28 anxiety ($F = 5.28, p < 0.079$) and depression ($F = 3.95, p < 0.048$) due to the intervention. **Conclusions.** The study confirms that MBSR can be effective in reducing stress resulting from the external risk (and/or imagined fear) of losing one's health or life. The use of MBSR could be recommended in health and safety activities in difficult and dangerous work conditions, such as mining, to promote workers' well-being.

Keywords: adaptation; mental health; mindfulness; workplace; work-related stress; psychology

1. Introduction

1.1. The stress of miners and other underground workers

Work-related stress in the subject literature is defined as a psychological state where the worker's resources are subjectively assessed as insufficient to meet the requirements imposed by the working environment [1–5], or as a state of loss of control over the actions which are to be taken in the process of fulfilling one's duties [6,7].

The stress experienced by miners and other employees performing their work underground results from the risk of losing one's health and/or life. Their work is performed under conditions of constant risk, resulting from unpredictable natural forces (e.g., tunnel wall breaks, collapses, falling rocks, gas explosions, machinery failures). According to data from Statistics Poland (GUS) and the Central Institute for Labor Protection – National Research Institute (CIOP-PIB), the highest rate of accidents [8–10] as well as the biggest number of sick leaves can still be observed within the mining sector [8].

There are usually two reactions to the type of stress reported by miners. Firstly, there is no acknowledgment or only a low level of recognition of stimuli indicating the existence of the stress reaction (e.g., muscle tension, higher heartbeat, adrenaline secretion, psychomotor

agitation). Although workers deny feeling any stress at work when asked, they also commonly report the presence of reactions resulting from long-term stress, such as muscle pain, headache, stomach ache, sleeping problems and general fatigue [11,12]. Periodic examinations conducted by company occupational medicine doctors indicate that miners have an abnormally high tendency to developing cardiovascular and gastrointestinal diseases. A lack of concern for pro-health and preventive behavior is also borne out in other studies of that professional group [13, cf.14]. Mindfulness-based stress reduction (MBSR) training seems a promising and beneficial way to reduce work-related stress for this group of workers. The second type of reaction to stress in that professional group is the current failure to recognize everyday threats [11,12]. In the opinion of their superiors, the persons reacting in such a way are unaware of the potential threats, and are difficult workers to deal with. Their levels of individual and group responsibility are so low that their behaviors generate conflicts with and frustration among coworkers. Interviews with the long-serving workers indicate that this group of 'careless' workers is small, and they do not remain working underground for long. While the latter, marginal group of workers would undoubtedly benefit if they took training in stress reduction on the basis of cognitive-behavioral

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techniques to help them accommodate the requirements of the mining job, the former, wider group could be helped by participating in MBSR training.

The company has introduced a great variety of programs aimed at improving health and safety procedures – such as occupational risk assessments and audits – simultaneously with this intervention. It is also systematically extending and upgrading its machinery park.

1.2. The stress management intervention – MBSR training

Stress management interventions include planned and organized actions aimed at eliminating or reducing the sources of work-related stress [15,16]. Their objectives are also developing stress-coping skills and recovering from stress-related illnesses. Such programs lie within the scope of interest of occupational psychology and are related to the concepts of organizational health increasingly being presented in international publications [5,17,18].

According to the literature, there are organizational-level interventions [19,20] and also those which bring about changes in employee behaviors and attitudes. The latter are referred to as individual-level interventions [20–22]. The organizational-level interventions are characterized by fundamental changes in the scope of work organization, and are usually embedded in company strategy, or at least in personnel strategy [23,24]. Individual-level interventions are aimed at improving the well-being of employees and also their ability to cope with work pressure [1,20]. They are the most popular group of pro-health activities undertaken by companies [20,21].

MBSR training, which is an individual-level intervention, was developed in the 1970s by Jon Kabat-Zinn of the University of Massachusetts. MBSR was primarily applied in providing psychological help to hospital patients suffering from stress resulting from a serious medical condition. It has subsequently been adopted in the business world as work-related stress reduction training [25]. The positive effects of mindfulness training – in the form of a subjective feeling of quality of life improvement and also effective emotion management – have been scientifically confirmed in the literature [26,27]. The following principles should be observed in order to achieve expected effects in mindfulness training [25,28]:

- non-judgmental observation – ability to observe events and people without being judgmental;
- renewed attention – ability to eliminate automatic, thoughtless, routine ways of responding;
- anchoring to the present – living here and now, accepting every moment of life in a fully conscious manner;
- equanimity and composure – experiencing emotions without feeling unable to control them;

- mindfulness repetition and practice, so that it becomes an element of normal perception of the world.

Studies indicate that MBSR reduces both the psychological and the physical symptoms of stress [27,29,30]. The technique enables its users to increase their emotion management skills as well as cognitive reactions, and so consequently inhibit or weaken the stress reaction.

MBSR seems an effective technique for managing stress, the source of which cannot be eliminated or even reduced [28,31]. The participants in the presented study are miners. MBSR training seems to help in coping with stress more effectively than relaxation or cognitive-behavioral techniques, as it enables its users to control their emotions and increases their ability to thoroughly and carefully analyze the reactions of their own bodies and minds. Furthermore, it develops the ability to cope with the effects of strong stress. This is why MBSR, as opposed to any other form of stress reduction training, was conducted for copper miners. The study was proposed to the senior management of the mine and also discussed with the social labor inspectors. They approved the idea enthusiastically.

The objective of the study was to answer the following question: will MBSR training positively influence the relief of the work-related stress and improve the miners' mental health?

In order to answer this question, an experiment was conducted with purposive and random sampling.

2. Methods

2.1. Experimental and control groups

The stress management intervention was developed for personnel working underground, holding the positions of miner, blaster, mining machine operator or supervisor (mine foreman, shift foreman, mining supervisor). All of those in both groups were men. Four participants in the MBSR sample and three participants in the control sample had university degrees and the rest had occupational or secondary education. The remaining characteristics of the groups are presented in Tables 1 and 2.

Table 1. Means (*SD*) for characteristics in the MBSR group, *N* = 32.

Variable (years)	Descriptive statistics		
	<i>M</i>	Range	<i>SD</i>
Age	38.32	30–47	6.23
Job tenure	9.45	3–20	4.24

Note: MBSR = mindfulness-based stress reduction.
Source: Authors' own study.

Table 2. Means (*SD*) for characteristics in the control group, *N* = 34.

Variable (years)	Descriptive statistics		
	<i>M</i>	Range	<i>SD</i>
Age	42.37	29–52	7.35
Job tenure	10.38	2–21	5.73

Source: Authors' own study.

While the group is too small to constitute a representative sample of the population of miners in Poland, it is representative from the point of view of demographics. According to statistics collected by GUS and Poland's State Mining Authority (WUG), the average miner is 41 years old, with the mean age having decreased slightly over the last 5 years. Only 10% of mine personnel are women, working not underground but as administrative staff. In total, 60% of miners have secondary education, 30% have occupational education and 10% have university degrees [8,14].

The participants were selected from seven divisions (the underground areas where the raw material is extracted) of the entire mine. In all seven divisions there are 2200 employees. The employment structure in all of the divisions is quite similar. MBSR training was dedicated to specific workstations: miners, blasters, mining machine operators and supervisors, such as mine foreman, shift foreman and mining supervisor. The selection of specific positions was intentional: these are considered the most stressful since those working at the mine face are exposed to the greatest natural danger. Workers in three divisions were given the opportunity to participate. Those volunteering formed a group of 32 participants, the experimental MBSR group.

The control group was composed of workers holding the same positions as those from the experimental group. 34 people were randomly selected from the employees from four other mining divisions in which the working conditions and the type of rock mass, as well as the mining techniques, are highly comparable. They were asked to fill in the questionnaires.

The detailed description of the experimental and control sample, presented in Table 3, reflects the proportions of those workstations in all seven divisions in the mine.

After the experimental group had been established, the final schedule was established. Every participant took part in the MBSR training during his shift (8 h of the training equaled 8 h of the shift). Participants were obliged to take part in the whole training because this time was treated as normal working time and counted toward their monthly salary. However, the participants were highly motivated to take part in the course, treating it as a privilege. They participated in sessions and completed home assignments with great engagement.

Table 3. Proportion of workstations in the experimental and control groups.

Occupation	Number of workers in all seven divisions	Number of participants in MBSR group	Number of participants in control group
Miner	500	9	8
Blaster	380	7	7
Machine operator	760	12	14
Mine foreman	80	1	2
Shift foreman	110	2	2
Mining supervisor	50	1	1

Note: MBSR = mindfulness-based stress reduction.

Source: Authors' own study.

2.2. Procedures

An experiment using the MBSR training and the control group involving repeated measures was used to evaluate the effects of intervention. The plan of the experiment was as follows (Figure 1).

2.2.1. Stage 1 and 3 – psychological diagnoses

The employees completed questionnaires immediately following their work shift. The completion time amounted to 10–20 min. After completing the questionnaires, the respondents submitted them to the persons conducting the study by placing them in a cardboard box or case. This was done to provide a feeling of anonymity, an important condition for completing the questionnaires honestly. All tests were completed correctly. This constituted the baseline design.

After completion of the training, the experimental group was tested again, using psychological questionnaires – 3 months after the end of the MBSR training. The same four questionnaires were given to the participants to fill in – this constituted the follow-up design. At the same time, people from the control sample were asked to fill in the same questionnaires that they had used 9 months before.

2.2.2. Stage 2 – MBSR training

After completion of the psychological diagnoses (from stage 1), the employees from the experimental group had meetings in order to agree the schedule of the MBSR session. Due to the specific nature of the miners' work (in three shifts), the MBSR sessions were held in four 8-h meetings and one Mindfulness Day also lasting 8 h.

2.3. Materials

Work-related stress was measured using the Polish version of Karasek's job content questionnaire (JCQ) [6,31–33]. 32 items were chosen from the JCQ items for analyses:

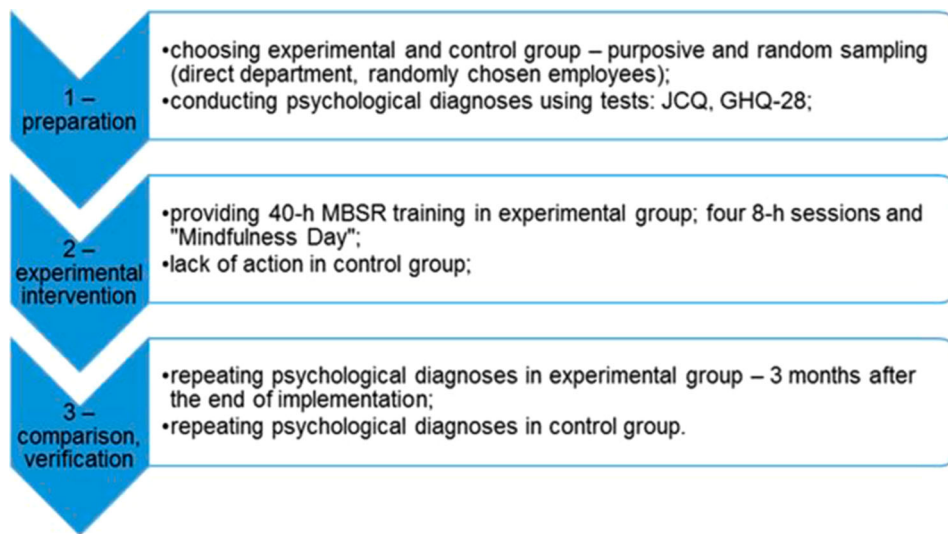


Figure 1. Plan of the experiment.

Note: GHQ-28 = 28-item general health questionnaire; JCQ = job content questionnaire; MBSR = mindfulness-based stress reduction.

Source: Authors' own study.

decision latitude, psychological demands, social support and job insecurity scales. For decision latitude, two subscales were used. One subscale, skill discretion (six items), assesses 'both the level of skill and creativity required on the job and the flexibility enabling the worker to decide what skills to employ and skill underutilization' [32,p.323]. The other subscale, decision authority (three items), assesses 'the organizationally mediated possibilities for the workers to make decisions about their work' [32,p.323]. Each item in these two subscales has four answer categories (from 1 = *totally disagree* to 4 = *totally agree*). For psychological demands, a nine-item subscale was used. This relates to mental workload and organization constraints on task completion, such as role ambiguity and conflicting work demands. Each item of this scale has four answer categories (from 1 = *totally disagree* to 4 = *totally agree*). The dimension social support is assessed using two subscales. One subscale relates to supervisors' support (four items), i.e., both emotional and instrumental support. The same aspects of support are measured with the coworkers' support scale (four items). Each item of these two scales has four answer categories (from 1 = *totally disagree* to 4 = *totally agree*). The job insecurity scale (six items) diagnoses general job insecurity that limits future career development possibilities. Two items were answered, as with the remainder the JCQ items (from 1 = *totally disagree* to 4 = *totally agree*), one had five answer categories (1 = *regular, stable*; 2 = *seasonal/odd jobs*; 3 = *frequent job dismissals/redundancies*; 4 = *seasonal/odd jobs with frequent sacking*; 5 = *other*), one had four answer categories (1 = *never*, 2 = *once I was in that situation*, 3 = *more than once I was in that situation*, 4 = *continually*) and the last one had also four answer categories

(1 = *impossible*, 2 = *quite impossible*, 3 = *quite possible*, 4 = *very possible*).

Mental health was assessed using the 28-item general health questionnaire (GHQ-28) [28]. The original version of the GHQ diagnoses four distress dimensions: somatic complaints; anxiety and insomnia; social dysfunction; depression. Each subscale has seven items. Participants are asked to respond to each item on a 4-point scale, where they can assess their well-being as either better or (much) worse than usual. The psychometric properties of the JCQ and the GHQ-28 were satisfactory.

The intervention was modeled on the work by Kabat-Zinn [34]. It consisted of a series of four fortnightly 8-h group sessions, one 8-h group session (the Mindfulness Day) toward the end of the course and an individual follow-up session with each participant. The intervention was delivered by a certified MBSR trainer who had participated in a professional mindfulness teacher training program, run by an organization of Europe-wide repute.

Each session included a range of guided meditative practices, mainly of the following types:

- sitting meditation, involving directing the awareness in turn to one's breathing, to the body as a whole, to sensations, thoughts and emotions, and also in a non-differentiating manner – to whatever is currently arising in awareness;
- body scanning, consisting of bringing awareness (in the form of good-natured, curious attention) to each part of the body in turn, from the toes to the head, and also to any sensations or feelings arising during the scanning exercise;
- mindful bodywork – adopting a sequence of hatha yoga-derived postures, designed to stretch and bring

awareness to the body, particularly in the context of experiencing the bodily sensations, feelings and thoughts accompanying such an exploration of the boundaries of one's physical capabilities.

Each of the practices was preceded by detailed oral instructions, plus a follow-up process known as Enquiry in which participants were invited to express their experiences of the exercises, and to reflect, in a non-judgmental manner, upon these experiences and upon the fact that they had arisen. The program included daily homework exercises, including guided meditations. Participants were each given a set of audio recordings and were asked to practice using these for 20 min, 6 days/week. At each intervention session the participants were asked about the quality and quantity of their home practice.

In order to test the effects of the intervention, a series of multivariate repeated-measures analysis of variance (MANOVA) in SPSS version 15 was performed for the following dependent variables: decision latitude, psychological demands, job insecurity, social support from supervisors, social support from coworkers, somatic complaints, anxiety and insomnia, social dysfunction and depression with two factors – group (intervention or control) and time (pre or post test). Additionally, partial η^2 was used as an effect size measure. An effect size between 0.01 and 0.05 is typically considered as small and an effect size between 0.06 and 0.13 as moderate, while an effect size equal to or greater than 0.14 is considered as large [35]. Finally, the change significance was compared pairwise between the experimental and control groups.

3. Results

Means and standard deviations for all variables in the control and experimental groups are presented in Table 4. No significant differences before the MBSR intervention were shown in the control and experimental groups for

all variables: decision latitude, $t = -0.21$, *ns*; demands, $t = -0.87$, *ns*; insecurity, $t = 0.84$, *ns*; support supervisor, $t = -0.15$, *ns*; support coworker, $t = -0.38$, *ns*; GHQ-28, $t = -0.47$, *ns*; GHQ-28 somatic complaints, $t = -0.45$, *ns*; GHQ-28 anxiety, $t = 1.12$, *ns*; GHQ-28 social dysfunction, $t = -1.96$, *ns*; GHQ-28 depression, $t = -0.71$, *ns*.

Repeated-measures MANOVA for decision latitude (JCQ) as a dependent variable showed the significant effect of an interaction: intervention (MBSR versus control group) and time (pre versus post) (Table 5, Figure 2). A comparison of means with *post-hoc* tests revealed that the MBSR group experienced a significant increase in decision latitude while no significant changes were observed in the control groups.

A significant interaction of time and group for support from supervisors (JCQ) was also obtained (Table 5, Figure 3) and univariate analysis for group differences showed that participants from the MBSR group experienced greater increases in social support from supervisors than did the participants from the control group.

Similarly, repeated-measures MANOVA showed a significant effect of the interaction between time and group for support from coworkers (JCQ) (Table 5, Figure 4). A comparison of means with *post-hoc* tests revealed that the MBSR group experienced a significant increase in support from coworkers while no changes were observed in the control group.

Although, no significant interaction of time and group was found for an overall index of mental health (Table 5), a significant interaction of time and group was found for anxiety (Table 5, Figure 5). A comparison of means with *post-hoc* tests revealed that the MBSR group experienced a significant decrease in anxiety while no significant changes were observed in the control group.

A significant interaction of time and group was also found for depression (Table 5, Figure 6). Univariate analysis revealed that participants in the MBSR group experienced a greater reduction in depression than did those in the control group, $F(1, 62) = 0.10$, *ns*.

Table 4. Means (*SD*) for variables in the experimental and control groups.

Variable	Control group		MBSR group	
	Pre ($N = 34$)	Post ($N = 32$)	Pre ($N = 32$)	Post ($N = 32$)
JCQ decision latitude	60.05 (8.50)	58.43 (10.44)	59.68 (4.54)	69.50 (5.58)
JCQ demands	11.20 (2.81)	11.15 (2.47)	10.59 (2.83)	10.25 (2.62)
JCQ insecurity	5.64 (1.20)	5.28 (1.08)	5.93 (1.56)	5.56 (1.18)
JCQ support supervisor	9.79 (2.04)	9.50 (1.83)	9.71 (2.01)	11.46 (1.91)
JCQ support coworker	9.76 (1.84)	9.71 (1.74)	9.56 (2.44)	11.12 (1.53)
GHQ-28 general health	18.32 (7.42)	15.75 (6.18)	17.50 (6.56)	11.46 (5.76)
GHQ-28 somatic complaints	6.23 (4.66)	4.47 (2.73)	5.81 (2.59)	3.87 (2.36)
GHQ-28 anxiety	4.41 (2.70)	4.93 (3.27)	5.31 (3.73)	3.56 (2.45)
GHQ-28 social dysfunction	4.15 (1.94)	3.19 (1.87)	3.22 (1.89)	2.62 (2.04)
GHQ-28 depression	3.53 (2.47)	3.15 (2.01)	3.15 (1.63)	1.41 (1.16)

Note: GHQ-28 = 28-item general health questionnaire; JCQ = job content questionnaire; MBSR = mindfulness-based stress reduction.
Source: Authors' own study.

Table 5. Results of the MANOVA interaction statistics in the experimental and control groups.

Variable	Interaction time and group	η^2
JCQ decision latitude	$F(1, 62) = 17.36, p < 0.001$	0.219 (large)
JCQ psychological demands	$F(1, 62) = 0.07, ns$	
JCQ insecurity	$F(1, 62) = 0.00, ns$	
JCQ support supervisor	$F(1, 62) = 9.00, p < 0.004$	0.130 (medium)
JCQ support coworker	$F(1, 62) = 5.61, p < 0.020$	0.083 (medium)
GHQ-28 general health	$F(1, 62) = 2.17, ns$	
GHQ-28 somatic complaints	$F(1, 62) = 0.00, ns$	
GHQ-28 anxiety	$F(1, 62) = 5.28, p < 0.025$	0.079 (medium)
GHQ-28 social dysfunction	$F(1, 62) = 0.64, ns$	
GHQ-28 depression	$F(1, 62) = 3.95, p < 0.048$	0.060 (medium)

Note: GHQ-28 = 28-item general health questionnaire; JCQ = job content questionnaire; MANOVA = multivariate analysis of the variance.

Source: Authors' own study.

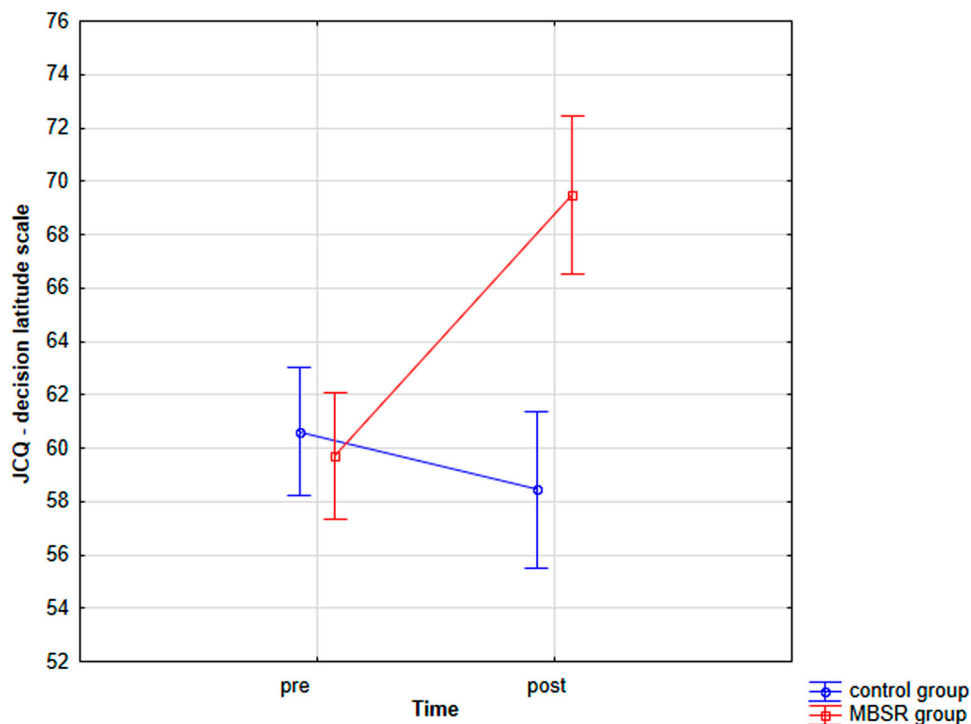


Figure 2. Effects of the interaction of time and group on decision latitude in control and experimental groups. MANOVA effect on time (pre versus post) \times group (MBSR versus control) on JCQ decision latitude scale, $F(1, 62) = 17.35, p < 0.001$.

Note: JCQ = job content questionnaire; MANOVA = multivariate analysis of the variance; MBSR = mindfulness-based stress reduction.

Source: Authors' own study.

No significant effect of time and group was also found for somatic complaints or social functioning (Table 5).

4. Discussion

The aim of the study was to check whether MBSR influences the reduction of work-related stress in a group of miners. On the basis of tests conducted, it could be claimed that MBSR training proved effective in reducing work-related stress in the scope of decision latitude and social support from both supervisors and colleagues.

Due to the module of non-judgmental observation and individual exercises during MBSR training (whose objective was to better understand the reasons of actions, decision-making and reactions), the participants improved their abilities to control their own actions and support others.

MBSR training causes an increase in decision latitude. It also influences the level of support. The MBSR exercises allow the participants to develop the ability to separate the observation of the environment from its assessment. This skill could provide the participants with more support

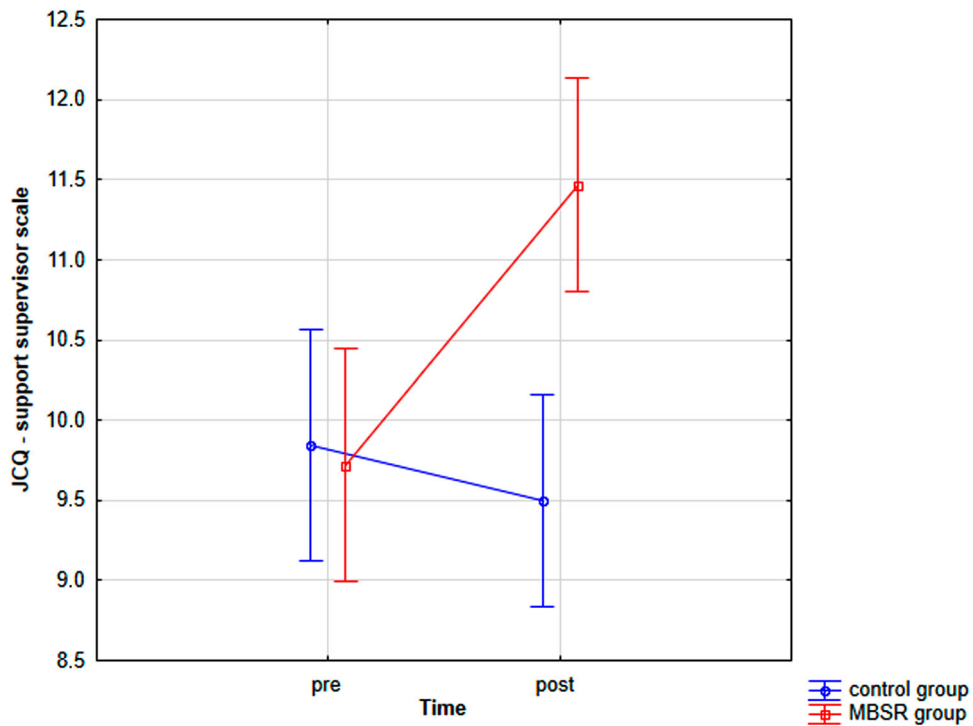


Figure 3. Effects of the interaction of time and group on supervisor support in control and experimental groups. MANOVA effect on time (pre versus post) × group (MBSR versus control) on JCQ support supervisor scale, $F(1, 62) = 8.99, p = 0.003$.

Note: JCQ = job content questionnaire; MANOVA = multivariate analysis of the variance; MBSR = mindfulness-based stress reduction.

Source: Authors' own study.

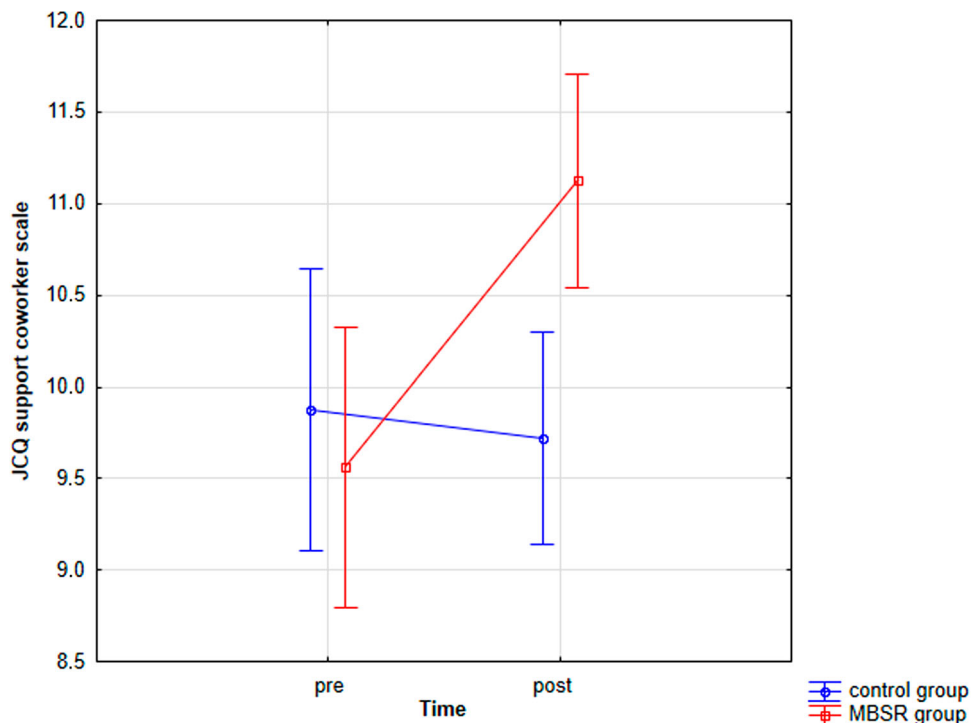


Figure 4. Effects of the interaction of time and group on coworker support in control and experimental groups. MANOVA effect on time (pre versus post) × group (MBSR versus control) on JCQ support coworker scale, $F(1, 62) = 5.61, p = 0.020$.

Note: JCQ = job content questionnaire; MANOVA = multivariate analysis of the variance; MBSR = mindfulness-based stress reduction.

Source: Authors' own study.

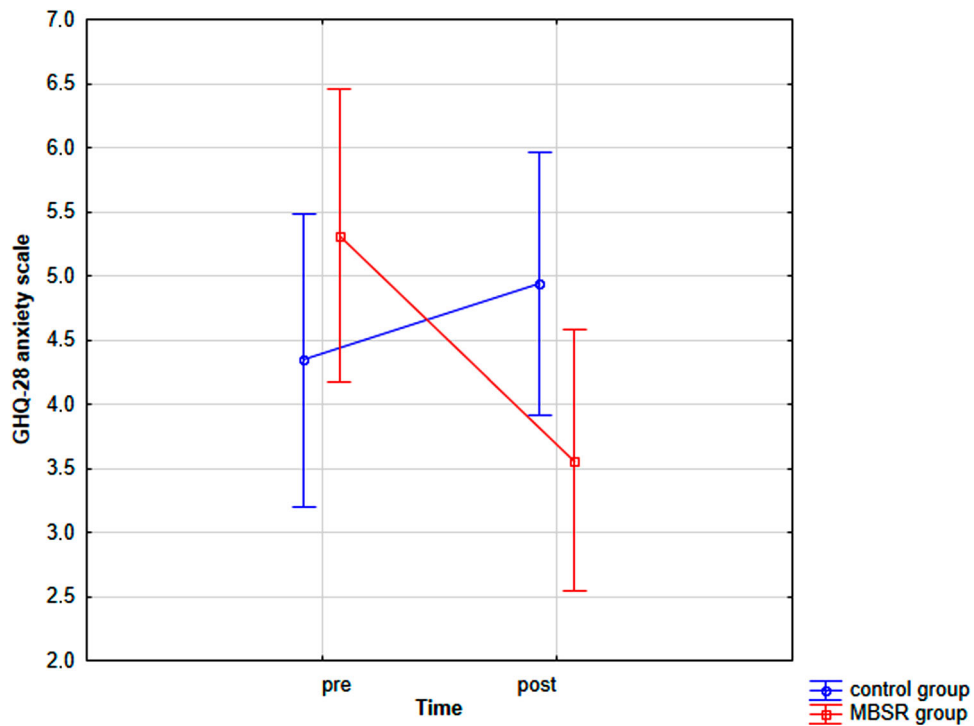


Figure 5. Effects of the interaction of time and group on GHQ-28 anxiety in control and experimental groups. MANOVA effect on time (pre versus post) \times group (MBSR versus control) on GHQ-28 anxiety scale, $F(1, 62) = 5.28, p = 0.024$.

Note: GHQ-28 = 28-item general health questionnaire; MANOVA = multivariate analysis of the variance; MBSR = mindfulness-based stress reduction.

Source: Authors' own study.

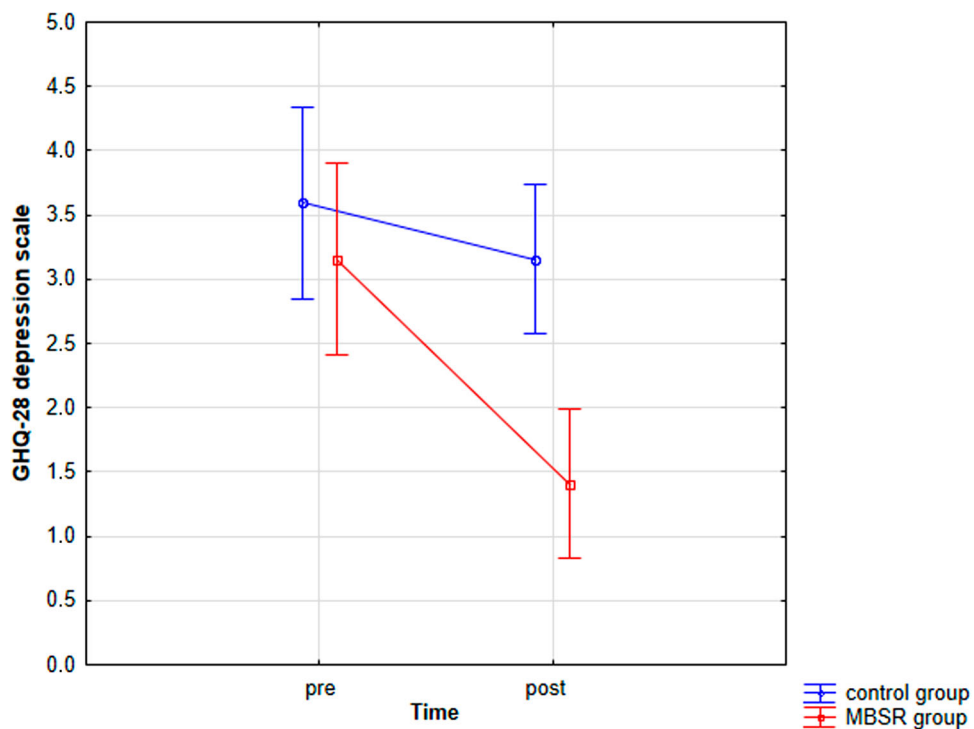


Figure 6. Effects of the interaction of time and group on GHQ-28 depression in control and experimental groups. MANOVA effect on time (pre versus post) \times group (MBSR versus control) on GHQ-28 depression scale, $F(1, 62) = 3.95, p = 0.048$.

Note: GHQ-28 = 28-item general health questionnaire; MANOVA = multivariate analysis of the variance; MBSR = mindfulness-based stress reduction.

Source: Authors' own study.

in their everyday work. MBSR training contributes to a decrease in depression and anxiety. Participants learn and develop their skills in terms of emotional control and understanding of their own body signals. They learn how to deal with stress and modify patterns of unfruitful reactions to the environment.

The engagement of the employees and also their positive reception of actions undertaken and implemented also seem testimony to the program's success, which is backed up by numerous enthusiastic comments from the participants. In respect of the improvement in mental health, a decrease in anxiety and symptoms of depression was observed as a result of the MBSR intervention. This indicates the effectiveness of mindfulness training in terms of stress faced by mine employees, because that stress, as mentioned earlier, is a natural phenomenon caused by the fear for their own lives and health. It can be also connected with the traumatic experience of participating in an accident, being injured or seeing injured coworkers. MBSR helps the participants in coping with emotions, and practicing such competences as being anchored in the present, composure, inner peace and renewed attention.

Undoubtedly, the study was limited by the small size of the experiment group. However, it should be noted that there were difficulties of a motivational and mental nature expressed by the participants. Not all of them were able to follow the principles of MBSR and practice meditation systematically. Furthermore, some concerns arose over the time-consuming nature of the training. It seems, however, that the positive effects of MBSR should motivate the employees and the organization to investment in such education, which could be continued, in order to support the employees subsequently, in the form of individual follow-up sessions.

The literature on the subject mentions the application of MBSR in business organizations as well as in education, psychiatry and medicine [36–39]. Some of the applications confirm the influence of MBSR on the decrease in stress and the growth in work effectiveness and satisfaction, while others do not.

In their study on employees in two companies, Van Berkel et al. [39] did not find significant differences in work engagement, mental health, need for recovery and mindfulness between the intervention and control groups in 6 or 12-month follow-up. Galantino et al. [40] found significant improvements in reducing work-related stress after mindfulness meditation in health-care professionals; however, they did not find satisfactory significant differences in correlations between salivary cortisol and survey results (mood, burnout, empathy) and correlations between changes in these measures.

On the other hand, in Gold et al.'s [41] study the MBSR course was applied to a group of primary school teachers. The researchers evaluated its effects on levels of anxiety, depression and stress, as well as the movement toward a stated goal and changes in awareness. The results

showed improvement for most participants for anxiety, depression and stress, some of which were statistically significant. Klatt et al. [42] also conducted an interesting study on high-stress work personnel experiencing chronic exposure to catastrophic situations, as they care for seriously injured/ill patients. The researchers used mindfulness in motion (MIM). It is a modified version of MBSR, which teaches awareness principles, rehearses mindfulness at a group level, emphasizes the use of gentle yoga stretches and utilizes relaxing music. As a result, work engagement and resiliency increased significantly in the intervention group, compared to the wait-list control group, while participant respiration rates decreased significantly in 6/8 of the weekly sessions. Verweij et al. [43] found relations between MBSR and decrease of burnout syndrome. Their study of 50 Dutch General Practitioners (GPs) showed a decrease in depersonalization and an increase in dedication in the MBSR group to a greater extent than in the control group. Also, mindfulness skills increased significantly in the MBSR group compared with the control group.

Research on the effectiveness of MBSR as a technique for reducing work-related stress is continuing and its findings remain inconclusive. Analysis of the literature indicates only a small percentage of MBSR implementations in commercial organizations. Hyland et al. [30] suggest that there may be two reasons for that phenomenon. The first is the need for a radical change in thinking, characteristic of most people being products of western culture, one that is centered upon thinking of one's own benefits, judgmental and future-oriented. In contrast, MBSR assumes thinking which is non-judgmental, accepting and directed to experiencing the present moment, a considerable challenge for westerners. The other reason is that the training is costly and time-consuming. The principles of MBSR assume daily practice of meditation, making it difficult to implement it in an organizational environment where daily work duties prevent employees from practicing effective MBSR [30,44]. However, research conducted among Polish workers indicates that such an investment can pay off in terms of a decrease in absenteeism [33]. Furthermore, the studies by Klatt et al. [42] demonstrated an increase in work engagement as a result of the MBSR intervention.

5. Conclusions

The studies on the effectiveness of mindfulness training in organizational environments continue, with varying results. This study confirmed a positive influence of MBSR training on reducing work-related stress and improving mental well-being in employees whose stress is connected with the fear of losing health or life. It should also be noted that MBSR studies on a group of professionals directly exposed on a daily basis to the risk of losing life are quite new: to date there have been no mentions in the literature of experiments making use of MBSR in such occupations.

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