



Evaluating a Mindfulness-based Virtual Workshop on Employee Variables – a Longitudinal Field Study

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Executive Summary

The present research was administered in collaboration with a Management and Sales department of a German automobile concern. To ensure anonymity, they will be called “the department” and “the company”. According to recent studies, the current pandemic threatens the well-being of many employees worldwide. The department manager confirmed that her staff suffers from the high job demands, and burnout cases increased. Therefore, she requested an intervention-workshop to foster the resilience of her workforce to enable them to cope adequately with the current situation. The present research evaluated the effects of the workshop on mindfulness, resilience, work engagement, and growth mindset. Past research proved the effectiveness of interventions on these four variables. However, such had a duration of several weeks, and the effect of short one-day virtual workshops is unknown yet.

In total, 102 employees signed up for this study and answered the first questionnaire (response rate: 100%). 38 employees participated in the mindfulness-based workshop with a duration of five hours. Due to technical issues and the fact that some participants did not answer the second questionnaire, the data of 68 remaining participants were used for the empirical evaluation. The findings of the present study show no statistically significant effect of the workshop. About one month after the intervention, employees who participated in the workshop were not much more mindful, resilient, engaged to their work, or had a higher growth mindset.

Although no significant findings could be found, there are indications that the intervention was successful. First participants highly appreciated most of the content and had the opportunity to join a workshop during the work time that aims to foster their well-being. Whereas the resilience of employees who did not join the workshop decreased over time, there was an increase of resilience in those who did participate. Concerning several limitations of the present research, it is suggested to make a second evaluation of an adapted workshop with a sample size of over 200 employees to enable potential significant findings. Adaptations of the intervention-format should entail increased interaction by using more often the breakout-room functions and divide the interventions content on several sessions. In between the sessions, the employees should practice mindfulness regularly. It is advised to offer additional meetings to do mindfulness-practices together, like guided meditations. It is recommended that the mindfulness-team increases the number of employees to integrate mindfulness sustainably and effectively into the corporate-culture of the company. Three employees, including the program manager of mindful leadership and two interns, cannot

satisfy the fast-growing requests within the company for mindfulness-based programs much longer. This was already discussed, and a swarm team is likely to start in one month with a duration for at least half a year.

Abstract

The COVID-19 pandemic intensified the disbalance of high work demands and low job resources for many employees, therefore harming their well-being. Most managers avoid intervention-programs with long durations and look for shorter alternatives to save time and money. The present study evaluates a virtual mindfulness-based workshop that is once administered with a duration of five hours. The investigated outcome variables were mindfulness, resilience, work engagement, and growth mindset, which are aspects of well-being. 102 employees of a German automobile company answered the 65 questions of the first survey. Then 38 employees attended the virtual workshop-intervention, and the rest received no intervention. Two weeks later, a posttest was distributed to all participants. To analyze the effectiveness of the workshop a repeated measures MANOVA was executed. Findings indicate that the workshop did not affect the investigated variables, as the mean scores did not differ significantly. Considering the limitations of this research, it is suggested to make adjustments and consider a replication that implements the learnings of this research project. The present study can be used as inspiration for further virtual mindfulness-based interventions as the request for these interventions remains high and questions regarding the effectiveness of such remain.

Keywords: COVID-19 pandemic, Employee Well-Being, Mindfulness, Work Engagement, Resilience, Growth Mindset, Virtual Workshop, One-Shot Intervention

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COVID-19 Pandemic Threatens the Employee Well-Being

Since March 2020, the COVID-19 virus has affected the everyday-life worldwide with multifaceted damages. Yet, the impact on the mental health of pandemic-related factors such as the implemented countermeasures (e.g., lockdowns) received little attention at first. However, there is a growing body of research on the consequences of COVID-19 related factors on the psyche with alarming findings because multitudinous factors threaten people's well-being (Wilke et al., 2021). Well-being is understood as a component of mental health. It is related to one's welfare and mood and consists of subjective, psychological, and work-related aspects. Enduring exposure to stressors can decrease one's well-being and even mental health (Page & Vella-Brodrick, 2008).

Stressors are external events or stimuli that are evaluated as threatening to one's safety, thereby causing stress (Lazarus & Folkman, 1984). For example, regarding the current pandemic, potentially fatal health outcomes for oneself and loved ones or continuous news coverage of the pandemic in the media provoke stress (He et al., 2021). Likewise, financial loss, frustration, loneliness, and changing COVID-19 measurements are impactful stressors (Brooks et al., 2020). Moreover, new digital challenges and job uncertainties like job insecurity are perceived as stressors. The severity of threatened employee well-being is illustrated in recent survey findings showing that more than 50% of workers experience the current situation as the most stressful time of their career (Ginger, 2021).

According to research published by the Bertelsmann Foundation, almost half of the employees feel that the corporate culture and personnel suffer due to missing support in the COVID-19 crisis (Spilker, 2021). Another survey by the German health insurance DAK (2020) highlighted that 33% of German employees feel exhausted, and 35% claim their employer is not interested in the personnel's well-being. Before the pandemic, these were 11% (Storm, 2020). Thus, the severity of the consequences caused by implemented COVID-19 measurements is illustrated in increasing demands on the employees.

The Job Demands-Resource Model

External stressors, like the COVID-19 pandemic and the possible influence on employee's well-being, can be explained in the context of the job demands-resource model. Such occupational stress model illustrates which factors affect employee well-being and how (Bakker & Demerouti, 2007). Demands are work-characteristics that require continuous physical or psychological skills and efforts like emotional demands or work pressure. Resources are job-related aspects that can be useful to accomplish work goals and encourage

personal development and growth. Crucial job resources are, for example, social and organizational support (Bakker & Demerouti, 2007). Perceiving support weakens job strain, boosts job satisfaction, and diminishes the effect of stress on well-being (Blanch, 2016). Contrary, lack of support during prolonged exposure to high demands increases strains and reduces psychological well-being over time (Demerouti et al., 2001).

According to the job demands-resource model, stressful job-demands need to be compensated with available resources. Otherwise, such imbalance threatens employee's mental health (Bakker & Demerouti, 2007). Regarding the current pandemic, many employees have been confronted with heavy private- and work-related demands but decreased social and psychological resources (e.g., limited social support caused by social distancing restrictions), for more than a year. Consequently, their well-being is at stake (Meseguer de Pedro et al., 2021).

Concerning the common lack of employees' resources (like support) and the threatened employee well-being, which worsened during the COVID-19 pandemic, there is an urgent need for action to support the well-being of many workforces. Research showed that employee well-being is supported by enhancing internal well-being-related factors like mindfulness (Slutsky et al., 2019), resilience (Sarkar & Fletcher, 2017), work engagement (Rothmann, 2008), or growth mindset (Zeng et al., 2019). Such four variables are further known to increase stress resistance and quality of work. Moreover, there are indications that mindfulness has a multidimensional impact on these well-being-related factors (Galante et al., 2018; Leroy et al., 2013; Saraff et al., 2020). Hence, this research examines these variables. The following sections will discuss the four variables and why they are relevant for employee well-being, especially during a crisis like the current pandemic.

Mindfulness

At first, mindfulness will be reviewed, which is one approach to fostering resources like well-being and has a significantly growing body of research. The concept of mindfulness involves two aspects. First, it is a state of mind characterized by being focused and relaxed. Being mindful is defined as “the awareness that arises from paying attention, on purpose, in the present moment, and non-judgmentally” (Purser, 2014, p.1). Second, mindfulness practices such as yoga or meditation increase the level of mindfulness (Schure et al., 2008). Both aspects receive growing interest from western society and are becoming more relevant in the corporate world since the last decade (Shonin et al., 2014).

The main reason for this is the numerous proven findings of mindfulness programs in organizations. Such programs are interventions that use mindfulness practices like meditation to make the participants more mindful. Aside from the stimulation of relaxation (Lutz et al., 2014), practicing mindfulness has been proven to enhance attention, focus, emotional intelligence, relationship quality, and resilience, making it a potential relevant strategy for corporates (Chaskalson, 2011). Moreover, it reduces work-related stress, emotional exhaustion, burnout, sick leave, and turnover intentions in the workplace (Hülshager et al., 2013). Job-related outcomes of integrating mindfulness in businesses include increased work engagement, performance, job productivity, job satisfaction, work-life balance, prosocial workplace perception, behaviors, and work-related mental health (Leroy et al., 2013; Slutsky et al., 2019). Hence, the approach of fostering employees' well-being by using mindfulness is on the rise, and companies like SAP or Google established whole departments to enhance mindfulness in their corporate culture (Greiser & Martini, 2018). Furthermore, since the COVID-19 pandemic, the usage of mindfulness-based programs for employees accelerated due to its proven benefits, especially to support the personnels' well-being, 2020). However, such programs usually have a duration of at least one month. Therefore, also other approaches receive increasing attention.

Resilience

One of the outcome variables affected by mindfulness practices is *resilience*, which indirectly promotes well-being (Chaskalson, 2011). There is no agreed-upon definition of resilience. However, most researchers agree that it is a dynamic process of bouncing back from exposure to adversity (e.g., stress, threats, tragedy) and achieving a positive outcome caused by adapting to the situation (Ijntema et al., 2019). Several personal characteristics like acceptance, optimism, self-control, relationship network, future-orientation, solution-orientation, and self-efficacy, also called resilience key competencies, manifest one's resilience (Werner, 1995). Whereas the literature on personal resilience mainly theorizes about emotion and well-being (Avey et al., 2011), research on organizational resilience emphasizes how companies react to and recover from impactful incidents (Starbuck & Farjoun 2009). Both resilience-types entail the ability to efficiently respond to challenges and agree that some level of individual resilience in the workforce is a prerequisite to embody organizational resilience as a whole corporation (Coutu, 2002).

With increasing attention towards the concept of resilience, there is a growing body of interventions to increase such in employees. Resilience training “target any of the factors that

research has shown to improve resilience and healthy responses to stress, and provide a means for helping individuals to incorporate resilience factors into their daily lives” (Meredith et al., 2011, p. 8). Interventions are often mindfulness-based and include exercises like short meditations (Joyce et al., 2018). Such training might play a crucial role in public health and prevention, especially since employee well-being can be protected long-term (Rosdahl et al., 2015; Sarkar & Fletcher, 2017). Concerning the COVID-19 crisis, researchers agree that there is a high necessity to enhance resilience since it is pivotal for adequate coping with pandemic-related stressors (Vinkers et al., 2020). There is a growing body of interventions to foster the individual resilience of the workforce, which mainly focuses on the healthcare sector yet (Heath et al., 2020).

Before the pandemic, a meta-analysis illustrated that virtual resilience interventions improve self-efficacy, optimism, work engagement, and employee well-being (Carolan et al., 2017). However, in response to the current situation, there is a lack of research evaluating such online interventions. There is growing interest from managers to offer one-shot interventions to increase employee’s resilience and well-being immediately. Such intervention could be more easily administered as it would save time and money. However, the question remains whether employee well-being can be supported by such short online training within the COVID-19 crisis for employees with increased job demands but decreased resources.

Work Engagement

After looking at mindfulness and resilience, it will be discussed how *work engagement* is related to employee well-being. Work engagement is a positive, fulfilling disposition towards one’s job characterized by vigor, dedication, and absorption. It does not focus mainly on a specific object, event, or behavior but rather refers to a persuasive, persistent, and affective state of cognition (Schaufeli et al., 2002). Being vigorous means putting in the required effort in the present tasks and endure arising challenges. It corresponds to high levels of energy and resilience while working. Dedication alludes to enthusiasm, pride, motivation, and a sense of meaning about one’s profession and tasks. Absorption is portrayed by working in a state of flow, losing a sense of time, and therefore having difficulty detaching from occupational tasks (Schaufeli et al., 2002). Vigor and dedication are seen as the antipode of emotional exhaustion and burnout (Bakker et al., 2014). Thus, high engagement is in line with an effective and energetic performance of one’s tasks. Further, being engaged is linked with a feeling capable of fulfilling the job role and general positive

energy towards the job (Hobfoll et al., 2018). On the contrary, disengaged employees are emotionally detached from their work, causing abiding burnout consisting of cynicism, tiredness, and emotional exhaustion (Bakker et al., 2014). Regarding the well-being of employees, higher work engagement indicates good mental health, whereas many burnout symptoms out indicate the opposite.

Work engagement is ensured if personal, and job resources can compensate job demands (Bakker et al., 2007). As aforementioned, the current pandemic created an imbalance for some employees since stressors and demands increased, but resources decreased. This causes a decrease in work engagement and an increase in burnout in many corporations (Meynaar et al., 2021). Such a trend is in accordance with the continuum theory between the scale of burnout and work engagement. This theory sees burnout and work engagement as the two extremes on a scale, representing to have either a very high level (high work engagement) or having a very low level of well-being (burnout) because of work (Schaufeli et al., 2002).

Growth / Fixed Mindset

To be able to believe that one's well-being and personal characteristics, such as the three discussed variables, can be influenced, one needs to have a *growth mindset* to some extent. Such a mindset is characterized by the belief to achieve anything if enough time and resources are given. People with this mindset embody an open inner attitude and way of thinking towards changes in one's environment (Dweck, 2016). These changes are seen as chances for further personal and organizational development instead perceived as risks for the well-being of oneself or the organization. Thus, people with a growth mindset are more likely to go with the flow and adapt to occurring changes (Dweck, 2016).

The opposite form of mindset is the fixed mindset, characterized by static thinking. The thought of personal development is limited. Skills are thought to be innate. Either one can do something, or one cannot. Thus, in fear of failure, challenges are avoided. Learning is based on extrinsic incentives, such as income or job position. Further, mistakes lead to a harmed self-image (Dweck, 2016).

In general, personal characteristics linked to the growth mindset are perceived as more attractive for companies. Hence they either recruit employees with these characteristics or offer training to foster that mindset thinking (Dweck, 2016). Yet, the effectiveness of growth mindset interventions primarily focused on the educational sector. It is assumed that such training is much more effective for children as their mindset is not as consolidated

compared to the mindset of adults (Dweck, 2016). However, as research in other fields than the educational sector is arising, there is ongoing effort to foster the growth mindset of adults by such training as well (Ibarra & Rattan, 2018).

Relation Between Employee Well-being and the Aforementioned Variables

As mentioned earlier, supporting employees' well-being is essential to ensure the workforce's mental health (Bakker & Demerouti, 2007; Blanch, 2016). Especially mindfulness, resilience, work engagement, and growth mindset are four essential parts of the psychological and work-related aspects of well-being which received increasing attention in the last decades. These four components of well-being do not cover the whole concept of well-being but are individually related. Past research proved a positive relation of mindfulness with resilience (Aikens et al., 2014), growth mindset (Orosz, 2020), growth mindset (Saraff, 2020), as well as work engagement (Leroy et al., 2013), but a negative relation with burnout (Abenavoli et al., 2013). However, studies focused mainly on the educational and healthcare sector. Thus, there is a lack of evaluative research in other fields, such as the business domain.

The Present Research

Besides the lack of research in the business domain, a paradox highlights the urgent need for action. On the one hand, employees demand that their management offers support by reducing demands or providing resources to enhance their well-being. On the other, managers hesitate to do so since they cannot reduce job demands, and providing resource-filling support tools is complex, particularly within the current pandemic. Offering training programs with a duration of more than a month would further increase the workload, as working hours are required to administer such training. However, many managers are interested in offering their personnel concise virtual tools to cope better with current stressors and, therefore, increase their employees' well-being (Renwick, 2003). There are one-shot mindfulness interventions, which are only administered once. To the researcher's knowledge, the effectiveness of such interventions in a virtual setting is not yet investigated. Therefore, the present study will be administered in a field setting and evaluate a one-shot intervention, a virtual mindfulness-based resilience workshop that aims to foster employee well-being by strengthening their mindfulness, resilience, work engagement, and growth mindset.

Based on the insights achieved after evaluating the workshop intervention, several benefits for the employees and the company are possible. If part of the hypotheses can be

confirmed, employees who received the intervention would have strengthened job-resources, as heightened mindfulness, resilience, work engagement, or growth mindset can be valuable resources to cope with job-demands. Hence, their employee well-being can be strengthened by developing coping mechanisms to respond to stressors (Bakker & Demerouti, 2007). Also, fostering variables like mindfulness, resilience, and growth mindset is especially appealing to the company as it has sustainable benefits for the employee's well-being, corporate culture, and business performance. Moreover, if there are indications for the practical relevance of the evaluated workshop, follow-up interventions may use this workshop as inspiration, and this one-shot format could be offered to more departments. The main purpose of the present research is to investigate the workshop's potential effects on mindfulness, resilience, work engagement, and growth mindset. Hence, it is aimed to examine differences between employees who do and those who do not participate in an intervention workshop. The four hypotheses which will be investigated are the following.

Hypothesis 1: The increase in mindfulness is larger for the people who are participating the workshop compared to people who did not (Behan, 2020).

Hypothesis 2: The increase in resilience is larger for the people who are participating the workshop compared to people who did not (Rosdahl et al., 2015).

Hypothesis 3: The increase in work engagement is larger for the people who are participating the workshop compared to people who did not (Leroy et al., 2013).

Hypothesis 4: The increase in growth mindset is larger for the people who are participating the workshop compared to people who did not (Saraff, 2020).

Methods

The present study has been administered within a German automobile organization, which in the following will be called “the company” to ensure anonymity. The workshop was created by a team that fosters mindfulness in the organizational culture. The intervention was tailored to the situation of a marketing and sales department of the company that is exposed to increased absenteeism and burnout incidences. According to the department manager, such situation existed already before the pandemic, but part of the above-mentioned aspects (e.g., increasing job-stressors, lacking resources like missing social support in the home office)

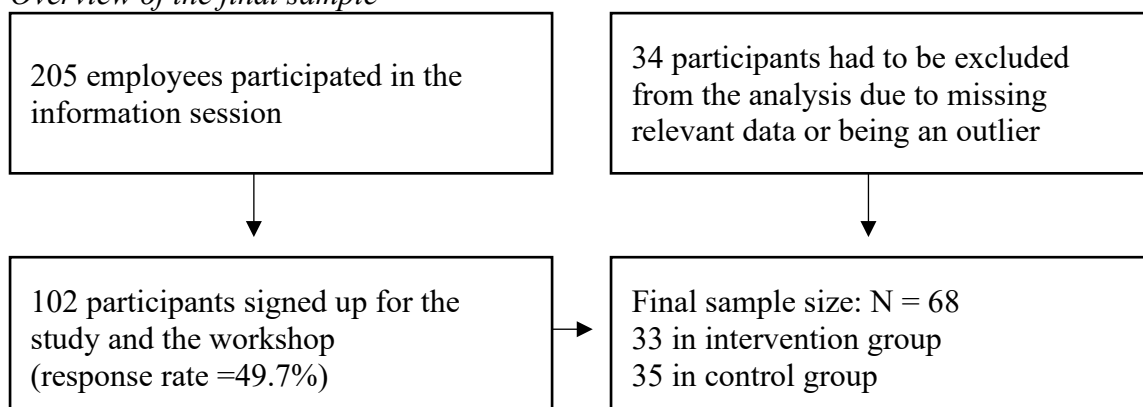
intensified such issues. She requested a virtual mindfulness-based resilience workshop for her department, which was evaluated for the present research paper.

Participants

To recruit participants, the researcher pitched the study, including the workshop and the two questionnaires, to 205 employees. The participation in the research was voluntary; respondents had to indicate their consent to participate, and no reward was given. The inclusion criterion was to be employed in the mentioned department. One could sign up for the research project via the department's intranet-group. All participants received the links to both questionnaires and the virtual workshop via mail. The groups were not randomly assigned as the enrollment for the intervention-workshop was on a “first comes, first-served” basis. The workshop was free of charge and offered during the employees' regular working time. Within two weeks of two different months, several resilience-workshops were offered (see Figure 2). Participants could only enroll for one workshop. In total, 102 employees indicated their interest in this research project and answered the first survey (response rate = 49.7%). 38 people of this sample size participated in the first set of workshops. Additional 29 employees were part of the waiting list control group, meaning they signed up for the workshop hosted one month later, after the data collection was finished. Since 32 participants either did not fill out the second questionnaire or relevant information was missing, their data had to be excluded from the main analysis. The final sample used for the main analysis contains 33 participants in the intervention group and 35 in the control group. Therefore, the final sample size used for the analysis was $N = 68$ (see Figure 1). With 34.29%, most respondents indicated to be in the age range between 25-34 years. There was a slight imbalance of the indicated gender (62.86 % female, 37.14 % male). The most frequently stated highest level of education was “Bachelor, master, or state examination” (65.71 % of respondents). An overview of all demographical data can be found in Table 1 (Appendix A)

Figure 1

Overview of the final sample



Materials

To investigate the present hypotheses a questionnaire embodying a total of four scales with 61 items was distributed to all participants. The order of the items was randomized within each scale for each respondent. The identical questionnaire was administered twice in week 1-3 (T1) and 7-8 (T2) of the research project. In both questionnaires (T1 & T2) the participants were asked to base their answers on their experience of the past two weeks.

Mindfulness. At first, the German version of the Five Facet Mindfulness Questionnaire (FFMQ-D) was administered to examine mindfulness. It has a high internal consistency ($\alpha = .92$) (Michalak et al., 2016) and entails 36 items. All items are measured on a five-point Likert Scale ranging from 0 (*never*) to 4 (*almost always*). An example item is “I find it difficult to stay focused on what is happening in the present moment”. Higher computed mean scores illustrate a higher level of mindfulness.

Resilience. Next, the short version of the Resilience Scale (RS-13) was used to evaluate the resilience level, which has a high internal consistency ($\alpha = .90$) (Leppert et al., 2008). The questionnaire contains 13 items, but regarding the low discriminatory power of one item such was not assessed in the present research as recommended by Leppert and her colleagues (2008). Thus, the scale used entailed 12 items. The items were assessed on a five-point Likert Scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). “I will not let myself be thrown off course so quickly.” is a sample item of this scale. Higher mean scores suggest higher resilience.

Work Engagement. Further, the German short version of the Utrecht Work Engagement Scale (UWES-9) was used to measure work engagement. This scale has a high internal consistency ($\alpha = .93$) and comprises nine questions that survey vigor, dedication, and absorption (Schaufeli et al., 2006). A sample for dedication is “I am enthusiastic about my job”. All items are assessed on a 7-point Likert scale ranging from 0 (*never*) to 6 (*always*). Mean scores with a range from 0 to 6 have been computed, in which high scores represent high work engagement.

Growth Mindset. At last, growth mindset was assessed with the 3-item Growth Mindset Scale. This scale has a high internal consistency ($\alpha = .90$) (Dweck et al. 1995). It entails 3 items which are assessed on a six-point Likert Scale ranging from 1 (*strongly agree*) to 6 (*strongly disagree*). A sample question is “Your intelligence is something about you that you cannot change very much.” Higher scores correspond to having a rather growth mindset, whereas lower scores correspond to a rather fixed mindset.

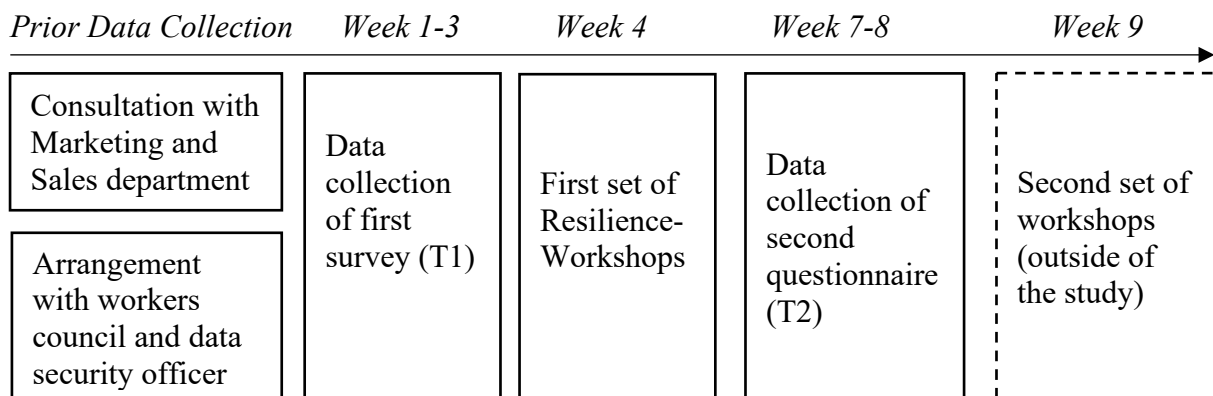
Procedure

Questionnaire. First, the planned research was approved by the workers' council and data security officer of the company. To suit the company's protocol of data protection the questionnaire and all mail addresses of the 102 participants were sent to an external company. Their survey software must be assigned to collect the data for all research of students who are interns at the company.

Three weeks before the workshop the participants received a link to the first online questionnaire via their work e-mail. This link expired one day before the workshop. Two weeks after the workshop, the same questionnaire was distributed a second time and was again needed to be answered within two weeks. The subjects provided their demographic data, namely gender, age, and highest education level. All items of the questionnaire were in German. 3 of the 4 surveys were established German translations. Only the items on Growth Mindset were translated with "deepl.com" by the researcher. All original English versions of the used items can be found in the questionnaire (see Appendix C).

Workshop. Participants could attend the workshop one day only, as the content was identical, and all had the same duration of five hours. The workshop was offered on five days, ensuring that many employees could participate in it. Each workshop had a maximum of 25 available slots. In total, there were 75 slots offered for the three workshops in the first and another 50 for the two in a second month. Online registration was needed to receive the link for the workshop. It was requested to answer both questionnaires, which could not be controlled with respect to privacy security. The workshop was hosted via Microsoft Teams and contained lecturing, interactive plenum, breakout rooms, mindfulness exercises, and self-reflections. The content of the workshop was chosen by the researcher and is based on the work of Werner (1995), Sarkar & Fletcher (2017), and a systematic review of 11 years resilience training in the workplace (Robertson et al., 2015). In addition, the checklist of twelve criteria for resilience-building programs in the work context was used (Ijntema et al., 2019). The two presenters, the Program Manager of Mindful Leadership at the company and the researcher, conducted a pilot session without any participants one week before the first workshop. After the workshops, participants received the presentation and audio-guided mindfulness practices for continued voluntary practice. There was also the possibility to give anonymous feedback via a provided link of the website "menti.com". A general agenda of the present research project is shown below (see Figure 2).

Figure 2



Data Analysis

The acquired data file from T1 and T2 was sent to the researcher the external company. After receiving the final data set, the researcher recoded the variables and transferred them to SPSS Statistics version 27. First, nine reverse-score items had to be mirrored, as a lower score indicated higher rates of mindfulness. Two outliers were detected based on showing a deviation from the sample mean of above 2.5 standard deviations. Then, for each participant, the mean scores of the four outcome variables were calculated at both time points, thereby receiving eight mean scores per subject. To analyze the data regarding the given hypotheses, a repeated measures MANOVA was executed. Such analyses compared if there are significant mean differences regarding the different groups and points of measurement. The eight mean scores of mindfulness, resilience, work engagement, and growth mindset were defined as within-subject factors and the two groups (control / intervention-workshop) as between-subject factors. After running this analysis, the assumptions of linearity, homogeneity, and normality were checked before the data was interpreted. The results of the administered analysis are reported in the following section.

Results

Descriptive Statistics and Correlations of Outcome variables

The descriptive statistics of the investigated variables are shown in Table 2. There are significant positive correlations between all variables at the $p < .01$ level, except between work engagement and growth mindset. The strongest correlation is between mindfulness and resilience, followed by the correlation of work engagement and resilience.

Table 2*Descriptive Statistics and Correlations of the Outcome Variables*

Variable	<i>n</i>	<i>Range</i>	<i>M</i>	<i>SD</i>	1	2	3	4
1. Mindfulness	171	0-4	2.22	.34	-	.580**	.378 **	.292**
2. Resilience	171	1-5	3.85	.48	.580**	-	.553**	.279**
3. Work Engagement	171	0-6	3.37	1.07	.378**	.533**	-	.099
4. Growth Mindset	171	1-6	4.24	1.19	.292**	.279**	.099	-

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

Main Analysis

There was no main effect of time, or group. Further, the interaction effect of group*time was non-significant. The coefficients of the multivariate test is shown in Table 3 and of the univariate tests in Table 4. Comparing the two points of measurement of the control group, there was a slight increase in mindfulness, growth mindset, and work engagement but a decrease in resilience. There was a minor increase in mindfulness, growth mindset, and resilience regarding the intervention group but a decrease in work engagement (see Appendix B). However, all mentioned changes of means in the outcome variables were non-significant.

Table 3*Results of the Multivariate test*

Variable	<i>F</i>	<i>p</i>	<i>n2</i>
1. time	.264	.900	.016
2. group	.241	.914	.015
3. time*group	1.251	.299	.074

Note. *N*= 68. * significant if $p < 0.05$ (2-tailed)

Table 4*Results of the Univariate tests on time*group*

Variable	<i>F</i>	<i>p</i>	<i>n2</i>
1. Mindfulness	.172	.680	.003
2. Resilience	2.888	.094	.043
3. Work engagement	.339	.562	.005
4. Growth mindset	.009	.927	.000

Note. *N*= 68. * significant if $p < 0.05$ (2-tailed)

Discussion

The COVID-19 pandemic increased the expectations of many employees that their well-being receives more support. Since there is limited time for more extended programs, the interest in one-shot interventions is growing. The main goal of the present study was to evaluate the effectiveness of a once administered virtual workshop in terms of increasing mindfulness, resilience, work engagement, and growth mindset because these four are considered aspects of well-being. Such evaluation was of particular interest to the department as several cases of harmed employee well-being, including burnout, were increasingly reported. Regarding the present research outcomes, follow-up measurements would be either to upscale the intervention format in the company or to make adaptations.

The Findings on the Investigated Variables and Potential Explanations

The present research confirms previously established relations between the investigated variables since significant positive correlations between almost all variables could be found. Contrary to past research results, there was no significant correlation between growth mindset and work engagement (Caniëls et al., 2018). The mean scores and interaction regarding the point of measurement and group were assessed to conclude the interventions' potential effect. It was hypothesized that all variables increased more in employees after receiving the intervention than in employees who did not. Contrary to the four hypotheses, the interaction effect of time and group was non-significant. The workshop did not show the expected outcomes, as no hypotheses were confirmed. There are several alternative explanations for such findings, which are discussed below.

First, the intervention could not have been properly administered. The workshop set-up may be ineffective. Concerning employees' limited available time and social distancing guidelines, this intervention was a virtual one-shot workshop. Both characteristics of the set-up are not much investigated yet. However, it is not yet proven if virtual resilience workshops can be as effective as physical training (Joyce et al., 2018). Also, administering short mindfulness-based training received little attention from research (Davidson & Kaszniak, 2015). Although many investigated programs are brief, they usually entail at least three training sessions, two more than this intervention entailed. Most researchers suggest that mindfulness-based interventions need to be conducted over a longer time, as participants often get their first experience with mindfulness during the training. This was the case for most participants in the present intervention too. Past research proved eight-week mindfulness-programs to affect neuroplasticity by increasing grey brain matter density if the exercises were regularly practiced (Hölzel et al., 2011). Regarding the concept of resilience,

it is also known to be a dynamic process that develops over a lifetime (Werner, 1995). Thus, it is plausible that one-shot interventions are unlikely to influence the investigated variables strongly, as instead, more sessions would be required. Furthermore, concerning the content, the received feedback via menti.com highlights that the workshop was partly experienced as too theoretical, and more interaction was desired. The lack of interaction could have decreased employee's motivation to participate actively. Hence, a more sophisticated solution may be needed to introduce long-lasting changes with an adapted set up (3 instead of 1 session) and more interactive content.

Another potential explanation is that the participants' environment could not be controlled, as the intervention was virtually administered. Many participants switched off their microphone and camera, and some left the workshop because inevitable meetings came up spontaneously. It could not always be controlled if participants followed the workshop or did work-related tasks, like answering e-mails, instead. Such limitation is also valid regarding both questionnaires as they were online administered. Findings of online surveys are limited as it is unknown what respondents do before and while answering the survey (Wright, 2005). Moreover, using mindfulness tools after the workshop, like guided meditations, could only be recommended. Half of the participants did not practice mindfulness between the intervention and the second questionnaire. In sum, it was impossible to create the same environment for all participants regarding the workshop in the two weeks after the intervention or while answering the survey.

Lastly, several biases need to be considered as changing circumstances might have influenced the investigated variables. After the workshop, many COVID-19 measurements, including the lockdown, ended as the infection rate decreased (Bundespressekonferenz, 2021; Johns Hopkins University, n.d.). This, combined with an increasing vaccination rate, has been shown to decrease the perceived threat of COVID-19 (Benis et al., 2021; Grünewald, 2021). Besides, many respondents were on holidays in between, which could have increased their well-being due to the absence of job stressors and increased relaxation (De Bloom et al., 2012). Hence, it is possible that there were lower job demands but more personal resources. This trend can also be seen in answers to the second survey, as most means are higher, although not significantly, than the first survey. Only resilience in the control group decreased over time. However, such factors were not investigated and could not be controlled. Concerning a missing post-measurement directly after the workshop, the intervention could have strengthened outcome variables that have subsided after two weeks.

Limitations of the Research and Recommendations

Besides the potential weaknesses of the intervention, like the set-up, there are further limitations of the research and recommendations for potential future studies. Such will be addressed in the following. First, the excluded data is probably the most crucial limitation of this study. Since the data from 34 participants of the second survey could not be used for the main analysis, about one-third of the investigated population did not examine the hypotheses. Regarding the conducted G*Power analysis, such sample size is insufficient. Besides, there is the possibility that the external company wrongly matched surveys. The provided data set had to be used, but there are some inconsistencies, like unmatching IP addresses. If the company intends to do another resilience workshop, the researcher suggests not using the service of an external company and to avoid excluding that many participants from the analysis.

Second, there is a relatively low sample size and high reported p-values. Before the research, a G*Power analysis was conducted that suggested having a sample of more than 205 participants to receive significant outcomes. Furthermore, this research is a non-experimental study due to missing group-randomization. Hence, it is impossible to make causal conclusions based on the collected data (McGinnis & Blalock, 1966). It is recommended that several departments offer an upcoming intervention to ensure sufficient statistical power of the sample. If more employees sign in for such intervention, it is advised to randomize the groups to enable causal inferences.

Third, this research focused on variables related to personal resources but not on job-demands or exhaustion. The suggested items measuring employee well-being based on the exhaustion using the Maslach Burnout Inventory (Wörfel et al., 2015) and the psychological demand scale from the Demands-Control-Resource Questionnaire (Theorell, 1996) were not permitted by the company. There were a multitude of COVID-19 related confounding variables, which could not be controlled. For example, regarding the changes like loosened COVID-19 measurements or holidays, it cannot be examined how demanded or exhausted the employees felt, despite the altered situation. The researcher is certain that examining demands and exhaustion is essential to shedding light on how employees' exhaustion responds to demanding situations and if the workshop can moderate such a relationship. It is proposed that future research should investigate the relations between these variables.

Fourth, the measurement timepoints are strictly speaking no real timepoints as participants had two weeks to fill out the questionnaire. Such a set-up was needed to collect enough data, but it caused collecting data between two to five weeks after the intervention. Hence a visible, long-lasting effect cannot be seen due to the time differences. It is advised to

conduct a longitudinal study with a questionnaire after one week, one month, and three months. For such questionnaires, participants should have only one day to answer each. Such intervention could entail a more extended program, ideally over eight weeks, with some form of assistance in mindfulness training. It is of interest if people who do mindfulness practices frequently differ compared to participants of the workshop who do not.

Practical Implications and Conclusion

While several relevant suggestions for future research are suggested, this study realized several contributions. To the researcher's knowledge, this was the first study on the effectiveness of a mindfulness-based resilience workshop that is once virtually administered. According to the feedback received, many employees highly appreciated receiving a mindfulness-based intervention. However, the question remains if such an intervention-program can be shown to have a significant effect. The present evaluation cannot confirm this assumption. Regarding the limitations, it is recommended that the content of the workshop and set-up are adapted and re-evaluated. The team that provided the resilience-workshop also offers mindfulness-training on emotional intelligence, which entails four sessions over four months. Such duration could be more suitable to ensure that participants are informed about the concepts of resilience and mindfulness and have the chance to practice and develop such skills. To further encourage the participants to meditate, they could be invited to mindfulness breaks which the team hosts. The number of attendees differs between about ten (during the lunch break) to more than one hundred (during the regular work time). It is suggested to offer meetings with a duration of twenty minutes during working time to motivate many employees to join.

To conclude, the present research indicates that virtual one-shot interventions do not increase mindfulness, resilience, work engagement, or growth mindset. Considering the limitations of this research, it cannot be excluded that such intervention format has no effect. Concerning past studies and the received feedback, it is suggested to make further adjustments like increasing the interaction and number of training program sessions. Thus, upcoming research could investigate the potential effects of such adapted intervention. For such, an experimental longitudinal study setup is recommended.

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Appendix A:**Table 1**

	Frequency
Gender	
Female	42
Male	26
Divers	0
Preferred not to answer	0
Age	
25-34 years of age	24
35-44 years of age	13
45-54 years of age	20
55-60 years of age	8
61 years of age or above	3
Highest Education	
Preferred not to answer	2
High school diploma	21
Bachelor, master, or state examination	44
Promotion	1

Appendix B

Comparing Means of Intervention and Control Group over time

4. 1=Control; 2=Intervention * time

Measure	1=Control; 2=Intervention	time	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
mindfulness	1,00	1	2,321	,070	2,181	2,462
		2	2,334	,072	2,191	2,478
	2,00	1	2,384	,072	2,239	2,528
		2	2,419	,074	2,271	2,567
growth	1,00	1	4,162	,206	3,751	4,573
		2	4,267	,201	3,866	4,667
	2,00	1	4,323	,212	3,900	4,746
		2	4,404	,207	3,991	4,817
engagement	1,00	1	3,254	,174	2,907	3,601
		2	3,302	,193	2,916	3,687
	2,00	1	3,458	,179	3,100	3,815
		2	3,391	,199	2,993	3,788
resilience	1,00	1	3,898	,084	3,731	4,064
		2	3,821	,073	3,676	3,967
	2,00	1	3,927	,086	3,755	4,099
		2	3,980	,075	3,830	4,129

Appendix C: Questionnaire

Study on "Resilience and Wellbeing" - Workshop Evaluation

Dear participants,

Thank you for agreeing to take part in this study. The survey aims to evaluate a new developed online mindfulness-based resilience workshop.

Further goals of the survey are to identify ways to further strengthen one's personal well-being and growth. The purpose of the collected data is the scientific use in the context of my master's thesis at the Radboud University in the Netherlands. An overall evaluation of the data will be published within the framework of the committees involved.

The data is collected in a **completely anonymous** form is **treated confidentially**. By participating in the survey, you agree that your data will be stored anonymously until December 31, 2021 and that the data will be used for the purposes mentioned above.

Answering the survey takes about **10-20 minutes** and is **voluntary**. However, it is **required** to answer the survey in order to **participate in the half-day online resilience workshop**.

You can end your voluntary participation at any time without any consequences. You are welcome to contact me to find out more about the background of this study. If you have any questions, you can always write me an e-mail (p.sharp@student.ru.nl).

Important: In order to be able to evaluate the workshop, I ask you to also answer the second survey, which you will receive in a few weeks. This will have the same duration as this one and is also voluntary.

In order to make the workshops interactive, only the first 75 people will be assigned to a workshop that will take place in May. It is ensured that all other participants in this study will also be offered the resilience workshop - albeit at a later point in time.

Please answer the **second** questionnaire, **regardless of whether you participated in the workshop** in May **or not**. This makes it easier to analyse the workshop, as data is generated to compare participants who did not participated in the workshop intervention yet.

Please note: There are no correct or incorrect answers in the whole questionnaires. Just give the answer that is currently most suiting to you.

Please answer the following questions on a scale from “strongly disagree” to “strongly agree” by choosing a box, with regards to the past two weeks.

Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
1	When I have plans, I follow them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Usually I can do anything somehow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	I will not let myself be thrown off course so quickly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	I like myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	I can do several things at the same time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	I am determined.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	I keep an interest in a lot of things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 8 I can usually look at the same situation from multiple perspectives.
- 9 I can also convince myself to do things that I do not really want to do.
- 10 When I'm in a difficult situation, I usually find a way out.
- 11 I have enough energy in me to do whatever I have to do.
- 12 I can accept it when not all people like me.
-

Please answer the following questions on a scale from “never” to “almost always” by choosing a box, with regards to the past two weeks.

Item	Never	Seldom	Some- times	Often	Almost always
1 When I walk, I am very conscious of how the movement of my body feels.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 I can put my feelings into words very well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 I criticize myself for feeling irrational or inappropriate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 I perceive feelings and sensations without having to react to them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 When I do something, my mind wanders easily and I am easily distracted.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6 When I shower or bathe, I am aware of the feeling of water on my skin.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7 It is easy for me to put my beliefs, opinions and expectations into words.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 I do not pay attention to what I am doing because I am daydreaming, worrying, or otherwise distracted.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 9 I sense my feelings without getting lost in them.
- 10 I tell myself that I should not feel what I feel.
- 11 I notice how what I eat and drink affect my thoughts, body sensations, and emotions.
- 12 I find it hard to put into words what I think.
- 13 I am easily distracted.
- 14 I believe that some of my thoughts are abnormal and that I shouldn't be thinking that way.
- 15 I pay attention to sensations such as wind in my hair or sunshine on my face.
- 16 I have trouble finding the right words to express my feelings.
- 17 I judge whether my thoughts are good or bad.

- 18 I find it difficult to stay focused on what is happening in the present moment.
- 19 When I have stressful thoughts or ideas, I can distance myself from them and be aware of the thoughts or ideas without being overwhelmed by them.
- 20 I pay attention to noises such as the ticking of clocks, birds chirping or the sound of cars driving by.
- 21 In difficult situations I can pause without reacting immediately.
- 22 Physical sensations are difficult for me to describe because I don't have the right words to describe them.
- 23 It looks like I'm "functioning automatically" with little awareness of what I'm doing.
- 24 If I have stressful thoughts or ideas, I calm down shortly afterwards.
- 25 I tell myself not to think the way I think.

- 26 I perceive the smells and odours of things.
- 27 Even when I'm terribly upset, I can put it into words.
- 28 I rush through activities without really paying attention to them.
- 29 When I have stressful thoughts or ideas, I can just perceive them without reacting to them.
- 30 I think some of my feelings are bad or inappropriate and that I should not have them.
- 31 I notice visual elements in both art and nature, for example colors, shapes, structures or patterns of light and shadow.
- 32 I have a natural tendency to put my experiences into words.
- 33 I do jobs or tasks automatically without realizing what I am doing.
- 34 When I have stressful thoughts or ideas, I rate myself as either good or bad, depending on the content of the thought / idea.

- 35 I pay attention about how my feelings affect my thoughts and behavior.
- 36 I can pretty much describe how I feel right now.
-

Finally, we would like to ask you for some information about yourself and your situation:

How old are you?

- Younger than 25 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55-60 years
- 61 years and older
- I prefer not to give any information.

What is your gender?

- Female
- Male
- Divers
- I prefer not to give any information.

What is your highest level of education?

- No degree or secondary school
- Middle school leaving certificate, secondary school diploma or equivalent
- A high school diploma or equivalent degree
- Bachelor, master or state examination
- Promotion

Did you participate in the virtual mindfulness-based Workshop on resilience in June?

- Yes, I did.
- No, I did not.

How often have you participated in regular mindfulness activities (including meditation, progressive muscle relaxation, yoga) in the past two weeks?

- 0 times
- 1-5 times
- 5-10 times
- Over 10 times

Do you have any suggestions or comments on this survey? (optional)

Thank you for your participation!

You have successfully completed the first questionnaire. I look forward to your participation in the resilience workshop, either in June or at a later date.

Please remember to also answer the second questionnaire. This will be sent to you at the end of June.

If you have any further questions or comments, please feel free to contact me by email (p.sharp@student.ru.nl)!