

Candidat number: 10116

Validating the Occupational Depression Inventory in Norway

Bachelor's thesis in Psychology - PSY 2900

Supervisor: Renzo Bianchi

May 2023

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Preface

This bachelor thesis “Validating the Occupational Depression Inventory in Norway” was written regarding the graduation requirements of the psychology bachelor program at the Norwegian University of Science and Technology in Trondheim, Norway. I was engaged in writing and researching this thesis from January to May of 2023.

My passion for depression was a driving force behind my selection of the study project. However, I did not have a lot of pre consumed knowledge of occupational depression, which intrigued my interest for the project even more. I have learned a lot throughout this project and would say I am even more passionate about the topic now than before starting this project.

I want to express my gratitude to my supervisor, Renzo Bianchi, for his exceptional support and guidance throughout the entire project. He helped provide the completed dataset, as well as helping with the coding behind the variables in the dataset. He also provided some much-needed input on my writing. I would also like to thank the bachelor group of the other students writing on the same project. The group collectively gathered the data used in the study. We helped each other to by discussing possible viewpoints.

Finally, I want to express my gratitude to my family and friends for supporting me. Additionally, I want to thank you for reading my work. I hope you find it enjoyable.

Abstract

Objective:

This study examined the structural and psychometric properties of the ODI's Norwegian version. The ODI gauges individuals' depressive symptoms that attribute to their work. The ODI has proven to be robust across country lines. Thus far the ODI has been validated in the USA, Australia, New Zealand, Brazil, South Africa, France, Italy, Spain, Sweden, and Switzerland.

Methods:

The study included 485 participants employed in Norway (68% female). The study was conducted online across Norwegian cities. Analysis used consisted of Maximum Likelihood Factor Analysis, Pearson's Correlation Coefficient analysis and Reliability Analysis.

Results:

Maximum Likelihood Factor Analysis of the ODI satisfies the demands for one general factor. This general factor stood for 49% of the Total Variance Extracted. The ODI demonstrated strong reliability with both Cronbach's $\alpha = .89$ and McDonalds $\omega = 0.90$. In regard to the ODI's criterion validity, occupational depression correlated positively with workplace ostracism, sick leave, physical aggression and verbal abuse, while it correlated negatively with job promotion and socioeconomic optimism.

Conclusion:

The Norwegian version of the ODI demonstrates robust structural and psychometric properties. The ODI is a useful tool for occupational health professionals and could progress the study of job-related stress.

Key Words: Occupational Depression, Job-related stress, Depression, Factor Analysis, Correlation Analysis, Reliability, Discriminant and Criterion Validity.

Job-related distress is considered a focal concern in occupational health science. There is evidence that job-related distress has both health- and life-threatening effects (Gonzalez & Cockburn, 2021; Hassard et al., 2018). However, the assessment of job-related distress has proved challenging (Bianchi & Sowden, 2022). The recently developed Occupational Depression Inventory (ODI) is intended to renew both the conceptualization and measurement of job-related distress (Bianchi & Schonfeld, 2020; Bianchi & Sowden, 2022).

Job-related distress can take the form of occupational depression amongst other things. Depression is a mental health illness that involves persistent emotions of melancholy, hopelessness, and lack of interest in once-enjoyable activities (Keshavarz et al., 2022; Uher et al., 2014). Depression can have major repercussions if it is not addressed, including decreased social and occupational functioning, a higher risk of substance misuse, physical health issues, and self-harm behavior or suicidal ideation (Keshavarz et al., 2022; Uher et al., 2014). According to the Norwegian Institute of public health, depression will affect 1 in 5 in the course of their lifetimes and 1 in 10 in the course of 12 months (Folkehelseinstituttet, 2016). The World Health Organization (WHO) estimated that 5% of all adults suffer from depression (World Health Organization, 2023). Furthermore, WHO approximated that 280 million people around the world are currently experiencing depression. Every year, around 700,000 people commit suicide around the world, while in Norway there are around 650 suicides every year (Folkehelseinstituttet, 2022; World Health Organization, 2021). For people aged 15 to 29, suicide is the fourth most common cause of death (World Health Organization, 2021). A study conducted by HUNT (Norwegian Research Center), showed a large increase in the portion who had large symptoms of anxiety and depression among young adults from 1995 to 2019, and the increase was the greatest between 2006 and 2019 (Krokstad et al, 2022). These numbers demonstrates a well-founded reason as to why it is important to work

on preventing the disease from occurring as well as identifying it early on to prevent it from evolving into suicidal ideation.

Occupational depression is a mental health condition that arises due to extended subjection to anxiety, stress, and negative working conditions (Bianchi & Schonfeld, 2020; Bianchi et al., 2021b). Its manifestation varies, it can be shown in for example decreased productivity, low motivation, physical symptoms like sleep disturbance or headaches, and feelings of hopelessness. If left untreated, occupational depression can have negative consequences for both the individual and the workplace. Potential consequences include decreased job performance, increased presenteeism and absenteeism, and the most severe consequence is suicide (Bianchi et al., 2021b; Gonzalez & Cockburn, 2021). Occupational depression can also have an impact on an individual's personal life and social relations outside of the workplace, which can further cause social isolation and ultimately reduce the individual's quality of life. Occupational depression also causes economic loss for both the company and the individual (Keshavarz et al., 2022). If an individual has severe occupational depression this may require both time off from work and medical or psychological treatment, which in turn increases healthcare costs and reduces income once again for both the company and the individual.

15% of the working population is estimated to have mental disorders, this including occupational depression (World Health Organization, 2022). There is a magnitude of factors that could potentially increase the risks of developing occupational depression, some of the factors being physical aggression or verbal abuse, workplace ostracism, job promotions, and socioeconomic optimism.

Whereas in Norway sick leave due to mental health has changed quite a bit throughout the last 20 years. During the period between 2003 and 2015, there was an increase from 17% to 20% of people receiving paid sick leave with mental health being the reason for the time taken off work (Brage & Nossen, 2017). Numbers from this study showed that there was a decrease in sick leave due to depression in recent years, more specifically after 2011. This is assumed to have happened because the diagnostic systems have changed, and fewer people receive the diagnosis (Brage & Nossen, 2017). However, the length of sick leave for individuals with diagnosed depression has increased significantly. In addition, sick leave due to undiagnosed mental health reasons has increased as well (Brage & Nossen, 2017). This could potentially be due to the diagnostical changes making only the severe cases eligible and therefore the less severe cases of depression end up in the undiagnosed category.

The ODI gauges individuals' depressive symptoms that people attribute to their work, which distinguishes the measure from classical, "attribution-free" depression scales (Bianchi & Schonfeld, 2020). An example of this is the item "I felt exhausted because of my work". The ODI was developed to enhance occupational health professionals' ability to navigate job-related distress (Bianchi & Schonfeld, 2020).

Occupational depression refers to a type of depression that stems from job-related stress (Tennant, 2001). Since depression often shows comorbidity with mental health issues like anxiety, stress, or burnout, it is important to assess the ODI's discriminant validity in distinguishing occupational depression from other types of mental health issues (Rohde et al., 1965).

Thus far, the ODI has been validated in the USA, Australia, New Zealand, Brazil, South Africa, France, Italy, Spain, Sweden, and Switzerland (Bianchi & Schonfeld, 2020; Bianchi & Calacante et al., 2023; Hill et al, 2021). In all of these countries, the ODI has exhibited robust structural and psychometric properties (Bianchi & Verkuilen et al., 2023).

This study is a quantitative research study that aims to validate the ODI in Norway. To accomplish this goal, we relied on a sample of Norwegian workers and utilized statistical methods such as Factor Analysis, Reliability Analysis, and Correlation Analysis. The correlation of the ODI with an attribution-free (“cause-neutral”) depression scale was examined to estimate the instrument’s discriminant validity. The ODI’s criterion validity was examined in relation to variables such as workplace ostracism and workplace violence. The findings of this study will add to the body of knowledge on depression assessment tools and inform mental health professionals in Norway on the validity and reliability of the ODI as a tool for evaluating depression in the workplace.

Based on past research will this study be conducted with a set of predictions. The first prediction is that the ODI will be validated with the Norwegian version. The second prediction is that the ODI will correlate positively with workplace ostracism, sick leave, physical aggression, and verbal abuse. The third prediction is on the other hand that the ODI will correlate negatively with socioeconomic optimism and job promotion.

Furthermore, will this study add to the existing body of knowledge on occupational depression and provide a better understanding of its impact on individuals in Norway. This research's valuable knowledge will contribute to the development of targeted strategies and policies aimed at addressing occupational depression in Norway. The findings of this study

will hopefully help to reduce the prevalence of occupational depression in Norway and serve as a foundation for future research.

Methods

This study included 485 valid participants. The initial respondents' number stood at 547 participants. After excluding careless respondents by using an attention-check item, 485 valid participants were left (31% male, 68% female, and 1% undisclosed). Of the 485 participants 209 (43%) were aged 18-34 (early career), 120 (25%) were aged 35-49 (mid-career), and 156 (32%) were aged 50+ (late career). The study was conducted in accordance with the guidelines of the Norwegian Center for Research Data.

To be eligible for this study, an individual was required to be (a) at least 18 years of age and (b) currently employed. Recruitment of participants was done by nine students at NTNU, including myself, between January and February of 2023. The main method used to recruit participants was by leveraging personal social networks, for example, by posting a hyperlink to the students' Facebook or LinkedIn page. Another method used was by establishing connections with organizations.

Measures of interest

The ODI

The ODI is a self-administered questionnaire that references the DSM-5 criteria for major depressive disorder (American Psychiatric Association, 2022). With these criteria, the ODI manages to cover and assess depressed moods, anhedonia, sleep alterations, fatigue, appetite alterations, feelings of worthlessness, cognitive impairment, psychomotor alterations, and suicidal ideation (Bianchi & Schonfeld, 2020). The questionnaire asks for each symptom felt within a two-week period to be answered on a 4-point scale, going from 0, which stands

for “never or almost never” to 3, which stands for “nearly every day.” A sample item for the relevant questions here is: “I felt exhausted because of my work”. The ODI considers turnover intention by including a subsidiary question where the response options are “yes”, “no” and “I don’t know” (Bianchi & Schonfeld, 2020).

The ODI approaches occupational depression from a dual-lens perspective (Bianchi & Schonfeld, 2020). It looks at both a dimensional as well as a categorical standpoint. The dimensional standpoint is assessed by using a continuum of how severe the symptoms are perceived by the participant. Going from absent to severe. The categorical standpoint is assessed by an algorithm that allows interim diagnoses regarding occupational depression (Bianchi & Schonfeld, 2020).

The ODI was translated into Norwegian by using a back-translation method. The original English version was translated into Norwegian by two native Norwegian speakers that also are fluent in English. Thereafter the Norwegian version was translated back into English. This time two different Norwegian speakers also were fluent in English. Note that neither of the four translators was familiar with the measure before taking part in the process. Lastly, the newly Norwegian-translated version of the ODI was compared with the original English version and the back-translated English version. No discrepancies were identified. The ODI’s translated items are displayed in Table 1.

Out of our study sample, 10% of the participants ($n = 49$) had a score above 1.5 (mean scores above the central point of the scale). Regarding turnover intention, about 31% ($n = 149$) revealed that they have considered leaving their current position or job due to job-related distress.

Table 1

Norwegian Version of the Occupational Depression Inventory (ODI)

Symptoms	Items
Anhedonia	Mitt arbeid var så stressende at jeg ikke kunne glede meg over ting jeg vanligvis liker å gjøre. My work was so stressful that I could not enjoy the things I usually like doing.
Depressed Mood	Jeg følte meg deprimeret på grunn av jobben min. I felt depressed because of my job.
Sleep alterations	Stress relatert til jobben førte til søvnproblemer (jeg hadde vansker med å sovne eller sove uforstyrret, eller jeg sov mye mer enn vanlig). The stress of my job caused me to have sleep problems (I had difficulties falling asleep or staying asleep, or I slept much more than usual).
Fatigue	Jeg følte meg utmattet på grunn av arbeidet mitt. I felt exhausted because of my work.
Appetite alterations	Jeg følte at appetitten min ble forstyrret på grunn av jobbstress (jeg mistet appetitten min, eller det motsatte, jeg spiste for mye). I felt my appetite was disturbed because of the stress of my job (I lost my appetite, or the opposite, I ate too much).
Feelings of worthlessness	Min opplevelse på jobb fikk meg til å føle meg mislykket. My experience at work made me feel like a failure.
Cognitive impairment	Jobben min stresset meg så mye at jeg hadde problemer med å fokusere på det jeg gjorde (f.eks. å lese en avisartikkel) eller å tenke klart (f.eks. å ta beslutninger). My job stressed me so much that I had trouble focusing on what I was doing (e.g., reading a newspaper article) or thinking clearly (e.g., to make decisions).
Psychomotor alterations	Som et resultat av jobbstress følte jeg meg rastløs, eller det motsatte, alt gikk saktere—for eksempel i måten jeg beveget meg eller snakket på. As a result of job stress, I felt restless, or the opposite, noticeably slowed down—for example, in the way I moved or spoke.
Suicidal ideation	Jeg tenkte at jeg ville heller være død enn å fortsette i denne jobben. I thought that I'd rather be dead than continue in this job.
Turnover intention (SQ)	Dersom du har støtt på noen av problemene nevnt tidligere, fører disse problemene til at du vurderer å slutte i din nåværende jobb eller stilling? If you have encountered at least some of the problems mentioned above, do these problems lead you to consider leaving your current job or position?

HADS depression items

To assess depressive symptoms, we relied on a 7-item version of the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983). A sample item used “I no longer care how I look” (Zigmond & Snaith, 1983). Reliability tests demonstrated good inner validity in the usage of the instrument. Cronbach’s $\alpha = 0.847$ and McDonald’s $\omega = 0.851$. The items for HADS were operationalized by using a 5-point scale, with answers ranging from “I strongly disagree” to “I strongly agree”, with the middle answer being “I neither agree nor disagree”. Out of the 485 participants, only around 5% ($n = 26$) had a mean score above 2.5 (mean scores above the central point of the scale). These results suggest a relatively healthy sample with little excessive depressive symptoms displayed.

Other measures

Two items were included to assess workplace violence. One regarding physical assault, “Have you in the last 6 months been physically assaulted in relation to your work?”. The other item regarding verbal abuse is, “Have you in the last 6 months been verbally assaulted (ex. insults, threats, harassment) in relation to your work?”. One item was included concerning sick leave, “Have you been on sick leave in the past 6 months?”. One item was included concerning job promotion, “Have you in the last 6 months been promoted in your job (that can reflect in a higher status or higher income)?”. One item was included concerning socioeconomic optimism, “Are you optimistic in regard to the socioeconomic future for Norway in the next ten years?”. The Ostracism Short Scale (Rudert et al., 2020) was used with adaption to the workplace. In this study 4 items were used; “Others ignored me”, “Others excluded me from the conversation”, “Others treated me as if I was not there” and “Others did not invite me to activities”.

Table 2

Descriptive Statistics for the Occupational Depression Inventory (N=485)

Variable	<i>ODI1</i>	<i>ODI2</i>	<i>ODI3</i>	<i>ODI4</i>	<i>ODI5</i>	<i>ODI6</i>	<i>ODI7</i>	<i>ODI8</i>	<i>ODI9</i>	<i>Total score</i>
1. Mean	0.75	0.60	0.84	1.03	0.57	0.65	0.55	0.59	0.10	0.63
2. Median	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.44
3. Standard deviation	0.82	0.80	0.90	0.91	0.84	0.79	0.73	0.82	0.40	0.58
4. Skewness (SE = 0.111)	0.94	1.32	0.81	0.65	1.41	1.22	1.14	1.14	4.95	1.20
5. Kurtosis (SE = 0.221)	0.36	1.22	-0.24	-0.32	1.18	1.12	0.59	1.12	27.10	1.35
6. Minimum	0	0	0	0	0	0	0	0	0	0.00
7. Maximum	3	3	3	3	3	3	3	3	3	3.00

Notes. $N = 485$. *SE* = standard error; *ODI1*: anhedonia; *ODI2*: depressed mood; *ODI3*: sleep alterations; *ODI4*: fatigue/loss of energy; *ODI5*: appetite alterations; *ODI6*: feelings of worthlessness; *ODI7*: cognitive impairment; *ODI8*: psychomotor alterations; *ODI9*: suicidal ideation.

Data analyses

I examined the ODI's factorial validity with IBM SPSS Statistics v.27 (George & Mallery, 2022). I relied on a Maximum Likelihood Factor Analysis as well as Pearson's Correlation Coefficient to evaluate both discriminant and criterion validity and finally standard Reliability Analysis.

The reasoning behind using Maximum Likelihood estimation for Factor Analysis is that it offers a consistent but adaptable methodology that makes it appropriate for a wide range of applications, even scenarios in which the presumptions of other frameworks are broken. It also provides an unbiased estimate in bigger samples (Clower, 2020). In our case, we have a relatively large sample where we have a precalculated assumption that the ODI does have validity and can be implemented in the Norwegian population.

I performed a standard Reliability Analysis on the ODI items. I relied on both Cronbach's Alpha and McDonalds Omega for further depth in security. I investigated the ODI's discriminant validity against HADS's measurement for general depression relying on

Pearson's Correlation Coefficient. To inspect the criterion validity, I relied again on Pearson's Correlation Coefficient using the Correlation Matrix to evaluate the correlations between the ODI alongside the other variables. These other variables included physical aggression, verbal abuse, workplace ostracism, sick leave, job promotion, and socioeconomic optimism.

Results

Main Findings

The analysis of the data revealed the ODI mean scores to be distributed as positively skewed (Skew = 1.20, standard error = 0.11), which seems reasonable seeing as though the concentration is on a nonclinical sample. KMO = .92. The range of the scores given from the ODI was from 0.10 to 1.03. Each symptom had an item that had a score that ranged from 0.00 to 3.00. Out of the 485 participants, around 75% ($n = 365$) scored between 0.00 and 0.89, around 22% ($n = 105$) scored between 1.00 and 1.89, and around 3% ($n = 15$) scored between 2.00 and 3.00. The data also identified around 2% ($n = 11$) that could be regarded as probable instances of occupational depression, this was shown by phq9. According to the analysis around 31% ($n = 149$) of the participants, on the ODI's turnover intention item, were contemplating leaving their current job.

Factor Analysis Findings

Factor Analysis resulted in a one-factor solution. The factor was responsible for 49% of the Total Variance Extracted. Loadings for each ODI item are shown in Table 3. Bartlett's test of sphericity, which examines the overall importance of all correlations contained within the correlation matrix, revealed that the Factor Analytic Model could be applied to the given set of data. The strength of the associations between the variables was high, according to the

Kaiser-Meyer-Olkin measure of sampling adequacy. The KMO = .92, therefore it was alright to move further with the analysis.

Table 3

Summary of Factor Analysis of ODI (N=485)

	ODI	Communality
Q1 «Anhedonia»	.78	.61
Q2 «Depressed Mood»	.72	.52
Q3 «Sleep alterations»	.72	.52
Q4 «Fatigue»	.79	.62
Q5 «Appetite alterations»	.66	.44
Q6 «Feelings of worthlessness»	.64	.41
Q7 «Cognitive impairment»	.77	.60
Q8 «Psychomotor alterations»	.73	.53
Q9 «Suicidal ideation»	.40	.17
Eigenvalue	4.89	
% av varians	49	
Total varians	49	

Note; Factor loadings higher than 0.4 are in bold; Extraction method was likelihood method analysis, solution cannot be rotated seeing as though only one factor is extracted. Range = .38.

Reliability

Reliability tests indicated good reliability for all three of the multi-item scales used in the questionnaire. The ODI's results showed Cronbach's $\alpha = .89$. and McDonald's $\omega = .90$. This shows good reliability because it is over the threshold of .80 required in basic research, and is right on the .90 threshold, which indicated good results even more. When it comes to HADS the results showed .85 for both Cronbach's α and McDonald's ω . Lastly, Ostracism Short Scale showed Cronbach's $\alpha = .85$. and McDonald's $\omega = .86$.

Discriminant Validity

When it comes to discriminant validity Pearson's correlation analysis revealed, as expected, that occupational depression is positively correlated with general depression, $r = .66$ ($p < .001$). The correlation was high but still compatible with a degree of discriminant validity.

Criterion Validity

Regarding criterion validity all, but one small, correlations to the ODI were shown to be statistically significant (Table 4). The ODI had the highest correlation with workplace ostracism which showed a positive correlation of ($r = .42, p < .001$). That result was followed by a negative correlation with socioeconomic optimism ($r = -.31, p < .001$). These were followed by the positive correlation to sick leave ($r = .26, p < .001$). Thereafter came the positive correlation to verbal abuse ($r = .22, p < .001$). Followed by the positive correlation to sex ($r = .19, p < .001$). Then came the positive correlation to age ($r = .14, p < .05$). Followed up by the positive correlation with physical aggression ($r = .09, p < .05$). Lastly the smallest correlation which also was the only statistically non-significant was the negative correlation with job promotion ($r = -.07, p = .117$).

Table 4

Descriptive Statistics and Correlation to Test Variables (N=485)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. ODI	.63	.58	-									
2. General depression	2.09	.66	.66**	-								
3. Physical aggression	.07	.26	.09*	.02	-							
4. Verbal abuse	.29	.45	.22**	.09	.33**	-						
5. Workplace Ostracism	1.59	.69	.42**	.41**	.01	.19**	-					
6. Age	---	---	-.13*	-.11*	-.19**	-.18**	.03	-				
7. Sex	.31	.47	-.19**	-.08	-.01	-.02	-.02	.06	-			
8. Sick leave	.23	.42	.26**	.25**	.02	.06	.15**	.02	-.13*	-		
9. Job promotion	.20	.40	-.07	-.10*	-.06	-.02	-.05	-.11*	.04	-.04	-	
10. Socioeconomic optimism	2.46	.86	-.31**	-.32**	-.03	-.22**	-.24**	-.00	.07	-.15**	.05	-

** $p < .001$, * $p < .05$

Discussion

This study ($n = 485$) examined the structural and psychometric properties of the Norwegian version of the ODI, as well as inquiring into the ODI's correlates using both factorial and correlation analysis. The ODI reflects a new strategy for dealing with stress at work that focuses on depressive symptoms that are related to work. The results demonstrated in the study indicate satisfactory behavior of the ODI within the Norwegian context.

Main Findings

The Norwegian version of the ODI demonstrated strong factorial validity and demonstrated a one-factor solution, consistent with results obtained in other linguistic situations and geographic areas (Bianchi & Schonfeld, 2020; Bianchi & Fiorilli et al., 2022; Bianchi & Cavalcante et al., 2023; Hill et al., 2021). It is worth mentioning that the ODI has been proven in past research to fit the essential unidimensionality criterion while addressing nine different symptoms (Bianchi & Schonfeld, 2020; Bianchi & Fiorilli et al., 2022; Bianchi & Cavalcante et al., 2023; Hill et al., 2021). Meaning that each of the ODI's items evaluates a different symptom of severe depression. The finding that the item regarding fatigue/loss of energy was the most frequently reported and the item regarding suicidal ideation was the least frequently reported is in keeping with a pattern reported in previous ODI research (e.g., Bianchi & Schonfeld, 2020).

After using two different reliability metrics, it was discovered that the ODI's total-score reliability lay at around .90. The Cronbach's value is deemed as a good score, as it is right there on the threshold. There is also room to presume that the value is good, even though the value is on the smaller side than past research because the past research generally had larger samples than we could provide with limited resources that shows similar and more

positive results (Bianchi & Schonfeld, 2020; Bianchi & Cavalcante et al., 2023; Hill et al., 2021). These values are all more than adequate considering the threshold most commonly known, which is .70. However, research demonstrates that the .70 threshold is merely a “pretty” number with no real foundation (Lance et al., 2006; Marsh et al., 2020). In the field of scientific research, a threshold of 0.80 has been recommended. Given the potentially harmful effects of measurement error in such contexts, the recommended thresholds for applied clinical research have been considerably higher being set at 0.90 or even .95 (Nunnally & Bernstein, 1994). The fact that the ODI has high total-score reliability bodes well for its usage in public and medical health settings.

Regarding criterion validity, we found occupational depression to correlate positively with workplace ostracism, sick leave, and verbal abuse, with all these correlations being statistically significant with a p-value of .001. The next positive correlation was statistically significant with a p-value of .05, this correlation with occupational depression is with physical aggression. To give a brief explanation of a positive correlation, this means that the more you experience one variable the more you will experience another. For instance, the more workplace ostracism you experience the higher risk you have of developing occupational depression.

Workplace bullying is described as an instance in which a person is subjected to negative conduct from one or more people regularly over an extended length of time and that individual finds it challenging to protect themselves (Einarsen, 2000; Salin, 2003; Török et al., 2016). According to longitudinal studies with a follow-up within 1-2 years have shown that bullying has been linked to a number of detrimental psychological health effects, this is including anxiety, sleep issues, and depression (Einarsen & Nilsen, 2015; Gullander et al.,

2014; Reknes et al., 2014; Török et al., 2016; Verkuli et al., 2015). These acts of bullying can consist of workplace ostracism and verbal abuse. Additionally, research demonstrated that social exclusion at work had long-lasting impacts as it elevated the likelihood of mental illness symptoms even after a 3–6-year follow-up period for individuals who experienced it (Einarsen & Nilsen, 2015; Lahelma et al., 2012; Stoetzer et al., 2009; Török et al., 2016).

Sick leave can help to both alleviate and elevate occupational depression. Sick leave can help improve an individual's mental state and built-up pressure. For instance, if the amount of pressure and stress a person experiences at their workplace builds up to an insufferable amount, sick leave is necessary to ensure that the individual does not succumb to the pressure and develops occupational depression or suicidal ideation. The sick leave can help the individual to tend to their mental health before burning themselves out. However, oftentimes sick leave is not something people use before they absolutely need it. Therefore, sick leave can also act as a factor to elevate occupational depression. As well as the fact that multiple studies have shown that returning to work after an extended period of time due to mental health is challenging in itself (Endo et al., 2019; Wagman et al., 2023).

Sick leave due to mental health reasons creates big economic costs for companies (Keshavarz et al., 2022). An estimation of 12 billion workdays is lost every year across the world due to depression and anxiety. These lost workdays sum up to a cost in lost productivity with a total of 1 trillion us dollars (World Health Organization, 2022). Therefore, it might be more productive for companies to help the employees with the treatment of depression rather than having to lose money to sick days and loss of productivity. It has been proposed that companies may save enough money by treating depressed employees to cover the costs of treatment as well as to earn back even more (Goetzel et al., 2002; Klerman &

Weissmann, 1992; Simon et al., 2001; Zhang et al., 1999). A study from 1994 showed depression to be the type of mental illness which was the most common reason for taking sick leave up until that point (Conti & Burton, 1994). Furthermore, depressive disorders were demonstrated to have a greater average length of sick leave in comparison to other mental disorders. As well as to have a fallback, meaning taking sick leaves for the same reason multiple times (Conti & Burton, 1994). These numbers may have varied over the years, however, it still seems reasonable to presume that it would be beneficial for the companies on a financial level to offer treatment to depressed employees, rather than to lose money due to sick leave and loss of productivity. As well as for the individual experiencing depression it would prove much more beneficial to receive treatment rather than having to fall back into sick leave and lose stable pay.

On the other side of criterion validity, occupational depression had negative correlations with socioeconomic optimism and job promotion. To give a brief explanation of a negative correlation, this means that the more you experience one variable the less you will experience another. For instance, this means that the fewer job promotions are available to you the more work-related depression symptoms you will experience. However, it should be noted that the correlation between occupational depression and job promotion was not statistically significant, as well as the fact that this correlation is very small. The findings listed are similar to previous research done on the ODI in countries such as Italy, South Africa, and Brazil (Bianchi & Fiorilli et al., 2022; Bianchi & Manzano et al., 2022, Hill et al., 2021). The correlations discovered between the ODI, and the previously mentioned variables enhance the nomological network of the ODI and support its criterion validity.

To expand further onto the variable regarding socioeconomic optimism and its correlation to occupational depression there has been done substantial research as to the effect of dispositional optimism on both physical and psychological distress (Giltey et al., 2016; Scheier et al., 1989; Scheier et al., 1994; Scheier & Carver, 2018). Dispositional optimism can be explained as the largely consistent tendency to anticipate positive outcomes in significant life domains (Giltey et al., 2016; Scheier & Carver, 2018). Dispositional optimism is a recurring personality feature (Scheier & Carver, 2018).

A study demonstrated that pessimism (the opposite of optimism) was significantly linked with depressive symptoms (Roy et al., 2010). Furthermore, dispositional optimism has been demonstrated to protect against the development of depressive symptoms, as was shown by a longitudinal study that took place for 15 years (Giltey et al., 2006). What this past research can show us is that if you are optimistic about the future, you have less risk as to develop depressive symptoms. This can be applied to socioeconomic optimism. If you are more optimistic about your economic future, you are less likely to develop occupational depression. Therefore, to flip the example on its head, if you are not optimistic about your economic future this may lead to more career stress and therefore may lead to occupational depression.

Regarding the variable of job promotion and its small correlation to the ODI, one might wonder if the size of the correlation can be explained by the Norwegian work culture. Job promotions do not seem to hold as much weight or value in Norwegian work culture as they might do in other countries and cultures. It seems to be more common to work towards an end-of-the-year bonus rather than work towards a job promotion. However, more research

is needed to clarify the possible role of such cultural specificities in the link between job promotions and work-related well-being.

The ODI has numerous benefits for both occupational health research and practice (Bianchi & Verkuilen et al., 2023). The ODI is based on depression research, more specifically clinical depression research, therefore the ODI benefits from the knowledge already acquired in this long-established field of study. Depressive symptoms have long been recognized as fundamental responses to unresolvable stress (Pryce et al., 2011; Willner et al., 2013). Work-related adversity has been linked to increased depressive symptoms and a higher chance of developing depressive disorders (Andresen, 2022; Barron, 2019). Which reinforces the foundation of the ODI's initial thought. Burnout metrics do not have the same clinical footing (Bianchi et al., 2021a; Bianchi & Sowden, 2022). There does not seem to be any agreement amongst researchers and practitioners on firstly, what is composed in a case of burnout and secondly, how an instance like that could be diagnosed (Bianchi et al., 2017a; Bianchi et al., 2017b; Rotenstein et al., 2018; Schwenk & Gold 2018).

Another benefit of the ODI is that, unlike burnout measures, the ODI evaluates work-related suicidal ideation, which is a risk factor for suicide (Howard et al., 2022; Just et al., 2017). It is extremely important to evaluate suicidality related to the workplace so the ODI also can be used to prevention from suicide to happen. Around 650 people commit suicide every year in Norway, while around 6500 people are left affected by association with these suicides (Folkehelseinstituttet, 2022). By addressing workplace issues that affect suicide risk and encouraging psychological well-being and help-seeking, companies can contribute to upstream suicide prevention. Unfortunately, many businesses are ill-equipped to handle postvention—the aftermath of an employee's suicide death—or the mental health

requirements of their staff (Howard et al., 2022). This lack of preparation is partly due to a shortage of academic research and the resulting insufficient knowledge of the relationship between work-related issues and suicide (Howard et al., 2022). However, this issue is something the ODI can help to assist on. The ODI can be used by companies and employers to be at the forefront of occupational depression and help prevent occupational depression go as far as to become suicide ideation or prevent suicide from happening by catching the individuals and helping them before it gets to that point.

A third benefit is that the ODI can identify people who are likely experiencing a work-related depressive disorder, despite being brief and simple to employ (Bianchi & Schonfeld, 2020; Bianchi & Schonfeld, 2021b). As was already stated, there is no proven method for detecting or diagnosing burnout. Burnout's diagnostical uncertainty makes it difficult to estimate its frequency (Bianchi et al., 2017a; Bianchi et al., 2017b; Bianchi & Schonfeld, 2021a; Bianchi & Sowden, 2022; Rotenstein et al., 2018). Burnout cannot be diagnosed, which has made it difficult to make decisions in medicine and public health.

A final benefit for the ODI is that it demonstrates great reliability and excellent validity, as again demonstrated by the present study, and is freely available, in contrast to the most widely used measure of burnout, the MBI (Bianchi & Cavalcante et al., 2023).

Limitations

This study is not without its limitations. First, the representativeness of the study sample is unclear. Seeing as though we relied on a convenience sample. We may also have accidentally gathered a sample of individuals that are experiencing a high level of job stress. Here it should be noted that after conducting the full study and analysis of the sample, this

seems to be unlikely in light of the fact that the sample was shown to be quite healthy. Implementing approaches that increase sample representativeness, such as random sampling, is very expensive and frequently impractical (for example, because the population of interest cannot be correctly circumscribed or comprehensively reached). Such techniques are infrequently applied in both occupational and clinical health sciences.

A second limitation that could be considered is that our research is based on self-reported data. Self-reported assessments are susceptible to response biases, an example of this being social desirability bias. Having said that, it is widely established that self-reported measures are predictive of objective outcomes (Grober et al., 2007; Kachi et al., 2020). For example, perceived professional stress is linked to actual turnover. Patients' inputs, in general, are important sources of information for researchers and practitioners in identifying symptoms, etiological pathways, therapeutic efficacy, and side effects. Furthermore, several of our questions were retrospective in nature, which improves the clarity of cross-sectional designs.

A third limitation is the use of single-item measures to evaluate some of our variables of interest. Whilst multiple-item measures are often thought to be more reliable, there is evidence suggesting single-item measures are an adequate measurement strategy for many organizational science domains (Allen et al., 2022; Matthews et al., 2022).

A fourth limitation of this study could be that the relationship between depression and burnout was not examined in our study. Fortunately, previous research, notably ODI-based research, has addressed this topic extensively (Bianchi & Schonfeld, 2021a; Bianchi &

Schonfeld, 2021b; Bianchi & Sowden, 2022). Many times, the benefits of relying on the idea of occupational depression have been explored.

Then finally, whilst cross-sectional data are adequate for validation research that is not concerned with causation issues, longitudinal data could potentially provide insights concerning the impact of occupational depression on both non-work and work factors over a period of time.

Conclusion

In this study, the Norwegian version ODI was closely examined. The findings demonstrates that the instrument has high structural and psychometric qualities. The outcomes of this study are consistent with a growing body of evidence showing that occupational health professionals can effectively use the ODI to look into job-related distress.

Depression causes work impairment, lowers work-life expectations, and predisposes people to attempt and succeed in suicide. The ODI seems to be a helpful tool for occupational health specialists trying to address the problem of occupational depression workplace.

With the ultimate goal of promoting mental health and welfare in the workplace, the ODI is an evaluation tool created to gauge the frequency and severity of depressive symptoms in various work situations.

Employers who use this inventory can spot workers who could be depressed and offer them the resources and support they need to deal with their condition. This may result in greater job satisfaction, better performance, and productivity, as well as lower absence and turnover rates.

The Occupational Depression Inventory is a tool that can help in recognizing and treating mental health disorders in the workplace, building healthier and more productive work environments, and boosting employees' general well-being. Employers should proactively address any mental health difficulties and foster an environment that prioritizes employee well-being by integrating the ODI into regular workplace reviews.

It is challenging to foresee exactly how Norwegian workplace culture will react to the Occupational Depression Inventory. But it's crucial to remember that Norway has a forward-thinking, inclusive workplace culture that prioritizes its workers' wellbeing.

This could result in the Occupational Depression Inventory being well-received as a tool for identifying and resolving workplace mental health issues. Furthermore, Norwegian workers are often receptive to talking about mental health issues and obtaining assistance when necessary. The Occupational Depression Inventory should, however, be used in accordance with Norwegian privacy legislation and ethical standards for psychological evaluations.

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