Introduction

The classic quote ‘hell is other people’ from Sartre’s play ‘No Exit’ [1] alludes to the discomfort that most people occasionally feel when they are around strangers and cannot leave the situation. In the original play, the impossibility of escaping from human contact is symbolized by a peculiar vision of hell; i.e. a room in which strangers are locked together for eternity. Similarly, the scientific literature on service occupations has identified interpersonal contacts with non-familiar others, coupled with an inescapable situation, as a major stressor [2–4].

Frequent service interactions with strangers may even increase depressive symptoms and lead to more absence from work [5]. In this paper, we investigated gender differences in the relationship between interactions with strangers in the workplace and the likelihood of severe depression necessitating rehabilitation. We emphasized that the emotional tones that accompany every act of typical interactions at work are relevant to the onset of depression.

We focus on clinically diagnosed depression because this is the most frequent mental disorder among employees (6.6% 12-month prevalence rate in the US population [6]). Depression pervades a person’s entire life, and high rates of chronic depression [7] are related to increased unemployment and early retirement [6]. Social systems invest heavily in measures that seek to reintegrate depressed individuals into the labor market, which is a costly and time-consuming endeavor for the depressed patient, and full reintegration is difficult to achieve [8]. Nonetheless, reintegration should be the goal for those who suffer from depression, as it benefits society, employers and the depressed patient.

This problem of reintegration necessitates research on the risk factors of depression, with an emphasis on gender [9]. Epidemiological studies indicate that the prevalence and incidence of unipolar depressive disorders among women are approximately twice the rates among men [10].

Understanding Workplace Characteristics in Relation to Rates of Depression

Aside from personal factors such as gender, diathesis-stress models of depression suggest that environmental stressors are a necessary condition for the onset of depression [7,11–13]. The literature has reported that elevated rates of depression in some occupations are due to occupation-specific emotional stressors (e.g. [14–16]). Accordingly, occupations that involve frequent interactions with other people may entail higher rates of depression because these occupations involve strong emotional stressors.

Other authors have theorized that gender may influence rates of depression, as men and women handle emotional stressors differently, i.e. have different resources [17–19]. Women have been found to handle emotions with more functional strategies rather than men [20,21]. For example, they display emotions more openly but also avoid negative emotions through withdrawal, compromise or indirect actions instead of direct, assertive actions, which are suggested to be more prominent in males [19].
Interactions with the public are stressful because they require and hide negative emotions [2,4]. These factors imply that these interactions are characterized by short-term personal reasons: first, these interactions are asymmetrical in that the interactions with the public as emotional stressors for a variety of stressors of neutral tone. Occupational research has identified customers, clients, a government, or the general public), are focusing on the emotional tones of the interpersonal stressors.

Interactions with the public, including all interactions of an orientation occupations. However, recent studies have shown that females seem to use both positive and negative strategies more often than men [24], and this finding may be interpreted to indicate that females engage in emotional work more often than men [24], may derive more benefit from emotional work [25], or may be more sensitive to environmental factors, which would increase the necessity of emotion regulation [26]. Similarly, females have been suggested to be more sensitive to others’ emotions [i.e., more emotionally intelligent; [27]].

Confounding these results, the literature has generally concluded that work environments influence the onset of depression and that gender differences in the handling of interpersonal emotional stressors may be related to gender differences in the onset of depression. It seems incongruent that, although females have a higher average prevalence of depressive disorders and also work in occupations that seem to produce higher numbers of depressed individuals, females may succeed in these occupations more often because they use functional strategies for dealing with emotions more often than males.

We sought to explain a portion of these conflicting findings by focusing on the emotional tones of the interpersonal stressors. Interactions with the public, including all interactions of an employee with various outsiders to the organization (e.g., customers, clients, a government, or the general public), are stressors of neutral tone. Occupational research has identified interactions with the public as emotional stressors for a variety of reasons: first, these interactions are asymmetrical in that the employee’s position is inferior to that of their counterpart; second, these interactions are characterized by short-term personal interactions that are often anonymous and unidirectional; and third, employees are usually required to exhibit positive emotions and hide negative emotions [2,4]. These factors imply that interactions with the public are stressful because they require emotional work, which may lead to feelings of discomfort. Nonetheless, we suggest that the predominately neutral emotional tone of these interactions allow for individuals to cope with these stressors in functional manners, depending on their resources. We hypothesize that for males, interactions with the public relate positively with rates of depression diagnoses, whereas the relationship may be non-significant or negative for females.

Conversely, conflictual contact is negative in emotional tone and may make functional coping difficult. Therefore, this type of contact should increase the rates of depression in occupations where it occurs frequently. Conflictual contact is characterized by contentious exchanges, hostility, or aggression [28]. Conflictual contact is strongly related to the negative emotions of employees [29]. For some occupations, interactions with outsiders or strangers frequently involve rude or aggressive behaviors [2,12]. Conflictual contact has been suggested to be particularly harmful to employee wellbeing [4]. Recent research has raised awareness that conflictual contact as a stressor at work impairs functional strategies of emotional coping [30,31]. Furthermore, beginning with the earliest depression research, it has been suggested that conflict increases internalized negative emotions (e.g., anger) that may lead to depression [32]. Therefore, we see conflictual contact as a strong emotional stressor that increases discomfort for those who work and also restricts the potential functional coping strategies of employees (i.e., our framework is similar to the strong situation hypothesis of [33,34]). Based on these findings, we further suggest that females’ functional handling of emotional stressors may be advantageous in occupations that involve frequent interactions with the public but not in occupations that involve frequent conflictual contact. We hypothesize that conflictual contact in an occupation relates positively to rates of depression diagnoses.

### Table 1. Means and standard deviations of study variables.

| Variable                      | M (initial) | SD (initial) | M (dropped) | SD (dropped) | M (final) | SD (final) |
|-------------------------------|-------------|--------------|-------------|--------------|-----------|------------|
| Age                           | 49.14       | 9.41         | 49.28       | 9.54         | 48.94     | 9.22       |
| Gender                        | .52         | .50          | .43         | .50          | .64       | .48        |
| Trainee                       | .01         | .09          | .01         | .09          | .01       | .10        |
| Unskilled blue-collar worker  | .17         | .37          | .16         | .37          | .18       | .38        |
| Skilled blue-collar worker    | .24         | .43          | .16         | .37          | .35       | .48        |
| Foreman                       | .01         | .10          | .01         | .08          | .01       | .12        |
| White-collar worker/civil servant | .38     | .49          | .35         | .48          | .43       | .50        |
| Self-employed                 | .03         | .16          | .04         | .19          | .01       | .09        |
| Full-time without shiftwork/piecework/night shift | .43 | .49 | .20 | .40 | .74 | .44 |
| Full-time with shiftwork/piecework | .10 | .30 | .05 | .22 | .18 | .38 |
| Full-time with night shift    | .43         | .20          | .02         | .14          | .08       | .27        |
| Depression Diagnosis          | .07         | .25          | .07         | .25          | .07       | .25        |
| Proportion of men             | .67         | .29          |             |              |           |            |
| Conflictual contact           | 2.43        | .49          |             |              |           |            |
| Interactions with the public  | 2.95        | .84          |             |              |           |            |

Note. Initial sample N = 187,936 individuals. Dropped sample N = 111,373 individuals. Final sample N = 76,563 individuals in K = 195 occupations. Age is indicated in years. Variables 2 to 12 are dichotomous, and mean values represent proportions. Gender: 0 = female, 1 = male. Depression diagnosis: yes = 1, no = 0. doi:10.1371/journal.pone.0103501.t001
### Table 2. Pearson Correlations between Variables at the Individual (below the diagonal) and Occupational Levels (above the diagonal).

| Variable                                      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  |
|-----------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. Age                                        |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 2. Gender                                     | .04*** |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 3. Trainee                                    | -24*** | -02*** |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 4. Unskilled blue-collar worker                | .04*** | -01** | -05*** |     |     |     |     |     |     |     |     |     |     |     |     |
| 5. Skilled blue-collar worker                  | .01** | .29*** | -07*** | -35*** |     |     |     |     |     |     |     |     |     |     |     |
| 6. Foreman                                    | .02*** | .07*** | -01** | -06*** | -09*** |     |     |     |     |     |     |     |     |     |     |
| 7. White-collar worker/civil servant           | .01 | -31*** | -09*** | -41*** | -65*** | -10*** |     |     |     |     |     |     |     |     |     |
| 8. Self-employed                              | .00 | .02*** | -01** | -05*** | -07*** | -01** | -08*** |     |     |     |     |     |     |     |     |
| 9. Full-time without shiftwork/piecework/night shift | .04*** | .01*** | .03*** | -16*** | .00 | .01*** | .11*** | .03*** |     |     |     |     |     |     |     |
| 10. Full-time with shiftwork/piecework         | -03*** | .01*** | -02*** | .14*** | .00 | -01*** | -10*** | -03*** | -80*** |     |     |     |     |     |     |
| 11. Full-time with night shift                 | -02*** | .04*** | -02*** | .06*** | .00 | .00 | .04*** | -01*** | -49*** | -13*** |     |     |     |     |     |
| 12. Depression Diagnosis                      | -03*** | -13*** | -00 | -01 | -07*** | -01 | .08*** | -01*** | -01*** | 01*** | -00 | -66*** | .20*** | .33*** |     |
| 13. Proportion of men                          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 14. Conflictual contact                        | .85 | .47*** |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 15. Interactions with the public               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

Note. N = 76,563 individuals in K = 195 occupations.

Age is indicated in years. Gender: 0 = female, 1 = male. Depression diagnosis: yes = 1; no = 0. The reliabilities (i.e., the α coefficients) of the scales are italicized in the diagonal where applicable. *p < .05. **p < .01. ***p < .001. doi:10.1371/journal.pone.0103501.t002
Methods

Data
The analyses used combined data from the German Statutory Pension Insurance (GSPI) agency from 2009 and the Occupational Information Network (O*NET) database (status July 2012). The GSPI dataset is available as a scientific use file and can be obtained at http://forschung.deutsche-rentenversicherung.de/ForschPortalWeb/. All information provided by the agency is completely anonymous.

The GSPI is the largest provider of medical rehabilitation benefits in Germany. In 2009, 39.5% of all inpatient medical rehabilitation benefits were financed by the GSPI. This dataset provides a sample of approximately 20% of all statutory pension insurance medical rehabilitation cases in 2009. The sample was randomly drawn by the pension insurance. The data consist of administrative data that were collected for documentation purposes. Among other information, this dataset contains demographic information, medical diagnoses, and most recent occupation. The O*NET database provides detailed descriptions of a total of 900 different occupations within the US workforce, including work descriptions and characteristics. The data were gathered from a variety of sources including job incumbents, supervisors and occupational experts. Such data are currently unavailable in Germany.

In combining these datasets, we adjusted the data as follows: we included only individuals of working age (16–65 years) who were personally insured (rather than being insured through a spouse or child) and had completed one medical rehabilitation measure in 2009 (n = 187,936). We then paired every German job title in the GSPI dataset with a counterpart in the O*NET dataset. Two coders used both US job descriptions from the O*NET and job descriptions from the German Federal Employment Agency (inter-rater reliability: Cohen’s  \( \kappa \) = .81). Occupations that could not be

| Table 3. Results of Cross-Level Analyses to Predict Depression Diagnoses in Full-Time Employees. |
|---------------------------------------------------------------|
| Variable | Null model | Model 1 | Model 2 | Model 3 |
| OR [95% CI] | OR [95% CI] | OR [95% CI] | OR [95% CI] |
| Individual | | | | |
| Intercept/constant | .06 [0.05,0.07] | .08 [0.06,0.12] | .08 [0.06,0.11] | .11 [0.08,0.16] |
| Gender | .55 [0.51,0.59] | .47 [0.41,0.53] | .21 [0.13,0.33] |
| Age (centered) | .99 [0.98,0.99] | .99 [0.98,0.99] | .99 [0.98,0.99] |
| Occupational status | | | | |
| Skilled blue-collar worker | | | | |
| Trainee | .61 [0.44,0.85] | .61 [0.43,0.85] | .61 [0.43,0.85] |
| Unskilled blue-collar worker | 1.26 [1.14,1.38] | 1.23 [1.12,1.35] | 1.22 [1.11,1.34] |
| Foreman | 1.48 [1.13,1.94] | 1.50 [1.14,1.97] | 1.50 [1.14,1.97] |
| White-collar worker/civil servant | 1.20 [1.10,1.31] | 1.19 [1.09,1.30] | 1.19 [1.09,1.30] |
| Self-employed | .62 [0.41,0.95] | .62 [0.41,0.95] | .62 [0.40,0.94] |
| Scope of work | | | | |
| Full-time without shiftwork/piecework/night shift | | | | |
| Full-time with shiftwork/piecework | 1.14 [1.05,1.23] | 1.13 [1.04,1.22] | 1.14 [1.05,1.23] |
| Full-time with night shift | 1.17 [1.04,1.31] | 1.16 [1.04,1.30] | 1.17 [1.04,1.31] |
| Occupational conflictual contact | 1.14 [1.00,1.30] | 1.15 [1.02,1.29] | 1.12 [0.97,1.28] |
| Interactions with the public | 1.02 [0.93,1.11] | 1.02 [0.93,1.11] | .94 [0.85,1.04] |
| Proportion of men | .49 [0.39,0.61] | .62 [0.49,0.78] | .63 [0.50,0.79] |
| Interaction Terms | | | | |
| Gender*Conflictual contact | 1.09 [0.88,1.35] | 1.09 [0.88,1.35] | 1.09 [0.88,1.35] |
| Gender*Interactions with the public | 1.21 [1.05,1.39] | 1.21 [1.05,1.39] | 1.21 [1.05,1.39] |
| Random effects | Est. [95% CI] | Est. [95% CI] | Est. [95% CI] | Est. [95% CI] |
| Intercept SD | .55 [0.06,0.07] | .22 [0.16,0.29] | .18 [0.11,0.29] | .16 [0.10,0.27] |
| Slope (Gender) SD | .35 [0.24,0.49] | .35 [0.24,0.49] | .28 [0.17,0.44] |
| Intercept-Slope Correlation | −.38 [−.77,0.19] | −.12 [−.69,0.34] | |
| ICC | .08 | .08 | .08 | .08 |
| Log Likelihood | −18443.58 | −18109.09 | −18096.70 | −18089.47 |
| LR-Test | |

Note. Occupations were included if n>10. The largest group included n=8,740 individuals. OR=odds ratio; values below 1 indicate reduced, and values above 1 indicate increased depression diagnoses. 95% Confidence Intervals (CI) indicate the significance of these analyses if 1 is excluded (OR) or if 0 is excluded (Estimates in the random effects part of the table).

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clearly matched with an O*NET occupation were excluded from the pension insurance data (80 occupations, n = 22,412). A total of 207 matching occupations were identified. We also dropped cases with missing values for the occupational variable (n = 43,064) and cases in which the individual was unemployed (n = 24,478). Additionally, we excluded individuals who were not employed full-time (n = 19,806) at the time of application for medical rehabilitation based on the argument that the occupational stressors must be sufficiently intense to influence the onset of depression [12]. Additionally, cases without a rehabilitation diagnosis (n = 1,551) were excluded from the dataset. Finally, to avoid biases due to small groups, we excluded all occupations for which we found less than 10 cases (12 occupations, n = 62). Our final sample contained n = 76,563 cases, which were nested into 195 occupations. 63.7% of the individuals were male. The average age was M = 48.9 (SD = 9.2). In Table 1, we present the means and standard deviations of the study variables for both included and excluded cases.

Measures

Depression diagnosis. The pension insurance dataset provides rehabilitation diagnoses that were assessed by the attending physician in the rehabilitation hospital according to the criteria of the International Classification of Diseases (ICD), 10th edition. For our analyses, we used the primary diagnosis; i.e., the diagnosis with the greatest importance for the rehabilitation measure that was granted. From this diagnosis, we generated a dichotomous variable which we found less than 10 cases (12 occupations, n = 62). Our final sample contained n = 76,563 cases, which were nested into 195 occupations. 63.7% of the individuals were male. The average age was M = 48.9 (SD = 9.2). In Table 1, we present the means and standard deviations of the study variables for both included and excluded cases.

Individual-Level Covariates

The pension insurance dataset provided gender as a covariate. Additionally, a number of control variables could be derived from the dataset including age, work status, and job position. We controlled for age as a risk factor because the prevalence of depression increases during working life [35]. We used work status to control for different levels of work strain from shift work [36].

This variable distinguishes between “full-time without shiftwork/piecework/night shifts”, “full-time with shiftwork/piecework”, and “full-time with night shifts”. We used job position as a proxy for socioeconomic status, which has been related to depression in previous research [37]. The possible job positions were trainee, unskilled blue-collar worker, skilled blue-collar worker, foreman, white-collar worker/civil servant, and self-employed. Both work status and job position were self-reported by the rehabilitation patient and refer to the date of application for rehabilitation, which preceded the initiation of the actual rehabilitation measure (including the diagnosis) by 45 days on average.

Occupational-Level Covariates

Interactions with the public were measured using three O*NET items that assessed the importance of interactions with the public within each occupation [2]. These items were as follows: 1) “deal with external customers – how important is it to work with external customers or the public in this job?”; 2) “communicating with people outside the organization – communicating with people outside the organization, representing the organization to customers, the public, or the government, and other external sources. This information may be exchanged in person, in writing, by telephone, or by e-mail”; and 3) “performing for or working directly with the public – performing for people or dealing directly with the public. This includes serving customers in restaurants and stores and receiving clients or guests”. The importance levels of these activities within an occupation were rated by job incumbents or occupational experts on a 5-point scale ranging from “Not Important” (1) to “Extremely Important” (5). We combined these three items into an overall score for interactions with the public. The alpha coefficient was ω = .90.

Confictual contact was measured using three O*NET items that we identified as referring to the amount of conflictual contact entailed by each occupation. These items were as follows: 1) “frequency of situations of conflict – how often does the employee face situations of conflict in this job?”; 2) “dealing with unpleasant or angry people – how frequently is the worker required to deal with unpleasant, angry, or discourteous individuals as a part of their job?”; and 3) “deal with physically aggressive people – how frequently does this job require the worker to deal with the physical aggression of violent individuals?” The frequencies of these situations were rated by job incumbents or occupational experts for each occupation on a 5-point scale, which ranged from “Rarely - includes once a year or less” (1) to “Frequently - includes daily, several times a day, hourly or more” (5). These three items were combined into an overall conflictual contact score. The alpha coefficient for this scale was ω = .85.

As a control variable at the occupational level, we used the proportion of men in each occupation, which was provided by the 2009 employment statistics of the German Federal Employment Agency, to indicate whether each occupation was predominantly entered by males or females across the general population. We included this variable to protect against ecological fallacies in the cross-level interaction effects [38].

Statistical Analyses

It is our goal for this paper to investigate contextual effects of the occupational environment on individuals who work in these occupations [39]. Multilevel regression modeling is a methodology for analyzing data with a focus on the decomposition of variance in nested data, for example for data concerning employees in occupations [40,41]. We use logistic regression due to the dichotomous nature of our outcome (depression diagnosis yes/no). By considering the nested structure of the data, multilevel...
Results

logistic regression modeling allows us to separately investigate relationships between individuals and of occupations, as well as interactions between both levels on individuals’ depression diagnoses. Analyses were done using STATA (version 12). Variables were included in the final model based on theoretic considerations.

Table 4. Interpretation of the interaction finding in a demand-resource-congruence framework.

| Interactions with the public | Low | high |
|-----------------------------|-----|------|
| Exemplary occupations*     | All sorts of manufacturing such as tire builders (197) or rock splitters* (180), furnace, kiln, oven, drier, and kettle operators and tenders* (195), locomotive engineers (155), cooks in a restaurant (149), mathematicians* (140), or chemists (138) | Police patrol officers* (1), sales agents (travel, real estate, insurance), healthcare social workers* (7), reporters (11), hairdressers (13), registered nurses* (27), actors* (38), or chief executives* (45) |
| Occupation-specific stressors | Stressors from work organization, repetition, decision latitude, etc. | Emotional stressors |
| Necessary resources for handling these stressors | Individual behavioral strategies such as individual agency, direct action and assertiveness [19]. | Interpersonal emotion focused behavioral strategies such as withdrawal, cautious or indirect action, or compromise [19]. |
| Gender-specific resources | Studies indicate higher individual behavioral strategies [19] and individual instrumental resources, for example relationships with higher status individuals, within men compared with women [43,51]. | Studies indicate higher levels of interpersonal behavioral strategies and socio-emotional resources within women compared with men [17,20,27,52], but also repressed emotionality as a negative resource within men compared with women [18,19]. |

| Congruence of Occupation specific stressors and gender specific resources [44,53–55] | High congruence within males, low congruence within females | Low congruence within males, high congruence within females |

Note. *K=197 occupations in the dataset. These were ranked according to amount of interaction with the public; low/high numbers indicate low/high interaction with the public. As an illustration, we additionally indicate the amount of conflictual contact in an occupation if it is especially high (*) or low (*).

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Results

The correlations between the study variables and the descriptive statistics are illustrated in Table 2. Regarding individuals’ risks of depression diagnoses, 8.4% of the variation in depression diagnoses could be attributed to occupational level (Null Model, Table 3). The results from a random intercept model (Model 1, Table 3) that included all covariates and control variables in which the intercept was allowed to vary randomly across occupations revealed an intercept of OR = 0.8 and a standard deviation of the associated random effect of SD = 0.22 (Model 1, Table 3). This result indicates that a proportion of 7% of all diagnoses were depression diagnoses (Proportions are calculated 𝑃 = 𝑂𝑅/1+𝑂𝑅 [38]), and the average risk for a diagnosis of depression compared to other diagnoses varies across occupations. Moreover, these results indicate that the males had a reduced risk of depression diagnosis compared to the females (1 = male, 0 = female; OR = 0.55, p<.001) – men were diagnosed with a proportion of 36% of all depression diagnoses. In occupations with high conflictual contact there was a slightly elevated risk of depression diagnoses (OR = 1.14, p<.05). For individual level control variables, odds ratios below one for the occupational groups “trainee” and “self-employed” indicate reduced depression rates in these occupational groups compared with skilled blue collar workers, whereas all other occupational status groups show increased depression rates. Considering scope of work, both shiftwork with and without night shift increase depression rates compared with work without shift work. For the proportion of males in an occupation as an occupational level control variable, results indicate that rates of depression diagnoses are reduced in occupations with high male labor force.

Using a random slope model (Model 2, Table 3), we investigated whether the gender effects on the relative risk for a depression diagnosis varied randomly between occupational groups compared to other diagnoses. The results revealed considerable slope differences between occupations with a standard deviation of the slopes of gender between occupations of SD = 0.35 (p<0.05). Ninety-five percent of the gender slopes ranged between OR = 0.23 (indicating strong differences between male and female slopes) and OR = 0.93 (indicating little differences, calculated and exponentiated from logit values and standard deviations). These results indicate that – if at all – only few
occupations exist in which males have higher proportion of depression diagnoses than females, but nonetheless, there is large variation. The negative correlation between slope and intercept in the random effects model indicates that occupations with higher rates of depression diagnoses (irrespective of gender) also tend to have more similar slopes for individuals of both genders. The random slope model produced an improved model fit (Likelihood ratio test: $\chi^2 = 24.79$, $DF = 1; p<.001$) compared with that of the random intercept model.

Finally, we specified cross-level interaction effects between gender and the occupational-level variables of conflictual contact and interactions with the public to test the extent to which the different effects of gender across occupations depended on these occupational attributes. The results (Model 3, Table 3) revealed a positive influence of the interaction between gender and interactions with the public on depression diagnoses ($OR = 1.21$, $p<.01$).

We plotted this effect in Figure 1. The plot shows that the relationship between interactions with the public and depression diagnoses is negative among women but positive among men. These results extend our interpretation from model 2. To inspect the nature of the interaction effect we calculated odds for men compared with women to be diagnosed with depression at various times of the cross-level interaction.

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This study has practical implications because full remission after depression is difficult to achieve, and residual sub-threshold symptoms increase the likelihood of chronic depression [50]. Thorough knowledge of the factors that increase the risk of depression may therefore be important for both employers and employees. We suggest that individuals may focus on their resources and compare these to typical occupational stressors. For example, this knowledge could be beneficial to many western societies that are dealing with demographic changes and shortages of skilled professionals. In Germany, shortages of specialized laborers in a number of occupations are expected, and these occupations include those that were found to be related to greater risks of depression (e.g., registered nurses). For employers of employees in occupations with high risks of depression diagnoses, these results may provide an impetus to build the emotional resources that help employees cope with these stressors [19].

**Author Contributions**

Analyzed the data: AW SF. Contributed reagents/materials/analysis tools: AW SF WR. Wrote the paper: SF AW LD. Obtained access to the dataset: JM.

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