**Work environment and mental health in nurse assistants, nurses and health executives: results from the AMADEUS study.**

Running title: work environment and mental health in healthcare workers

**Abstract** (limited 200 words)

Aim. To explore work environment and mental health in nurse assistants, nurses and health executives in a national large-scale study.

Background. We have data for physicians but not for other healthcare workers categories.

Methods. 6935 participants were recruited between 2021 May and June by professional mailings and professional networks.

Results. All professional categories reported high rates of high psychological demand (>90%), low social support (>60%) burnout (50 to 60%), exposure to potentially morally injurious events (>40%) depression (approximately 30%). Surgery nurses reported the highest exposure to potentially morally injurious events. Major depression was identified in approximately 30% of participants in all categories but less than 10% reported consuming antidepressants. 31 to 49% of participants reported sleep disorders and 16 to 21% reported consuming regularly hypnotics. Physicians reported high hazardous drinking behavior and nurse assistant high smoking rates.

Conclusions and Implications for Nursing Management. Our results suggest that preventing burnout and depression in healthcare workers is a priority. To reach this goal, nursing managers could develop some interventions to reduce psychological demand and increase personal accomplishment and social support between colleagues, prevent sustained bullying at the workplace and health risk behaviors. These interventions should be further developed and evaluated.

**Keywords:** mental health; psychiatry; mood disorders; depressive disorders; nursing; burnout.

**1. Introduction**

The World Health Organization recognizes work as a major social determinant of physical and mental health (World Health Organization, 2021a). Job-related factors such as wages, work hours, workload, interactions with co-workers and supervisors, and access to paid leave impact the well-being of workers, their families, and their communities (CDC, 2021).

Healthcare workers is a population at risk of major depression and this risk has increased during the Covid-19 pandemics (Marvaldi et al., 2021). While we have reported approximately 8.7% of depression in our recent study carried out in young physicians(Fond, Boulangeat, et al., 2021), we lack data on the prevalence of depression in other health professional in France. Evaluating depression in healthcare workers is important for the prevention of absenteeism(Eßl-Maurer et al., 2021). Absenteeism is frequent in healthcare workers, inducing a vicious circle due to increased burden in hospital care(Banks & Pearson, 2021). Among professional factors associated with depression, burnout has been the most studied and consistently associated with increased risk of depression(Koutsimani et al., 2019). We have found a prevalence of 50% of burnout in a meta-analysis including more than 15000 physicians(Kansoun et al., 2019) but we lack data for French healthcare workers. We have also identified other professional factors associated with increased risk of burnout. In our previous studies, we have shown that sustained bullying at the workplace exposure, sexual harassment and sexual-orientation-based discrimination were associated with increased risk of depression in young physicians(Duba, Messiaen, Boulangeat, Boucekine, et al., 2020; Duba, Messiaen, Boulangeat, Korchia, et al., 2020; Duba, Messiaen, Masson, et al., 2020; Messiaen et al., 2020, 2021). These factors were found to be highly frequent (40% for sustained bullying at the workplace, 20% for sexual harassment in women, and 7% for sexual-orientation-based discrimination)(Duba, Messiaen, Boulangeat, Korchia, et al., 2020; Duba, Messiaen, Masson, et al., 2020; Messiaen et al., 2021) but we have no data on healthcare workers.

The objective of the present study was to evaluate the work environment and mental health of healthcare workers.

**2. Population and methods**

**2.1 Study population**

The AMADEUS (« AMéliorer l’ADaptation à l’Emploi pour limiter la soUffrance des Soignants »/ « improve employment adaptation to limit caregiver stress ») study is a cross-sectional survey carried out in French healthcare workers at a national level in France between 2021 May 2 and 2021 June 30th (Lucas et al., 2021).

*Recruitment and sampling method.* This survey was supported by professional healthcare worker associations and the directions of the healthcare settings in which the survey was disseminated. The participants were contacted through public and private facilities and professional associations by professional mailings and through social networks. All professional associations were contacted by email, and all regional health agencies, Territory hospital groups (*Groupements hospitaliers de territoire* /GHT including regional networks of academic and non-academic public hospitals) were contacted by phone to increase participation rates. The following institutions/facilities actively participated in the dissemination of the study:

-(Regional health agencies) Provence Alpes Côte d'Azur, Brittany, Ile de France;

-(Territory hospital groups including academic and non-academic public hospitals) Alps, Dauphiné, Rhône center, South Drôme, Ardèche, Western Brittany, South Brittany, Upper Brittany, South Corsica, South Val d'Oise, North Hauts-de-Seine, Ile de France, South Vaucluse, Var, Alpes-de-Haute-Provence, Bouches-du-Rhône, Alpes Maritimes, Southern Alps;

-(Academic hospitals): Assistance publique Hôpitaux de Marseille, Assistance publique Hôpitaux de Paris, Hospices civils de Lyon, CHU d 'Amiens, CHU d 'Angers, CHU de Besancon, CHU de Brest, CHRU de Caen, CHU de Clermont-Ferrand, CHU de Dijon, CHU de Grenoble, CHU of Lille, CHU of Limoges, CHU of Martinique, CHU of Montpellier, CHRU of Nancy, CHU of Nantes, CHU of Pointe-à-Pitre/Les Abymes, CHU of Reims, CHU of Rennes, CHU of La Reunion, CHU of Rouen, CHU of Saint-Étienne, CHU of Toulouse, CHRU of Tours;

-(Private hospitals) Institut de cancérologie de l'Ouest, Institut Bergonié, Centre François Baclesse, Centre Jean Perrin, Centre George-François Leclerc; Centre Oscar Lambret; Centre Léon Bérard; Institut Paoli-Calmettes; Centre Antoine Lacassagne, Centre d’Oncologie et de Radio Thérapie 37 (CORT37)

-(Associations) Conseils départementaux de l’Ordre des médecins (Charente-Maritime, Cote-d’Or, Cote d’Armor, Gironde, Deux-Sèvres, Essonnes, Guadeloupe, Guyana, Haute-Saône, Hérault, Loiret, Pyrénées-Orientales) ; French National Association of Occupational Therapists, National Association of Graduate Nurses and Students, French association of dieticians nutritionists, French association of care managers, Professional association of midwives, Committee of agreement of the nursing training and executives, National College of Physiotherapy; Fédération hospitalière de France, Fédération nationale des associations d'aides-soignants, Syndicat national des infirmiers anesthésistes, Syndicat national des infirmiers de bloc opératoire.

Finally, the survey was disseminated through social networks at two timepoint (at the beginning and one month later) to ensure the maximum representativeness of the sample.

*Inclusion criteria.* The participants were graduated healthcare workers currently working in a French healthcare setting.

*Exclusion criteria.* There were no exclusion criteria.

**2.2 Collected data**

Professional status

The professional status was presented in order of increasing hierarchical level: assistant nurse, nurse, surgery nurse, health executive, health senior executive and health director. Surgery nurses were analyzed separately as their work conditions were different from other nurses(Fu et al., 2021). The last group, physicians was included as index group to compare the present results with those of our previous studies carried out in physicians(Duba, Messiaen, Boulangeat, Boucekine, et al., 2020; Duba, Messiaen, Boulangeat, Korchia, et al., 2020; Duba, Messiaen, Masson, et al., 2020; Messiaen et al., 2020, 2021).

Sociodemographic variables

Age (years) was reported as continuous variables. Sex (male) was reported as a binary variable.

*Professional factors*

Work environment was explored with the Job Content Questionnaire(Niedhammer, 2002). Five binary scores were calculated according the recommendations: High psychological demand, Low decisional latitude, Jobstrain (defined by combination of high psychological demand and low decisional latitude), Low social support and Isostrain (defined by combination of Jobstrain and low social support). Additional binary variables were added: the fear of a mistake was evaluated with a Likert frequency question "how often are you afraid of making a medical mistake?". The participants responding at least once a week were classified in the “Fear of a mistake” group.

Exposure to sustained bullying at the workplace, sexual harassment and sexual-orientation-based discrimination were explored by using the definitions of the French law used in our previous studies (Duba, Messiaen, Boulangeat, Boucekine, et al., 2020; Duba, Messiaen, Boulangeat, Korchia, et al., 2020; Duba, Messiaen, Masson, et al., 2020; Messiaen et al., 2020, 2021):

- Sustained bullying at the workplace was explored with a binary-answer question: “According to the French law definition, moral harassment is defined as “remarks or repeated behavior with the purpose or effect of a deterioration of working conditions that may impair her/his rights and dignity, alter her/his physical or mental health or jeopardize his professional future” (*Code du travail - Article L1152-1*, 2008; *Code pénal - Article 222-33-2*, 2014). According to this definition, have you been exposed to moral harassment during your medical studies?

- Sexual Harassment was defined according to the French law definition as “recurrent acts inflicted upon a person such as sexual or sexist comments or behaviors that are offensive to his or her dignity because of their degrading or humiliating nature or create an intimidating, hostile or offensive situation” (Code du travail - Article L1153-1, 2012; Code pénal - Article 222-33, 2018).

- Sexual orientation-based discrimination was explored with a binary-answer question: “Have you been exposed to discriminations or insults based on your sexual orientation perpetrated by a health professional at work?”.

Two continuous variables were reported: the number of monthly worked weekends and absenteeism defined by the number of unworked days in the last 12 months.

Burnout syndrome

The three binary dimensions of burnout syndrome (emotional exhaustion, depersonalization and low personal accomplishment) were explored using the French version of the Maslach Burnout Inventory (MBI) scale(Maslach et al., 2001) as binary variables. Burnout was defined by the presence of at least one dimension and severe burnout by the presence of the three dimensions(Kansoun et al., 2019). The French version of this scale has shown satisfactory psychometric properties(Langevin, 2012).

*Mental health variables*

*Major depression.* The Center for Epidemiologic Studies- Depression Scale (CES-D) (Van Dam & Earleywine, 2011) was used in its French version to determine major depression risk. The CES-D is a 20-item self-reported questionnaire that has been specifically developed to assess self-reported depressive symptoms during the past week in large-scale / non clinical populations. Possible range of scores is zero to 60, with the higher scores indicating the presence of higher depressive symptomatology. A probable depression is defined by a score ≥17 in men and ≥23 in women (Fuhrer & Rouillon, 1989). CES-D has shown satisfactory psychometric properties (sensitivity of .853 and a specificity of .859) and reliability(Morin et al., 2011).

Sleep was explored using the French version of the Pittsburgh Sleep Quality Index (PSQI)(Ait-Aoudia et al., 2013). The following variables were extracted: sleep duration (hours, continuous), sleep<5hours (binary), falling asleep>30min (binary), poor sleep quality (binary), diurnal somnolence (binary), motivation deficit (binary). PSQI has shown satisfactory validity and reliability (Blais et al., 1997). Regular consumption of psychotropic drugs was reported with binary variables: antidepressant consumption, anxiolytic consumption, psychostimulant consumption and hypnotic consumption.

*Health risky behavior*

The following health risky behavior were reported as binary variables: daily tobacco smoking (binary, self-reported), hazardous drinking (defined by a CAGE questionnaire score ≥2(Rueff et al., 1989)), moderate to vigorous physical activity was reported as a binary variable and measured using the French version of the International Physical Activity Questionnaire (IPAQ) (Crinière et al., 2011)). IPAQ is the most widely used questionnaire to capture physical activity(World Health Organization, 2021b). In this questionnaire, the weekly duration of physical activity is self-reported. A weekly duration ≥150 min of moderate-vigorous physical activity was classified as adequate physical activity level based on the World Health Organization recommendations(World Health Organization, 2021b).

**2.3 Statistical analysis**

All binary variables were presented using frequency distribution and continuous variable using mean and standard deviation (SD). The data was analyzed with the SPSS 20.0 software.

**Ethical considerations**

The study was approved by the National Ethical Committee (IRB n°C08 / 21.01.06.93911, CNIL) and carried out in accordance with ethical principles for medical research involving humans (WMA, Declaration of Helsinki) and the French Jardé law. According to this law, this study is classified as MR-003. In this category, only a non-opposition form is necessary. The participant was informed that clicking on the web questionnaire was equivalent to give her/his consent to participate. The participants were also informed that all data was collected anonymously and that they could take back their consent at any time by contacting the principal investigator (GF).

**Funding**

No funding.

**3. Results**

Overall, 6935 participants were recruited (Nurse assistant N=847, Nurse N=2538 (excluding surgery nurse), Surgery Nurse N=281, Health executive N=1198, Senior health executive N=288, Nurse executive director N=126, Physicians N=1969). The results are presented in Table 1.

Work environment

High psychological demand was reported by more than 90% of participants in all categories. The rate of participants reporting low decisional latitude decreased with the hierarchical level (from 66% in nurse assistants to 17.5% in nurse executives’ directors). Jobstrain (the combination of high psychological demand and low decisional latitude) decreased therefore also with the hierarchical level (from 56.4% in assistant nurses to 17.5% in nurse executives’ directors). Low social support was reported by more than 60% in all categories (and up to 73.7% in surgery nurses). Assistant nurses, nurses and surgery nurses reported more frequently isostrain (the combination of job strain with low social support) (respectively 43.6%, 34.7%, 39.1%) compared to other categories.

The fear of mistake was much higher in nurses (30.9%), surgery nurses (38.4%) and physicians (39.9%) than in assistant nurses and health executives, health senior executives and nurse executives’ directors (less than 20%).

Surgery nurses reported the highest rate of exposure to potentially morally injurious events (53%), sexual harassment exposure (17.5% in women) and sexual-orientation based discrimination (10%) of all categories.

Nurse assistants, nurses and surgery nurses had the highest rates of unworked days within the last 12 months (mean between 10 and 15 days vs. 4 and 8 days for other categories).

Burnout syndrome

All categories reported high rates of burnout syndrome from 45.2% for nurse executives’ directors to 60.1% for surgery nurses. Low personal accomplishment was the most frequent burnout dimension in all categories, followed by emotional exhaustion. Surgery nurses reported the highest rate of severe burnout (defined by the presence of the 3 dimensions of burnout): 12% vs 10% or lower in other categories.

Mental health

The prevalence of depression was high in all categories (approximately 30% except for nurse executives’ directors 18%) but less than 10% of participants are treated by antidepressants. The proportion of participants reporting sleeping less than 5 hours per night was higher in nurses and health executives (more than 20%) than in physicians (12.3%). A high proportion of participants reported difficulties falling asleep (between 31.4% for physicians and 48.2% for nurses) and poor sleep quality (between 31% for nurse executives’ directors and 49.5% for assistant nurses) and a high proportion report consuming regularly hypnotics (16.4% to 21.5%). Overall, 12 to 16% of participants report diurnal somnolence in all categories and 19.8% to 31.6% motivation deficits.

Health risky behavior

The smoking rate was much higher in assistant nurses (32.3%) than in other categories (the lowest rate was for physicians 13.4%). Hazardous drinking was low in assistant nurses (9.4%) and ranked between 16.4% and 19.2% in nurses and nurse executives. The highest rate was found in physicians (26.7%).

**4. Discussion**

The first major finding is the high prevalence of burnout and depression in healthcare workers. The results of physicians suggest that burnout syndrome prevalence has increased since 2018 (58% vs. 49% in our previous meta-analysis(Kansoun et al., 2019). The same phenomenon was found for depression, approximately 3 times higher than the French general population (Fond et al., 2019). This survey was carried out during the third Covid-19 lockdown in France and approximately 40% of at-risk French populations reported psychological distress during the first lockdown(Chaix et al., 2020). Approximately 60% of the intensive care unit healthcare workers reported mental health symptoms during the Covid-19 second wave(Azoulay et al., 2021). Our prevalence is consistent with the mean global prevalence of 37% of depression in healthcare workers in a recent systematic review including 38 international studies (Saragih et al., 2021). However, we believe that our results are not completely explained by the Covid-19 pandemics for two reasons. First, this study was carried out during the third lockdown in France, which was lighter than the first two ones. Most of the programed ambulatory activity was maintained in the French hospitals and healthcare workers were used to cope with Covid-19 prevention. Second, most of studies carried out before Covid-19 pandemics reported increasing rates of workload pressure, burnout syndrome and depression in healthcare workers (Bloemhof et al., 2021; Dutra & Guirardello, 2021; Emiralioğlu & Sönmez, 2021; Jung & Park, 2021; Labrague et al., 2021; Maneschiöld & Lucaci-Maneschiöld, 2021; Ogata et al., 2021; Schlak et al., 2021). The important gap between the depression rate and the antidepressant consumption rate suggest that many healthcare workers may not receive adequate care for their depression. Occupational medicine should develop active prevention strategies to screen depression and recommend adequate treatment if needed.

Among all nurse categories, surgery nurses reported the highest rates of sustained bullying at the workplace exposure, sexual harassment exposure and sexual-orientation-based discrimination. This category should therefore be targeted in priority for the prevention of exposure to potentially morally injurious events. Sexual-orientation based discrimination was more frequent in surgery nurses and physicians compared to other categories. This may be explained by higher proportion of men in these categories, who may be more frequently authors and victims of sexual-based orientation discrimination(Duba, Messiaen, Boulangeat, Korchia, et al., 2020; Gurung et al., 2018; Yeo & Chu, 2018). We expected high rates of sexual harassment exposure, as ≥90% of sexual harassment exposure are women (Duba, Messiaen, Boulangeat, Boucekine, et al., 2020). However, the global rates of sexual harassment exposure in our study were lower than those reported in young physicians women in France in 2017 (20%)(Duba, Messiaen, Boulangeat, Boucekine, et al., 2020) and all working women in France in 2019(26%)(Kraus, 2019). This phenomenon may be explained by higher age in our sample, the effects of interventions following the Weinstein case and the #MeToo movement increasing the social recognition of sexual harassment(Kraus, 2019).

All healthcare categories reported high rates of exposure to potentially morally injurious events despite the condemnation of sustained bullying at the workplace by French law for over 20 years(Graser et al., 2003). In a previous study, we found also high rates in young physicians (approximately 40%)(Messiaen et al., 2020, 2021). This phenomenon has also been reported in Brazil(Sousa et al., 2021) and is probably not specific of the healthcare system. Sustained bullying at the workplace exposure seems to be commonplace in the hospital while it is a risk factor for depression(Messiaen et al., 2020). Sustained bullying at the workplace should therefore be actively prevented in all healthcare categories, especially in surgery nurses.

We found that physicians reported much higher rates of hazardous drinking compared to other healthcare categories, confirming our previous results in medical students(Fond, Bourbon, et al., 2021). However, the smoking rate of physicians was much lower compared to the French general population (13% vs. 31.8%)(BEH, 2020). On the contrary, we found that assistant nurses reported the highest rates of tobacco smoking, suggesting that this group may be targeted in priority for active smoking cessation prevention.

Strengths. Our sample was representative of the whole healthcare population in terms of age and sex. The proportion of women among nurses in France in 2011 was 86% vs. 87% in our study and the mean age 38.9 years in the whole population vs. 39.8 years in our study (Barlet, 2011). The absence of missing data due to the web questionnaire, the large sample size and the use of validated scales ensure the quality of the present data. The title of the survey did not mention burnout, depression or exposure to potentially morally injurious events to limit the participation bias.

Limitations. The limits of this study are the same that all online surveys. We cannot calculate the participation rate as we had no direct access to the professional mailings and given that social networks were used. Our sample rates were variable according to professions (in order of decreasing sample rate): health executives and senior health executives (1486/6725=22.1%), nurse executives’ directors (126/792=15.9%), surgery nurses (281/7963=3.5%), physicians (1969/70916=2.7%), nurses assistants (847/59840=1.4%) and nurses (2538 /479,836=0.5%) (DRESS, 2022). The dissemination of the study in nurse assistants and nurses was less effective due to the lack of use of professional mailing in these professions in some facilities. However, our study has one of the largest sample sizes in the field. To limit the participation bias, the title of the study did not mention burnout or depression but work adaptation. We may have underestimated depression as all participants off work for depression, burnout or other causes did not receive the mail by professional mailings. We have disseminated this survey at different timepoints to reach these participants.

**Conclusion**

The present study yields important results to guide future research and interventions in the prevention of burnout and depression in healthcare workers. Concerning work environment, high psychological demand was reported by more than 90% of participants in all categories and low social support by more than 60% of participants in all categories. All categories reported high rates of sustained bullying at the workplace exposure, the highest being reported by surgery nurses. Nurses and physicians reported the highest rates of fear of medical mistake. High rates of burnout syndrome were reported in all categories, low personal accomplishment being the most frequent burnout dimension. Major depression was identified in approximately 30% of participants in all categories except for nurse executives’ directors (18%), but less than 10% reported consuming antidepressants. 31 to 49% of participants reported sleep disorders and 16 to 21% reported consuming regularly hypnotics. We found high discrepancies in risky health behavior with 2.5-time higher smoking rates in assistant nurses compared to physicians.

Implications for *Nursing management*

Nursing managers may play a major role at different levels, by promoting interventions to improve work environment and preventing sustained bullying at the workplace and health risk behaviors. Our results suggest that the deployment of various wellbeing programs in hospitals have not been enough to curb the epidemic of depression and sleep disorders among caregivers. Most of wellbeing programs target health risk behaviours (e.g. healthy food options, gym membership discounts, on-site exercise facilities, smoking cessation program, personal health coaching, classes in nutrition or healthy living, web-based resources for healthy living and tobacco-free campus) (HPOE, 2016), which may have only a moderate effect on burnout and mental health. These interventions may not be always suitable for healthcare workers. Providing gym discounts or on-site exercise facilities may not be suitable for exhausted employees, or employees who lack leisure time and already spend a lot of time at the workplace. The effectiveness of tobacco cessation programs in healthcare workers is poorly evaluated. It is also notable that encouraging staff to take brief naps at work is often absent from these programs despite evidence that this may improve productivity and decrease exhaustion (Martin-Gill et al., 2018).

Nursing managers should therefore pursue their efforts in improving work environment to decrease burnout in healthcare workers. Some of these interventions have targeted work environment, e.g., enhancing managerial skills of primary care workers’ supervisors, such as training in leadership aspects, increasing the knowledge and practice of giving efficient performance feedback and reducing conflicting demands. These programs are poorly developed and evaluated thus far in France. Targeting inter-colleagues support may therefore be a more effective strategy and peer support programmes such as TRiM (trauma risk management) have been reported to be helpful in supporting the mental health of hospital staff(Flaherty & O’Neil, 2021). This is supported by the findings of previous studies (Aziah et al., 2004; Kojima et al., 2003; Stansfeld et al., 2012). Ensuring that the organization, planning and coordination of care is done to a high standard is also likely to help. However, many eventualities cannot be planned for including absenteeism, which is very common in this population (Cappelletti & Savall, 2018) and is likely, in part at least, to be due to mental ill-health including depression. Preventing sustained bullying at the workplace is a crucial point in the prevention and care of depression in healthcare workers. It is also likely that providing staff with a mechanism to check on their own mental health may be useful; however, it is unlikely that formal mental health screening for depression amongst the workforce will be effective(Rona et al., 2017). Also, providing easy access to evidence-based care may be one of the most effective interventions to manage depression in healthcare workers. However, depression remains a taboo and healthcare workers may be afraid of the stigmatization associated with depression (Arnaez et al., 2020; Doty et al., 2021).

We consider that developing caregivers-reported experience and outcomes measures (CREMs/CROMs) is now a priority to monitor work environments and health, following the patient-reported experience and outcome measures (PREMs/PROMs) models (Boyer et al., 2022; Fernandes et al., 2020; Lucas et al., 2022). There may also be value in developing personalized psychotherapies (like interpersonal psychotherapy) or group therapies (like mindfulness, resiliency training and self-acceptance interventions) so they can be used with healthcare workers at risk of depression; however, it is important to evaluate if such interventions are effective (Doty et al., 2021; Niedermoser et al., 2020; Rost et al., 2005; Schramm et al., 2020; Stockton et al., 2020).

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Table 1. Work environment and mental health according to professional categories.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Nurse assistant | Nurse\* | Surgery Nurse | Health executive | Senior health executive | Nurse executive director | Physicians |
|  | N=847 | N=2538 | N=281 | N=1198 | N=288 | N=126 | N=1969 |
| Sociodemographics |  |  |  |  |  |  |  |
| Age | 42.44(10.36) | 39.82(10.03) | 45.87(8.36) | 48.50(7.95) | 52.79(6.69) | 54.42(6.33) | 41.29(11.84) |
| Sex (male) | 103(12.2%) | 369(14.3%) | 92(32.7%) | 180(15.0%) | 42(14.6%) | 35(27.8%) | 670(34.0%) |
|  |  |  |  |  |  |  |  |
| Work environment |  |  |  |  |  |  |  |
| High psychological demand | 706(83.4%) | 2341(92.2%) | 276(98.2%) | 1176(98.2%) | 284(98.6%) | 123(97.6%) | 1843(93.6%) |
| Low decisional latitude | 559(66.0%) | 1173(46.2%) | 130(46.3%) | 525(43.8%) | 94(32.6%) | 22(17.5%) | 572(29.1%) |
| Jobstrain | 478(56.4%) | 1112(43.8%) | 130(46.3%) | 519(43.3%) | 93(32.3%) | 22(17.5%) | 547(27.8%) |
| Low social support | 552(65.2%) | 1678(66.1%) | 207(73.7%) | 796(66.4%) | 204(70.8%) | 80(63.5%) | 1224(62.2%) |
| Isostrain | 369(43.6%) | 881(34.7%) | 110(39.1%) | 438(36.6%) | 82(28.5%) | 19(15.1%) | 433(22.0%) |
| Sustained bullying at the workplace | 334(39.4%) | 1022(40.3%) | 149(53.0%) | 578(48.2%) | 134(46.5%) | 39(31.0%) | 718(36.5%) |
| Sexual harassment | 39(4.6%) | 183(7.2%) | 37(13.2%) | 89(7.4%) | 13(4.5%) | 9(7.1%) | 219(11.1%) |
| Sexual harassment in women | 37(5.0%) | 167(7.7%) | 33(17.5%) | 83(8.2%) | 13(5.3%) | 8(8.8%) | 206(15.9%) |
| Sexual-orientation-based discrimination | 38(4.5%) | 148(5.8%) | 28(10.0%) | 59(4.9%) | 14(4.9%) | 9(7.1%) | 207(10.5%) |
|  |  |  |  |  |  |  |  |
| Burnout syndrome |  |  |  |  |  |  |  |
| Emotional exhaustion | 225(26.6%) | 680(26.8%) | 81(28.8%) | 417(34.8%) | 92(31.9%) | 29(23.0%) | 642(32.6%) |
| Depersonalization | 177(20.9%) | 592(23.3%) | 85(30.2%) | 253(21.1%) | 61(21.2%) | 18(14.3%) | 593(30.1%) |
| Low Personal Accomplishment | 305(36.0%) | 855(33.7%) | 117(41.6%) | 433(36.1%) | 96(33.3%) | 34(27.0%) | 673(34.2%) |
| Burnout | 483(57.0%) | 1390(54.8%) | 169(60.1%) | 701(58.5%) | 166(57.6%) | 57(45.2%) | 1145(58.2%) |
| Severe Burnout | 50(5.9%) | 166(6.5%) | 36(12.8%) | 105(8.8%) | 17(5.9%) | 4(3.2%) | 198(10.1%) |
| Mean number of unworked days within the last 12 months | 15.41(41.42) | 10.89(33.92) | 10.52(33.46) | 7.55(26.47) | 6.42(20.30) | 3.86(15.49) | 5.91(22.11) |
|  |  |  |  |  |  |  |  |
| Mental health |  |  |  |  |  |  |  |
| Major depression | 246(29.0%) | 739(29.1%) | 86(30.6%) | 393(32.8%) | 86(29.9%) | 23(18.3%) | 627(31.8%) |
| Mean sleep duration | 6.50(1.77) | 6.56(1.35) | 6.35(1.48) | 6.45(1.21) | 6.33(1.13) | 6.48(1.24) | 6.79(1.09) |
| Sleep<5hours | 242(28.6%) | 561(22.1%) | 78(27.8%) | 265(22.1%) | 71(24.7%) | 27(21.4%) | 243(12.3%) |
| Falling asleep>30min | 405(47.8%) | 1223(48.2%) | 121(43.1%) | 523(43.7%) | 111(38.5%) | 44(34.9%) | 618(31.4%) |
| Poor sleep quality | 419(49.5%) | 1204(47.4%) | 138(49.1%) | 576(48.1%) | 139(48.3%) | 39(31.0%) | 726(36.9%) |
| Diurnal somnolence | 136(16.1%) | 405(16.0%) | 51(18.1%) | 217(18.1%) | 42(14.6%) | 16(12.7%) | 319(16.2%) |
| Motivation deficit | 234(27.6%) | 802(31.6%) | 73(26.0%) | 375(31.3%) | 81(28.1%) | 25(19.8%) | 550(27.9%) |
| Antidepressant consumption | 83(9.8%) | 196(7.7%) | 18(6.4%) | 90(7.5%) | 19(6.6%) | 8(6.3%) | 155(7.9%) |
| Anxiolytic consumption | 87(10.3%) | 235(9.3%) | 18(6.4%) | 125(10.4%) | 28(9.7%) | 13(10.3%) | 185(9.4%) |
| Psychostimulant consumption | 4(0.5%) | 4(0.2%) | 0(0.0%) | 3(0.3%) | 0(0.0%) | 1(0.8%) | 16(0.8%) |
| Hypnotic consumption | 160(18.9%) | 546(21.5%) | 46(16.4%) | 257(21.5%) | 62(21.5%) | 21(16.7%) | 397(20.2%) |
|  |  |  |  |  |  |  |  |
| Health risky behaviors |  |  |  |  |  |  |  |
| Daily tobacco smoker | 274(32.3%) | 650(25.6%) | 44(15.7%) | 270(22.5%) | 55(19.1%) | 30(23.8%) | 263(13.4%) |
| Hazardous drinking | 80(9.4%) | 416(16.4%) | 54(19.2%) | 224(18.7%) | 52(18.1%) | 24(19.0%) | 525(26.7%) |
| Moderate to high physical activity | 480(56.7%) | 1588(62.6%) | 206(73.3%) | 671(56.0%) | 150(52.1%) | 77(61.1%) | 1251(63.5%) |

\* excluding surgery nurses