# Prevalence of risk of distress and associated factors among physicians, nurses and rehabilitation therapists working in a community hospital: a cross-sectional study

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**INTRODUCTION**

Distress which encompasses burnout, fatigue, low mental and physical quality of life, depression, anxiety and stress is linked to negative outcomes for both staff and patients.[1-3] The mental health of healthcare staff can impair their competency, career satisfaction, professionalism and patients' quality of care.[4-7] Distress is also associated with a higher risk of suicidal ideation,[8] alcohol abuse,[8] malpractice suits,[9] healthcare attrition.[10,11] Unfortunately, there are multiple barriers to seeking help for many healthcare professionals. Healthcare professionals might be reluctant to acknowledge personal struggles, this might stem from a professional culture of stoicism, fear regarding potential implications to their career or perceived stigma; there might also be a lack of awareness of how their distress compares to other healthcare professionals.[12,13]

While studies have explored distress among healthcare professionals, these studies typically studied only one domain of distress as an outcome (e.g. depression, burnout, anxiety) and were focused on healthcare professionals in acute care settings[7,14-17] and primary care.[7,18-20] Moreover, the majority of these studies focused primarily on physicians and nurses. Few studies have been done exploring distress among rehabilitation therapists.[21-23] The prevalence of distress ranges from 67-88% among doctors,[17-19,23-25] 30-80% among nurses[14,15,23,26,27] and 29-59% among rehabilitation therapists.[21-23,28]

Distress is a multi-dimensional construct, however, there is no literature about the prevalence of distress studied as a multi-dimensional construct (e.g. in a variety of domains such as burnout, depression, stress, fatigue, and low mental and physical quality of life) among physicians, nurses and rehabilitation therapists working in community hospitals. Given the different work environment, patient profile, services provided and longer contact time with patients (average length of stay is 28 days) compared to acute care settings and primary care, the

prevalence of distress in healthcare professionals working in community hospitals might differ from those working in acute care or primary care settings. As argued by Pereda-Torales et al[29] and Vargas et al,[30] the prevalence of distress and any evidence of the protective and risk factors for distress are of great interest to the scientific community. Hence, further research and evidence is needed to decrease and prevent the risk of distress among healthcare professionals working in community hospitals.

Community hospitals cater to patients who require a short period of continuing care or subacute care, usually after discharge from acute hospitals; and provide medical, nursing and rehabilitative care for patients who require an extended period of recovery from their medical or surgical conditions. Community hospitals also assist patients with unique care needs such as complex wound care, dementia care and palliative care. Services provided by community hospitals help patients transition back to their homes and community; support engagement in their usual roles and responsibilities and enable them to actively contribute to their society again through facilitating reorganization of physical, functional, psychological and social needs.[31]

An average Singaporean's life expectancy stands at 83.1 years currently, this is among the highest in the world.[32] This number is expected to increase further. By 2030, the percentage of Singaporeans aged 65 and above is expected to double by 20%.[33] This increased lifespan implies that more Singaporeans will be living longer with chronic conditions, thus increasing the healthcare needs of Singapore significantly. To address the growing healthcare needs, Singapore's government implemented a Healthcare 2020 Masterplan to expand the healthcare infrastructure.[34] Singapore's Ministry of Health (MOH) plans to transform healthcare service delivery by expanding the capacity of intermediate care facilities between 2015 and 2020.[34] The acute care centric model that Singapore previously adopted is now moving towards a new model of care

wherein community hospitals (intermediate-care facilities) will play a larger role. Manpower needs in intermediate-care facilities are expected to grow by four times, from the current 4000 to 15000 in 2020.

As the focus of care shifts towards community hospitals, it is anticipated that there will be an amplified demand for community hospital care as the population ages and experiences more chronic disease and physical incapacity, this might increase pressure on community hospital staff and contribute to additional distress which can affect their health and the quality of care they provide. Hence, it is important to explore the prevalence of risk of distress and the associated factors of distress among community hospital staff. However, to our knowledge, no studies have been done in Singapore thus far. This will be the first study to report levels of distress among physicians, nurses and rehabilitation therapists in a community hospital. Findings may assist with understanding contributors to distress and with developing strategies to ameliorate distress found across this cohort.

## METHODS

The aims of this study were twofold. First, we sought to evaluate the prevalence of risk of distress as a multi-dimensional construct (e.g. measured in a variety of domains such as burnout, depression, stress, fatigue, and low mental and physical quality of life) among physicians, nurses and rehabilitation therapists in a community hospital in Singapore. Second, we sought to investigate the influence of socio-demographic factors, health-related lifestyle factors and professional characteristics on risk of distress.

A cross-sectional study was conducted among physicians, nurses and rehabilitation therapists in a 243-bedded community hospital located in the western region of Singapore, which

receives most of its patients from all acute hospitals in Singapore; and a minority from private hospitals, nursing homes or self-referrals. This community hospital provides inpatient rehabilitative care, subacute care (i.e. complex wound care, prolonged intravenous antibiotic therapy), palliative care, dementia care and chronic sick care. An anonymous survey was conducted via Microsoft Forms® (forms.office.com) over a 3-month period from February 2019 to April 2019. The survey was voluntary, and consent was implied if participants responded. Approval was obtained from our institutional review board (IRB-01-2019-01-03).

All physicians, nurses and rehabilitation therapists working in this community hospital were approached to participate in the study.

According to previously published studies evaluating the risk of distress among healthcare professionals, the estimated overall prevalence of distress was approximately 55%.[17,23-25,28] We calculated that we would need a sample size of at least 95 participants based on this estimated overall distress prevalence of 55%, precision error of 10% and type 1 error of 5%.

The main outcome of interest in this study was distress. Risk of distress was assessed using the expanded Well-Being Index (eWBI) (Table I). The eWBI is a validated questionnaire intended to identify distress in a variety of dimensions compared to instruments such as Beck Depression Inventory, Maslach Burnout, Beck Anxiety Inventory, State-Trait Anxiety Inventory which are long, cumbersome to analyse and typically measure only one domain of distress (e.g. depression, burnout, anxiety).[17,27,28] Studies done in physicians, nurses, medical students and a cohort of workers have shown that the eWBI is a valid and reliable instrument to identify individuals in distress in a variety of countries, settings and occupations.[17,27,28,35-37] Dimensions of distress identified in eWBI include burnout, depression, stress, fatigue and mental and physical quality of life (QOL). The eWBI is able to stratify the risk of distress and better identify those with higher

overall well-being. For healthcare workers, the eWBI score correlates with meaning in work, high and low quality of life, fatigue, burnout, recent suicidal ideation, intent to reduce work hours or turnover intention. Respondents are asked to answer seven yes/no items and two questions rated on a Likert scale. The total score for the eWBI ranges from -2 (lowest risk) to 9 (highest risk). Physicians with an eWBI score $\geq 3$ were at greater risk of distress[17] while nurses and rehabilitation therapists with an eWBI score $\geq 2$ were at greater risk of distress.[27,28]

Socio-demographic characteristics included age, gender, marital, number of children, number of children <5 years old, access to childcare, highest education attained and religion.

Health-related lifestyle characteristics include smoking and alcohol drinking habits, physical activity and sleeping habits.

Professional Characteristics include occupational status, number of years spent working in a community hospital, working conditions (working hours/week, shift work i.e. night shifts), time spent in nonpatient care activities (if applicable), amount of vacation time available and used, and absenteeism (work days missed due to mental or physical illness).

Univariate comparisons of proportions, means and medians were done using Student's t-test, Fisher's exact test and Chi-square test. Intercorrelations of the independent variables were examined using Pearson's r test and Cramer's V test prior to running the regression analyses. We related the probability of being distressed with the variables of interest using exact logistic regression models, initially considering each variable separately to evaluate the unadjusted association with distress (bivariate analysis) and subsequently introducing variables into a multivariate model in order to evaluate potentially independent associations when adjusting for confounders. The strength of the associations identified are presented as odds ratios together with

their 95% confidence intervals (OR [95%CI]). All statistical tests were two-sided. Statistical significance was defined as *p*<0.05. All analyses were performed using STATA software 15.0.

**RESULTS**

From 297 eligible participants (19 physicians, 220 nurses, 58 rehabilitation therapists), 268 responded for an overall response rate of 90.5% (median age 35 years old, 88.1% female). The specific response rates were as follows: physicians: 94.7%, nurses 88.2% and rehabilitation therapists 96.6%. Descriptive characteristics of responders are shown in Table II.

The overall prevalence of risk of distress was 28.7% (physicians 44.4%; nurses 24.7%, rehabilitation therapists 37.5%, *p* = 0.062).

Bivariate analysis obtained significant association between number of children, having children less than 5 years of age, having childcare, sleep hours/day, hours worked per week, doing administrative work, absenteeism and age (Appendix, Supplementary Table I). Workers who were older (OR 0.95 [0.92-0.98]) had lesser odds of distress. Workers who had more children (OR 1.7, [1.51-1.95]) and had children less than 5 years of age (OR 2.69 [1.32-5.53]), had 4 to 8 hours of sleep per day (OR 3.64 [1.57-8.44]), worked more hours in a week (50-59 hours/week (OR 4.71 [1.50-14.78]); 60-80 hours/week (OR 7.07 [1.57-31.86])), were more likely to report absenteeism (10-14 days/year (OR 3.38 [1.24-9.21]; >14 days/year (OR 7.5 [1.41-39.8])) and had administrative duties (OR 2.74 [1.58-4.75]) had greater odds of distress. A subgroup analysis of workers who had children revealed that those who did not have childcare support had higher odds (OR 3.34 [1.18-9.47]) of distress.

Multivariable logistic regression showed that after adjusting for age, gender, occupation, education and sleep, workers who were involved in administrative work in addition to patient care

(adjusted OR 2.64 [1.43-4.85]) had greater odds of distress. Workers who did not have childcare support (adjusted OR 3.24 [1.92-10.52]) had higher odds of distress (Appendix, Supplementary Table II).

## DISCUSSION

This study was performed because of a lack of research, particularly in Singapore, on the prevalence and contributors to distress of community hospital healthcare professionals particularly physicians, nurses and rehabilitation therapists.

In our study, we found the overall prevalence of distress (28.7%) was lower among healthcare professionals in the community hospital.[17,27,28] The prevalence of distress among community hospital physicians (44.4%), nurses (24.7%) and rehabilitation therapists (37.5%) was also lower compared to previous studies primarily conducted in acute and primary care physicians, nurses and rehabilitation therapists (29-88%).[14,15,17-19,21-28] Community hospitals practice team-based care which emphasizes participatory decision making, team cohesiveness and coordination of care as the focus is on supporting patient re-enablement and transition back to home and community. This more supportive work environment and greater time with patients might be a possible explanation for a lower prevalence of distress among community hospital healthcare professionals. Our Asian work values could have also played a contributary role in blunting the effect of distress. Prior studies have shown that Asian work values encompassing endurance, hard work, collectivism and guanxi (relation orientation, protecting others' reputation and respecting social order) are positively associated with work well-being.[38,39] Asians might also be less likely to express distress in psychological terms especially in cultures where expression of emotional distress might be discouraged.[40]

Largely consistent with the findings of the present study, previous studies found similar risk factors of distress namely administrative burden[41-43] and lack of childcare support.[44-46] Both factors are related to the conflict and pressure in trying to compromise and balance between competing time demands such as clinical practice and family commitments; and are associated with increased turnover intention.[43,44] Excessive administrative duties divert focus and time from more clinically important activities of healthcare professionals such as the provision of actual care to patients and improving quality of care. Patient care might even be compromised if administrative duties prevent patients from receiving appropriate or timely treatment.[43] A study in Swiss healthcare professionals found that healthcare professionals providing informal care to dependent children (double-duty child caregivers) experienced risk of distress due to difficulties in achieving work-life balance.[46]

These findings have important management implications in developing strategies to ameliorate distress. Reducing the amount of non-essential or unreasonable illegitimate administrative duties and role conflicts in healthcare professionals should be a priority by reallocating healthcare professionals' work capacity to core tasks. This might also serve to make hospital task management more resource efficient. The expansion of family-friendly services or childcare support is also necessary to allow healthcare professionals to successfully combine work and family.

This study differs and stands out from other studies. This study was not focused on a single health profession as is usually the case but was integrative with regards to the study population of healthcare professionals in a community hospital. This is also the first study to report levels of distress among physicians, nurses and rehabilitation therapists in a community hospital. We also

used a well-established and validated measure to ensure the validity and reliability of the study findings.

Besides these strengths, this study also has some limitations. Due to its cross-sectional design, it does not allow for causality to be inferred. As participants self-selected to participate, the study was subject to selection and response bias. The number of cases of physicians was not sufficiently large to allow for stratified and multivariate association analyses simultaneously (comparisons between different health professions and for adjustments for possible confounders). Our results might have been affected by a type II error (failure to detect a true difference) due to the small number of samples in certain categories (e.g. physicians in the occupational status variable). Finally, community hospitals are heterogeneous and may have unique characteristics in terms of services provided, work scope and patient needs. This single-centre study may not be generalized to the entire community hospital sector.

Future research should use a longitudinal study design in multiple community hospitals to disentangle the complex temporal structure that connects each factor to the others in the professional lives of community hospital healthcare professionals.  As this study was done in 2019 prior to the COVID-19 pandemic, it would be interesting to study whether the prevalence of distress and its associating factors differ from pre-pandemic times to during-pandemic and post-pandemic times given the unique stressors experienced by healthcare workers and their families during COVID-19.

In conclusion, this study contributed to the prevalence and understanding of distress among healthcare professionals in a community hospital setting in Singapore. The inability to balance, integrate or reconcile administrative duties and lack of childcare support with competing demands of clinical work and family life is associated with higher risk of distress. We hope that our findings

can stimulate community hospitals to check for distress among staff and inform strategies by healthcare administrators to the risks of distress.

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**Table I: Expanded Well-Being Index (Questions and Scoring)**

|    | Scale | Points assigned |
|----|-------|-----------------|
| 1. | Have you felt burned out from your work?<br>Y/N | Y=1<br>N=0 |
| 2. | Have you worried that your work is hardening you emotionally?<br>Y/N | Y=1<br>N=0 |
| 3. | Have you often been bothered by feeling down, depressed, or hopeless?<br>Y/N | Y=1<br>N=0 |
| 4. | Have you fallen asleep while sitting inactive in a public place?<br>Y/N | Y=1<br>N=0 |
| 5. | Have you felt that all the things you had to do were piling up so high that you could not overcome them?<br>Y/N | Y=1<br>N=0 |
| 6. | Have you been bothered by emotional problems (such as feeling anxious, depressed, or irritable)?<br>Y/N | Y=1<br>N=0 |
| 7. | Has your physical health interfered with your ability to do your daily work at home and/or away from home?<br>Y/N | Y=1<br>N=0 |
| 8. | The work I do is meaningful to me<br>i) 7 point Likert scale; anchor "very strongly disagree" at the 1 end of the scale and "very strongly agree" at the 7 end of the scale | A low level of meaning in work (response option of a 1 or 2) = +1<br><br>A neutral level of meaning in work (response option of 3 to 5 on the 7-point Likert scale) = 0<br><br>A high level of meaning in work (response option of a 6 or 7 on the 7-point Likert scale) = -1 |
| 9. | My work schedule leaves me enough time for my personal/family life<br>i) strongly agree; agree; neutral; disagree; strongly disagree | Lower satisfaction with work-life integration (e.g. disagree; strongly disagree) = +1<br><br>Neutral = 0<br><br>Higher satisfaction with work-life integration (agree, strongly agree) = -1 |

The total score for the eWBI ranges from -2 (lowest risk) to 9 (highest risk)

**Table II: Baseline Characteristics of Respondents (*N* = 268) by Distress Status**

| Socio-demographics | Not Distressed N=191 [n (row%)] | Distressed N=77 [n (row%)] | Professional Characteristics | Not Distressed N=191 [n (row%)] | Distressed N=77 [n (row%)] |
|---|---|---|---|---|---|
| Age | 38.3±9.9 | 34.4±8.5 | Occupation | | |
| Gender | | | Nurse | 146 (75.3) | 48 (24.7) |
| Male | 19 (59.4) | 13 (40.6) | Physician | 10 (55.6) | 8 (44.4) |
| Female | 172 (72.9) | 64 (27.1) | Rehabilitation therapist | 35 (62.5) | 21 (37.5) |
| Marital Status | | | Employed | | |
| Single | 101 (73.7) | 36 (26.3) | Full-time | 180 (70.6) | 75 (29.4) |
| Married | 90 (68.7) | 41 (31.3) | Part-time | 11 (84.6) | 2 (15.4) |
| Number of children | 0.72±1.1 | 1.2±0.7 | Palliative care | | |
| With children < 5 years of age | | | No | 173 (70.6) | 72 (29.4) |
| No | 49 (84.5) | 9 (15.5) | Yes | 18 (78.3) | 5 (21.7) |
| Yes | 21 (65.6) | 11 (34.4) | Number of years working in a CH | 7.3±5.1 | 6.3±4.4 |
| Childcare support⁺ | | | Hours worked/week | | |
| No | 25 (65.8) | 13 (34.2) | <40 | 33 (82.5) | 7 (17.5) |
| Yes | 45 (86.5) | 7 (13.5) | 40-49 | 141 (73.4) | 51 (26.6) |
| Religion | | | 50-59 | 12 (50.0) | 12 (50.0) |
| Christian | 74 (66.7) | 37 (33.3) | 60-80 | 4 (40.0) | 6 (60.0) |
| Catholic | 38 (66.7) | 19 (33.3) | ≥80 | 1 (50.0) | 1 (50.0) |
| Buddhist | 45 (83.3) | 9 (16.7) | Night shifts | | |
| Islam | 5 (71.4) | 2 (28.6) | No | 63 (64.9) | 34 (35.1) |
| Hinduism | 11 (78.6) | 3 (21.4) | Yes | 128 (74.8) | 43 (25.2) |
| Free-thinker | 18 (72.0) | 7 (28.0) | Absenteeism, days/past year | | |
| Highest level of education completed | | | <5 | 153 (75.0) | 51 (25.0) |
| Secondary School i.e O' or N'levels/Equivalent | 16 (88.9) | 2 (11.1) | 5-9 | 28 (70.0) | 12 (30.0) |
| Professional qualification/ITE/Junior College/ Diploma | 55 (74.3) | 19 (25.7) | 10-14 | 8 (47.1) | 9 (52.9) |
| University Degree | 100 (69.9) | 43 (30.1) | >14 | 2 (28.6) | 5 (71.4) |
| Post-graduate Degree | 16 (88.9) | 13 (39.4) | No of night shifts/wk | 5.40±1.9 | 5.02±1.8 |
| **Health-related lifestyle** | | | Administrative work | | |
| Smoker | | | No | 139 (78.5) | 38 (21.5) |
| No | 187 (70.8) | 77 (29.2) | Yes | 52 (57.1) | 39 (42.9) |
| Yes | 4 (100.0) | 0 (0.0) | Hours,administrative work/week | | |

| Drinks alcohol | | | <5 | 25 (67.6) | 12 (32.4) |
|---|---|---|---|---|---|
| No | 184 (71.3) | 74 (28.7) | 5-9 | 6 (31.6) | 13 (68.4) |
| Yes | 7 (70.0) | 3 (30.0) | 10-14 | 16 (66.7) | 8 (33.3) |
| Regular exercise | | | 15-19 | 2 (40.0) | 3 (60.0) |
| Yes | 64 (68.1) | 30 (31.9) | ≥20 | 3 (50.0) | 3 (50.0) |
| No | 127 (73.0) | 47 (27.0) | Absenteeism, days/past year | | |
| Sleep | | | <5 | 153 (75.0) | 51 (25.0) |
| > 8 hours/day | 51 (87.9) | 7 (12.1) | 5-9 | 28 (70.0) | 12 (30.0) |
| 4-8 hours/day | 140 (66.2) | 70 (33.8) | 10-14 | 8 (47.1) | 9 (52.9) |
| | | | >14 | 2 (28.6) | 5 (71.4) |
| | | | Vacation time taken, past year | 18.9±4.6 | 10.2±2.2 |

SD, standard deviation.

[+] infant care/childcare; having a domestic helper; having relatives who take care of your children

## APPENDIX

**Supplementary Table I: Bivariate analysis of variables associated with distress**

| Variable | | OR | 95%CI | *p* value | Variable | | OR | 95%CI | *p* value |
|---|---|---|---|---|---|---|---|---|---|
| **Socio-demographics** | | | | | **Professional Characteristics** | | | | |
| Age (years) | | 0.95 | 0.92-0.98 | 0.003 | Occupation | Overall | | | 0.062 |
| Gender | Male | 1 | | | | Nurse | 1 | | |
| | Female | 0.50 | 0.25-1.16 | 0.117 | | Physician | 2.43 | 0.91-6.52 | 0.077 |
| Marital Status | Single | 1 | | | | Rehabilitation therapist | 1.83 | 0.97-3.43 | 0.062 |
| | Married | 1.24 | 0.73-2.11 | 0.430 | Employed | Full-time | 1 | | |
| Number of children | | 1.70 | 1.51-1.95 | 0.021 | | Part-time | 0.44 | 0.09-2.02 | 0.288 |
| Children < 5 years of age | No | 1 | | | Palliative care | No | 1 | | |
| | Yes | 2.69 | 1.32-5.53 | 0.007 | | Yes | 0.67 | 0.24-1.87 | 0.441 |
| Childcare | Yes | 1 | | | Number of years working in a CH | | 0.96 | 0.90-1.01 | 0.131 |
| | No | 3.34 | 1.18-9.47 | 0.020 | Hours worked/week | Overall | | | 0.014 |
| Religion | Overall | | | 0.272 | | <40 | 1 | | |
| | Christian | 1 | | | | 40-49 | 1.71 | 0.71-4.10 | 0.233 |
| | Catholic | 1 | 0.51-1.97 | 1.000 | | 50-59 | 4.71 | 1.50-14.78 | 0.008 |
| | Buddhist | 0.40 | 0.18-0.91 | 0.028 | | 60-80 | 7.07 | 1.57-31.86 | 0.011 |
| | Islam | 0.80 | 0.15-4.32 | 0.795 | | ≥80 | 4.71 | 0.29-84.8 | 0.293 |
| | Hinduism | 0.55 | 0.14-2.08 | 0.374 | Night shifts | No | 1 | | |
| | Free-thinker | 0.88 | 0.33-2.31 | 0.788 | | Yes | 1.61 | 0.93-2.76 | 0.087 |
| Highest level of education completed | Overall | | | 0.141 | No of night shifts | | 0.90 | 0.74-1.08 | 0.249 |
| | Secondary School i.e O' or N'levels/Equivalent | 1 | | | Administrative work | | 2.74 | 1.58-4.75 | <0.0005 |
| | Professional qualification/ITE/Junior College/Diploma/Equivalent | 2.76 | 0.58-13.1 | 0.201 | Hours, administrative work/week | Overall | | | 0.079 |
| | University Degree | 3.44 | 0.76-15.62 | 0.109 | | <5 | 1 | | |
| | Post-graduate Degree | 5.20 | 1.02-26.47 | 0.047 | | 5-9 | 4.51 | 1.38-14.80 | 0.013 |
| **Health-related lifestyle** | | | | | | 10-14 | 1.04 | 0.35-3.11 | 0.942 |
| Drinks alcohol | No | 1 | | | | 15-19 | 3.13 | 0.46-21.25 | 0.244 |
| | Yes | 1.07 | 0.27-4.23 | 0.928 | | ≥20 | 2.08 | 0.36-11.89 | 0.409 |
| | Yes | 1 | | | | | | | |

| Regular exercise | No | 1.27 | 0.73-2.19 | 0.398 | Sick leave taken, past year | Overall | | | | 0.010 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sleep, hours/day | > 8 | 1 | | | | <5 | 1 | | | |
| | 4-8 | 3.64 | 1.57-8.44 | 0.003 | | 5-9 | 1.29 | 0.61-2.71 | | 0.510 |
| | | | | | | 10-14 | 3.38 | 1.24-9.21 | | 0.018 |
| | | | | | | >14 | 7.50 | 1.41-39.8 | | 0.018 |
| | | | | | Vacation time taken, past year | | 1.02 | 0.96-1.08 | | 0.554 |

OR: odds ratio

95%CI: 95 percent confidence interval

## Supplementary Table II: Multivariate factors associated with distress

| *All Participants (N = 268)* | | | |
|---|---|---|---|
| **Variable** | **Adjusted OR** | **95% CI** | ***p* value** |
| Administrative work[+] | 2.64 | 1.43-4.85 | 0.002 |
| *Subgroup Analysis of Participants with Children (N = 90)* | | | |
| **Variable** | **Adjusted OR** | **95% CI** | ***p* value** |
| No childcare support [ß] | 3.24 | 1.92-10.52 | 0.040 |

[+] Adjusted for age, gender, occupation, education, number of years working in a CH and sleep

[ß] Adjusted for age, gender, occupation, education, sleep, marital status, number of children and children < 5 years of age