

# Prevalence of Work-Related Anxiety during the COVID-19 Pandemic

## *A Cross-Sectional Study*

### **Abstract**

This cross-sectional study investigates the shifts in anxiety levels among Swedish employees throughout the Covid-19 pandemic, with data gathered in 2016, 2018, and 2020. Work-related anxiety was assessed through two metrics: General Work Anxiety (WA) and Work Performance Anxiety (WPA). Overall, there was a decline in both average WA and WPA over the five-year period. However, this trend did not apply uniformly across all social groups. Specifically, WA saw a significant decrease among older men, while it showed an increase among younger women. Additionally, the reduction in WPA was more pronounced among managers than employees during the pandemic. High-income individuals and those with advanced education levels also experienced a greater decrease in WPA. These findings underscore the role of employment conditions in shaping the impact that the pandemic might have had on workers' mental health.

*Keywords:* Work Performance Anxiety, Workplace Anxiety, Covid-19, Health Inequality, Mental Health

THE PANDEMIC OF Covid-19 affected the mental health and well-being of employees all over the world (Aknin et al 2022; Lange 2021; Robinson et al 2022). In Sweden, the frequency of clinical anxiety disorders increased with an estimated 23 percent over the course of the pandemic (Santomauro et al 2021). The deterioration in public health cannot be solely attributed to safety measures leading to social isolation. There is also evidence indicating a surge in work-related anxiety during the pandemic. This issue was particularly pronounced among frontline healthcare workers, migrant workers, and other public-facing employees at higher risk of infection, but it appears that even those in seemingly safer jobs have faced similar challenges. However, the precise trend of anxiety increases during the pandemic remain largely unexplored, especially so in relation to socioeconomic factors (Giorgi et al 2020).

The pandemic underscored longstanding sociological concerns, notably regarding social inequalities and social class, themes central to the field of sociology from its outset. Similar to historical pandemics, the Covid-19 crisis revealed that its risks were unevenly distributed, further emphasizing that an individual's social class not only shapes their

opportunities for a fulfilling life but also their health (see Ryan & Nanda 2022; Schultz 2022). How social class shaped work-related anxiety during the pandemic remains unknown, but it has been suggested that as a greater proportion of the workforce had to work from home, assessing work performance became more difficult leading to stress and worry. How work performance has changed is debated – some studies suggest a decrease in productivity when employees work from home (Farooq & Sultana 2022), others that productivity may increase (Guler et al 2021). Regardless, workers do experience worry contemplating that their work from home is undervalued (Tziner & Rabenu 2021). As earlier studies suggest, when managers cannot monitor the labour process, they tend to underappreciate it and assess it critically (Murphy & Cleveland 1995; Tziner & Rabenu 2018). Since most wage labour is regulated by time, requiring employees to be at a certain place during a certain time, working from home constitutes a challenge to management prompting urgent means to measure performance more thoroughly than during pre-pandemic times. This may induce a sense of insufficiency among employees, and, as a recent study suggests, even resistance against norms of busyness, productivity, and exhaustion (Bakkeli 2021). Although there is good evidence that remote work can reduce levels of anxiety and stress depending on the settings (Shimura et al 2021), earlier research has suggested an increase in anxiety levels due to remote work during the pandemic in the UK (Platts et al 2022). To understand what affects levels of work-related anxiety, sociological study is needed taking several social conditions into account.

In this study, we analyse the variation of feelings of anxiety among the Swedish workforce, and in particular performance related anxiety, what in the literature is called “workplace anxiety” – a phenomenon that is estimated to cost only the US economy approximately \$40 billion annually with 41 per cent of American workers reporting elevated levels of workplace tension (McCarthy et al 2016).

Our focus will be on changes during the pandemic. As already noted, there are many factors that might have contributed to a heightened work-related anxiety during the pandemic. These factors affect social groups differently which, as earlier research has already demonstrated, should be reflected in different anxiety levels depending on variables such as gender (Özdin & Bayrak Özdin 2020), age (Turna et al 2021) and social class (Huato & Chavez 2021). It is also a possibility that factors, such as the reduction of the working hours during the pandemic, including less time for commuting, might have lessened this type of anxiety in some social groups.

## Aim and Research Questions

This study aims to analyse how work-related anxiety varied during the pandemic, depending on background factors such as class, age, and gender that affect working conditions. Our research questions are as follows:

RQ1. What are the general tendencies workplace anxiety over time, and were there any exceptions during the pandemic?

RQ2. How did workplace anxiety vary during the pandemic depending on what sector (private, non-profit, state, regional council, municipality) respondents were employed in?

RQ3. How did workplace anxiety vary during the pandemic depending on age and gender of the participants?

RQ4. Throughout the pandemic, how did variations in workplace anxiety manifest in relation to class-specific factors, including job position, education and income?

## Workplace Anxiety

Workplace anxiety refers to the emotional nervousness and apprehension about the performance of job tasks (Muschalla & Linden 2012). It is an activity-specific anxiety in the sense that it is stimulated by specific activities, formal or informal, requiring that the individual performs in accordance with institutionalized expectations. Hence, it is affected by both individual dispositions and organizational characteristics and its main symptoms are lack of concentration, self-criticism, urge to please others, low self-esteem and self-confidence (Motowidlo et al 1986). Physical sensations accompanying this include dizziness, sweating, hot flushes, palpitations and high blood pressure (Blöte et al 2009).

Workplace anxiety is a subtype under the more extensive construct of performance anxiety that has mainly been studied with relation to music – the so called “music performance anxiety” of professional artists (see Kenny 2011). There are also studies of performance anxiety accompanying the execution of school-based examinations, selection tests, job interviews, and sports competitions (see Proost et al 2008). While there is strong conceptual relation to, and also high comorbidity with other types of anxiety (in DSM-5 performance anxiety appears as a subcategory to social anxiety disorder, see APA, 2013:203), workplace anxiety is not redundant with clinical diagnoses. It differs from general trait anxiety (such as generalized anxiety disorder) since it reflects an evaluative-grounded anxiety that is specifically centred on work-related situations (Zeidner & Matthews 2005).

While performance anxiety has been thoroughly studied, workplace anxiety remains under-researched with only one study conducted on the relation between workplace anxiety and lowered performance. In their study, the authors analysed how workplace anxiety decreased productivity among Canadian police officers (McCarthy et al 2016). There is also some evidence that workplace anxiety is affected by earlier experiences of anxiety disorders (Linden & Muschalla 2007) and workplace mentoring (Linden & Muschalla 2007).

This literature leaves many questions unanswered. While it has been suggested that occupations and social groups affect levels of workplace anxiety (Cheng & McCarthy 2018), there is little empirical evidence pointing in either direction. For this, population data is needed. Also, we don't know how feelings of workplace anxiety are shifting over time. For that, cross-sectional data is necessary.

## Methods

Data collection occurred in the spring months (April to June) of 2016, 2018, and 2020, utilizing online surveys through Sweden’s most extensive working life survey, the Jobbhälsindex. Notably, the data collection in 2020 took place shortly after the pandemic had impacted global activities. The web panel used for Jobbhälsindex has been randomly selected and weighted to make it representative to gender, age, employment, and geographical region for Swedish individuals working at least part-time. The demographics were validated with data from Statistics Sweden (SCB). Participants were also notified that their contributions would be utilized for research, and the same items have been used in each survey with no adjustment to external demands or commercial interests. The data-collections were cross-sectional, meaning that each sample provides a representative snapshot of the Swedish population at the time of the data-collection. This also means that there are different participants in the three samples. In this paper, we refer to changes in anxiety levels over time as *increase* or *decrease*. It shall, however, be noted that this refers to general tendencies in the population, rather than longitudinal data.

## Participants

In total, 29 156 participants between 18-99 years participated in the three surveys (year 2016:  $n = 9835$ ,  $Mage = 47.0$ ,  $SDage = 11.4$ ; year 2018:  $n = 9882$ ,  $Mage = 44.7$ ,  $SDage = 12.1$ ; year 2020:  $n = 9439$ ,  $Mage = 42.0$ ,  $SDage = 12.5$ ). The samples were all representative to the Swedish labour market, Table 1 and Table 2 show the demographics of the three samples. In total, the three samples had 51.5% women and 48.5% men (this data was provided from the Jobbhälsindex based on a binary question with the response options woman/man).

Table 1. The distributions of job position and gender for the three data collections, in percentage.

Gender	Occupation	2016	2018	2020	Whole sample
<b>Woman</b>	Employed	40.29	43.93	46.56	43.52
	Manager	10.29	6.37	7.15	7.96
	Total	50.58	50.31	53.71	51.47
<b>Man</b>	Employed	44.11	38.17	34.50	39.04
	Manager	5.31	11.53	11.79	9.48
	Total	49.42	49.69	46.29	48.53
<b>Total</b>	Employed	84.41	82.10	81.06	82.56
	Manager	15.59	17.90	18.94	17.44
	Total	100.00	100.00	100.00	100.00

Table 2. The distributions of education and income for the three data collections, in percentage.

<b>Income</b>	<b>Education</b>	<b>2016</b>	<b>2018</b>	<b>2020</b>	<b>Whole sample</b>
<b>&lt; 25 000 SEK</b>	compulsory school	0.73	1.66	1.53	1.29
	high school	4.67	10.81	11.53	8.90
	university / college	2.31	5.21	4.76	4.06
	other post-secondary education	1.89	3.58	3.14	2.85
	<b>Total</b>	<b>9.60</b>	<b>21.25</b>	<b>20.95</b>	<b>17.11</b>
<b>25 000 – 39 999 SEK</b>	compulsory school	3.19	1.83	1.94	2.34
	high school	25.12	22.91	21.82	23.34
	university / college	29.93	25.62	22.87	26.26
	other post-secondary education	13.02	9.47	8.57	10.42
	<b>Total</b>	<b>71.27</b>	<b>59.83</b>	<b>55.21</b>	<b>62.36</b>
<b>&gt; 40 000 SEK</b>	compulsory school	0.37	0.36	0.28	0.34
	high school	3.90	4.21	4.19	4.09
	university / college	12.63	11.81	14.76	13.01
	other post-secondary education	2.23	2.54	4.61	3.08
	<b>Total</b>	<b>19.13</b>	<b>18.92</b>	<b>23.84</b>	<b>20.52</b>
<b>Total</b>	compulsory school	4.29	3.85	3.74	3.97
	high school	33.69	37.92	37.54	36.33
	university / college	44.88	42.64	42.40	43.34
	other post-secondary education	17.14	15.59	16.32	16.35
	<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

### Measurements

As pointed out by Cheng and McCarthy (2018), workplace anxiety encompasses several dimensions that are easy to confound when measured resulting in often inconsistent findings. For the sake of clarity, we distinguish between the performance related anxiety on the one hand, and the broader sense of anxiety in relation to one's job on the other.

*Work Performance Anxiety* (WPA) was operationalized with the item "You have experienced worry of not performing well enough at work". Participants indicated to

what extent they agreed with the statement, on a scale from 1 = Do not at all agree, to 7 = Totally agree.

We also conducted an index measuring *General Work Anxiety* (WA),  $\alpha = .67$ , consisting of the following four items, rated on 10-point Likert scales:

- You have experienced worry for losing your job, or being replaced against your will
- You look forward going to work (R)
- There usually is a good balance between your private life and work (R)
- The stress in your job can be handled in a satisfying way (R)

This index measures possible consequences of WA, i.e. worrying of losing one's job, not feeling that the work-related stress can be handled well, etc. which is in line with variables that have previously been used to measure work-related anxiety that encompasses various worries (McCarthy et al., 2016). As the items 2-4 were reversed, we recalculated them before creating the index, so high values indicated high anxiety. In order to test the index, a Principal Components Analysis (PCA) was used, as the primary purpose was to identify the factor/s underlying the four items. Initial Eigenvalues indicated that the first three factors explained 54.2%, 23.8 and 12.7% of the variance respectively. The Eigenvalue for the first three factors were 2.17, .95, and .51, indicating that a model with one factor should be used; this validated the composition of our General Work Anxiety index.

*Class* was operationalized by the individual background factors education, income, and job position. These are analysed separately throughout the manuscript. *Education* was indicated by participants selecting one of four categories: primary education, secondary education, higher education, other post-gymnasium education. *Income* was indicated by monthly salary, with the categories < 25 000 SEK, 25 000-39 999 SEK, > 40 000 SEK. *Job position* was indicated by the categories "employed" or "manager" and dummy coded, where each participant was coded as either "employee" or "manager".

Additionally, we also included personal background data of the participants such as age and gender, as well as in which sector they were employed. *Sector* was specified by the participants indicating one of five different options: private, non-profit, state, regional council, municipality.

## Analysis

To explore the research questions, we conducted ANOVAs with WA and WPA as dependent variables and these background factors as independent variables. We also used Pearson's  $r$  to examine the relationship between WA and WPA. The focus is on observing how variations in work anxiety during the pandemic are associated with different sectors (RQ2), age and gender (RQ3), and class (RQ4), analysing these average variations with respect to the specified background factors. To observe the variations of WA and WPA during the pandemic, data from three time points—2016, 2018, and 2020—were analysed, noting the changes between 2018 and 2020.

## Results

The organization of the results section is as follows: Initially, we aim to address the first two research questions (RQ1 and RQ2) by examining the patterns of Work Anxiety (WA) and average Work Performance Anxiety (WPA) across three time points (2016, 2018, 2020), focusing on the sectors involved. Subsequently, we will tackle the latter two research questions (RQ3 and RQ4) by investigating the patterns of WA and WPA, taking into account the background factors of age and gender for RQ3, and class for RQ4.

### Patterns of WA and WPA Over Time

The first research question (RQ1) explores the overall patterns in Work Anxiety (WA) and average Work Performance Anxiety (WPA) throughout the specified time periods, and whether there were deviations from these patterns during the pandemic. In general, both the average WA and the average WPA decreased over the three time points, as shown in Table 3 (higher values indicate higher levels of anxiety). Two ANOVAs with WA and WPA as dependent variables respectively, and with year as independent variable, showed that the effect of time was significant, both for WA ( $F(2,28334) = 136.25, p < .001, \eta^2 = .010$ ), and for WPA ( $F(2,28637) = 388.67, p < .001, \eta^2 = .026$ ). WA and WPA also showed a significant but relatively weak correlation,  $r = .333, p < .001$ . This indicates that the two measurements capture different phenomena, although somewhat overlapping, which was expected theoretically and hence not surprising.

*Table 3.* The overall WPA (work performance anxiety) and WA (work anxiety) tendencies over time, measurements represent mean values and range from 1-7 where higher values indicate higher levels of anxiety (standard deviation within parentheses).

Measurement	2016	2018	2020
WPA	5.53 (2.79)	4.93 (2.84)	4.39 (2.80)
WA	4.58 (1.69)	4.20 (1.84)	4.19 (2.01)

### Sector

The second research question (RQ2) regards how WA and WPA varied during the pandemic depending on what sector participants were employed in. Table 4 shows the work anxiety tendencies over time, depending on sector. Two-way ANOVAs with WPA and WA as dependent variables (respectively), and with year (2015, 2018, 2020) and sector (private, non-profit, state, regional council, municipality) showed no significant main effects of sector, FWPA(4,28302) = 2.81,  $p = .100, \eta^2 = .584$ , FWA(4,28008) = 1.10,  $p = .419, \eta^2 = .355$ ). There was, however, significant interaction effects of year \* sector for both WPA,  $F(8,28302) = 5.90, p < .001, \eta^2 = .002$ , and WA,  $F(8,28008) = 5.38, p < .001, \eta^2 = .002$ ). As revealed in Table 4, the WA increased instead of decreased

(or remained the same) for participants employed within the non-profit and regional sectors during the pandemic. Similar results were found regarding WPA, which decreased for employees in all sectors during the pandemic, except for those working in the non-profit and regional sectors, where the WPA rather flattened out.

*Table 4.* The overall WPA (work performance anxiety) and WA (work anxiety) tendencies over time, depending on sector. Measurements represent mean values and range from 1-7 where higher values indicate higher levels of anxiety (standard deviation within parentheses).

Measurement	Sector	2016	2018	2020
WPA	private	5.52 (2.79)	4.80 (2.84)	4.17 (2.77)
	state	5.59 (2.72)	5.06 (2.76)	4.48 (2.74)
	regional council	5.63 (2.79)	4.96 (2.86)	4.82 (2.88)
	municipality	5.48 (2.81)	5.19 (2.86)	4.69 (2.84)
	non-profit	5.73 (2.94)	4.61 (2.77)	4.52 (2.76)
WA	private	4.63 (1.68)	4.23 (1.86)	4.13 (2.02)
	state	4.76 (1.65)	4.32 (1.77)	4.22 (1.97)
	regional council	4.27 (1.64)	4.06 (1.83)	4.37 (2.11)
	municipality	4.47 (1.70)	4.11 (1.79)	4.21 (1.96)
	non-profit	4.53 (1.85)	4.10 (2.00)	4.30 (2.17)

### Work Anxiety

To answer the research questions on how WA and WPA varied during the pandemic, depending on age and gender (RQ3), and class (RQ4), we will analyse WA and WPA separately. We begin by analysing the variation of Work Anxiety (WA) and differences between groups over the three time points.

### Age and Gender

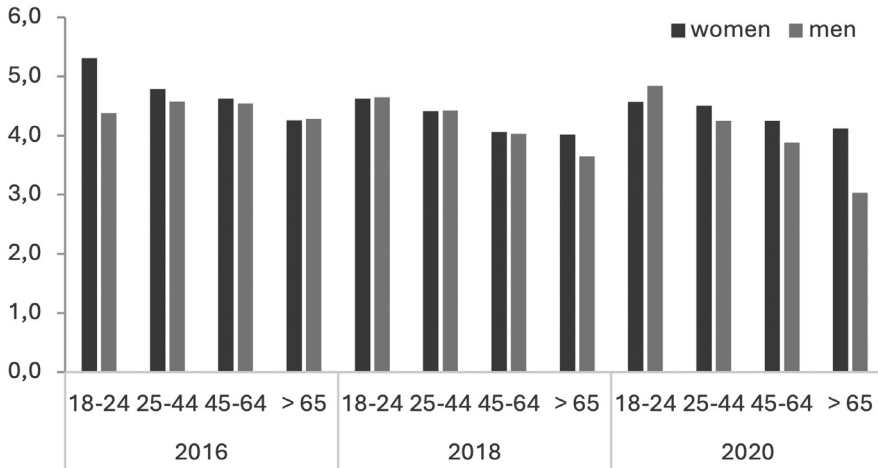
The third research question addresses how work anxiety varied during the pandemic depending on age and gender. To analyse RQ3 with regards to work anxiety (WA), a three-way ANOVA with WA as dependent variable, and year, age and gender as independent variables was conducted. Results showed no main effects, but an almost significant interaction effect of year \* age  $F(6,27625) = 3.82, p = .064, \eta^2 = .792$ , where the youngest participants (18-24) had a slight increase in WA between 2018 and 2020, while the older participants (45-64 and > 65) instead showed a decrease in WA. There was no significant interaction effect of year \* gender  $F(2,27625) = .786, p = .461, \eta^2 = .028$ , meaning that the change in WA was similar for both women and men.

There was however a significant three-way interaction between year \* age \* gender,  $F(6,27625) = 2.19, p = .041, \eta^2 < .001$ . Figure 1 shows the interaction effect between



2018 and 2020. As can be seen in the figure, WA decreased the most for older men during the pandemic, while WA instead increased both for younger women and men.

Figure 1. The interaction effect of year \* age \* gender for WA (work anxiety). Measurement ranges from 1-7 where higher values indicate higher levels of anxiety.



### Class

The fourth research question (RQ4) examines changes in work anxiety during the pandemic related to class, defined by job position (employed or manager), education, and income. This section explains how work anxiety (WA) differed during the pandemic based on these factors, aiming to answer RQ4. We start with job position and then look at education and income.

A two-way ANOVA with WA as dependent variable and job position (employed or manager) and year (2016, 2018, 2020) as independent variables showed a significant interaction effect of job position and year,  $F(2,28033) = 6.58$ ,  $p = .001$ ,  $\eta^2 = .000$ , see Table 5. As revealed in the table, WA decreased more for employees compared to managers between 2016 and 2018, while this effect flattened out for both employees and managers between 2018 and 2020. This was also confirmed in post-hoc tests: For employees, Tukey's post-hoc test showed significant differences in work anxiety between all years ( $p$ 's < .001) except between 2018 and 2020 ( $p = .77$ ). For managers, Tukey's post-hoc test again showed significant differences in work anxiety between all years ( $p$ 's < .011) except between 2018 and 2020 ( $p = .99$ ).

*Table 5.* The overall WA (work anxiety) tendencies over time, depending on job position. Measurements represent mean values and range from 1-7 where higher values indicate higher anxiety levels (standard deviation within parentheses).

<b>Job position</b>	<b>2016</b>	<b>2018</b>	<b>2020</b>
<b>employee</b>	4.61 (1.69)	4.20 (1.85)	4.18 (2.00)
<b>manager</b>	4.36 (1.65)	4.16 (1.80)	4.17 (2.02)

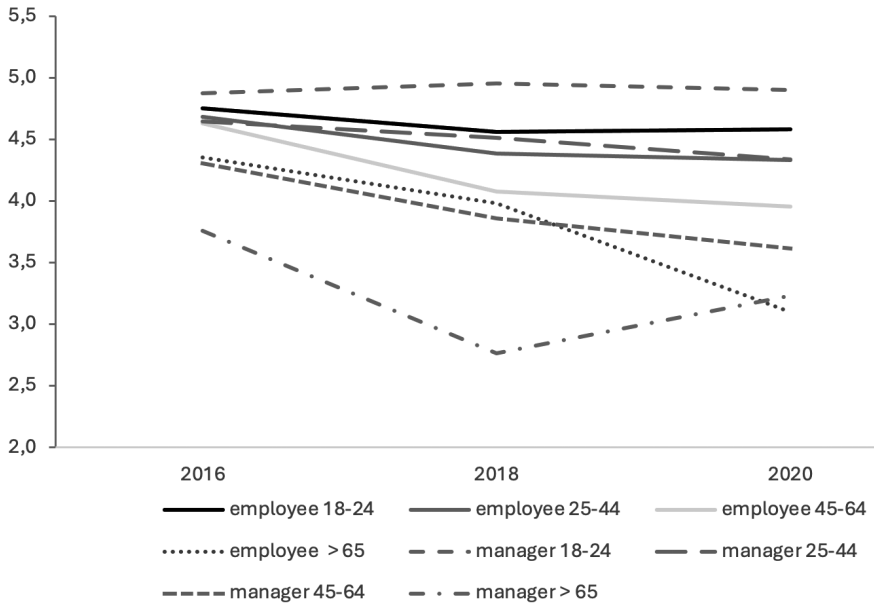
A three-way ANOVA with WA as dependent variable, and education, income, and year as independent variables, showed significant main effects of education ( $F(3,26129) = 4.12, p = .006, \eta^2 = .000$ ), and income ( $F(2,26129) = 44.60, p = .000, \eta^2 = .003$ ). There was, however, no interaction effects between year and education ( $F(6,26129) = 1.53, p = .163, \eta^2 = .000$ ) or between year and income ( $F(4,26129) = 1.49, p = .202, \eta^2 = .000$ ). These results indicate that the pandemic had no particular effect on WA depending on education or income.

*Class, Gender, and Age*

To even further understand if WA has varied unequally, we also analysed potential three-way interaction effects between year and the background factors identified as relevant for explaining WA above (see Figure 2). Hence, a three-way ANOVA was conducted, with WA as dependent variable, and job position (employee or manager), gender (woman or man), and age (18-24, 25-44, 45-64, > 65) as independent variables.

Results showed a significant three-way interaction between year, job position, and age,  $F(6,27380) = 3.22, p = .004, \eta^2 = .001$ . As illustrated in the figure, employees older than 65 reported a decrease in WA, whereas managers older than 65 reported an increase in WA. In contrast, managers in the remaining age categories reported a slight decrease in WA between 2018 and 2020. The youngest employees (18-24) reported a slight increase in WA between 2018 and 2020, while the remaining employees reported no particular change in WA.

Figure 2. The three-way interaction on WA (work anxiety) between year \* position \* age. Measurement ranges from 1–7 where higher values indicate higher levels of anxiety.



### Work Performance Anxiety

We have now analysed the research questions on how work anxiety (WA) varied during the pandemic, depending on age and gender (RQ3), and class (RQ4). Our next step is to analyse RQ3 and RQ4 with regards to Work Performance Anxiety (WPA).

### Age and Gender

The third research question (RQ3) regards how WPA varied during the pandemic depending on age and gender of the participants. A three-way ANOVA with WPA as dependent variable, and age (18-24, 25-44, 45-64, > 65), gender (woman or man) and year (2016, 2018, 2020) as independent variables revealed a significant interaction effect between year and age,  $F(6,27936) = 5.06$ ,  $p = .000$ ,  $\eta^2 = .001$ , and between year and gender,  $F(2,27936) = 4.45$ ,  $p = .012$ ,  $\eta^2 = .000$ , see Table 6. As described in Table 6, men's WPA tended to decrease more compared to women's – this effect was however not affected by the pandemic. Moreover, Table 6 shows that WPA had a constant tendency to decrease for all age groups over the three time points, except for the youngest (between 18-24). For this group, the WPA decrease flattened out during the pandemic.

There was no three-way-interaction between age, gender, and year,  $F(6,27936) = 1.80$ ,  $p = .095$ ,  $\eta^2 = .000$ .

*Table 6.* The overall WPA (work performance anxiety) tendencies over time, depending on gender and age. Measurements represent mean values and range from 1-7 where higher values indicate higher anxiety levels (standard deviation within parentheses).

<b>Gender / Age</b>	<b>2016</b>	<b>2018</b>	<b>2020</b>
man	5.73 (2.87)	5.21 (2.82)	4.17 (2.62)
woman	5.61 (2.67)	5.30 (2.86)	4.73 (2.84)
18-24	6.16 (2.11)	5.40 (2.60)	5.01 (2.81)
25-44	5.87 (2.66)	5.42 (2.76)	4.69 (2.77)
45-64	5.39 (2.81)	4.62 (2.85)	3.89 (2.74)
> 65	5.40 (2.93)	4.29 (2.94)	3.22 (2.57)

*Class*

The fourth research question (RQ4) addresses how WPA varied during the pandemic depending on class. As class was operationalized by the individual background factors job position (employed or manager), education, and income, the following section presents how WPA varied during the pandemic depending on these factors. We begin with job position, followed by education and income.

A two-way ANOVA with WPA as dependent variable and job position (employed or manager) and year (2016, 2018, 2020) as independent variables showed a significant interaction effect between job position and year,  $F(2,28329) = 5.43$ ,  $p = .004$ ,  $\eta^2 = .000$ , see Table 7. As shown in in the table, the WPA had an almost constant decrease for employees over the three time points (changes vary from .50 to .64), pandemic or not. For managers, however, WPA decreased more between 2018 and 2020 (change between 2016 and 2018 was .40; change between 2018 and 2020 was .84), and actually reached the very same low level as for employees.

*Table 7.* The overall WPA (work performance anxiety) tendencies over time, depending on class: job position, income, and education. Measurements represent mean values and range from 1-7 where higher values indicate higher anxiety levels (standard deviation within parentheses).

<b>Job position / Income / Education</b>	<b>2016</b>	<b>2018</b>	<b>2020</b>
Employee	5.51 (2.80)	4.87 (2.84)	4.37 (2.82)
Manager	5.64 (2.74)	5.24 (2.83)	4.40 (2.80)
< 25 000 SEK	6.15 (2.71)	5.23 (2.92)	4.87 (3.09)
25 000 – 39 999 SEK	5.72 (2.82)	5.31 (2.85)	4.45 (2.67)
> 40 000 SEK	5.47 (2.62)	5.28 (2.82)	4.23 (2.68)
Primary education	5.22 (2.95)	4.25 (2.95)	4.17 (2.87)
Secondary education	5.47 (2.81)	4.74 (2.83)	4.23 (2.79)
Higher education	5.59 (2.73)	5.27 (2.80)	4.54 (2.79)
Other post-gymnasium	5.61 (2.82)	4.91 (2.62)	4.23 (2.79)

A three-way ANOVA with WPA as dependent variable, and education, income, and year as independent variables, revealed a significant interaction effect between year and education ( $F(6,26327) = 2.61, p = .016, \eta^2 = .001$ ), see Table 7, and between year and income ( $F(4,26327) = 3.16, p = .013, \eta^2 = .000$ ), see Table 7. As revealed in Table 7, WPA had the same values and the same decrease for all income groups between 2016 and 2018. Between 2018 and 2020, however, there was a larger decrease for all those earning more than 25000 SEK per month, while the decrease flattened out for those earning less than 25000 SEK per month. Moreover, WPA had a similar decrease between 2016 and 2018 for all education groups, as revealed in Table 7. However, between 2018 and 2020, this decrease became larger for those with higher education, whereas the decrease flattened out for those with primary education.

There was no three-way-interaction between education, income, and year,  $F(12,26327) = 1.60, p = .085, \eta^2 = .001$ .

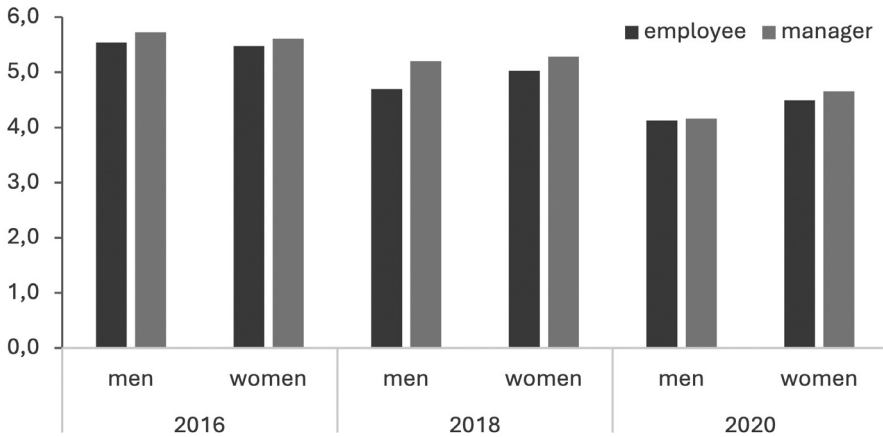
### *Class, Gender, and Age*

To further understand if WPA changed differently depending on social group, we analysed potential three-way interaction effects between year and the background factors identified as relevant to explain WPA above. Hence, a three-way ANOVA was conducted, with WPA as dependent variable, and job position (employee or manager), gender (woman or man), and age (18-24, 25-44, 45-64, > 65) as independent variables.

There was a significant three-way interaction between year, job position, and gender,  $F(2,27655) = 3.37, p = .034, \eta^2 = .000$ , see Figure 10. As can be seen in the figure, WPA followed the same tendencies between 2016 and 2018 for both women and

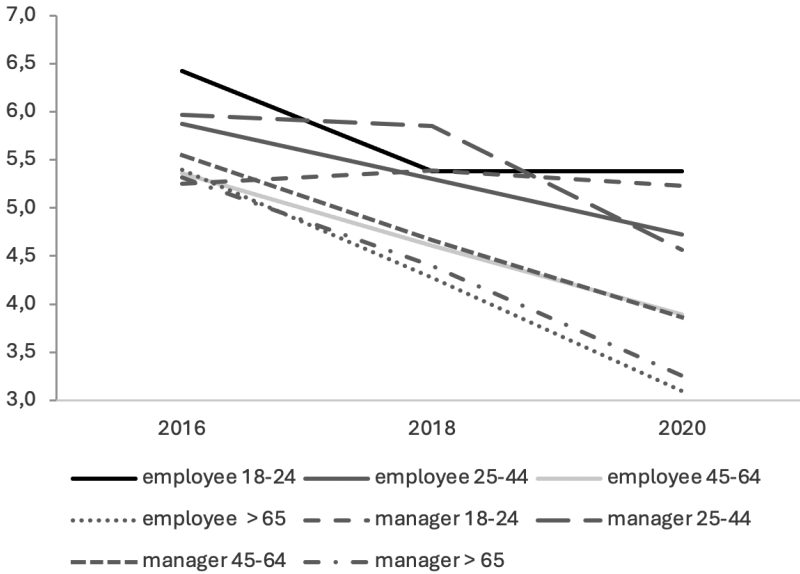
men, despite job position. However, the decrease already shown decrease in WPA for managers between 2018 and 2020, was largest for male managers.

Figure 3. The three-way interaction on WPA (work performance anxiety) between year \* gender \* position. Measurement ranges from 1-7 where higher values indicate higher levels of anxiety.



There was also a significant interaction between year, job position, and age,  $F(6,27655) = 2.64, p = .015, \eta^2 = .001$ , shown in Figure 11. As already revealed in previous analyses, WPA decreased for all employees over the three time points, except for the youngest employees (18-24 years), where WPA rather remained roughly the same between 2018 and 2020. For the youngest managers (18-24 yrs), WPA even increased for all three time points, however with no acceleration during the pandemic. For the remaining managers, WPA decreased over the three time points. This decrease was particularly large between 2018 and 2020 for managers between 25-44, indicating a pandemic effect for this specific group.

Figure 4. The three-way interaction on WPA (work performance anxiety) between year \* position \* age. Measurement ranges from 1-7 where higher values indicate higher levels of anxiety.



## Discussion

Unlike surveys from other nations, the results do not support the notion of a general increase in work-related anxiety. This is worth noticing in relation to studies demonstrating increasing levels of clinical anxiety during the pandemic (Aknin et al 2022; Lange 2021; Robinson et al 2022). Studies demonstrating increases in work-related anxiety have focused on specific occupations, in particular hospital workers (D'emeh et al 2021; Rodriguez et al 2020), and particular variables such as gender (Özdin & Bayrak Özdin 2020), age (Turna et al 2021) and social class (Huato & Chavez 2021). Those results could apply to our material as well. However, we see pandemic increases on work-related anxiety as aberrations from the general decrease.

Providing a complete analysis of these aberrations is difficult based on our findings. What we can say is that it is doubtful that a greater share of the workforce working from home augmented the work-related anxiety considering which groups that saw an increase (cf. Murphy & Cleveland 1995; Tziner & Rabenu 2018; Tziner & Rabenu 2021). As for age and gender, WA decreased the most for older men while it increased for younger women and men who are over-represented in the service sector and less likely to work remotely (Hedlund & Lundholm, 2015). Moreover, WPA flattened out for the youngest participants (between 18-24) during the pandemic, i.e., WPA did not become lower between 2018 and 2020, but was roughly the same. The same can be seen among low-wage employees, which might be due to the fact that they do not work from home to the same extent (Angelucci et al 2020). There was a larger decrease

in WPA between 2018 and 2020 than between 2016 and 2018 for those earning more than 25 000 SEK per month – a boost to the decrease in WPA during the pandemic also for these individuals. Likewise, for those earning less than 25 000 SEK, the decrease in WPA between 2018 and 2020 rather flattened out (i.e., was roughly the same in 2018 as in 2020) meaning that the pandemic seemed to dampen the decrease for those having the lowest wages. In line with these results, there was a larger decrease in WPA between 2018 and 2020 than between 2016 and 2018 for those with higher education. These results underscore the vulnerability of lower classes and the uneven distribution of risk during the pandemic as seen in earlier studies (Ryan & Nanda 2022; Schultz 2022)

Explaining these variations cannot be done solely based on the distribution of remote work. Other parameters that have affected mental health during the pandemic include, for instance, the precarity of work, which increased as the economy slowed down and a future increase of unemployment became apparent (Kim & Kim 2022). Additionally, many workers experienced a decrease in income due to transitioning to part-time roles, resulting in salary cuts (Maffly-Kipp et al 2021). An increase in feelings of loneliness was also observed, a phenomenon not solely attributable to the shift towards remote work but also to the enforcement of social distancing measures during the pandemic (Andel et al 2021). These elements, among others, could be influencing the results observed in our study.

Nonetheless, the most notable observation is the overall reduction in work-related anxiety, which stands in stark contrast to the 23 percent rise in clinical anxiety disorders in Sweden throughout the pandemic (Santomauro et al 2021). While it appears that a general feeling of anxiety may have escalated, there is reason to assume that for most, this anxiety was not directly linked to their work environment.

## Conclusion

The aim of this study was to analyze how Work Anxiety (WA) and Work Performance Anxiety (WPA) varied during the pandemic (RQ1), depending on sector (RQ2), age and gender (RQ3) and class (RQ4). Throughout the five-year span, average Work Anxiety (WA) and Workplace Anxiety (WPA) both experienced a decline. During the pandemic, WA rose, instead of falling (or staying constant), for individuals working in the non-profit and regional sectors. Likewise, WPA fell for workers across all sectors during the pandemic, except for those in the non-profit and regional sectors, where WPA essentially leveled off. WA decreased the most for older men, but increased for younger women. Also, the decrease of WPA was larger for managers during the pandemic, as compared to the decrease for employees – this tendency was stronger among male managers and among managers between 25-44 years. This is in line with the observation that WPA had a larger decrease for all those earning more than 25000 SEK per month, compared to those earning less than 25000 SEK per month. Furthermore, WPA had a larger decrease for those with higher education, whereas the decrease flattened out for those with primary education.



These results support the argument that varying working conditions have affected the mental well-being of occupational groups differently (Giorgi et al 2020); it might even be suggested that the Covid-19 pandemic has sharpened the divide between “good” and “bad” jobs (Kramer & Kramer 2020). To establish this hypothesis, further research should compare occupations in more detail, particularly occupations in which younger women and low-income employees are over-represented.

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