



Increased exposure to noise, overtime and employees witnessing bullying

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This report is available in electronic format only.

The National Research Centre for the Working Environment has conducted a new cohort study entitled Working Environment and Health in Denmark 2012–2020 (WEHD), which is a continuation of the former Danish Working Environment Cohort Study (DWECS). Results from 2012 serve as baseline measurements due to significant changes in questions to the respondents. Some results are however still comparable with the DWECS 2010 and a tendency towards increase in exposure to very loud noise, overtime and employees witnessing bullying is seen in WEHD 2012.

About the study

Every second year from 2012 to 2020 the National Research Centre for the Working Environment ([NRCWE](#)) will be assessing the self-reported working conditions, health and lifestyle of Danish workers through the national working conditions survey, entitled Working Environment and Health in Denmark 2012–2020 ([WEHD](#)). The WEHD is a continuation of the Danish Work Environment Cohort Study ([DWECS](#)) which has been conducted every five years since 1990 to monitor the Danish working environment. Until 2000 the study was called the Danish Employee Study (WEC) and the change of the name reflected the inclusion of self-employed and unemployed workers in the 2000, 2005, 2010 and 2012 surveys, ensuring that the entire labour market is covered in the research.

This report presents the results of the 2012 survey, which serves as a baseline for the assessments until 2020. The perspective of the survey in 2012 is prospective, meaning that the focus is more on including questions measuring relevant issues of the working environment than on drawing comparisons with the results of previous surveys.

In all, 16,300 respondents aged 18–64 years participated in the study in 2012 whereas the previous studies included only participants aged 18–59 years. Before comparisons between the 2010 and 2012 results are made, it must be noted that respondents older than 59 years have been excluded from the analyses to ensure the same basis of comparison. This means that results from 2012 presented in the context of trends may differ from results published elsewhere. However, results from 2012 are presented to demonstrate that job and gender-related differences are based on all respondents aged 18–64 years.

Methodology

The WEHD survey is based on a sample of 50,000 persons in the active population aged 18–64 living in Denmark. The sample consists of two subsamples: 35,000 are based on a random sample of all workers aged 18–64 years, while 15,000 are selected to represent 1,000 selected workplaces. The 35,000 randomly selected persons were invited to respond to a questionnaire in April 2012 and the response rate was 50%. The analyses presented in this report are based on the answers from the 16,300 persons in employment who responded to the questionnaire.

Questionnaire

The WEHD questionnaire consists of 55 questions about perceived work environment and health, covering:

- background of the respondents in terms of sex, age, labour market status, job and sector;
- working time, work planning and organisation, work engagement, workloads, work pace and health promotion at the workplace;
- physical work environment such as noise, vibrations, wet work, security and accidents, physical demands, work postures, chemical and thermal risk exposures, etc.;
- psychosocial work environment such as emotional demands, skill discretion, decision authority, bullying, violence, support from employer and colleagues, work–life balance, etc.;

- lifestyle and habits, health and disease symptoms including pain, self-rated health and doctors' diagnoses, if any, work ability, sickness absence and planned time of retirement.

Table 1: Technical details, WEHD 2012

Survey name	Work and Health in Denmark 2012 (WEHD)
Coverage	Total national labour market regardless of the labour market status of the respondent. The final analysis does however only include people in employment.
Frequency	Conducted every five years since 1990 and every second year since 2012.
Survey population (respondents)	1990: 8,664 individuals; 1995: 8,583 individuals; 2000: 8,583 individuals; 2005: 15,228 individuals, 2010: 14,453 individuals, 2012: 16,300 individuals.
Sampling strategy	Two subsamples consisting of one random sample of all workers aged 18–46 years and one random sample among 1,000 selected workplaces.
Registers used for the sample	Initially a representative random sample from the Central Population Register (CPR) of 35,000 people in the age group 18–64 and subsequently registers conducted by Statistics Denmark . Note that former surveys only included people aged 18–59 years.
Strategy for data collection	Postal invitation with a link to the internet questionnaire. Postal reminders contained both link and the questionnaire in paper form. Those who did not respond to the first reminder were contacted by telephone by a research agency calling for participation and offering to send a new questionnaire.
Contact point	The National Research Centre for the Working Environment (NRCWE).
Public access to data	http://www.arbejdsmiljoforskning.dk/da/arbejdsmiljoedata/arbejdsmiljoe-og-helbred-20/arbejdsmiljo-og-helbred-2012/resume

Source: DWECS 2013, [Method behind the study Work Environment and Health in Denmark 2012 \(in Danish\)](#).

Comparing results from WEHD and DWECS

Several topics have been covered in both the DWECS in 2010 and WEHD in 2012. However, in some cases new questions have been developed which limits the analysis of trends from 2010 to 2012.

The analysis of trends presented is based on identical questions and questions where the NRCWE assesses the comparison of results to be reasonable, given certain caveats.

For the purpose of comparing results from 2010 and 2012, only respondents aged 18–59 years are included in the analysis. The presented results of trends are based on 10,605 respondents in 2010 and 15,058 respondents in 2012. Both employed and self-employed respondents are included in the analysis. Comparison is made with raw data, which means that results are not adjusted for potential differences in age, gender and job composition in the two different samples. It is not possible for NRCWE to adjust for the possible difference in job composition, since the code used to categorise jobs by Statistics Denmark was DISCO-88 in 2010 and DISCO-08 in 2012.

For further information on the methodology, see [Method behind the study Work Environment and Health in Denmark 2012 \(in Danish\)](#) and [Work Environment and Health – Trends from 2010 to 2012 \(in Danish, 373KB PDF\)](#) (NRCWE, 2012).

Trends in working conditions 2010–2012

As was the case for the DWECS covering the period 2005–2010, no clear trend towards an overall better or worse work environment can be identified in the DWECS covering the period 2010–2012. The 2012 study both indicates poorer and improved working conditions varying within specific aspects but, as will be presented next, these changes are minor.

Significance of traditional risk exposure factors

Figure 1 shows the development of the traditional risk exposure factors that are comparable from 2010 to 2012. The share of respondents who are exposed to wet or damp hands has decreased significantly from 23.2% to 14.4%, while the share of respondents who are exposed to very loud noise at work has increased from 13.8% to 16.8%, similar to the trend identified in the DWECS 2010 study ([DK1108019D](#)).

Figure 1: Self-reported physical and ergonomic risk exposure factors, 2010–2012 (%)



Figure 1: Self-reported physical and ergonomic risk exposure factors, 2010–2012 (%)

Notes: The questions for lifting objects, noise, push and pull movements include at least a quarter of the time at work and three-quarters of the time at work for sedentary work. *Questions for 2010 and 2012 are not identical but, however, still deemed comparable.

Source: [Work Environment and Health – Trends from 2010 to 2012 \(in Danish, 373KB PDF\)](#), NRCWE, 2012

Psychosocial work factors

As was the case for the physical risk exposure factors, the results for the psychosocial work factors reveal both signs of worsening and improvements in the working environment. On the positive side, there has been a significant decrease in physical violence and threats of violence, as shown in Figure 2. On the more negative side, there has been a significant increase in the share of workers stating they have witnessed bullying at work. However, the share of respondents reporting they have experienced bullying has stayed around the same level.

Figure 2: Self-reported psychosocial work environment, 2010–2012 (%)

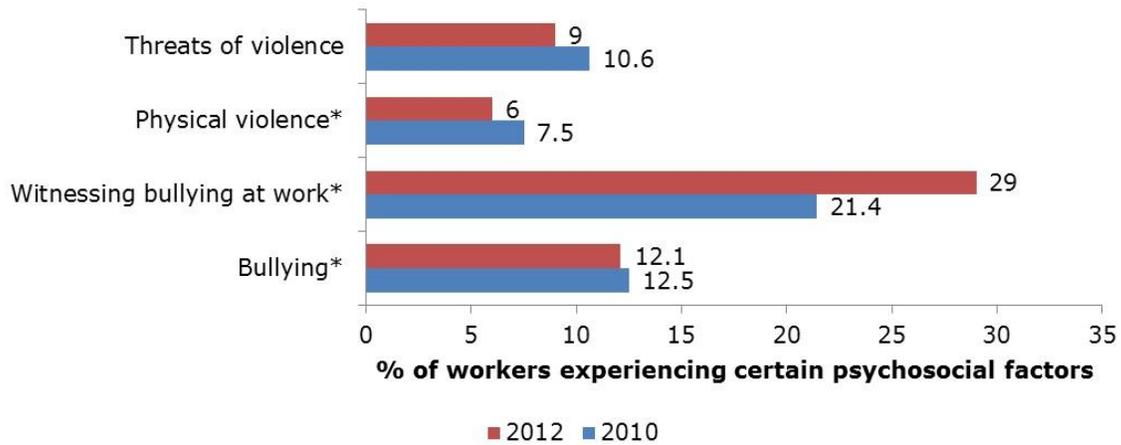


Figure 2: Self-reported psychosocial work environment, 2010–2012 (%)

Notes: *Questions for 2010 and 2012 are not identical but, however, still deemed comparable.

Source: [Work Environment and Health – Trends from 2010 to 2012 \(in Danish, 373KB PDF\)](#), NRCWE, 2012

Working time

Regarding working hours, overtime and working at night, results presented in Figure 3 indicate that average weekly working hours and the extent of overtime among respondents have increased slightly from 2010 to 2012. The percentage of respondents working at night has fallen slightly.

Figure 3: Self-reported working hours, overtime and working at night, 2010–2012

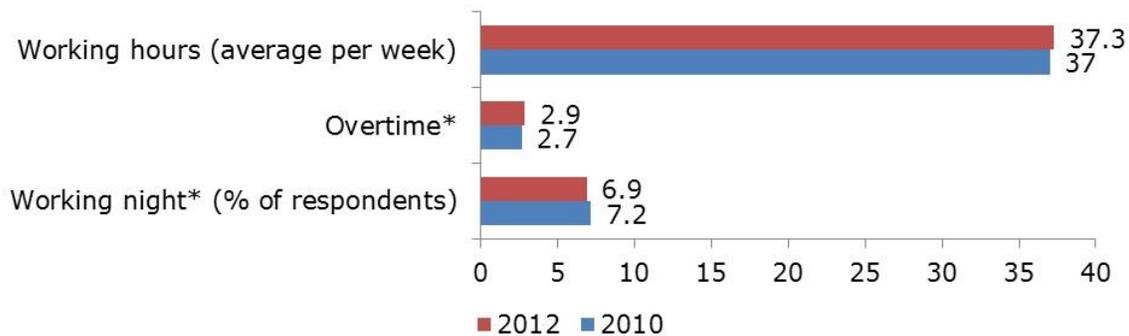


Figure 3: Self-reported working hours, overtime and working at night, 2010–2012

Notes: *Questions for 2010 and 2012 are not identical but, however, still deemed comparable. Overtime is measured on a scale from 1–5 where 1 corresponds to ‘never’ and 5 corresponds to ‘always’.

Source: [Work Environment and Health – Trends from 2010 to 2012 \(in Danish, 373KB PDF\)](#), NRCWE, 2012

Job-related differences

The WEHD 2012 reveals considerable divergence in the working conditions between different job groups.

Background information on job classification

Respondents’ jobs are classified according to the so-called [DISCO-08 code \(in Danish\)](#), which is the official Danish version of the [International Standard Classification of Occupations ISCO-08](#) from the International Labour Organization (ILO). Despite some adjustments to Danish conditions, the Danish version is very similar to the ISCO-08.

The NRCWE has in the descriptive analysis aggregated data in job groups in order to obtain a sufficient number of responses and ensure greater reliability. It should be also noted that some groups are not included in the DWECS job types if those groups contained fewer than 30 cases after merging or if merging on the basis of classification was too problematic. These individuals are therefore not included in the analysis where job information is used.

Risks associated with different types of job

Table 2 shows which types of jobs are particularly exposed to certain psychosocial risk factors. The results show that experience of high emotional demands, bullying and violence is observed in job groups where employees perform work requiring contact with people. This is especially the case within healthcare, welfare and education. Employees experiencing high emotional demands, low decision authority, bullying and violence are primarily people in job groups requiring short or medium-cycle education such as social workers and home care and nursing assistants. Nevertheless, the results show that poor work–life balance is observed among the job groups

requiring higher education, such as lawyers, managers and university graduates. Table 2 and 3, together, show that employees performing physically strenuous jobs involving the use of tools and equipment are more exposed to traditional physical working environment risk factors such as heavy lifting and back bending while, at the same time, they experience lower decision authority. This pattern has been identified in the DWECS 2005 ([DK0702019I](#)) and 2010 studies ([DK1108019D](#)).

Table 2: Psychosocial risk factors by type of job, 2012

Risk	Job types
High emotional demands	Childminders; teachers and care workers for disabled people; pharmacists, dentists and veterinarians; dental assistants; hairdressers and beauticians; physical and occupational therapists; primary, secondary and vocational school teachers; teachers' assistants; doctors; police and prison officers; hospital orderlies; psychologists; social workers and home care and nursing assistants; nurses; university lecturers and researchers; social science graduates.
Work-life balance poorer than average	Primary, secondary and vocational school teachers; lawyers; doctors; food, drink and tobacco industry workers; psychologists; teachers' assistants; truck drivers; managers; physical and occupational therapists; social science graduates; university lecturers and researchers; accountants, consultants and analysts; sales and purchasing agents.
Limited authority for decision-making	Firefighters, rescue workers and security guards; bus, taxi and train drivers; sales assistants; kitchen assistants; storage and transport workers; truck drivers; doctors; skilled machine operators; mechanical engineering and metal fitters industry workers; food, drink and tobacco industry workers; passenger service workers; postal workers; precision craftworkers; pharmaceutical economists and laboratory technicians; customer information workers; teachers' assistants; social workers and home care and nursing assistants; locksmiths; nurses; masons and other construction workers.
Exposure to bullying	Food, drink and tobacco industry workers; social workers and home and care nursing assistants; teachers and care workers for disabled people; production industry workers; hospital orderlies.

Risk	Job types
Exposure to violence	Childminders, teachers and care workers for disabled people; physical and occupational therapists; police and prison officers; hospital orderlies; teachers; teachers' assistants; social workers and home and care nursing assistants.

Source: Selected risk factors from WEHD 2012, [Work Environment and Health 2012 by job groups \(in Danish\)](#)

Table 3: Physical risk factors by type of job, 2012

Risk	Job types
Heavy lifting (> 16 kilograms)	Firefighters, rescue workers and security guards; construction workers; property and cleaning inspectors; gardeners and farmers; storage and transport workers; truck drivers; skilled machine operators; mechanics; military personnel; masons and other construction workers; food, drink and tobacco industry workers; hospital orderlies; production industry workers; teachers' assistants; social workers and home and care nursing assistants; butchers and bakers; locksmiths; nurses; carpenters and joiners.
Pulling and pushing	Firefighters, rescue workers and security guards; sales assistants; childminders, teachers and care workers for disabled people; property and cleaning inspectors; carpenters and joiners; electricians; precision craftworkers; cleaners; gardeners and farmers; soil and concrete workers; kitchen assistants; storage and transport workers; painters; construction workers; skilled machine operators; mechanics; masons and other construction workers; hospital orderlies; food, drink and tobacco industry workers; carpenters and joiners; postal workers; production industry workers; home and care nursing assistants; butchers and bakers; locksmiths.
Back twisting and bending	Firefighters, rescue workers and security guards; childminders, teachers and care workers for disabled people; property and cleaning inspectors; sales assistants; electricians; hairdressers and beauticians; gardeners and farmers; soil and concrete workers; dental assistants; chefs and waiters; kitchen assistants; storage and transport workers; painters; construction workers; skilled machine operator;

Risk	Job types
	mechanics; metal fitters; masons and other construction workers; food, drink and tobacco industry workers; passenger service workers; postal workers; production industry workers; teaching assistants; cleaners; social workers and home and care nursing assistants; butchers and bakers; locksmiths.
Sedentary work	Librarians and employees working in cultural activities; bookkeepers; bus, taxi and train drivers; medical, legal and executive board secretaries; pharmacists, dentists and veterinarians; information technology consultants; engineers and architects; journalists; lawyers; office staff and secretaries; customer information workers; managers; physical and occupational therapists; psychologists; accounting staff; accountants, consultants and analysts; sales and purchasing agents; social science graduates; social workers; technical illustrators; tax and customs employees; university lecturers and researchers.
Very loud noise (noise so loud that one has to shout to communicate with someone who is standing right next to them)	Construction workers; soil and concrete workers; painters; skilled machine operators; mechanics; masons and other construction workers; food, drink and tobacco industry workers; passenger service workers; production industry workers; precision craftworkers; teachers' assistants; school teachers; locksmiths; carpenters and joiners.

Note: The questions for lifting, noise, pull and push risk factors cover 'at least a quarter of the time at work' and those for sedentary work cover 'three-quarters of the time at work'.

Source: Selected risk factors from WEHD 2012, [Work Environment and Health 2012 by gender \(in Danish\)](#)

Gender-related differences

As in the case of the DWECS 2010, the significant differences in working conditions between men and women are, to a large degree, due to the different occupational patterns.

Differences in working hours, overtime and working night

Figure 4 shows that men on average work four hours more than woman per week. Men also report doing more overtime work than woman, and a larger share of men report working at night.

Figure 4: Self-reported working hours, overtime and working at night, by gender, 2012

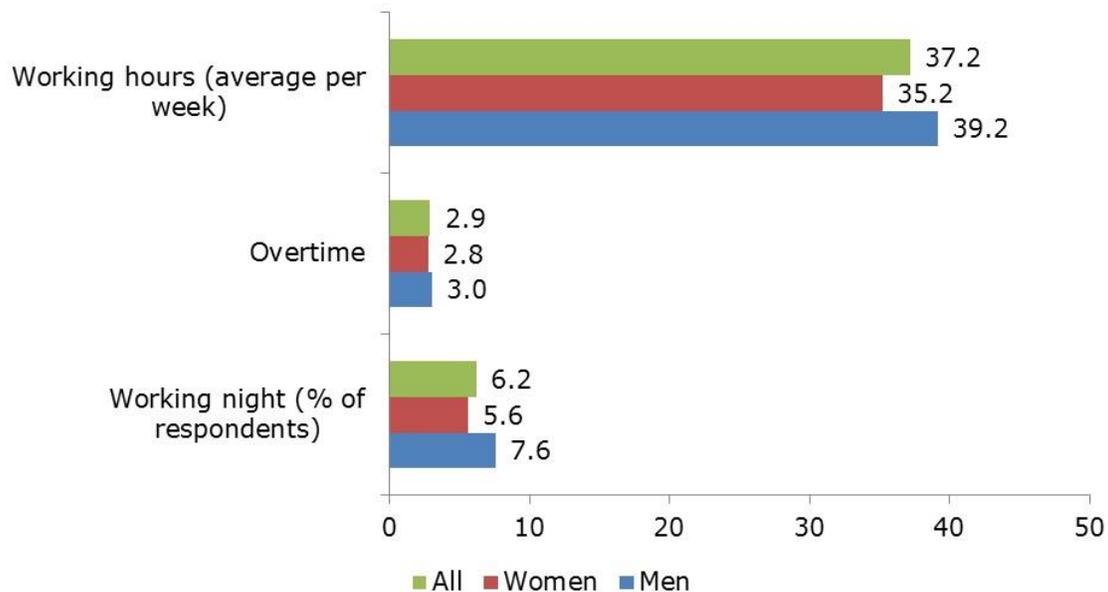


Figure 4: Self-reported working hours, overtime and working at night, by gender, 2012

Notes: Overtime is measured on a scale from 1–5 where 1 corresponds to ‘never’ and 5 corresponds to ‘always’.

Source: Selected risk factors from WEHD 2012, [Work Environment and Health 2012 by gender \(in Danish\)](#)

Differences in physical, chemical and ergonomic risk exposures

Figure 5 shows that men are more exposed to very loud noise, vibrations, back twisting and bending, repeated arm moves, push and pull movements and heavy lifting compared to women. Conversely women are more exposed to solvents and disturbing noise than men. There are no significant differences between the share of men and women performing sedentary work.

Figure 5: Self-reported physical, chemical and ergonomic risk exposures, by gender, 2012

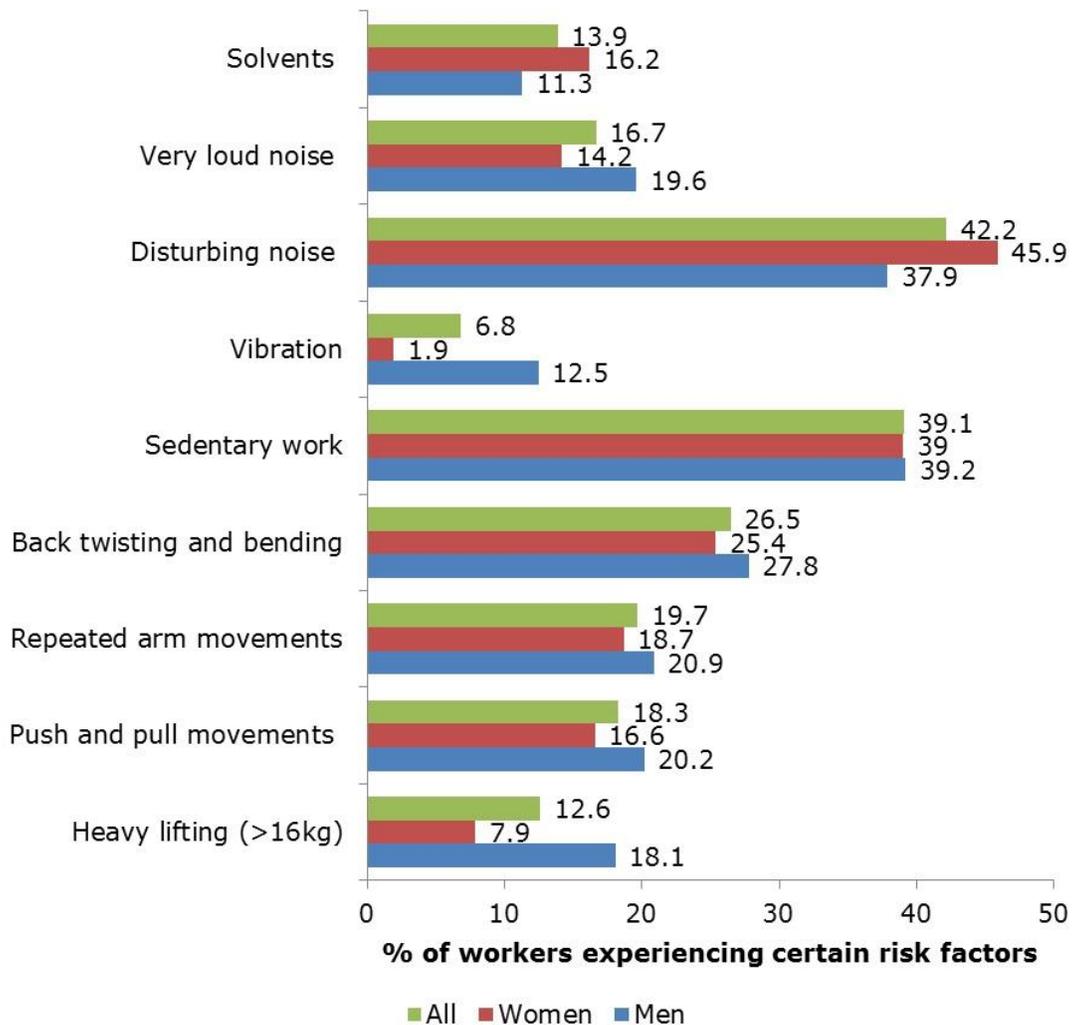


Figure 5: Self-reported physical, chemical and ergonomic risk exposures, by gender, 2012

Notes: Included in the table are respondents who report to be exposed a quarter of the time at work and three-quarters of the time at work for sedentary work.

Source: Selected risk factors from WEHD 2012, [Work Environment and Health 2012 by gender \(in Danish\)](#)

Figure 6 shows that, except for social support, women are more exposed to the wide range of psychosocial risk factors than men. Conversely, woman rate their own general health slightly better than men.

Figure 6: Self-reported psychosocial work environment, by gender, 2012

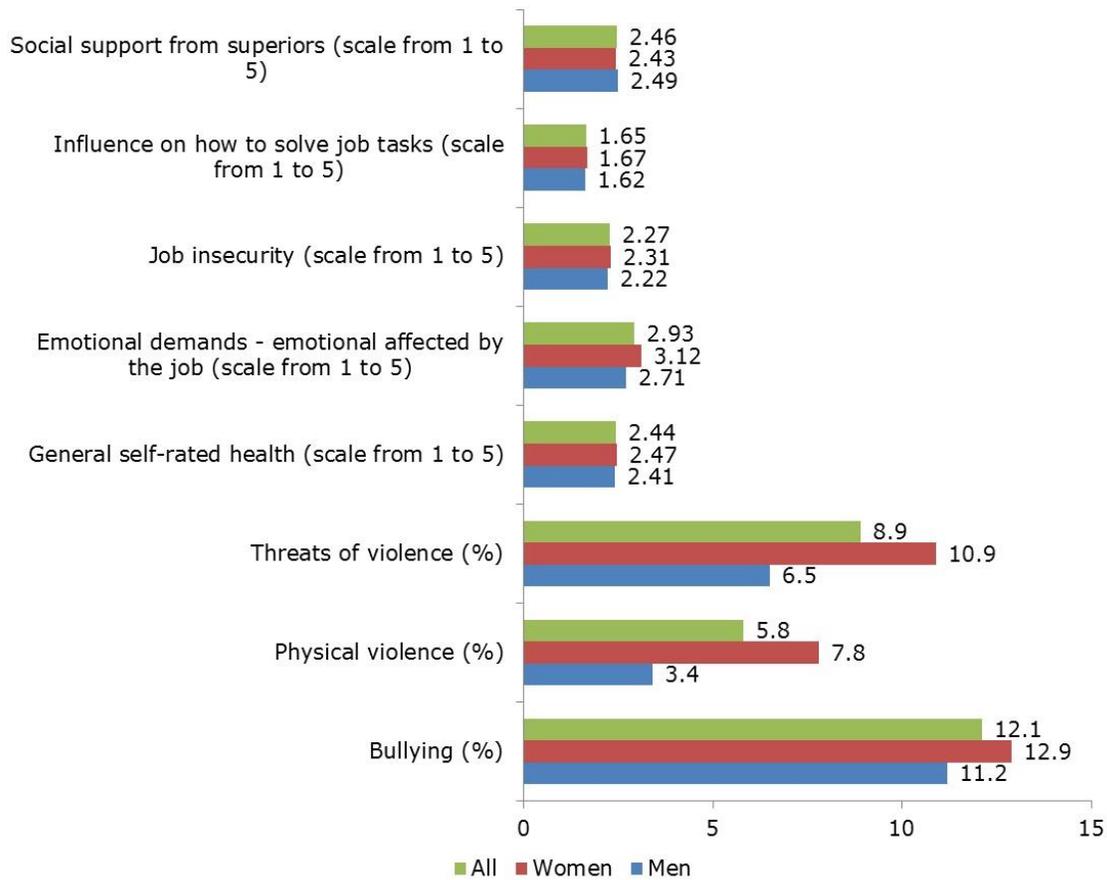


Figure 6: Self-reported psychosocial work environment, by gender, 2012

Notes: General self-rated health is measured on a scale from 1–5 where 1 corresponds to ‘excellent health’ and 5 corresponds to ‘poor health’; Influence on job tasks is measured on a scale from 1–5 where 1 corresponds to ‘always’ and 5 corresponds to ‘never’; Social support is measured on a scale from 1–5 where 1 corresponds to ‘always’ and 5 corresponds to ‘never’. Emotional demands is measured as on a scale from 1–5 where 1 corresponds to emotions ‘never’ affected by the job and 5 corresponds to emotions ‘always’ affected by the job. Job insecurity is measured as ‘having worries about losing the job’ on a scale from 1–5, where 1 corresponds to a ‘very poor degree’ and 5 corresponds to a ‘very high degree’.

Source: Selected risk factors from WEHD 2012, [Work Environment and Health 2012 by gender \(in Danish\)](#)

Commentary

Based on the results from WEHD 2012, no tendency towards an overall improvement or decline in the working conditions for Danish workers can be identified. As was the case with DWECS 2010, progress and decline vary within the specific risk factors, job groups and gender. The most striking developments from 2010 to 2012 are increases of exposure to very loud noise, working overtime and employees who witnessed bullying. However, the share of respondents reporting they have experienced bullying has not increased.

The launch of the WEHD containing new questions may indicate a shift in the political focus of the working environment towards increased focus on the psychosocial working environment.

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