

European Agency for Safety and Health at Work

*EUROPEAN RISK OBSERVATORY REPORT*

EN

ISSN: 1830-5946

Annex to Report:  
Lifting postures – Facts and figures

National Report: Germany

TE-RO-09-009-EN-C



European Agency  
for Safety and Health  
at Work

Authors: Regina Grahl, Wolfgang Hübner, Meike Bödefeld, Frank Brenscheidt, Ellen Zwick -  
Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (Baua), Germany

Edited and updated by Xabier Irastorza and Elke Schneider – European Agency for Safety and  
Health at Work (EU-OSHA)

This document is an annex to the Agency's Report "Work-related musculoskeletal  
disorders – Facts and figures" – Germany

You can find the full report –in English only- on the Agency's website:

<http://osha.europa.eu/en/publications/TERO09009ENview>

Cataloguing data can be found on the cover of this publication.

Luxembourg: Office for Official Publications of the European Communities, 2010

ISBN -13: 978-92-9191-261-2

DOI: 10.2802/10952

© European Agency for Safety and Health at Work, 2010.

Reproduction is authorised provided the source is acknowledged.

## Table of contents:

|                                  |    |
|----------------------------------|----|
| Table of contents: .....         | 1  |
| List of figures: .....           | 1  |
| Summary .....                    | 3  |
| Source description .....         | 5  |
| Analytical sources .....         | 7  |
| 1.    General prevalence .....   | 9  |
| 2.    By age .....               | 10 |
| 3.    By gender .....            | 13 |
| 4.    By sector .....            | 15 |
| 5.    By occupation .....        | 18 |
| 6.    By employment status ..... | 21 |

## List of figures:

|  |    |
|--|----|
| Figure 1: Percentage workers reporting painful/tiring positions, carrying/moving heavy loads and repetitive hand/arm movements, 1995, 2000, 2005                               | 3  |
| Figure 2: Percentage workers reporting painful/tiring positions, carrying/moving heavy loads and repetitive hand/arm movements, 1995, 2000, 2005                               | 9  |
| Figure 3: Percentage workers carrying and moving heavy loads (almost ever, often), by age, 1998  | 10 |
| Figure 4: Percentage workers working in awkward positions (almost ever, often), by age, 1998   | 10 |
| Figure 6: Percentage workers carrying or moving heavy loads all or almost all of the time, by age, 1995, 2000, 2005  | 11 |
| Figure 7: Percentage workers working in painful or tiring positions all or almost all of the time, by age, 1995, 2000, 2005  | 12 |
| Figure 8: Percentage workers reporting repetitive hand or arm movements all or almost all of the time, by age, 1995, 2000, 2005  | 12 |
| Figure 9: Percentage workers carrying and moving heavy loads, working in awkward positions and standing at work (almost ever, often), by gender, 1998                          | 13 |
| Figure 10: Percentage workers carrying or moving heavy loads all or almost all of the time, by gender, 1995, 2000, 2005  | 13 |
| Figure 11: Percentage workers working in painful or tiring positions all or almost all of the time, by gender, 1995, 2000, 2005  | 14 |
| Figure 12: Percentage workers reporting repetitive hand or arm movements all or almost all of the time, by gender, 1995, 2000, 2005  | 14 |
| Figure 13: Percentage workers carrying and moving heavy loads (almost ever, often), by sector, 1998  | 15 |
| Figure 14: Percentage workers working in awkward positions (almost ever, often), by sector, 1998   | 16 |
| Figure 15: Percentage workers standing at work (almost ever, often), by sector, 1998   | 16 |
| Figure 16: Percentage workers reporting painful/tiring positions, carrying/moving heavy loads and repetitive hand/arm movements all or almost all of the time, by sector, 2005 | 17 |
| Figure 17: Percentage workers carrying and moving heavy loads (almost ever, often), by occupation, 1998  | 18 |

## Lifting postures - Facts and figures - Germany

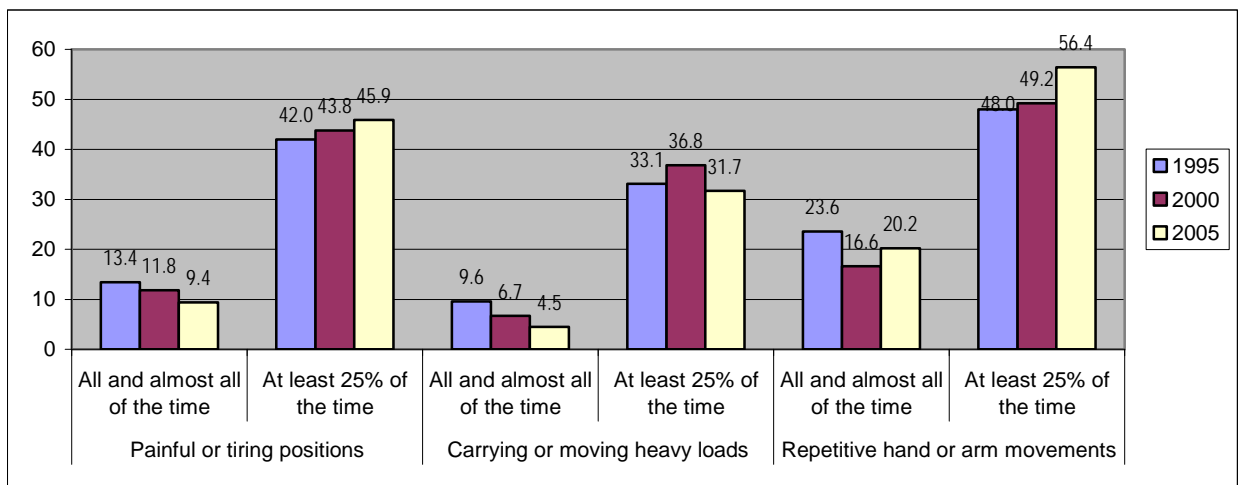
|   |    |
|---|----|
| Figure 18: Exposure to lifting and carrying of heavy loads >10 kg (female), >20 kg (male), by occupation, 1998  | 18 |
| Figure 19: Percentage workers working in awkward positions (almost ever, often), by occupation, 1998  | 19 |
| Figure 20: Percentage workers standing at work (almost ever, often), by occupation, 1998  | 19 |
| Figure 21: Percentage workers carrying/moving heavy loads, working in painful/tiring position and reporting repetitive hand/arm movements, all or almost all of the time, by occupation, 2005 | 20 |
| Figure 22: Percentage workers carrying and moving heavy loads, working in awkward positions and standing at work (almost ever, often), by employment status, 1998                             | 21 |
| Figure 23: Percentage workers reporting painful/tiring positions, carrying/moving heavy loads and repetitive hand/arm movements all or almost all of the time, by employment status, 2005     | 21 |

## Summary

According to the Fourth European Survey on Working Conditions (ESWC), the share of German workers being continuously exposed (all or almost all of the time) to painful or tiring positions at work was 9.4% in 2005, while almost half of all workers (45.9%) reported exposure at least 25% of the time.

Continuous exposure to carrying or moving heavy loads was 4.5% in 2005, while those exposed at least 25% of their working time were 31.7% of all workers. Meanwhile, the share of workers reporting repetitive hand or arm movements all or almost all of the time was 20.2%, while those reporting exposure at least 25% of their time were 56.4% of all workers.

**Figure 1: Percentage workers reporting painful/tiring positions, carrying/moving heavy loads and repetitive hand/arm movements, 1995, 2000, 2005**



Source: European Survey on Working Conditions, 1995, 2000, 2005

## By age

The BIBB/IAB (Federal Institute for Vocational Training Affairs/ Institute for Employment Research) survey reveals that the highest rates for carrying and moving heavy loads are found among those aged under 39 years of age, as it is the case for work in awkward positions. With a 60.2% overall average, the rate of those reporting standing at work is higher than for the two other risk factors. Again, younger workers report the highest exposure rates.

The ESWC too shows that younger workers aged 15 to 24 are the most exposed to the three risk factors under consideration: carrying or moving heavy loads, work in painful or tiring positions and repetitive hand or arm movements. This was the case in previous surveys too, except for work in painful or tiring positions, which appeared to increase with age. But, as pointed out above, in 2005 there seems to have been a change of pattern by which exposure to work in painful or tiring positions is highest among youngest workers and decreases gradually with age.

## By gender

The BIBB/IAB survey shows that male workers are more exposed to carrying and moving heavy loads as well as to awkward positions than female workers. As opposed to this, standing at work is more frequent among women.

According to the ESWC men are more exposed than women to carrying or moving heavy loads and to work in painful or tiring positions all or almost all the time. Meanwhile, women report a marginally higher rate of repetitive hand or arm movements than men.

## **By sector**

According to the BIBB/IAB survey the most exposed sectors are agriculture, mining and construction. This result is very similar to that of the ESWC, which also adds hotels and restaurants and transport as some of the most exposed sectors to carrying or moving heavy loads, work in painful or tiring positions and repetitive hand or arm movements.

## **By occupation**

The information of the BIBB/IAB survey broken down by occupation shows the same picture as the one given by the sector breakdown, which is to be expected as both are interdependent. In this sense, occupations in construction and in agriculture are the most exposed.

As far as the ESWC is concerned craft and related trades workers, skilled agricultural and fishery workers and plant and machine operators are the most affected occupational groups.

## **By employment status**

The BIBB/IAB survey shows that in all cases temporary workers are more exposed to the risks than permanent workers, although the difference is not wide.

Concerning the ESWC, employees seem to be more exposed to the risk factors under consideration except for work in painful or tiring position, to which self-employed seem to be slightly more exposed than employees.

**Source description****Statistical sources**

| <b>Title</b>      | <b>BIBB/ IAB-Erhebungen<br/>Berufliche Qualifikation und Erwerbs situation in Deutschland</b>   |
|-------------------|---|
| Acronym           | BIBB/ IAB   |
| Institution       | Federal Institute for Vocational Training Affairs (BIBB)/ Institute for Employment Research (IAB)<br>The Federal Institute for Occupational Safety and Health (BAuA) also took part in the 1998/1999 survey and from 2005 on it has been renamed to BIBB/ BAuA survey.  |
| Country           | Germany   |
| Periodicity       | 1979 - 1985/86 - 1991/92 - 1998/99, 2005/06   |
| URL               | <a href="http://de.osha.eu.int/statistics/erhebungen_und_umfragen/">http://de.osha.eu.int/statistics/erhebungen_und_umfragen/</a><br><a href="http://www.baua.de/nn_56326/de/Informationen-fuer-die-Praxis/Statistiken/Arbeitsbedingungen/pdf/GIZ2005-Arbeitsbedingungen.pdf">http://www.baua.de/nn_56326/de/Informationen-fuer-die-Praxis/Statistiken/Arbeitsbedingungen/pdf/GIZ2005-Arbeitsbedingungen.pdf</a><br><a href="http://www2.bibb.de/tools/fodb/pdf/zw_22101.pdf">http://www2.bibb.de/tools/fodb/pdf/zw_22101.pdf</a><br><a href="http://www.baua.de/arbeitsbedingungen">http://www.baua.de/arbeitsbedingungen</a><br><a href="http://www.bibb.de/de/29847.htm">http://www.bibb.de/de/29847.htm</a>   |
| Demographic group | Households  |
| Objectives        | Assess the working population and their actual working conditions   |
| Description       | <p>Sampling strategy: Random route procedure on household basis.</p> <p>Register used for the sample: ADM – Master sample of precincts (Micro census for controlling and weighting).</p> <p>The BIBB/ IAB surveys are large representative surveys of 0.1% of the labour force in Germany concerning qualifications, career history and current occupational situations. These surveys are conducted jointly by the Federal Institute for Vocational Training Affairs (BIBB), and the former Institute for Employment Research (IAB), now in co-operation with the Federal Institute for Occupational Safety and Health (BAuA) at intervals of 6-7 years. The aim of the studies is to obtain differentiated representative information about the labour force on the one hand and about jobs on the other. As regards research into occupation and qualification the surveys constitute a social science addition to the micro census survey conducted annually by the Federal Statistical Office, whose legally stipulated questionnaire is restricted to a few structural variables, though they are central ones.</p> <p>The sample size of the BIBB/ IAB; BIBB/ BAuA surveys, which is unusually large for such surveys in empirical social research, permits differentiated analyses of occupational fields, industries and various labour force sub-groups. Each of the individual surveys has a special focus subject. With all flexibility in incorporating new subject areas, in the surveys conducted so far a broad set of comparable variables has been included in order to determine structural changes over the time.</p> <p>The BIIB/IAB survey has been renamed BIBB/BAuA survey. The survey carried out in 2005 covered 20,000 workers and results are currently being analysed.</p> |

| Title   | BIBB/ IAB-Erhebungen<br>Berufliche Qualifikation und Erwerbs situation in Deutschland  |
|---------|--|
| Content | Occupational Safety and Health (OSH) management, design of work stations, exposure to physical agents (noise, radiation, vibration, etc.), exposure to chemical agents, exposure to biological agents, safety at the workplace, physical workload, mental strain, work organisation issues, social environment (participation and consultation, equal opportunities, violence at work, etc.), occupational safety and health outcomes. Among others: tools and machinery used. |

| Title             | European Survey on Working Conditions  |
|-------------------|--|
| Acronym           | ESWC   |
| Institution       | European Foundation for the Improvement of Working and Living Conditions (Dublin)  |
| Country           | EU   |
| Periodicity       | Every 4 years: 1991-1996-2000-2005   |
| Type              | Employee Survey  |
| URL               | <a href="http://www.eurofound.europa.eu/working/surveys/index.htm">http://www.eurofound.europa.eu/working/surveys/index.htm</a>  |
| Demographic group | Employees, self-employed without personnel and self-employed with less than 10 employees   |
| Objectives        | Monitoring of trends in working conditions for employees and the self-employed throughout the European Union.<br>This Survey provides an opportunity to monitor working conditions in the EU and to analyse specific themes in depth, such as: sector differences, working conditions and gender, age, or employment contracts, work organization, working hours, etc. |
| Description       | Face-to face interviews in all EU countries, with approx. 1,000 people in each country are selected (random walk), structured questionnaire  |
| Content           | This survey describes a broad range of questions in the field of working conditions.   |
| Question          | Q11<br>a) Does your work involve painful or tiring positions?<br>c) Does your work involve carrying or moving heavy loads?<br>e) Does your work involve repetitive hand or arm movements?  |



**Analytical sources**

| Title             | Report on the Current Level of Safety and Health at Work 2004 (Sicherheit und Gesundheit bei der Arbeit 2004)   |
|-------------------|---|
| Acronym           | SUGA 2004   |
| Institution       | Federal Institute for Occupational Safety and Health (BAuA)   |
| Country           | Germany   |
| Periodicity       | Annual  |
| Type              | Statistical report  |
| URL               | <a href="http://de.osha.europa.eu/statistics/statistiken/suga/">http://de.osha.europa.eu/statistics/statistiken/suga/</a>   |
| Demographic group | Employers and employees   |
| Objectives        | Accidents, work-related diseases, legal basis of OSH, main topic: construction/building industry  |
| Description       | Report of the German Federal Government on the state of OSH and on occupational accidents and disease rates: outline data, occupational accident rate, occupational disease rate, incapacity for work, load factors and requirements at the workplace, health impairment during and after work. |

| Title       | BG Statistics 2004. Current figures and long-term trends relating to the Berufsgenossenschaften for the industrial sector in Germany  |
|-------------|---|
| Institution | Hauptverband der Berufsgenossenschaften (HVBG)  |
| Country     | Germany   |
| Periodicity | Annual since 1975   |
| Type        | Statistical report  |
| URL         | <a href="http://asinfo.site.uni-wuppertal.de/cgi-bin/asinfo.cgi?setcat=&amp;advanced=on&amp;query=hauptverband&amp;start=50">http://asinfo.site.uni-wuppertal.de/cgi-bin/asinfo.cgi?setcat=&amp;advanced=on&amp;query=hauptverband&amp;start=50</a>   |
| Objectives  | Analyses, trends and figures related to companies, man-hours and full workers; accidents and accident pensions; fatal accidents; Occupational diseases (OD); pensions; expenditure; prevention etc.   |
| Description | In Germany, the Gewerbliche Berufsgenossenschaften (BGs) are the institutions for statutory accident insurance and prevention for the industrial sector. The Hauptverband der gewerblichen Berufsgenossenschaften (Central Federation – HVBG) was founded by the BGs to support their common objectives and to serve their mutual interest.<br>Since 1975, all received notifications concerning suspected occupational diseases together with all resulting decisions concerning insurance law have been documented and could be analysed. Cases of occupational disease benefits are documented until payment stop of benefits or until death of the beneficiary. |
| Content     | Personal data; medical determination of disease (diagnosis); medical history (working intervals, existing dangers, practised activity, working field); decisions according to insurance law. In particular diseases caused by continued mechanical strain on the locomotor system (p. 70 ff.).  |
| Question    | Chapter V: Diseases caused by continued mechanical strain on the locomotor system (p. 70 ff.)   |

| Title             | <b>Arbeitsschutz in NRW. Für Gesundheit und Beschäftigung</b>  |
|-------------------|--|
| Institution       | Ministerium für Arbeit, Gesundheit und Soziales in Nordrhein Westfalen   |
| Country           | Germany  |
| Type              | Online Information Pool  |
| URL               | <a href="http://www.arbeitsschutz.nrw.de/bp/index.html">http://www.arbeitsschutz.nrw.de/bp/index.html</a>  |
| Demographic group | Working population   |
| Objectives        | All topics regarding OSH   |
| Description       | Internet platform for those who are interested in occupational safety and health. Regularly updated, it contains current information on law regulations and administrative reforms. Furthermore information about ongoing actions and events is provided.  |
| Content           | <p>Topics:</p> <ul style="list-style-type: none"> <li>▪ Workload (chemical agents; lifting – postures, noise, vibration, climate, psychological strain, radiation)</li> <li>▪ Work organisation/ working time/ hours (demographic change, organisation and OSH on construction areas)</li> <li>▪ Focus groups</li> <li>▪ OSH</li> <li>▪ Design of work stations</li> <li>▪ Product and machine safety</li> </ul> |

| Title       | <b>Ohne Stärkung der Prävention in der Arbeitswelt keine effektive Gesundheitsreform. In: Badura, B. et al: Fehlzeitenreport 1999 – Psychische Belastungen am Arbeitsplatz</b> |
|-------------|--|
| Editor      | Pickhaus, Klaus  |
| Country     | Germany  |
| Time        | 2002   |
| URL         | <a href="http://www.labournet.de/diskussion/wipo/gesund/pickshaus.pdf">http://www.labournet.de/diskussion/wipo/gesund/pickshaus.pdf</a>  |
| Description | Short description about workload and working conditions  |

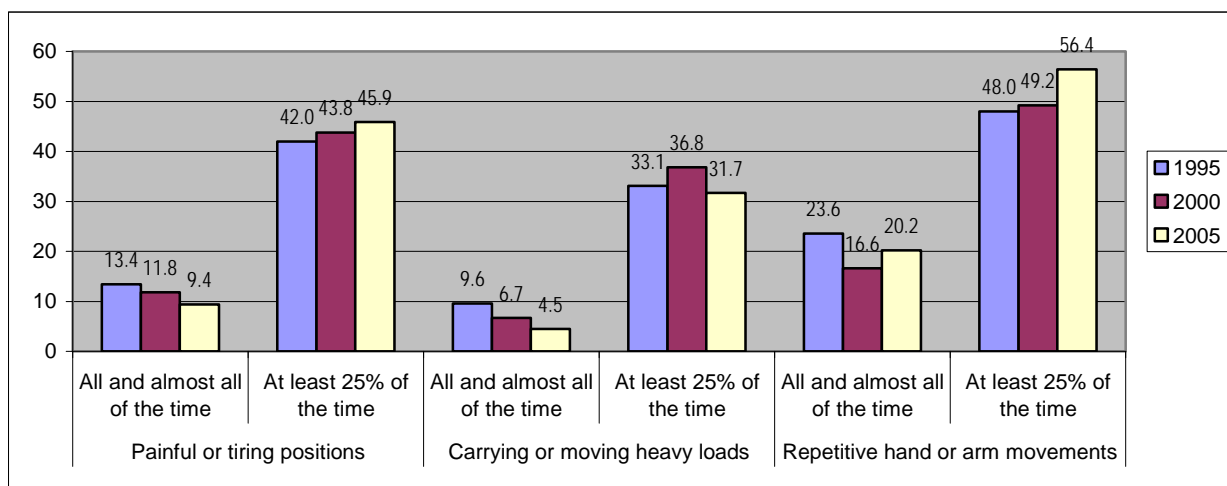
## 1. General prevalence

According to the Fourth European Survey on Working Conditions (ESWC), almost one in ten workers in Germany (9.4%) reported working in painful or tiring positions all or almost all of the time. This represents a slight drop compared to 1995 and 2000 but when looking at the share of workers who work in painful or tiring positions at least 25% of the time, data reflect an increasing trend from 42% in 1995 to 45.9% in 2005.

Meanwhile, the share of German workers being continuously exposed (all or almost all of the time) to carrying or moving heavy loads was 4.5% in 2005, slightly lower than in previous surveys. However, when taking into account the share of workers who carry or move heavy loads at least 25% of their working time, the percentage is relatively similar to previous years, affecting around one third of workers (31.7%).

Finally, one in five German workers (20.2%) reported repetitive hand or arm movements all or almost of the time in 2005, a slight increase from previous years, while the share of those exposed to repetitive hand or arm movement at least 25% of their working time also rose to 56.4% in 2005, up from 49.2% in 2000.

**Figure 2: Percentage workers reporting painful/tiring positions, carrying/moving heavy loads and repetitive hand/arm movements, 1995, 2000, 2005**

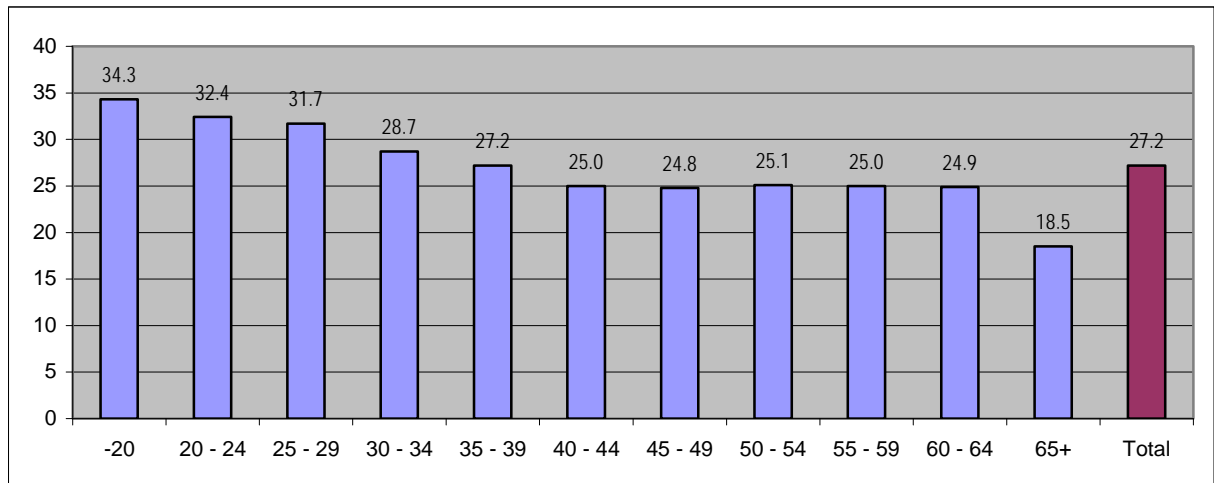


Source: European Survey on Working Conditions, 1995, 2000, 2005

## 2. By age

According to the BIBB/IAB (Federal Institute for Vocational Training Affairs/Institute for Employment Research) survey, workers under 39 years of age reported the highest rates for carrying and moving heavy loads. It can be seen how the percentage share of workers who carried heavy loads almost ever and often decreased with age, from 34.3% among those aged under 20 to 18.5% among those older than 65.

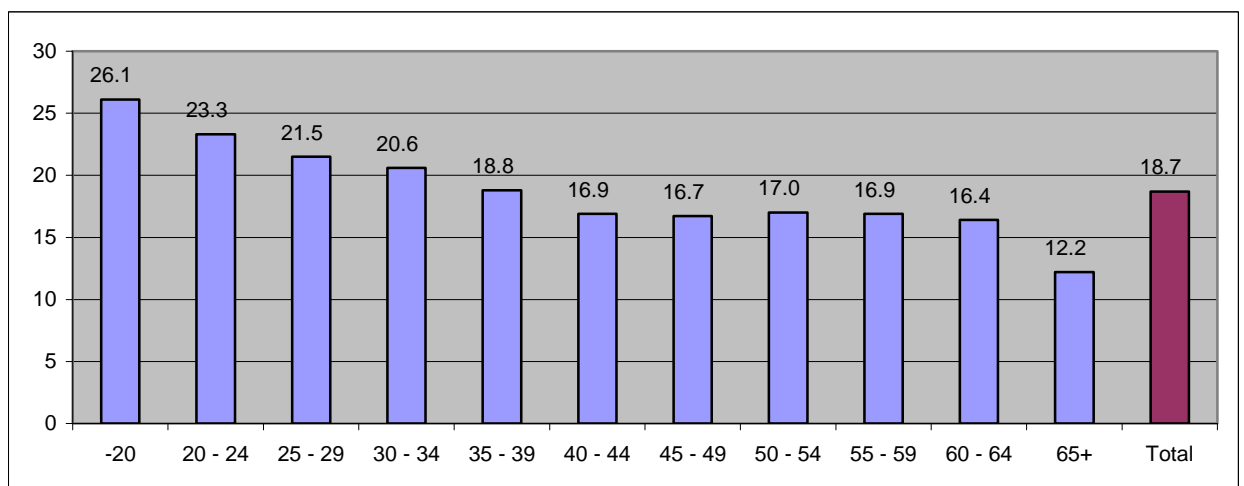
**Figure 3: Percentage workers carrying and moving heavy loads (almost ever, often), by age, 1998**



Source BIBB/IAB survey 1998

A similar result was found for work in awkward positions, by which workers under 39 years of age appeared to be more exposed to this risk than their older counterparts. Again, it was precisely the youngest workers who reported the highest share of working in awkward positions almost ever and often: 26.1%.

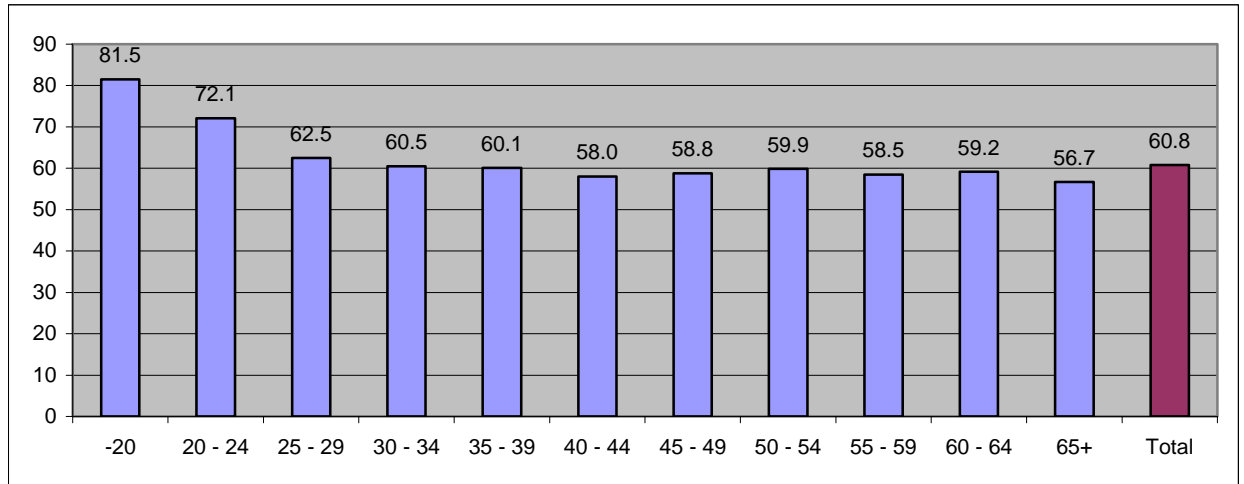
**Figure 4: Percentage workers working in awkward positions (almost ever, often), by age, 1998**



Source BIBB/IAB survey 1998

Concerning standing at work, again, youngest workers reported the highest shares, with more than four in five workers (81.5%) working in standing positions almost ever and often. In any case, it is worth stressing the high average exposure rate: 60.8%.

**Figure 5: Percentage workers working upright (almost ever, often), by age, 1998**

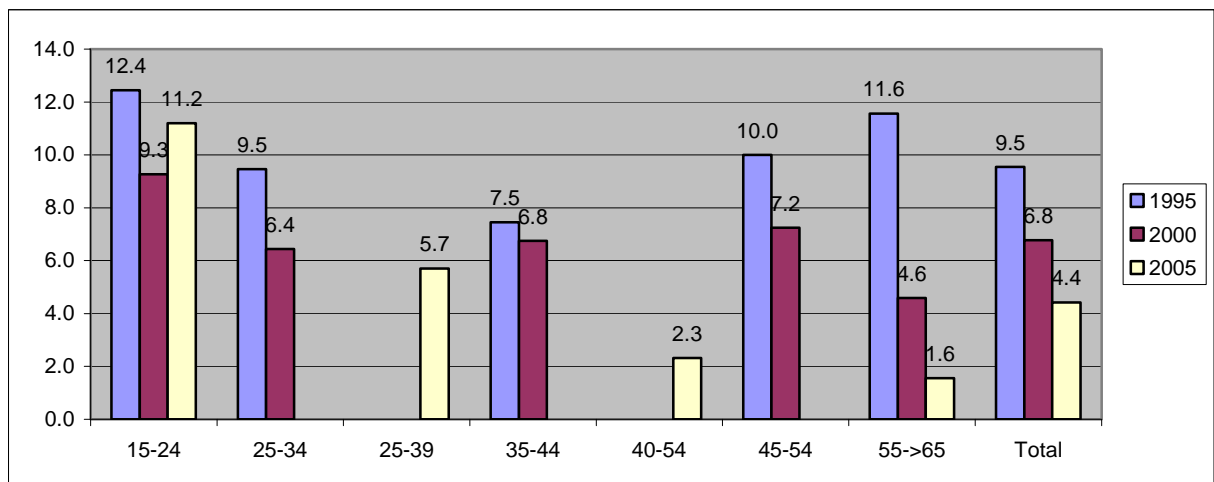


Source BIBB/IAB survey 1998

It is important noting that even though the BIIB/IAB survey results are from 1998, the findings are very similar to those from the ESWC. The Dublin survey too reveals that youngest workers are more exposed to the three risk factors under consideration: carrying or moving heavy loads, work in painful or tiring positions and repetitive hand or arm movements.

It can be seen that workers aged 15-24 report the highest share of exposure to carrying or moving heavy loads all or almost all of the time: 11.2%. This result has been consistently found across different issues of the survey. It is also worth stressing the reduction witnessed among the oldest workers, by which 1.6% of workers aged 55-65 reported carrying or moving heavy loads all or almost all of the time in 2005.

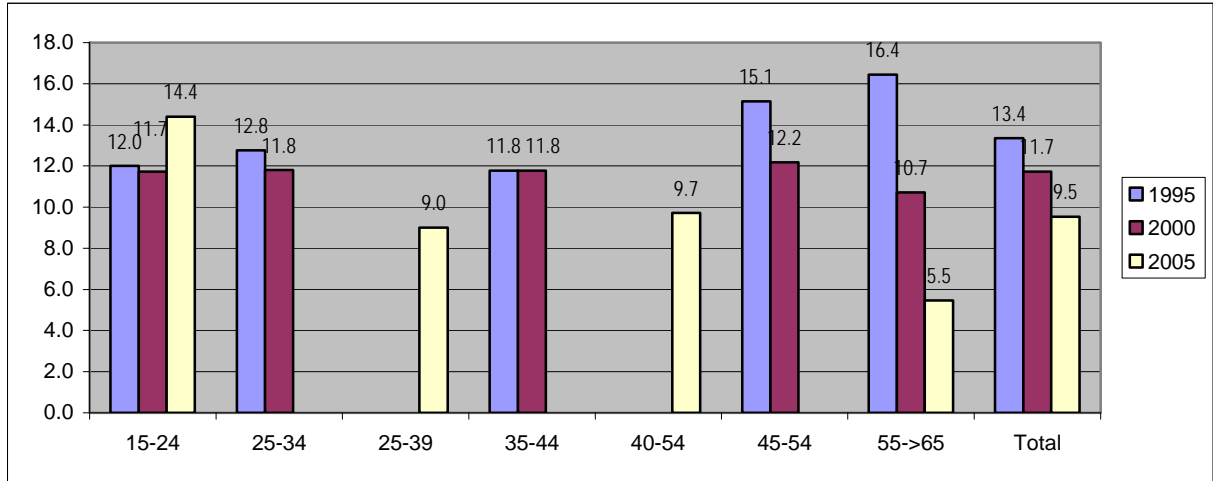
**Figure 6: Percentage workers carrying or moving heavy loads all or almost all of the time, by age, 1995, 2000, 2005**



Source: European Survey on Working Conditions 1995, 2000, 2005

Similarly, 14.4% of youngest workers reported working in painful or tiring positions all or almost all of the time in 2005. The exposure rate decreases with age, which represents a change in the pattern found in 1995, where exposure rates generally increased with age, and 2000, where there were no substantial differences among age groups.

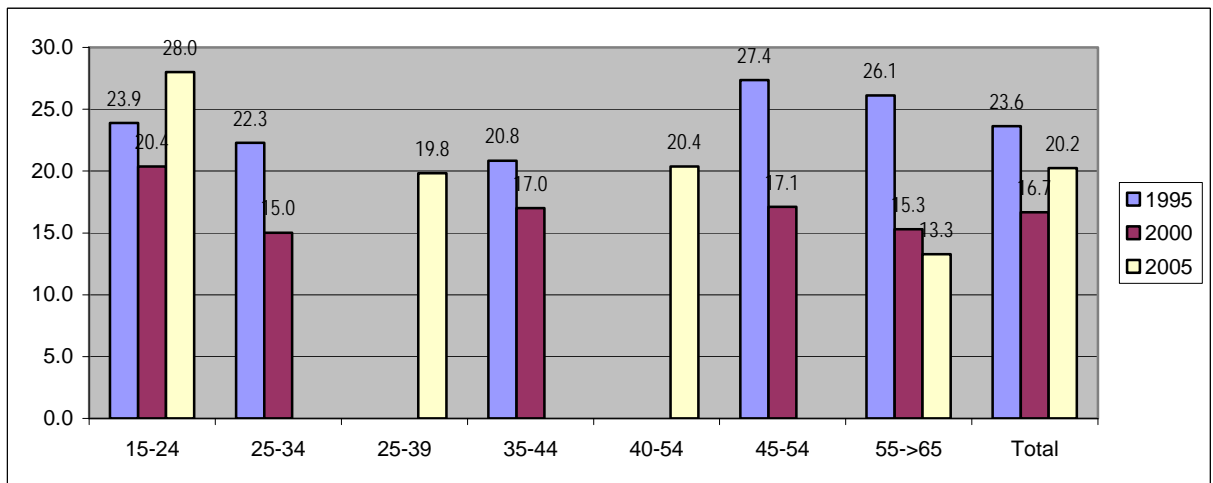
**Figure 7: Percentage workers working in painful or tiring positions all or almost all of the time, by age, 1995, 2000, 2005**



Source: European Survey on Working Conditions 1995, 2000, 2005

Finally, continuous exposure (all or almost all of the time) to repetitive hand or arm movements too is highest among youngest workers: 28%. The exposure rate to this risk factor also appears to decrease with age in 2005, replicating to some extent the pattern of 2000.

**Figure 8: Percentage workers reporting repetitive hand or arm movements all or almost all of the time, by age, 1995, 2000, 2005**



Source: European Survey on Working Conditions 1995, 2000, 2005

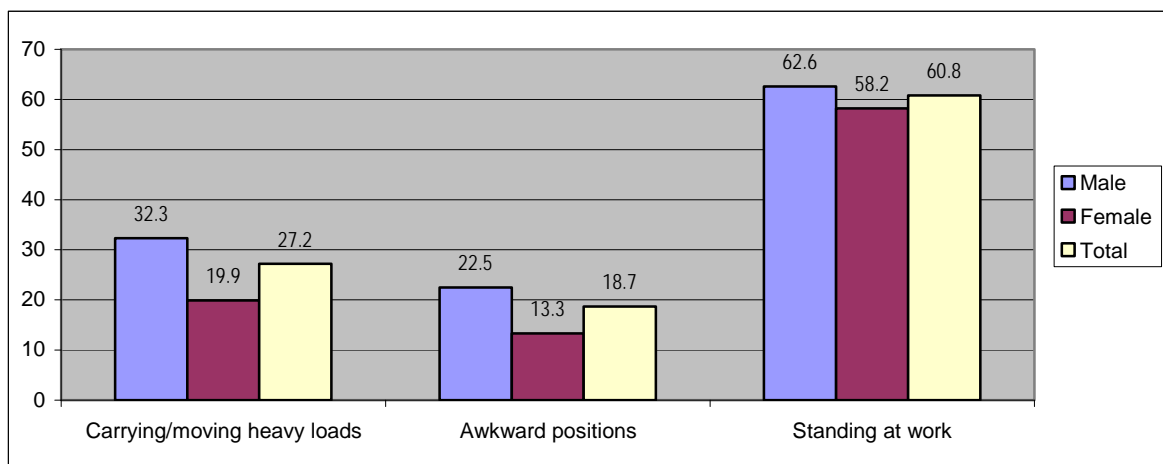
### 3. By gender

Findings from the BIBB/IAB survey showed that male workers were more exposed to carrying and moving heavy loads, to awkward positions and to standing at work than female workers.

In this sense, almost one third of male workers in Germany (32.3%) reported carrying or moving heavy loads almost ever and often in 1998, while this share was one fifth (19.9%) among their female counterparts. As far as work in awkward positions is concerned, the shares were slightly lower than those found for carrying or moving heavy loads but male workers too reported higher exposures rates than females: 22.5% and 13.3%, respectively.

As it has been pointed out above, standing at work was more frequent than carrying or moving heavy loads and working in awkward positions. As it can be seen in the graph below, men reported a slightly higher prevalence of standing at work (62.6%) than women (58.2%).

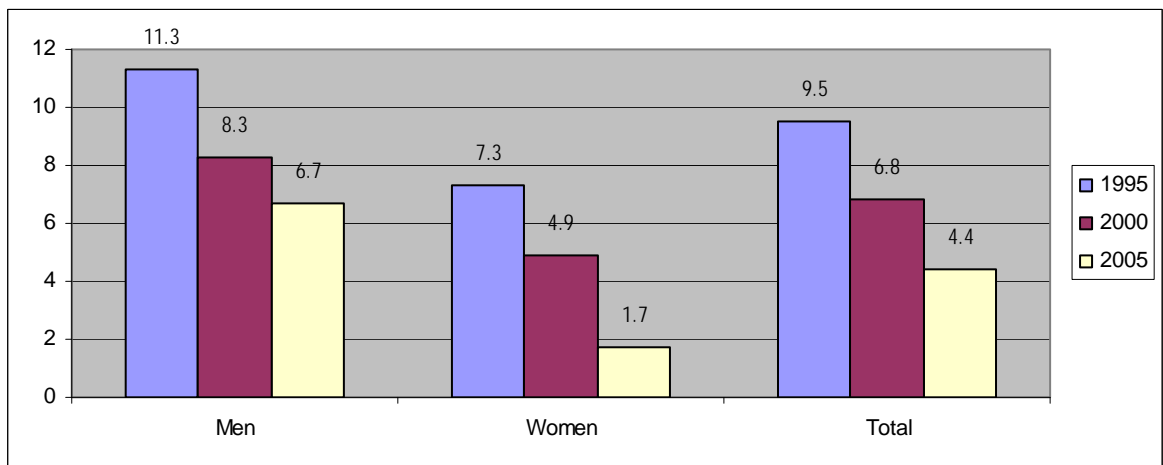
**Figure 9: Percentage workers carrying and moving heavy loads, working in awkward positions and standing at work (almost ever, often), by gender, 1998**



Source BIBB/IAB survey 1998

According to the ESWC, German men are more affected by carrying or moving heavy loads and by work in painful or tiring positions, while women report a higher share of repetitive hand or arm movements. More specifically, 6.7% of men reported carrying or moving heavy loads all or almost all of the time in 2005 as opposed to 1.7% among their female counterparts.

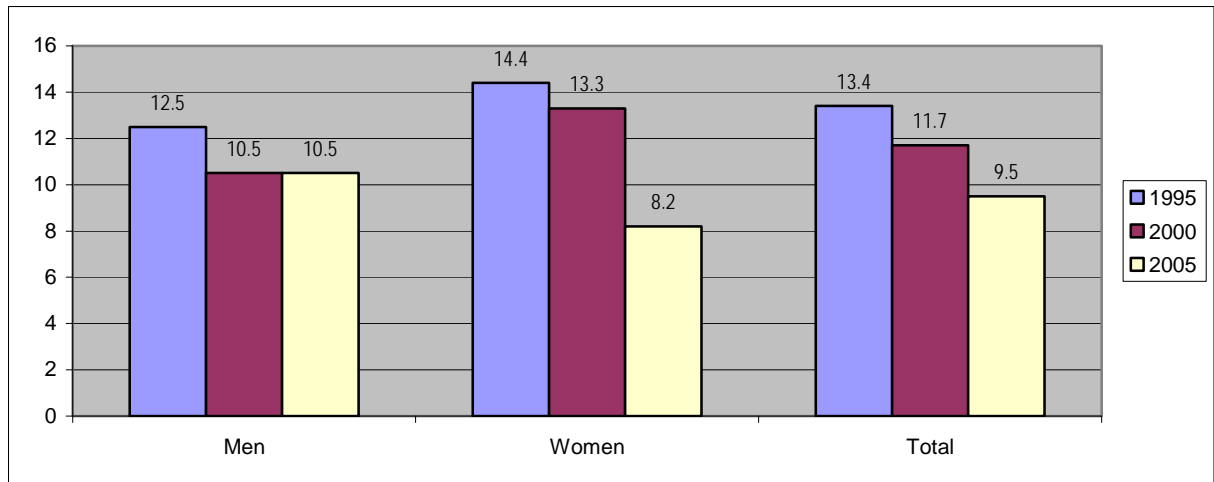
**Figure 10: Percentage workers carrying or moving heavy loads all or almost all of the time, by gender, 1995, 2000, 2005**



Source: European Survey on Working Conditions, 1995, 2000, 2005

As far as work in painful or tiring positions is concerned, the difference between genders is smaller and while 10.5% of men report working in painful or tiring positions all or almost all of the time, the share is 8.2% among their female counterparts.

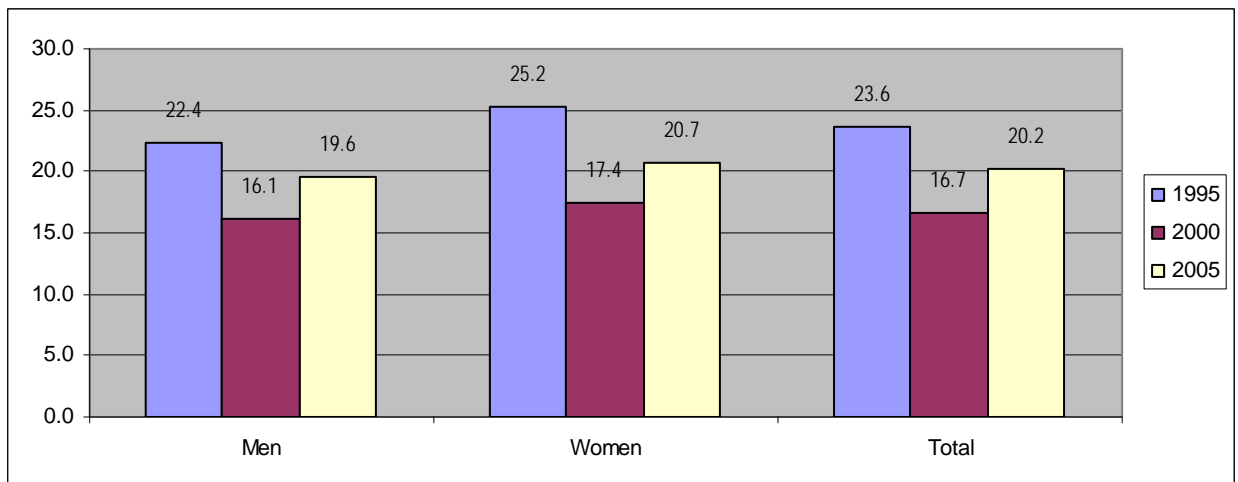
**Figure 11: Percentage workers working in painful or tiring positions all or almost all of the time, by gender, 1995, 2000, 2005**



Source: European Survey on Working Conditions, 1995, 2000, 2005

Finally, regarding exposure to repetitive hand or arm movements, there is a slightly greater share of women reporting continuous (all or almost all of the time) repetitive hand or arm movements than men: 20.7% and 19.6%, respectively.

**Figure 12: Percentage workers reporting repetitive hand or arm movements all or almost all of the time, by gender, 1995, 2000, 2005**



Source: European Survey on Working Conditions, 1995, 2000, 2005



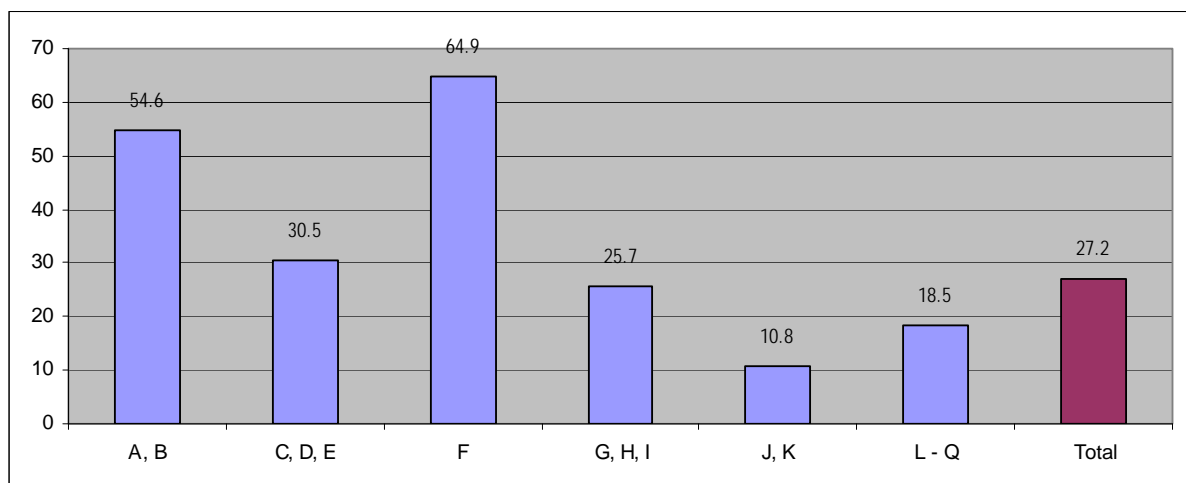
## 4. By sector

### Sector groups (sections in NACE Rev 1.1) used in figures:

- A: Agriculture, hunting, forestry
- B: Fishing
- C: Mining
- D: Manufacturing
- E: Electricity, gas and water
- F: Construction
- G: Whole sale and retail, repairs
- H: Hotels and restaurants
- I: Transport and communication
- J: Financial intermediation
- K: Real estate, business activity
- L: Public administration and defence
- M: Education
- N: Health and social work
- O: Other community, social and personal service activities
- P: Activities of households
- Q: Extra-territorial organizations and bodies

The BIBB/IAB survey pointed at construction (F) and agriculture and fishing (A-B) as the activity sectors with the highest exposure rates to the risk factors under consideration. When it comes to carrying and moving heavy loads, 64.9% of workers in construction and 54.6% in agriculture and fishing reported carrying and moving heavy loads almost ever and often. The percentage shares across the other activity sectors were significantly lower.

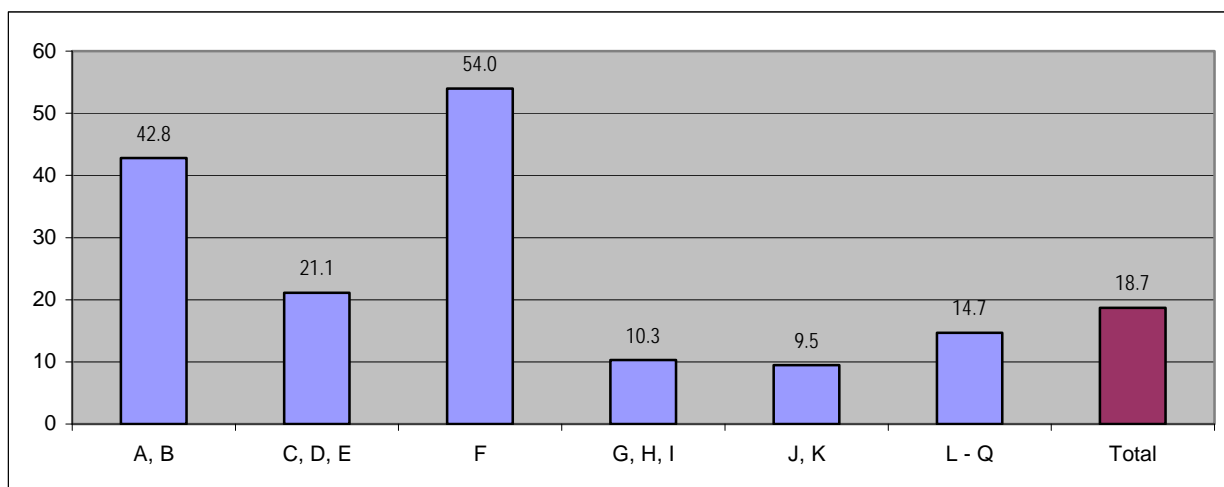
**Figure 13: Percentage workers carrying and moving heavy loads (almost ever, often), by sector, 1998**



Source BIBB/IAB survey 1998

Similarly, work in awkward positions appeared to be more prevalent among workers in construction (54%) and agriculture and fishing (42.8%), again, at significant distance from other sectors.

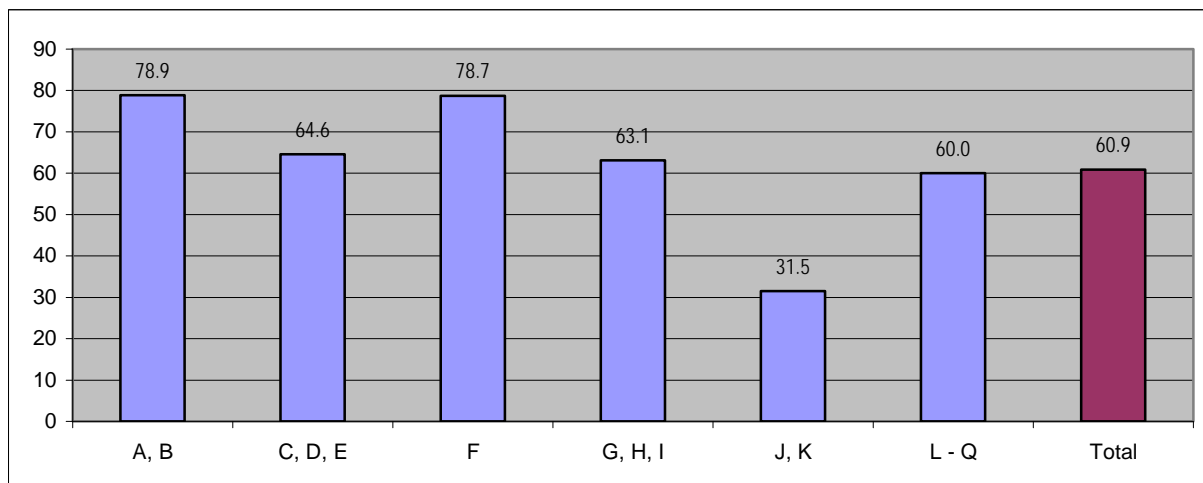
**Figure 14: Percentage workers working in awkward positions (almost ever, often), by sector, 1998**



Source BIBB/IAB survey 1998

Finally, regarding standing at work, sector differences were not as wide as for the two previous risk factors. Even though workers in agriculture (78.9%) and construction (78.7%) still reported the highest exposure rates to work in standing position, workers in mining, manufacturing and utilities (C-D-E, 64.6%), in wholesale and retail, hotels and restaurants, and transport (G-H-I, 63.1%) and in public administration, education and health and other services (L-Q, 60%) too reported significant percentage shares of standing at work almost ever and often.

**Figure 15: Percentage workers standing at work (almost ever, often), by sector, 1998**



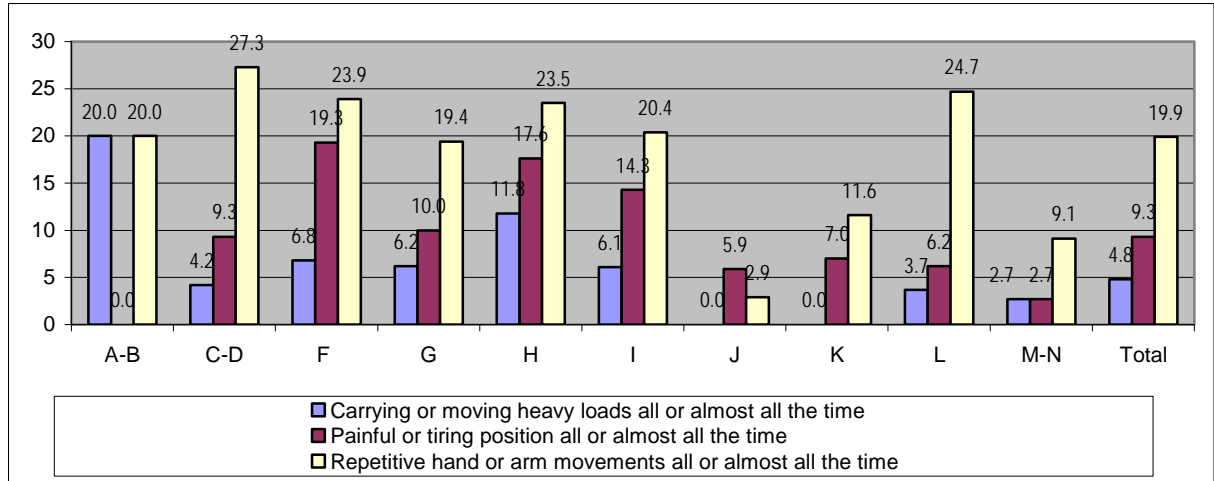
Source BIBB/IAB survey 1998

According to the ESWC, and bearing in mind the data availability by sector, construction (F), hotels and restaurants (H), agriculture and fishing (A-B) and transport and communication (I) seem to be the activity sectors where workers are most exposed to the risk factors under consideration.

Starting with the continuous (all or almost all of the time) carrying or moving heavy loads, workers in agriculture report the highest exposure rates (20%), followed at some distance by hotels and restaurants (11.8%). Working in painful or tiring positions seems to affect particularly workers in construction (19.3%), hotels and restaurants (17.6%) and transport and communication (14.3%).

Finally, and regarding repetitive hand or arm movements, the sectors where workers report the highest exposure rates are manufacturing (27.3%), public administration (24.7%), construction (23.9%) and hotels and restaurants (23.5%).

**Figure 16: Percentage workers reporting painful/tiring positions, carrying/moving heavy loads and repetitive hand/arm movements all or almost all of the time, by sector, 2005**

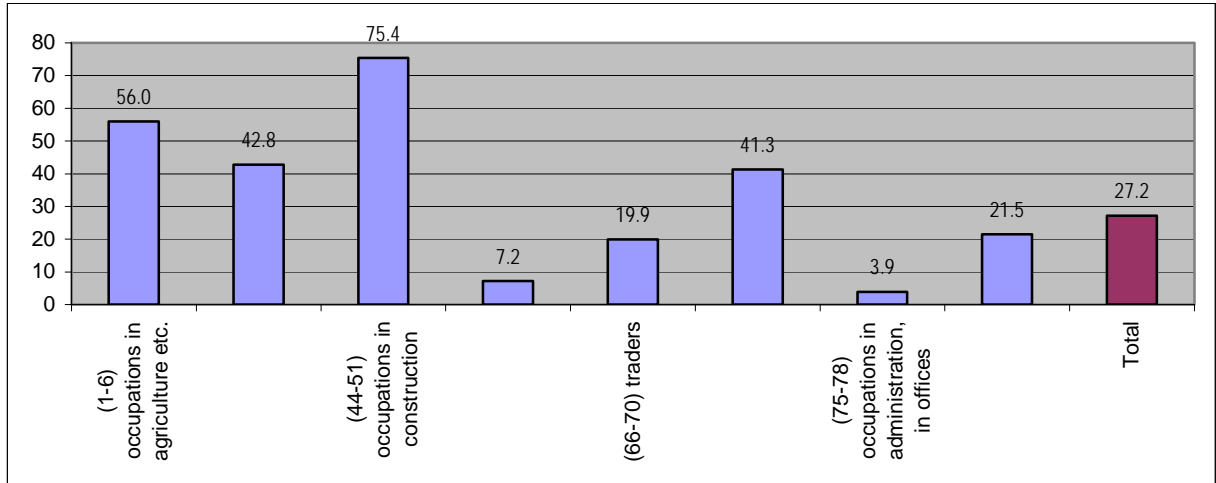


Source: European Survey on Working Conditions, 2005

## 5. By occupation

The BIBB/IAB survey revealed that exposure rates for occupations followed the same patterns as those for sectors. In this sense, the highest shares of workers carrying and moving heavy loads were found in occupations in construction (75.4%) and in agriculture (56%).

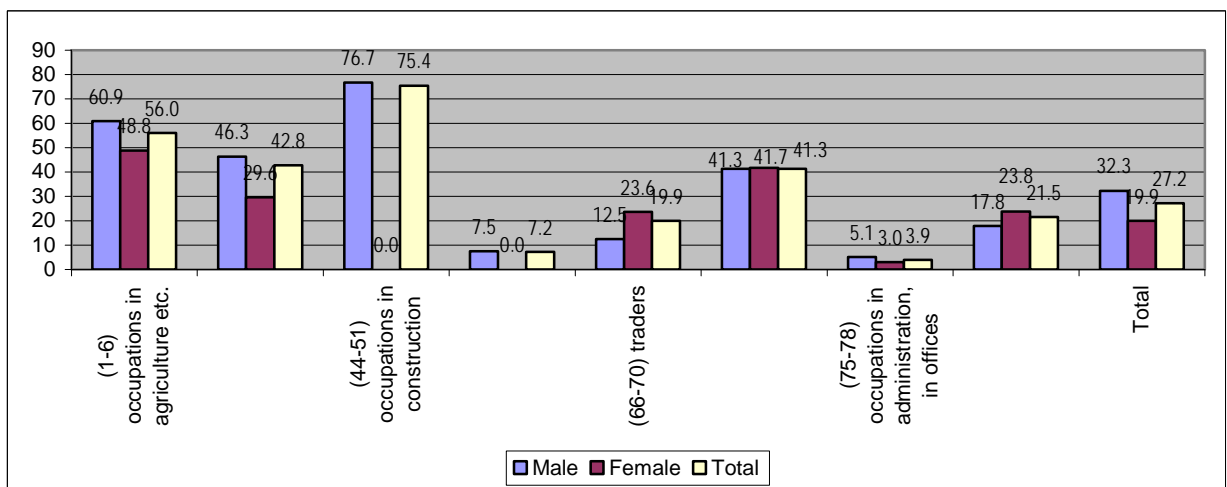
**Figure 17: Percentage workers carrying and moving heavy loads (almost ever, often), by occupation, 1998**



Source BIBB/IAB survey 1998

The information on exposure to carrying or moving heavy loads combining occupation and gender showed that the percentage shares of men who reported carrying or moving heavy loads were generally higher than those of women. However, women in retail (traders) and in other occupations in services reported higher exposure rates than men. The gender difference in occupations in transport was marginal, but slightly in favour of women too: 41.7% as opposed to 41.3% among men.

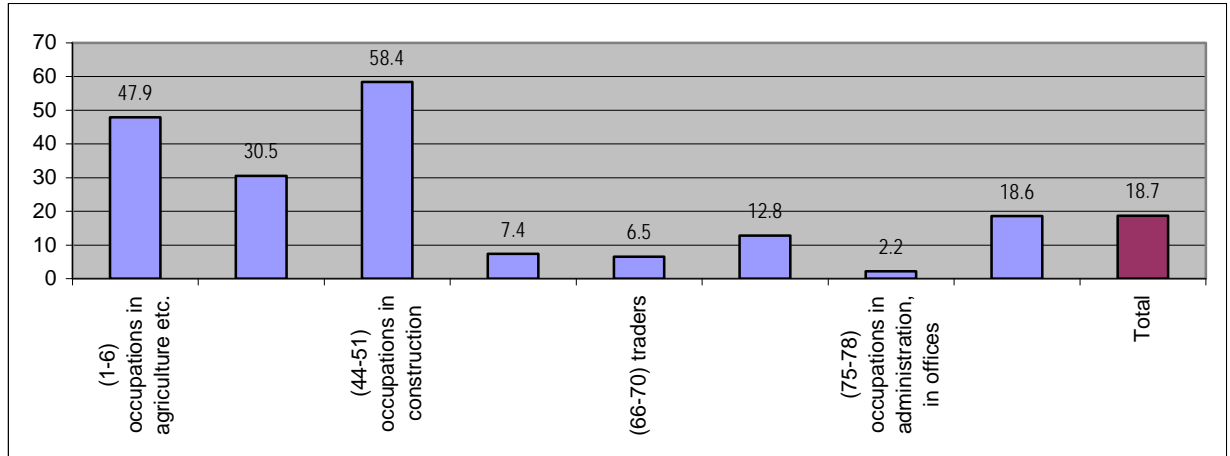
**Figure 18: Exposure to lifting and carrying of heavy loads >10 kg (female), >20 kg (male), by occupation, 1998**



Source BIBB/IAB survey 1998

As far as working in awkward positions is concerned, again, occupations in construction (58.4%) and in agriculture (47.9%) reported the highest percentage shares, followed at some distance by occupations in production, miners, mineral miners, etc. (30.5%).

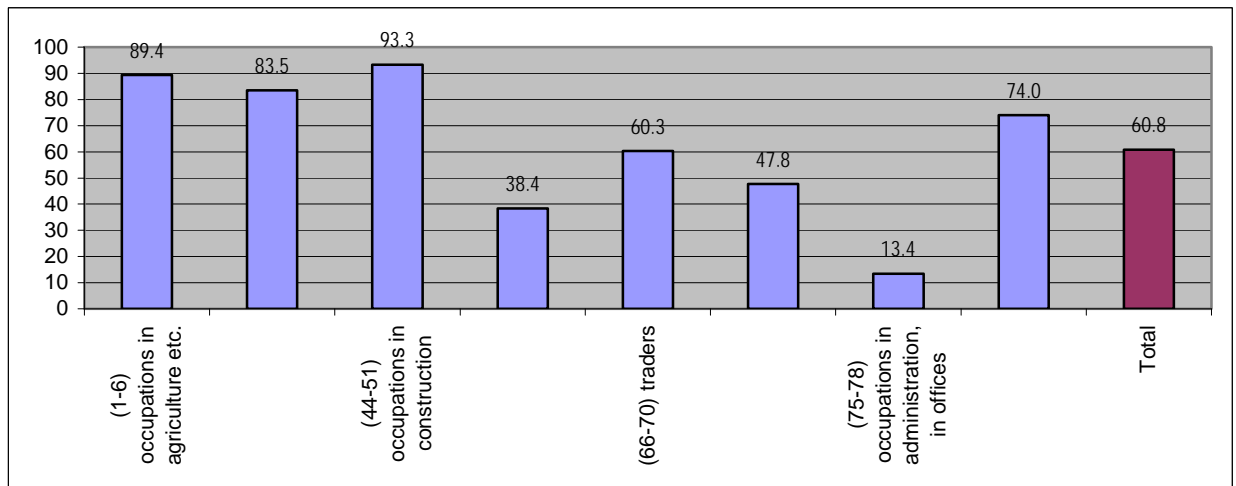
**Figure 19: Percentage workers working in awkward positions (almost ever, often), by occupation, 1998**



Source BIBB/IAB survey 1998

As it has been mentioned above, standing at work was more frequent than the two other risk factors. However, the highest exposure rates were still found in occupations in construction (93.3%), in agriculture (89.4%) and in production, miners, mineral miners, etc (83.5%).

**Figure 20: Percentage workers standing at work (almost ever, often), by occupation, 1998**



Source BIBB/IAB survey 1998

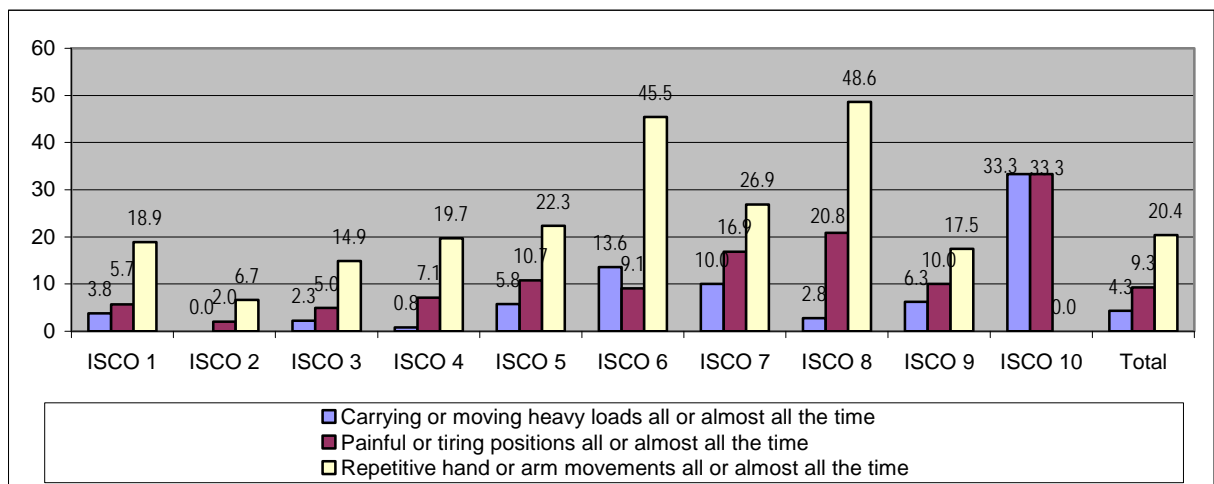
**ISCO Groups of occupation used in tables and figures:**

- ISCO 1: Legislators, senior officials and managers
- ISCO 2: Professionals
- ISCO 3: Technicians and associate professionals
- ISCO 4: Clerks
- ISCO 5: Service workers and shop and market sales workers
- ISCO 6: Skilled agricultural and fishery workers
- ISCO 7: Craft and related trades workers
- ISCO 8: Plant and machine operators and assemblers
- ISCO 9: Elementary occupations
- ISCO 10: Armed force

Information from the ESWC shows that carrying or moving heavy loads all or almost all of the time is more frequent among skilled agricultural and fishery workers (ISCO 6, 13.6%) and craft and related trades workers (ISCO 7, 10%). Results from armed forces (ISCO 10) need to be interpreted with caution due to the small sample size.

Exposure to painful or tiring positions is highest among plant and machine operators and assemblers (ISCO 8, 20.8%) and craft and related trades workers (ISCO 7, 16.9%), while repetitive hand or arm movements appear to affect particularly plant and machine operators and assemblers (ISCO 8, 48.6%) and skilled agricultural and fishery workers (ISCO 6, 45.5%).

**Figure 21: Percentage workers carrying/moving heavy loads, working in painful/tiring position and reporting repetitive hand/arm movements, all or almost all of the time, by occupation, 2005**

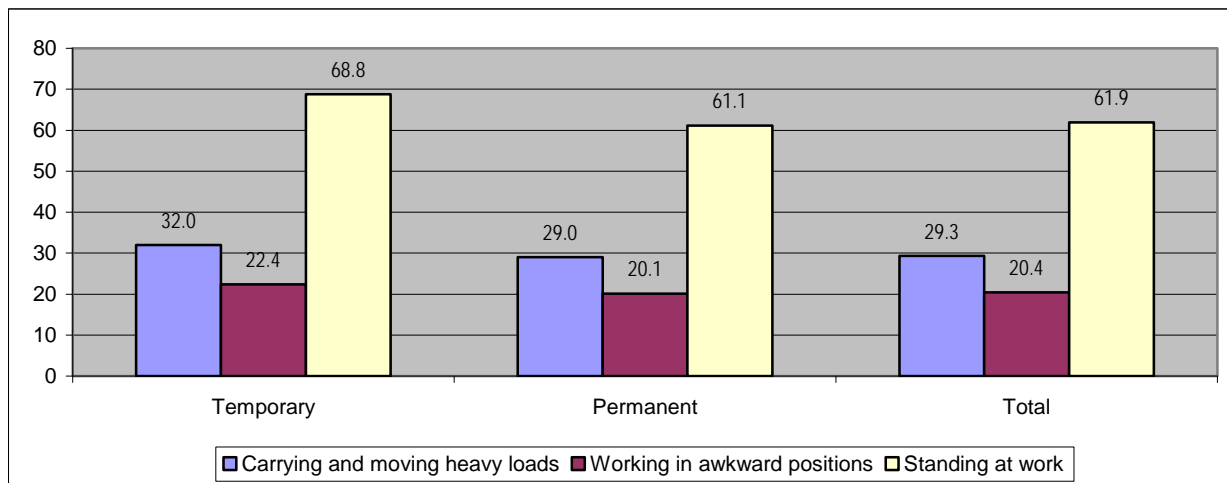


Source: European Survey on Working Conditions, 2005

## 6. By employment status

The BIBB/IAB survey showed that for all three risk factors considered, temporary workers were more exposed than permanent ones, but the differences were relatively small.

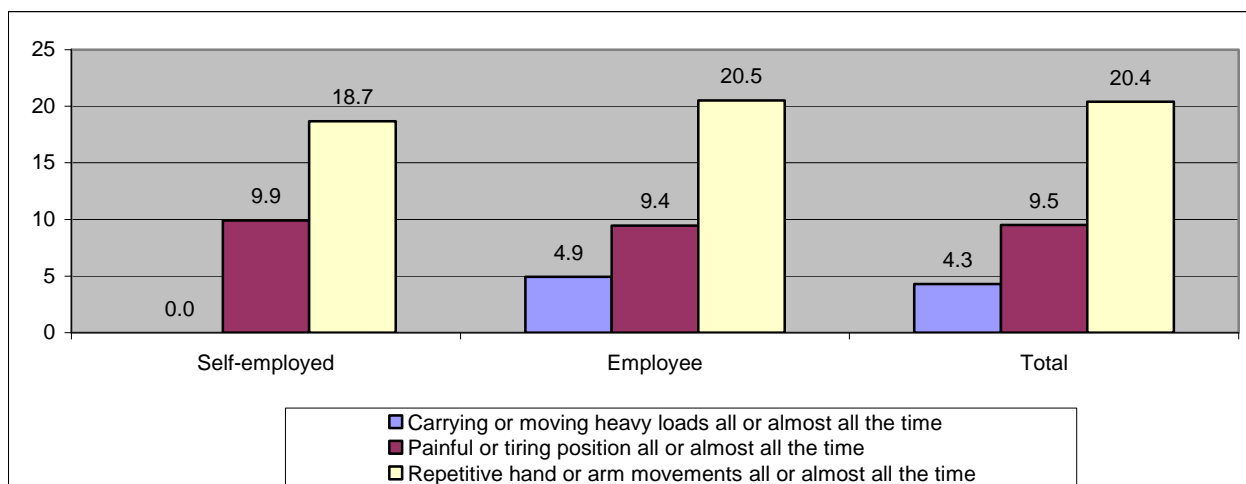
**Figure 22: Percentage workers carrying and moving heavy loads, working in awkward positions and standing at work (almost ever, often), by employment status, 1998**



Source BIBB/IAB survey 1998

The ESWC provides information on self-employed and employed workers. While carrying or moving heavy loads and repetitive hand or arm movements seem to be more frequent among employees, the self-employed report a marginally greater share of work in painful positions than employed workers: 9.9% and 9.4%, respectively.

**Figure 23: Percentage workers reporting painful/tiring positions, carrying/moving heavy loads and repetitive hand/arm movements all or almost all of the time, by employment status, 2005**



Source: European Survey on Working Conditions, 2005