

Young workers' occupational safety and health risks in the Nordic countries





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Foreword

During the Swedish Presidency of the Nordic Council of Ministers 2013, youth issues have been a recurrent theme in the various activities undertaken. In preparation for the conference *Young Workers' Working Environment* held in October, this report, giving an overview of the conditions in the different Nordic countries, was commissioned. The similarities and differences between our countries is an important source of learning and inspiration. There is great value in having these similarities and differences presented in this way.

The Nordic countries have a long tradition of active work on working environment issues, which we should be proud of. At the same time, this work must continuously evolve to meet the challenges of tomorrow.

The working environment of young workers is of particular importance, in order to secure safe working conditions when entering into the labour market. Today's youth are also tomorrow's employers. It is my belief that this report will be an important input and contribution to a continued successful Nordic cooperation on these issues, but also to the on-going work in our respective countries.

Elisabeth Svantesson,
Swedish Minister for Employment
Stockholm, October 2013

Preface

This report was commissioned by the Swedish Presidency of the Nordic Council of Ministers for labour (MR-A) and the Nordic Institute for Advanced Training in Occupational Health (NIVA) acted as facilitator and party for action. The report was written at the National Research Centre for the Working Environment (NRCWE) in Denmark by senior scientific researcher Pete Kines in cooperation with scientific research assistant Elisabeth Framke (NRCWE), senior specialist Anne Salmi from the Finnish Institute of Occupational Health, and librarian/cybrarian Elizabeth Bengtsen (NRCWE).

The report is presented at a Nordic conference entitled “Ungas Arbetsmiljö” (Young Workers’ Working Environment), taking place in Stockholm on October 9, 2013. The conference is held by the Swedish Presidency of the Nordic Council of Ministers, the Swedish ILO-committee (International Labour Organisation), and NIVA.

Young workers are a vulnerable group, and there are many contributing factors as to why they have increased occupational safety and health risks. Employers, managers, supervisors, work colleagues, labour inspectors, educators, researchers, safety and health professionals, policymakers, representatives of governmental and private interests, parents and the young workers all have a role to play to help keep young workers safe and healthy. Updated information and new insight is needed to support this task and we hope to contribute to this process.

We hope you enjoy reading the report.

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- *Elisabeth Framke*, National Research Centre for the Working Environment, Denmark.
- *Anne Salmi*, Finnish Institute of Occupational Health.
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Summary

The objective of this report is to provide important new insight into understanding and preventing young (aged 15–24) workers' occupational safety and health (OSH) risks in the Nordic countries. The report provides a short overview of the context of youth employment, young worker legislation, the sectors young workers are employed in, the OSH hazards they are exposed to and the nature of their injuries and health outcomes. Some of the negative effects of exposure to OSH risks are immediate, whereas other effects may first be detectable when a person is in their 30's or 40's. Although the risk of non-fatal injury is 40–50% greater for young workers, the injuries are often less severe than for older workers.

Youth work legislation (under 18 years of age) is quite similar in all the Nordic countries, with restrictions regarding types of work, working hours, work at specific times of day, demands for work breaks and periods of rest between shifts. Young workers account for 10–17% of the total labour force in the Nordic countries, and employment rates vary greatly (from 19% to 59%) between the Nordic countries for 15–19 year olds. The sectors that young people work in also vary between the Nordic countries, although young men and women in all the Nordic countries are primarily employed in the “wholesale and retail trade” sector, as well as in “accommodation, food and beverages services.”

Part-time work has clearly become a “young worker phenomenon” over the last three decades. There are noticeable differences between the Nordic countries in the percentage of young workers working part-time, and the percentage of 15–19 year olds working part-time is approximately twice as high as for 20–24 years olds.

Young workers are at a vulnerable and dynamic stage in their life, “being young,” yet in a transition phase from school to work, and “youth to adulthood,” bringing with it many challenges that *intensify* their risks compared to older workers. The introduction and mastery of work tasks and their accompanying risks are all part of a risk socialisation process. In addition, young workers often need to adapt their physical statures to working conditions designed for adults, such as working surface heights and the physical design of tools and equipment.

Young workers are a heterogeneous group, whose vulnerability to OSH risks are highly context dependent. There is a need to go beyond seeing young workers as a homogenous group, and to go beyond traditional one-dimensional approaches of focusing on young worker characteristics alone – to looking at the many and intricate factors contributing to young workers' elevated OSH risks. An inter-disciplinary and comprehensive approach to understanding and preventing OSH risks for young workers is needed, with a broad focus on the contributing roles of worker and youth characteristics, work organisation, and work and workplace characteristics.

Given the heterogeneity of young workers and of the ways risks are differentially dealt with in workplaces and under varying contexts, there is a need to see how qualified and effective OSH introduction, training and supervision of young workers can be ensured, particularly in part-time and in age-segregated jobs/tasks. Approaches to reducing young workers' OSH risks need to consider young workers' social, emotional and motivational issues in a given work context (e.g. peer pressure and support, workplace norms and values, workplace safety culture, leadership and management type), as these may be stronger forces in influencing young workers' behaviour and willingness to speak out about OSH issues than informational campaigns.

There is a need for Nordic studies regarding the relationship between age, safety culture and the effects these factors have on young workers' OSH, as well as comparative information from the Nordic countries about the health outcomes and hazards for young workers.

The new insights provided in this report will hopefully inspire the setting of priorities for future measures to be taken in collaborative efforts between employers, managers, supervisors, work colleagues, labour inspectors, educators, researchers, safety and health professionals, policymakers, representatives of governmental and private interests, parents and the young workers.

1. Introduction

1.1 Background and objectives

Young workers are at a highly formative stage in their life, as they continue through much physical, cognitive and psychosocial development. Their motivations for working vary greatly and many young workers are still enjoying “being-young,” yet at the same time many are in a transition period from “school to work,” and “youth to adulthood.” As active parts of the labour market, young workers are a vulnerable group, at high risk of occupational injury and exposure to substances and working conditions that can result in occupational disease and health problems later on in life.¹⁻⁶

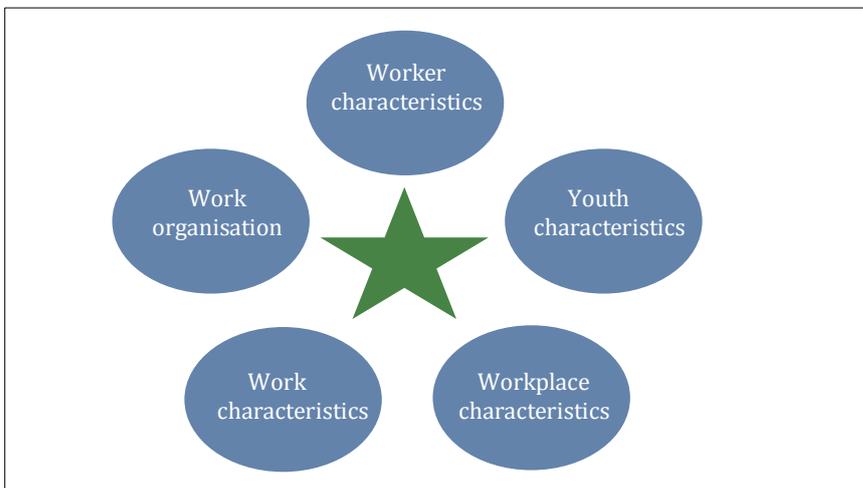
The objective of this report is to give an overview of what is currently known about young workers’ employment and occupational safety and health in the Nordic countries. The purpose of the report is also to identify information gaps and provide new insight in setting priorities for future measures to be taken in collaborative efforts between employers, managers, supervisors, work colleagues, labour inspectors, educators, researchers, occupational safety and health (OSH) professionals, policy-makers, representatives of governmental and private interests, parents and the young workers. The report is not an in-depth systematic review, but rather provides a short overview of young worker legislation, the context of youth employment, the sectors young workers are employed in, the OSH hazards they are exposed to, the nature of their injuries and health outcomes, as well as providing new insight into the many contributing factors of young workers’ increased OSH risks. This new insight proposes a need for focusing on the combination of the following factors (Figure 1), which together contribute to the increased OSH risks of young workers:⁷

- Worker characteristics, individual characteristics such as physical, cognitive and psychosocial maturity level, (in)experience and risk awareness.
- Work organisation, e.g. part-time work and shift-work.
- Workplace characteristics, e.g. OSH introduction and supervision, risk socialisation, safety culture and the social environment.

- Work characteristics, e.g. physical, mechanical and psychosocial risk factors, e.g. noise, fumes, heavy loads, hazardous machines, work overload and harassment.
- Youth characteristics, social and interpersonal characteristics such as being young, transition from school to work and youth to adulthood.

These five factors are discussed further in chapters 6–9, and should be taken into account in future initiatives directed towards improving the OSH for young workers.

Figure 1. Factors contributing to increased occupational health and safety risks of young workers



In reading the report it is important to keep in mind that: 1) young workers are a heterogeneous group, and that 2) the multiple determinants of OSH risks of young workers requires a focus on the *combination* of the above mentioned five factors, rather than a one-dimensional view.

Young workers' increased risks are often attributed to individual factors, such as their propensity for risk taking, their inexperience and lack of knowledge about OSH risks. However, if a workplace culture allows for increased OSH risk exposure and impedes on young workers' ability or willingness to speak out about OSH issues in their place of work, the young workers then contribute to reinforcing the predominant safety and risk culture – which may be detrimental to the workers' short and long term safety and health.^{8;9}

1.2 Materials and methods

The report is based on a literature overview study covering a ten year period (2003–2012), as well as networking with researchers and OSH-professionals in the Nordic countries. The information sources include national and international literature, and statistical and administrative databases, including the following sources:

- International literature databases: EU-OSHA, Norden.org, OSH Update, PubMed, PsycNET, Safetylit.org & Web of Science.
- National literature databases: DanBib (Denmark), Fennica & Frank Metasearch (Finland), Landsbókasafn (Iceland), Bibsys (Norway) and Libris (Sweden).
- National statistical databases: Statistics Denmark, Statistics Finland, Statistics Iceland, Statistics Norway and Statistics Sweden.
- Administrative/Law sources: International and national work environment acts, conventions, legislations, regulations, standards and statutes.

Approximately 10,000 possible publications were retrieved in the literature search, and after screening their titles, abstracts and full-texts (respectively), they were narrowed down to approximately 110 publications for consideration for use in this report.

1.3 Structure of the report

Chapter one provides an introduction to the report as well as a description of the materials and methods. The second chapter deals with defining the terms “Nordic”, “youth”, “risk” and “work”. This is then followed by descriptions of international (ILO, EU) and national legislations pertaining to young workers [Ch. 3]. Chapter four includes information on which sectors young male and female workers are employed in, and their corresponding OSH risks and health outcomes [Ch. 5]. This is then followed by four chapters regarding factors contributing to young workers’ increased OSH risks: Worker and youth characteristics [Ch. 6], Work organisation [Ch. 7], Workplace characteristics [Ch. 8] and Work characteristics [Ch. 9]. Finally, chapter 10 provides conclusions and recommendations in dealing with the future needs of young workers in terms of OSH promotion, training, education and research.

There are two appendixes included in the report: an overview of Nordic research institutions looking into the OSH of young workers [Appendix A], as well as recent and relevant literature (reports, scientific articles and fact sheets) on the OSH of young workers [Appendix B]. These are then followed by a list of references used in the report.

2. Defining the risks of young Nordic workers

The focus of this chapter is on defining each of the key terms used in the title of this report, from the definition of “young” and “worker”, to “risks” and “Nordic”.

2.1 Defining “young”

There are many different definitions of “young workers” with varying age categories and terms such as: Children, adolescents, teenagers, students, youth, minors and young adults. In this report “young workers” are, unless otherwise mentioned, those who are 15–24 years old, although in practice there is no clear delineation as to what “young” is. Workers in this age group can take part in the world of work in different ways, and include: Students at work in their spare time (before or after school hours, during weekends and holidays), school students on work experience placements, vocational training, college students on company placements (apprenticeships), school leavers (completed compulsory education) and young people who have finished an education and are starting their careers (as an employee, independent or employer). Within this age category there are two groups: young workers aged 15–17 (adolescents) who are covered by specific legal restrictions on the work they may do, the risks they may be exposed to and the hours they may work (see Chapter 3); and 18–24 year-olds (young adults) who are covered by the general work environment laws and regulations, applicable to all workers aged 18 or over.

It is important to keep in mind that young workers are a very heterogeneous group^{10;11} – at different phases in their cognitive, psychosocial and physical development, life and work, e.g. a 15 year-old student working a few hours a week cleaning floors to earn pocket money, compared to a 20 year old cook apprentice working half-time to support his/her studies, or a 24 year old school-leaver with a family and 9 years of full time employment experience in the construction industry.

2.2 Defining “work”

It is challenging to define work and employment considering the many formal, informal and unregistered work arrangements that are particularly common among young workers. The various forms of work include:

- permanent and/or full time work,
- non-permanent (casual, contingent or atypical) work: Part-time work, short term, seasonal and on-call work,
- self-employment,
- education based work at school or in a field,
- volunteer work (formal, registered),
- informal and/or unregistered work: Apprenticeships, volunteer work, working for family, friends, neighbours (e.g. farming, babysitting, childcare, newspaper routes, yard work, odd jobs),
- shift-work (day, evening, night, rotating, split, on-call, irregular).

These various types of employment arrangements can contribute to increasing young workers’ OSH-risks, as e.g. they may entail less OSH introduction and qualified supervision during evening and night shifts (see chapter 7). As such, “work” can be categorised in terms of the degree of OSH protection afforded young workers and the opportunities for vocational development.

2.3 Defining “risks”

The terms OSH “risks” and “hazards” are sometimes used interchangeably, yet it is important to make a distinction. “Hazards” are generally *anything* that has the potential to cause injury or illness, whereas a “risk” is a characteristic or event that increases the likelihood of injury or illness occurring in a given context. Exposure to prolonged loud noise is a hazard, yet risk of auditory damage can be reduced through a number of measures from removing or lowering the noise, to use of appropriate personal protective equipment. Risks can also be increased due to socio-cultural phenomena such as through behaviour (action and inaction) and attitudes (risk cultures).⁹

Identification of a risk factor does not necessarily imply that there is a direct causal relationship between the factor and the likelihood of a negative health outcome. Many other factors may influence the relationship, e.g. males may have higher OSH risks, but being male is not a direct

risk factor in itself, but rather needs to be seen in terms of the type and duration of exposure to hazardous tasks, the individual workers' knowledge, training and motivation, the context within which it is performed, as well as the way work is carried out.

OSH risks are reflected in health outcomes such as occupational diseases, injuries (accidents), as well as self-reported health problems (see chapter 5). However, several issues make it difficult to estimate the absolute prevalence of these outcomes amongst young workers including:

- Definitions and inclusion criteria of what constitutes a work-related disease and injury (e.g. any injury, any lost-time injury, injuries resulting in three or more lost workdays) can vary between countries (e.g. even for what constitutes a *fatal* accident).
- Studies may use samples that fail to cover young workers adequately and fail to cover all the potential health problems that they experience (e.g. symptoms may first appear later in life).
- Official records and studies may underestimate the number of work injuries among young people, as many injuries either go unreported or are under-documented – young workers (and their employers and managers) may consider some “injuries” as “part of the job.”^{8;9}
- Calculating injury rates for young workers is difficult as the exact amount of time or hours at risk is rarely documented, due to many young workers working part-time and/or multiple (simultaneously or in succession) jobs. Most calculations assume they work full time – which thus contributes to underestimating the risks of young workers.
- Occupational disease often needs cumulative exposure and/or a latency period to develop – as such there is a greater focus in the literature on injuries than on chronic health outcomes for young workers.

2.4 Defining “Nordic” workers

In addition to the challenges of reaching and communicating OSH issues to young people legally registered to work in the Nordic countries (regardless of nationality), increasing globalisation with more open EU borders results in additional OSH challenges in reaching and communicating with immigrant and migrant workers (OSH and other culture and language issues), as well as the subsequent effects of social dumping or a “grey economy” (undercutting wages and poorer working conditions).



3. Work environment legislation for workers under age 18

Actions towards the prevention of occupational injuries and disease are initiated at many levels, including legal frameworks and agreements. In addition to OSH legislation regarding workers in general, there are a number of international Conventions, directives and national legislation directed towards ensuring a safe and healthy working environment for young workers under the age of 18. With employment of young workers under the age of 18, legislation often requires that with the planning, organization, and performance of work, employers must take into account the youth's age, maturity/development and health (physical and mental capacity), lack of experience and knowledge of risks, as well as the work's influence on schooling and other forms of education.¹²

The International Labour Organization (ILO) has various Conventions, Standards & Recommendations pertaining to young workers including those regarding:

- Minimum age (e.g. C138): To ensure that admission to work is at a level consistent with young workers' physical and mental development.
- Part-time work (C175; R182): To ensure that part-time workers receive the same OSH protection as that accorded to comparable full-time workers.
- Night work for young workers (C006; C079; C090; R014; R080): To ensure young workers a period of rest compatible with their physical necessities.

The two most relevant EU directives for young workers are:

- Directive 89/391/EEC: To ensure protection for all, regardless of age, yet that special attention be given to the vulnerability of young workers. This includes identifying hazards and carrying out and following-up on risk assessments, specific restriction with dangerous equipment and exposure to harmful substances, and in providing training, instruction, supervision and information.

- Directive 94/33/EEC: Special protection for young workers under 18. This “young workers’ Directive” is mainly about work restrictions, whereby employers should guarantee young people working conditions appropriate to their age and mental and physical capacity, and carry out a risk assessment before young people start work, covering: the workplace; physical (heat, noise, vibration), biological and chemical agents and radiation; work equipment and its use; work processes, operations and work organization, and training, instruction and supervision.

National legislation in the Nordic countries for young workers under the age of 18 is fairly similar (Table 1). It includes laws regarding restricted working hours (e.g. max 8 hours/day), work at specific times of day (e.g. no later than 10 PM in a store), demands for 30 minute work breaks (e.g. after 4½ hour’s work), opportunities for overtime (e.g. Finland and Iceland), and demands for periods of rest (e.g. 12 hours between shifts). They also include demands on employers to ensure a healthy and safe working environment through introduction, instruction and supervision, as well as in restricted types of work (e.g. hazardous machines, exposure to chemicals) for young workers.

Recent changes in national legislation and practices in some countries have resulted in stores having longer opening hours and opportunities to be open on weekends and holidays – where young workers – attending a school or higher education – have an increased opportunity for working. This form of non-permanent work often provides increased OSH risks (see chapter 7).

An additional challenge for targeting OSH of young workers is: a) the increasing unemployment rates for youths, and b) increased educational opportunities for young people and more lengthy educational paths.¹³ Many young people may first enter the job market after they are over the age of 17 – which leaves them outside the realm of the young worker Directives and legislation.

Table 1. Legislation for young workers under age 18 in the Nordic countries

	Compul- sory school: Maxi- mum working hours per day on school days vs. non school days	Finished compul- sory school: Maxi- mum working hours per day	Re- stricted times of day (1)	Number of working hours before demand for lunch break or pause and length of break	Demand for rest- period within each 24 hour period	Continu- ous off- duty period per 7 day period	Possibili- ties for overtime work	Re- stricted types of work (2)	Intro- duction, instruc- tion & super- vision
Denmark	2 h/7 h	8 h	06–20	4,5 h, 30 min	12 h	48 h	No	Yes	Yes
Finland	2 h/7 h	9 h	06–22	4,5 h, 30 min	12 h	38 h	Yes	Yes	Yes
Iceland	2 h/7 h	8 h	06–12 (22)	4,5 h, 30 min	12 h	48 (36) h	Yes	Yes	Yes
Norway	2 h/7 h	8 h	06–23 (21)	4,5 h, 30 min	12 h	48 h	No	Yes	Yes
Sweden	2 h/7 h	8 h	06–22 (07–23)	4,5 h, 30 min	12 h	36 h	No	Yes	Yes

¹ Restricted times of day: Exceptions e.g. in bakeries, theaters/cinemas, hotels/restaurants, news-
paper delivery etc.

² Restricted types of work: Hazardous machines, technical aids, exposure to chemicals, etc.

4. Youth employment by gender, age and sector

4.1 Youth employment

Recent Census and Labour Force Survey data (OECD.org) for 2012 show great differences in the employment rates of young people aged 15–19 in the Nordic countries, varying from 19% in Sweden to 59% in Iceland (Table 2). The employment rates are generally higher for young women aged 15–19 than for men aged 15–19. The rates for 20–24 year olds are more similar, ranging from 58% in Sweden to 72% in Iceland. In terms of the percentage of total labour force employment (age 15–64) in 2012, young workers (15–24) account for 10–17% of employment: Denmark (♂14%, ♀15%), Finland (♂12%, ♀12%), Iceland (♂16%, ♀17%), Norway (♂13%, ♀15%) and Sweden (♂10%, ♀12%).

Table 2. Population and employment data for the Nordic countries for age groups 15–19 and 20–24, 2012 (Source: stats.oecd.org)

Country	Men				Women				All persons			
	Population (n*)	Labour force (n)	Employment % of population	Employment % of labour force	Population (n*)	Labour force (n)	Employment % of population	Employment % of labour force	Population (n*)	Labour force (n)	Employment % of population	Employment % of labour force
Age group 15–19												
Denmark	179,206	95,952	44	82	169,769	97,645	49	85	348,975	193,598	46	83
Finland	164,000	52,000	24	75	160,000	58,000	26	71	324,000	110,000	25	73
Iceland	9,389	6,172	52	80	8,874	6,662	66	88	18,263	12,834	59	84
Norway	167,200	66,400	35	87	158,100	71,500	41	91	325,300	137,900	38	89
Sweden	295,900	77,700	16	61	279,000	98,600	23	66	574,900	176,300	19	64
Age group 20–24												
Denmark	178,095	133,047	65	87	173,057	121,821	62	88	351,152	254,868	64	88
Finland	174,000	130,000	63	85	162,000	110,000	59	87	336,000	240,000	61	86
Iceland	11,771	9,489	72	89	10,703	8,771	72	88	22,474	18,260	72	88
Norway	172,400	127,500	68	91	162,500	114,900	67	94	334,900	242,400	67	93
Sweden	337,800	249,100	59	79	322,200	222,200	57	83	660,000	471,300	58	81

*Population figures are Census-based, all other data are taken from labour force surveys.

4.2 Youth employment by sectors

The intention of this chapter is to provide national comparisons of youth employment by gender, age and sector. Similarities between national classification systems were not found in all the Nordic countries, with variations in sector classifications and age groups. As can be seen in Table 3, young men and women in all the Nordic countries are primarily employed in the “wholesale and retail trade” sector (see sections 4.3). E.g. 45% of young Danish men and 48% of young Danish women work in this sector. Many young (aged 15/16–19) women in the Nordic countries as well as Danish men are also employed in “accommodation, food and beverage services” (see sections 4.4). However, the older age group (aged 20–24) works more in the health and social service sector. Among young men, employment in the construction sector is quite popular for both young worker age groups. Work in the “transport and storage” sector as well as in “administration and support services” are also more common for the older age group of youth. Women in Finland and Sweden are also frequently employed in “administration and support services.” In Norway, Sweden and Finland work in the manufacturing industry is particularly frequent among young male workers, as is employment in the agricultural sector for young Finnish and Danish men.

Examples of some of the OSH risks involved in two sectors which often employ young workers in “low-skilled” jobs, the “wholesale and retail trade” and “accommodation, food and beverage services” are provided in chapter 4.3 and 4.4.

Table 3: Registered employment of young workers by age, gender and industry (industries accounting for at least 75% of employment)

Country	Age	Men	%	Women	%
Denmark: 2011 – Statistics Denmark					
	16–19	Wholesale and retail trade	45	Wholesale and retail trade	48
	16–19	Accommodation, food and beverage services	10	Accommodation, food and beverage services	13
	16–19	Building and construction	10	Social institutions	8
	16–19	Farming, forestry and fishing	4	Food, beverages and tobacco industry	5
	16–19	Culture and leisure services	4	Culture and leisure services	4
	16–19	Travel, cleaning and other operational services	3		
	20–24	Wholesale and retail trade	24	Wholesale and retail trade	26
	20–24	Building and construction	12	Social institutions	24
	20–24	Social institutions	7	Accommodation, food and beverage services	10
	20–24	Accommodation, food and beverage services	7	Travel, cleaning and other operational services	6
	20–24	Travel, cleaning and other operational services	7	Education	5
	20–24	Administration, defence and police	6	Health services	4
	20–24	Transport	5	Other services	3
	20–24	Education	4		
	20–24	Farming, forestry and fishing	4		
Finland: 2012 – Statistics Finland					
	15–19	Wholesale, retail trade and motor vehicle repair	14	Wholesale, retail trade and motor vehicle repair	24
	15–19	Building and construction	14	Accommodation, food and beverage services	17
	15–19	Farming, forestry, fishery and mining	10	Health and social services	15
	15–19	Manufacturing	10	Other services	10
	15–19	Administrative and support services	10	Administrative and support services	7
	15–19	Transportation and storage	7	Culture and leisure services	7
	15–19	Culture and leisure activities	7		
	15–19	Accommodation, food and beverage services	7		
	20–24	Manufacturing	18	Wholesale, retail trade and motor vehicle repair	26
	20–24	Wholesale, retail trade and motor vehicle repair	18	Health and social services	22
	20–24	Building and construction	16	Accommodation, food and beverage services	13
	20–24	Transportation and storage	9	Administrative and support services	6
	20–24	Administrative and support services	8	Manufacturing	5
	20–24	Farming, forestry, fishery and mining	5	Other services	5
	20–24	Information and communication	4		
Norway: 2011 – Statistics Norway					
	15–24	Wholesale, retail trade and motor vehicle repair	24	Wholesale, retail trade and motor vehicle repair	31
	15–24	Building and construction	17	Health and social services	29
	15–24	Manufacturing	11	Accommodation, food and beverage services	11
	15–24	Administration, defense and social insurance	7	Personal services	8
	15–24	Health and social services	7		
	15–24	Transport and storage	6		
	15–24	Accommodation, food and beverage services	5		
Sweden: 2011 Statistics Sweden					
	15–19	Wholesale and retail trade	17	Wholesale and retail trade	20
	15–19	Building and construction	14	Accommodation, food and beverage services	18
	15–19	Manufacturing, mining and quarrying	14	Administration and support services etc.	13
	15–19	Administration and support services etc.	13	Health and social services	11
	15–19	Accommodation, food and beverage services	8	Culture and leisure services	10
	15–19	Culture and leisure services	7	Manufacturing, mining and quarrying	7
	15–19	Health and social services	4		
	20–24	Wholesale and retail trade	17	Health and social services	23
	20–24	Administration and support services etc.	17	Wholesale and retail trade	22
	20–24	Building and construction	14	Administration and support services etc.	14
	20–24	Manufacturing, mining and quarrying	14	Accommodation, food and beverage services	12
	20–24	Transport and storage	7	Education	10
	20–24	Accommodation, food and beverage services	6		

Iceland: No data found or received

4.3 Young workers in the wholesale and retail trade sector

As seen in Table 3, young workers in all the Nordic countries are most often employed in the wholesale and retail trade sector, with only two minor exceptions: Finnish men aged 20–24 are slightly more often employed in the manufacturing sector, and Swedish women aged 20–24 are slightly more often employed in health and social services.

The trade sector includes among others grocery stores, supermarkets, shops, bakeries and petrol stations. The demand for less experienced (low-skilled) and low-paid employees in this sector allows many young workers to enter into the labour market. The sector is characterised by a greater degree of part-time and irregular work (evenings, nights, weekends and holidays) – which is attractive for students in school and further education.

Hazards in this sector include physically demanding work, work in painful and tiring positions, repetitive and monotonous work, handling chemicals, insufficient breaks (e.g. at checkouts), physical violence, verbal abuse and unwanted sexual attention. Some of the predominant negative health outcomes for young workers include musculoskeletal disorders, dermatitis and stress.⁶



As many young workers are in school or other forms of formal education during the day, their availability to do part-time work is often restricted to hours outside “normal” working hours. In e.g. grocery stores, this means that they work during peak periods with increased numbers of

customers and less qualified and effective supervision – as many of the full time adult workers have finished their work for the day. This situation contributes to young workers’ vulnerability as they attempt to adapt to both the work and risk culture of the workplace.⁹

4.4 Young workers in accommodation, food and beverages services

Employment in “accommodation, food and beverages services” is common among all Nordic young workers with the exception of 20–24 year old Finns, who are more often employed in the “information and communication” sector.

As in the trade sector the demand for low-skilled and low-paid employees in this sector also allows many young workers to enter into the labour market. Non-permanent and seasonal work make it attractive for students in school and those pursuing further education, and often requires long working hours where overtime is common – on weekends or during holiday seasons.

Hazards for young workers in this sector include a high proportion of physically and psychologically demanding work, dangerous machines and tools, risk of burns, standing for long periods, carrying heavy loads, high workload, allergies and infections, poor lighting (bars/casinos), alcohol consumption, physical violence and harassment (the latter three from customers, colleagues and/or superiors), as well as monotonous repetitive tasks without creativity and initiative. In addition, young workers in this sector are prone to “split shifts” (time off between peak periods during the day) resulting in long working days.⁶



5. Young workers' health outcomes

As noted in chapter 2.3, there are a number of challenges in estimating the absolute prevalence of health outcomes (underreporting, lack of accurate exposure data, etc.) for young workers. Due to the delayed (latent) effects of health outcomes, injury studies of young workers are more in focus. Even when young men and women are employed to do the same job, in practice, the tasks they carry out can often be gender-segregated – with males often being exposed to greater OSH risks. Women, on the other hand, work more often than men in jobs involving fast repetitive motion – which can result in both acute and latent musculoskeletal disorders.¹⁴



The four health outcomes dealt with in this chapter are: (1) fatal injuries, (2) non-fatal injuries, (3) occupational diseases and (4) other health outcomes.

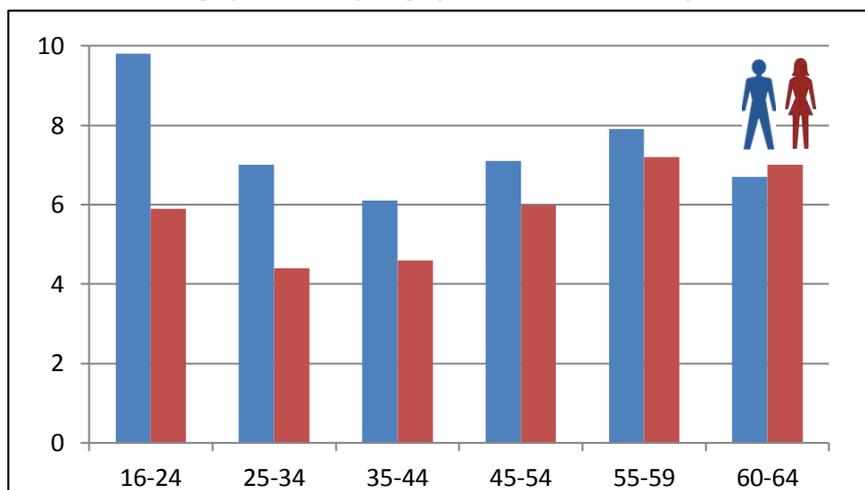
5.1 Fatal occupational injuries

Young workers have a lower risk of fatal occupational injuries compared to older workers, as fatality rates generally increase with increasing age.^{3;15;16} A recent Nordic report provides data showing that young male workers account for 8% of occupational fatalities among men, whereas young women account for 17% of occupational fatalities among women. However, these results represent total numbers and do not represent risk, and should therefore not be interpreted as such. The highest rates and numbers of fatalities for young workers are in the agriculture sector (which also includes forestry, hunting and fishing), followed by construction and transport and communication and manufacturing, whereas the greatest number of fatalities are in construction.⁵

5.2 Non-fatal occupational injuries

Many studies point to young workers having a 40–50% greater risk of non-fatal occupational injuries than older workers,^{3;16–21} and as with fatal accidents there are also great gender differences. An example of this can be seen in Sweden for the year 2012 (Figure 2), where young males (aged 16–24) have the greatest risk and an approximate 60% higher risk for accident related work absence (at least 1 day's absence) than both young (aged 16–24) females and 35–44 year old males.¹ Young women on the other hand have only the fourth highest risk for accident related work absence compared to the other age groups for women.

Figure 2. Reported occupational injuries per 1,000 workers by age and gender in Sweden 2012.¹ Employees and self-employed with at least one day's work absence



Similar results were found in a Danish study in 2012 where young women and men (aged 18–24) had respectively a 1.8 and 1.4 greater risk for accident related work absence (at least one day's absence), compared to the average risk for women and men aged 18–64.²²

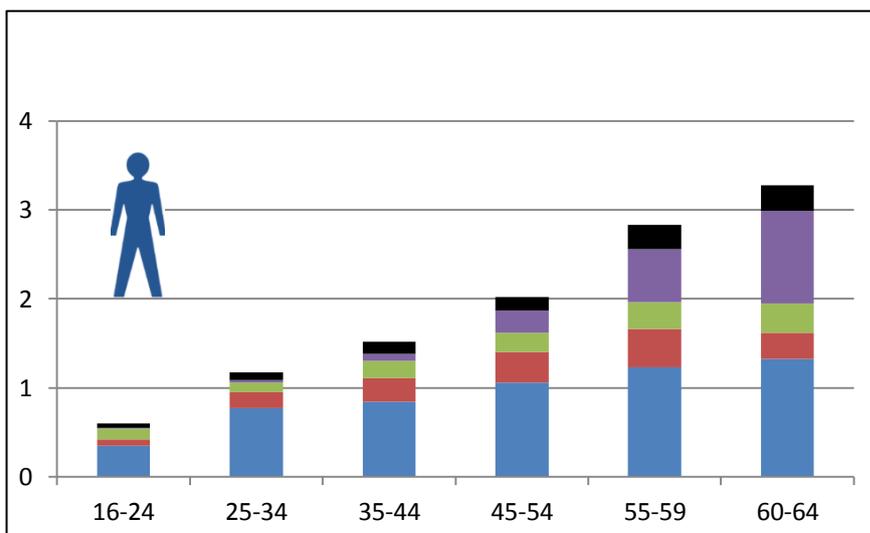
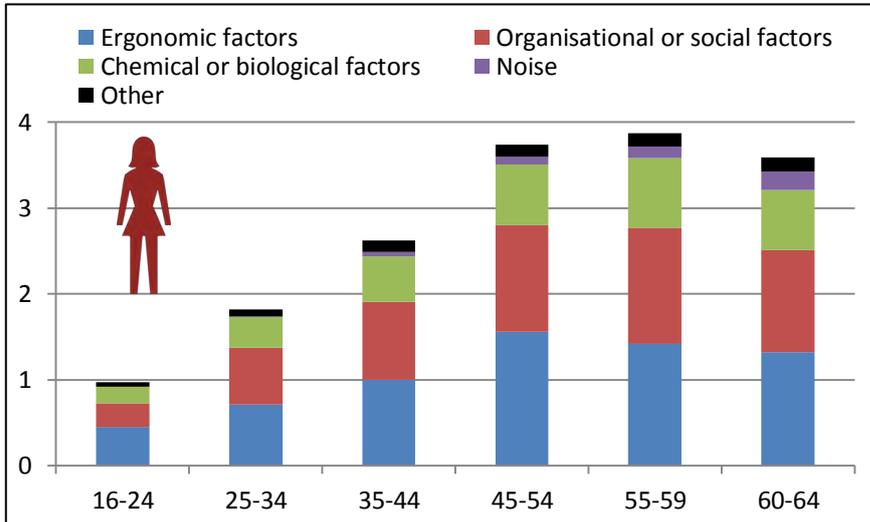
Although young workers are at greater risk of having an occupational accident, the average severity of the injuries is lower, and many go unreported as they are often experienced as “part of the job.”^{8;9} There are various ways of defining “seriousness” of non-fatal injuries, varying from the type of injury (e.g. amputations, fractures), to the life and socio-economic consequences (e.g. lost working time, hospital admission, compensation costs, degree of disability). One explanation for the lower injury severity among young workers is due to their physiology and reflexes – providing them with the ability to better withstand and avoid serious impacts in comparison to older workers.³

There is great variation in non-fatal injury risks between sectors and occupations, with the most common types of non-fatal injuries among young workers being laceration/cuts, contusions/abrasions and sprains/strains.⁶ The highest non-fatal injury rates often reflect employment patterns and are seen in retail, manufacturing and construction.

5.3 Occupational disease and health problems

Young workers have a lower risk of developing occupational diseases than older workers. This can be explained by the fact that occupational diseases often need a cumulative exposure and/or latency period to develop, and may not always be recognised immediately due to short-term work contracts.^{4;6} Recent Swedish data (2012) provides a clear example of the relatively low risk for young workers' reported work-related disease (Figure 3).¹

Figure 3: Reported work-related disease per 1,000 workers by age, gender and suspected cause. Employees and self-employed in Sweden 2012¹



The top five reported occupational diseases among young workers in the EU are: allergic reactions, irritation of the skin (dermatitis), pulmonary disorders, stress depression and anxiety, infectious disease and musculoskeletal disorders.⁶ (See discussion of risk exposures provided in chapter 9).



6. Worker characteristics – Youth characteristics

Work provides young people with opportunities to develop meaningful and marketable job skills, autonomy, responsibility, punctuality, competence and independence, build character and self-esteem, while at the same time allowing for vocational development and opportunities for vocational exploration.²³ Yet young workers are still a very heterogeneous group in terms of their various stages of physical, cognitive and psychosocial development, balancing school/further education,^{10;11} as well as in their motivations for working, amount of time they work, types of work/jobs/tasks, and the way they spend their money (personal items, savings, education, family).²⁴

Young workers' vulnerability at work is traditionally attributed to their physical, cognitive and emotional (im)maturity level, (in)experience, high risk-seeking behaviour, lack of skills, training and OSH risk awareness and perception. They are often unaware of their rights as an employee, and of their employer's OSH responsibilities. In addition, they may be particularly reluctant (able or willing) to speak out about OSH risks.^{7;11;12;25;26} All these factors need also to be understood in the context of "being young," in the transition process from "youth to adulthood," "school to work," and the *risk socialisation* process young people are undergoing as they enter the job market. These aspects challenge the typical individual focus on young workers, and in particular their assumed lack of knowledge and skills, and feelings of "invincibility", fearlessness or carelessness – often associated with young men – as many social processes are influential and may inhibit OSH improvements in the workplace, particularly for young workers.



6.1 Risk socialisation

Young people face a number of challenges when entering the job market.^{7-9;11;18;20;25;27;28} Some of these issues are not necessarily specific to young workers, but are *intensified* by young workers' insecure positions as often new and young workers in non-permanent jobs. The challenges many potential young workers face include:

- Finding a suitable job that fits their personal capabilities, educational qualifications, and career goals.
- The need to succeed in the risk socialisation process in the workplace – including “making sense of” and fitting into the organisational culture through learning and adapting to local OSH norms and values (safety culture – “the way we do things around here”). Through risk socialisation young workers learn what the “acceptable risks” are within a sector, organisation, department or work group – and hereby contribute to “reproducing the risk culture” in the workplace.

- Being young and often new, young workers are usually at the bottom of the organisational hierarchy, which can be particularly challenging in large organisations with great power distance. Young workers may have feelings of powerlessness and of losing their job. They are often eager to please their employers and prove their mastery of the dominant safety and risks practices.
- Part of the transition or “rite of passage” from youth into adulthood includes issues related to identity formation, role conflicts, ambiguities, focus on individualism and self-fulfilment and mastering risks. The transition to “adulthood” has become more prolonged (more and lengthier educational opportunities) and more diversified (marriage and children later in life).
- Mastery of physical risks can be an integral part of mastering a trade, in the transition to adulthood, and in traditional conceptions of masculinity. Mastering risks can lead to increased self-esteem, social recognition and independence.²⁰ In such cases, some young workers may “choose” risks with more hazardous jobs/tasks, while others may stifle (keep quiet) any OSH issues they may have. When they do attempt to speak out about OSH issues they are often systematically silenced – by either having their OSH issues ignored or downplayed by management and co-workers,^{8;9} thus leading to complacency and reinforcing the risk socialisation process and risk culture.
- School leavers (completed compulsory education) may in particular lack vocational identity and feel under pressure to establish one.²⁹
- Injury or sickness presenteeism (going to work despite having an injury or feeling ill), whereby personal, social and workplace demands may contribute to young workers’ downplaying or ignoring health problems. A number of studies, including a recent Swedish study, conclude that repeatedly going to work ill is associated with long-term sickness absence.³⁰
- Multi-cultural issues: For some male immigrant or migrant workers – underreporting of injuries is not just for job security reasons but also a part of the process for them in maintaining their patriarchal authority. Being a member of a visible minority can also lead to marginalisation in the workplace.⁹

6.2 Under-employment

Despite the many educational opportunities available for young people in the Nordic countries, many sacrifice work/job congruency and suffice to having to work in full-time, and in particular part-time or non-permanent jobs which do not correspond to their:^{10;18;21;29;31}

- educational qualifications, i.e. educationally overqualified.
- Skills,
- career goals,
- personal needs (e.g. economics, family obligations).

Entry into the labour market through part-time work is often convenient for young workers, as it allows them to earn money while continuing their education. However, under-employment can lead to decreased work commitment and involvement, while long-lasting under-employment may inhibit skill development and lead to complacency.



Non-permanent (casual) employment is also not always seen as “real work” by young workers, who are still in school or pursuing further education, and they therefore do not consider injury risks, as these are perceived as being connected to “real work.”^{11;32}

7. Work organization – Risk factors for young workers

Two of the main work organisation factors contributing to increased OSH risks for young workers are working conditions associated with shift-work and non-permanent work.

7.1 Risks involved in shift-work

Shift-work is available in various forms from day, evening and night shifts, to rotating, split, on-call and irregular shifts. The increased risks particularly on late afternoon, evening and night shifts involve lower concentrations of supervisors / managers (possibly resulting in different risk cultures), lower illumination and disruption of normal biological rhythms (sleeping and eating). These latter factors can result in digestive problems, circadian disruption, sleep disturbance, reduced concentration, physical and mental fatigue and cardiovascular problems. A recent Finnish study³³ highlights the cardiovascular risk in young shift-workers, while a study in Sweden³⁴ found that shift-work is also associated with the onset of Multiple Sclerosis. The problem with documenting the OSH-related risks (disease and musculoskeletal disorders) associated with young workers' shift-work is that onset often has a latency period, such as with cardiovascular symptoms and Multiple Sclerosis, which may first be detected when the workers are in their 30s or 40's.^{6;12;33;34}

7.2 Risks involved in non-permanent work

The sectors with non-permanent work are most often within retail trade, hotels and restaurants and cleaning, in comparison to e.g. construction, which is more often organized around full time work. For younger workers, their educational pursuits are the main reason for them working part-time, whereas for prime age workers (25–49) the lack of a full time job is their primary reason for not having full time work.^{10;31}

Non-permanent work includes part-time, short term, seasonal and on-call work. Availability of non-permanent work can be regulated by daily, weekly and seasonal fluctuations. Factors that contribute to increased OSH risks in non-permanent work include:^{10;31}

- Less OSH introduction, training and supervision – both in terms of what is being offered, as well as it being more difficult to reach the young workers.
- Often more monotonous and less-skilful work.
- Less job control and control over work schedule.
- More non-standard hours (evenings, nights, weekends and holidays).

As can be seen in Table 4, there are noticeable differences between the Nordic countries in the percentage of young workers (15–24 years old) working part-time (i.e. 30 hours or less per week). It is clear though when comparing the percentages of younger (aged 15–24) and prime age (25–54) workers that part-time work has become a “young worker” phenomenon.³¹ This is most noticeable for males, where only 5–6% of prime age workers in the Nordic countries work part-time compared to 24–53% of younger males. Young women are 3 to 4 times more likely to work part-time than prime age women.

The percentage of young men working part-time in 2012 ranged from 24% in Finland, 26% in Sweden, to 36% and 37% in Iceland and Norway, respectively, and 53% in Denmark. The corresponding percentages are much greater for young women with again the lowest percentages found in Finland (44%) and Sweden (47%), followed by Iceland (55%), Norway (63%) and Denmark (72%).

Part-time work decreases with increasing age, which is also quite noticeable between the two age groups of young workers (15–19 and 20–24). When differentiating the young worker age group into 15–19 and 20–24 year olds, the percentage of part-time workers in all the Nordic countries for both men and women are approximately twice as high for the 15–19 year olds as they are for the 20–24 years olds. In addition, they are particularly high for women aged 15–19 in Denmark (90%) and Norway (82%), and for men aged 15–19 in Denmark (77%).

Of additional interest are the clear increasing trends in part-time work seen in the Danish data from 1983 through to 2012 for young male and female workers, and a clear decreasing trend for prime age women (aged 25–54). Similar increasing patterns for young male and female workers are seen in the other four Nordic countries, whereas the decreasing trend for prime age women is only seen in Iceland, Norway and

Sweden. The percentage of prime age women workers working part-time in Finland has been fairly stable since 1990, with between 8 to 10% working part-time.

Table 4. Part-time employment (Percentage of total employment) by age group, gender and Nordic country

Country	År	Men				Women			
		15–24	25–54	15–19	20–24	15–24	25–54	15–19	20–24
Denmark									
	1983	20	4	32	1	27	37	51	15
	1985	24	3	43	8	34	33	57	16
	1990	33	3	58	13	43	24	73	21
	1995	37	3	61	18	48	19	74	30
	2000	35	4	64	16	54	17	81	36
	2005	44	5	66	26	63	16	83	46
	2010	50	6	74	31	69	15	89	53
	2011	51	6	76	33	68	15	88	53
	2012	53	7	77	37	72	15	90	58
Finland									
	1990	12	2			19	8		
	1995	19	3			29	9		
	2000	21	4			38	9		
	2005	24	4	1	18	43	9	60	36
	2010	24	5	46	19	43	10	62	35
	2011	26	5	46	20	42	10	60	35
	2012	24	4	44	19	44	9	63	36
Iceland									
	1991	20	4			40	38		
	1995	26	5			50	35		
	2000	30	4			49	29		
	2005	25	3			46	20		
	2010	37	6			53	19		
	2011	36	5			52	17		
	2012	36	5			55	14		
Norway									
	1990	21	3			41	37		
	1995	27	4			50	34		
	2000	31	4			53	29		
	2005	35	5	58	25	61	27	83	49
	2010	37	5	57	27	61	21	78	51
	2011	36	5	58	25	63	22	80	53
	2012	37	5	56	28	63	21	82	51
Sweden									
	1998	20	4			41	19		
	2000	24	4			40	18		
	2005	27	5	46	21	46	15	68	36
	2010	27	5	49	20	49	13	71	40
	2011	26	5	49	20	47	12	70	38
	2012	27	5	51	21	47	12	71	38

Source: OECD Statistics, <http://stats.oecd.org>

Note: Labour Force Statistics, Employment by full-time and part-time distinction based on common definition: part-timers are persons working 30 hours or less per week.

8. Workplace characteristics – Risk factors for young workers

Workplace characteristics can also impact on young workers' OSH risks varying from factors associated with company size, to age-segregation, OSH introduction, training and supervision, as well as the availability of risk protection. Young workers not only have to adjust to the social climate at the workplace – the physical environment and equipment/tools are often designed for adults, which can increase the OSH risks for young workers.³⁵

8.1 OSH organization

Regardless of company size, OSH introduction, training and supervision can vary greatly (formal/informal; verbal/non-verbal; quality and quantity), as can the type and frequency of training, supervision and availability of risk protection – all of which can impact on young workers' OSH. An example of this is shown in a recent Norwegian study of young construction workers, where the more formalized routines and systems for training young workers also reflected requirements set by legislation and contractors.³⁶ In addition to the availability of risk protection, the physical design of tools and equipment, working surface heights, and personal protective equipment are not necessarily adapted to young workers' stature. This may result in young workers having to work in awkward and strenuous postures, and with ineffective and even hazardous (e.g. oversized) personal protective equipment.³⁵

Company size can have an effect on the amount of resources and ways in which OSH is organised in small enterprises,²⁰ e.g. minimal employee limits stipulate conditions for when a working environment (safety) representative is required in a small enterprise, and when a formal working environment organisation should be established.

8.2 Age segregation

The effects of age-segregated workplaces and jobs can also have detrimental effects on young workers' OSH risks.³⁷ Age segregation occurs when the workplace, job or task is dominated by an age group, e.g. young workers' predominance in fast-food jobs, or by work organization (e.g. part-time work after "normal" working hours) where adults and full-time employees are less present. In addition to the lack of quality adult supervision and support, the young worker context also reduces opportunities for mentoring, vocational and educational guidance as well as acquiring some valuable "soft skills" in dealing with colleagues and customers. The safety culture in age-segregated contexts may be quite different from age-differentiated workplace contexts (where people of different ages work together) – and therefore may result in increased OSH risks for young workers.

There is a great deal of legislation and information available regarding the more formal aspects of the risk socialisation process for new and young workers. However, the amount of resources invested in educating, training and supervising young and new workers in OSH are often limited – typically relying on a "learn-by-doing" or a "buddy-system" – rather than through qualified instruction and supervision. In addition to providing relevant, frequent and adequate instruction, training, supervision and risk protection (e.g. safeguards and personal protective equipment),³⁸ employer and/or supervisor OSH attitudes and attributes are critical for supporting a safe and healthy working culture.⁷ There is however a lack of Nordic studies regarding the relationship between age, workplace safety culture and its effects on young workers' health and safety.^{11;18}



9. Work characteristics – Risk factors for young workers

Work characteristics involve both physical and psychosocial risk exposures. Tolerance levels may be quite different for each individual, yet in terms of e.g. physical maturity level, young workers may be at greater risk of damage to the spine as the strength in the muscles is still developing, and bones do not fully mature until around the age of 25.⁶

There are both direct and indirect factors that may lead to increased OSH risks. Indirect OSH factors are for example low social support from colleagues or management or insufficient information, training and supervision. Direct OSH factors are for example lack of adequate safety clothing and direct exposure to toxic materials.

9.1 Physical risk exposure

The most common physical risk exposures that young workers can be exposed to are:^{4;39-49}

- Biological agents (micro-organisms and parasites): Exposure can result in skin and respiratory disease, and a recent Finnish health care study found increased risks for tuberculosis.⁵⁰ Exposure to biological agents is common in farming (contact with animals), restaurants (handling food), health care (contact with people, blood and other bodily fluids), and garbage/waste.
- Chemicals, vapours, smoke, dust and fumes: Exposure can result in allergies, skin rashes, respiratory disease, ocular disease, cancers and birth defects, also affecting the nervous system, liver and blood. Handling dangerous substances often has latent effects in farming (e.g. pesticides and fertilisers can result in diseases of the nervous system; with latency periods of 10 or more years), construction (asbestos can result in lung disease), services and healthcare (e.g. hair-dressing, cleaning).

- Heavy or unstable loads, painful positions and monotonous repetitive work: Exposure to these in particular increase the risk of musculoskeletal disorders, and they are often found in work in the construction, retail and health care sector.
- Hot and humid environments include work outdoors (agriculture, construction, hotels and restaurants) and indoors (iron, steel, glass and rubber manufacturing). Heat tends to increase risks due to burns, sweaty palms, dizziness, fogging of safety glasses, as well as lowering mental alertness and physical performance.
- Loud noise: Exposure is particularly relevant in hotels and restaurants (pubs, concert venues) and construction.
- Machines, technical aids and equipment: Lack of training, lack of safeguards, and poor maintenance increase risks of injuries, particularly in factory work and construction.
- Radiation: Exposure to ultraviolet radiation from the sun (outdoor work) and from welding, can result in skin disease and eye damage (latency period of 10–30 years).
- Repetitive/rapid motion, forceful extension, excessive mechanical force concentration, awkward or non-neutral postures – all of which can lead to musculoskeletal disorders/disease. Repetitive/rapid motion is particularly prevalent among women in the retail sector.



Slips, trips and falls are one of the most common forms of accidents – often due to slippery surfaces and untidy floors. They are particularly relevant in cleaning, restaurants, health care and factory work.

- Vibrations: Whole-body vibrations are often found amongst drivers of vehicles; hand-arm vibrations arise due to hand-held power tools, which may increase the risk of “vibration syndrome,” carpal tunnel syndrome and “white finger.”

As mentioned previously, occupational disease often needs cumulative risk exposure and/or a latency period to develop. There are few studies tracking the effects of young workers’ risk exposures, however a number of longitudinal studies are underway, e.g. the effects of farming exposure on young farmers’ health in Denmark, where the cohort was established in 1992.⁴⁴

9.2 Psychosocial work factors

There is a lack of studies in the literature with comparative Nordic statistics regarding psychosocial risk factors. However, some of the key areas that have been studied^{18;20;21;23;40;45;46;51–60} in regards to young workers and increased OSH risks are:

- Bullying.
- Burnout.
- Job control and low degree of influence on work tasks.
- Job satisfaction.
- Physical violence, and intimidation – from people both inside and outside the workplace, particularly in the health sector, service sector and the hotel and restaurant industry (especially where alcohol is served).
- Quality of life.
- Safety culture / climate.
- Social support from colleagues.
- Social support from management.
- Unclear responsibility.
- Unwanted sexual attention – particularly for women in hotels and restaurants, health and social work and the service sector.
- Well-being.
- Work ability.

- Working alone and exchanging money increases the risk of physical and verbal assaults, and young workers do not often have the maturity nor authority to deal with these attacks.
- Work motivation.
- Work overload.
- Work pace pressure.

Three of the areas that have received a lot of recent interest in the Nordic countries are bullying,^{45;46;61} well-being⁶²⁻⁶⁴ and work ability^{51;65-67} – often in combination with work absence. Focus on these areas include recent Nordic reports on bullying⁶¹ and well-being,⁶² while Finnish researchers have proposed a “multidimensional work ability model.”⁶⁸ Stressful and poorly organised work environments and poor leadership appear to increase the risk of bullying by creating a negative work climate. Bullying is a risk factor for the development of cardiovascular disease, depression, burn-out, anxiety, nervousness, reduced job satisfaction and reduced general well-being.⁶¹ Work ability refers to the balance between an individual worker’s resources and workplace management and demands.⁵¹ Well-being encompasses physical, psychological, organisational and psychosocial factors, yet it is not clearly defined, as it is relative to changes in society and technology.⁶²



10. Conclusions

Young workers (aged 15–24) are at a vulnerable and dynamic stage in their life, “being young,” yet in a transition phase from school to work, and “youth to adulthood,” bringing with it many challenges, and which *intensifies* their OSH risks compared to older workers. The introduction and mastery of work tasks and their accompanying risks are all part of a risk socialisation process. Combining non-permanent work with schooling and other education pursuits means that working conditions provide additional challenges in the formal and informal risk socialisation process – often with higher work pace and less qualified and effective supervision. In addition, young workers’ physical statures often have to adapt to working conditions designed for adults, such as working surface heights, the physical design of tools and equipment, and personal protective equipment. All of which may require the young worker to work in awkward and strenuous postures, and with ineffective or even hazardous equipment.

Young workers’ are a heterogeneous group, whose vulnerability to OSH risks are highly context dependent. Some of the negative effects of young workers’ exposure to OSH risks are immediate, e.g. injuries, whereas other effects, e.g. disease, may first be detectable when a person is in their 30’s or 40’s. Although the risk of injury is 40–50% greater for young workers, the injuries are often less severe than for older workers. Establishing the absolute prevalence of injuries, illness and other health outcomes among young workers is challenging due to underreporting and a lack of accurate exposure data (e.g. working hours).

Work environment legislation for young workers under 18 is quite similar in all the Nordic countries, with the only noticeable difference being the possibilities for working overtime in the Finnish and Icelandic legislation. Young male and female workers in all the Nordic countries are primarily employed in the “wholesale and retail trade” sector – where there is a high demand for low-skilled and low-paid work. The work can be physically and psychosocially demanding resulting in injuries, musculoskeletal disorders, dermatitis and stress. It is a sector with a great degree of part-time and irregular work, in which the working hours often mean staffing provides less qualified and effective supervision. It is this lack of qualified and effective supervision and the context

within which young workers work that needs to be more in focus in prevention efforts in this and many other sectors such as in “accommodation, food and beverage services” and “construction”, which also have seasonal employment fluctuations.

Part-time work has increasingly become a “young worker” phenomenon,³¹ with higher percentages of young female workers working part-time than men in all the Nordic countries. Young workers in Denmark, Norway and Iceland are more often employed in part-time jobs than in Sweden and Finland.

There is a need to go beyond seeing young workers as a homogenous group, and to go beyond traditional one-dimensional approaches of focusing on young worker characteristics alone – to looking at the many and intricate factors contributing to young workers’ elevated OSH risks. An inter-disciplinary and comprehensive approach to understanding and preventing OSH risks for young workers is needed, with a broad focus on the contributing roles of worker and youth characteristics, work organisation, and work and workplace characteristics.

One of the central challenges in promoting OSH of young worker is that given the heterogeneity of young workers and of the safety culture in workplaces, how can qualified and effective OSH introduction, training and supervision of young workers be ensured, particularly in non-permanent work (e.g. part-time work) and in age-segregated jobs/tasks (e.g. fast-food establishments)? Approaches to reducing young workers’ OSH risks need to consider young workers’ social, emotional and motivational issues in a given work context (e.g. peer pressure and support, workplace norms and values, workplace safety culture), as these may be stronger forces in influencing young workers’ behaviour than informational campaigns.

Educational systems also have an important role in educating and preparing young people for the working realm, not just in terms of professional skills and knowledge, but also in terms of the young peoples’ knowledge of OSH-issues and their legal rights and responsibilities.

Emerging studies are showing that aspects in the work culture and workplace safety culture may inhibit or stifle/silence young workers’ attempts at raising OSH issues.^{8;9} In spite of OSH education, introduction and training – workplace norms and values and power relations can contribute to young workers lacking the willingness to raise OSH issues. Rather than improving the OSH, the young workers simply reproduce the risk culture. They become an indicator of the workplace safety culture – yet at the high-end of OSH risks. There is however a lack of Nordic

studies regarding the relationship between age, safety culture and the effects they can have on young workers' OSH.^{11:18}

Employers, managers, supervisors, work colleagues, labour inspectors, educators, researchers, safety and health professionals, policymakers, representatives of governmental and private interests, parents and the young workers all have a role to play in helping keep young workers safe and healthy. Much (free) information is already available on various Nordic internet sites and in particular from the European Agency for Safety and Health at Work in terms of reports,⁶⁹⁻⁷¹ advice and good-practice in preventing OSH-risks for young workers. There is concise good-practice information directed towards employers,⁷² supervisors,⁷³ working environment or safety representatives,⁷⁴ parents,⁷⁵ and young workers,^{76:77} as well as specific material regarding hazards such as noise⁷⁸ and risks in specific sectors such as in retail trade.⁷⁹

A recent report dealing with the OSH of young workers' in the United States and Canada⁸⁰ concludes by suggesting the need to *think boldly* about OSH risk prevention, and that this can be inspired by the Swedish "Vision Zero" concept for traffic safety. Likewise, the Finnish "Zero accident forum" promotes a "zero vision" for occupational accidents, which entails a company's employers and employees having a mutual commitment strategy for safety – to prevent all accidents.⁸¹

Insight into the need for a comprehensive understanding of the combined influence of the characteristics of young workers, youth, work, workplace, and work organisation, is an important step in taking a bold leap towards adapting a zero vision commitment strategy for occupational safety for young workers in the Nordic countries.

Take home message

- Young workers (aged 15-24) are at a vulnerable and dynamic stage in their life, “being young,” yet in a transition phase from school to work, and “youth to adulthood,” bringing with it many challenges, and which *intensifies* their OSH risks compared to older workers.
- There is a need to go beyond treating young workers as a homogeneous group, and to go beyond traditional one-dimensional approaches of focusing on young worker characteristics alone – to looking at the many and intricate factors contributing to young workers’ elevated occupational safety and health (OSH) risks.
- An inter-disciplinary and comprehensive approach to understanding and preventing OSH risks for young workers is needed, with a broad focus on the contributing roles of worker and youth characteristics, work organisation, and work and workplace characteristics.
- Given the heterogeneity of young workers and of the safety culture in workplaces, future initiatives need to see how qualified and effective OSH introduction, training and supervision of young workers can be ensured, particularly in non-permanent work (e.g. part-time work) and in age-segregated jobs/tasks (e.g. fast-food establishments).
- Approaches to reducing young workers’ OSH risks need to consider young workers’ social, emotional and motivational issues in a given work context (e.g. peer pressure and support, workplace norms and values, workplace safety culture, leadership and management style) as these may be stronger forces in influencing young workers’ behavior than informational campaigns.
- There is a need for Nordic studies regarding the relationship between age, safety culture and the effects these factors have on young workers’ OSH.

11. Sammanfattning

Syftet med den här rapporten är att föra fram viktiga nya insikter för att förstå och förebygga unga (i åldern 15–24) arbetstagares arbetsmiljörisiker i de nordiska länderna. Rapporten ger en kort översikt över bakgrunden till ungdomssysselsättning, arbetslagstiftning för unga, branscher där unga arbetstagare är anställda, arbetsmiljörisiker de utsätts för och typ av skador och hälsoföljder. Några av de negativa effekter som är relaterade till arbetsmiljörisiker är omedelbara, medan andra kan visa sig först när personen är i 30- eller 40-årsåldern. Trots att risken för icke-dödlig skada är 40–50 procent högre för unga arbetstagare är skadorna oftast mindre allvarliga jämfört med äldre arbetstagare.

Ungdomsarbetslagstiftningen (under 18 år) är ganska likartad i de nordiska länderna, med restriktioner för typ av arbetsuppgifter, arbetstid, arbete på vissa tider på dygnet, krav på raster och vila mellan skift. Unga arbetstagare utgör 10–17 procent av den totala arbetsföra befolkningen i de nordiska länderna, och sysselsättningsgraden varierar stort (från 19 till 59 procent) mellan de nordiska länderna för ungdomar i åldern 15–19 år. Branscherna som unga arbetar i skiljer sig också mellan de nordiska länderna, även om unga män och kvinnor i Norden främst är anställda inom ”parti- och detaljhandeln”, samt inom ”hotell- och restaurangbranschen”.

Deltidsarbete har helt klart blivit vanligare för unga arbetstagare under de tre senaste decennierna. Det finns tydliga skillnader mellan de nordiska länderna vad gäller unga arbetstagare som arbetar deltid, och andelen 15–19-åringar som arbetar deltid är ungefär dubbelt så stor som för 20–24-åringar.

Unga arbetstagare befinner sig i en utsatt och dynamisk fas i livet, då de fortfarande är ”unga”, men samtidigt befinner sig i en övergångsfas mellan skola och arbete och mellan ungdoms- och vuxenlivet. Detta medför många utmaningar som *förhöjer* deras risker jämfört med äldre arbetstagare. Introduktion och bemästrande av arbetsuppgifter och sammanhängande risker utgör delar av risksocialiseringsprocessen. Dessutom måste unga arbetstagare ofta anpassa sin fysiska kroppsstorlek till arbetsmiljöer framtagna för vuxna, som t.ex. höjden på arbetsytor och den fysiska utformningen av verktyg och utrustning.

Unga arbetstagare är en heterogen grupp, vars utsatthet för arbetsmiljörelaterade skador till stor del beror på omgivningen. Det finns ett

behov av att sluta behandla unga arbetstagare som en homogen grupp, och att frånga traditionella endimensionella infallsvinklar som fokuserar på unga arbetstagares egenskaper var för sig, till att i stället betrakta de många och intrikata bidragande faktorerna när det gäller de förhöjda arbetsmiljöriskerna för unga arbetstagare. Det behövs en ämnesöver-skridande och omfattande infallsvinkel för att förstå och förebygga arbetsmiljörisker för unga arbetstagare, med ett brett fokus på de bidragande rollerna för arbetstagares och ungas egenskaper, arbetsorganisation och vad som kännetecknar arbete och arbetsplatser.

Med tanke på unga arbetstagares heterogenitet och de olika sätt som arbetsplatser hanterar risker på i olika sammanhang, finns det ett behov av att undersöka på vilket sätt kvalificerad och effektiv arbetsmiljöintroduktion, utbildning och handledning av unga arbetstagare kan garanteras, särskilt inom deltid- och ålderssegregerade arbeten. Arbetet med att reducera arbetsmiljöriskerna för unga arbetstagare måste ta hänsyn till unga arbetstagares sociala, emotionella och motivationsrelaterade problem i en given arbetsmiljö (t.ex. grupstryck och stöd, normer och värderingar på arbetsplatsen, säkerhetskultur på arbetsplatsen, ledarskap och ledningstyp). Skälet är att dessa kan ha större inverkan på unga arbetstagares beteende och villighet att berätta om arbetsmiljöfrågor än informationskampanjer.

Det finns ett behov av nordiska studier om förhållandet mellan ålder, säkerhetskultur och effekterna de har på unga arbetstagares arbetsmiljö, samt jämförande information från de nordiska länderna om hälsoföljder och risker för unga arbetstagare.

De nya insikter som presenteras i den här rapportern kommer förhoppningsvis att inspirera till att fastställa prioriteringar för framtida åtgärder som vidtas gemensamt av arbetsgivare, chefer, handledare, arbetskamrater, yrkesinspektörer, utbildare, forskare, yrkesverksamma inom arbetsmiljö, lagstiftare, företrädare för statliga och privata intressen, föräldrar och de unga arbetstagarna.

12. Appendix A:

Selection of Nordic institutes looking into OSH of young workers

The following is a selection of institutions in the Nordic countries that deal with the OSH of young workers:

Denmark

- National Research Centre for the Working Environment: Has field-based research projects and large cohort studies including young workers (NAK1995–2010 & AH2012) [nrcwe.dk]
- Department of Occupational Medicine, Herning Regional Hospital: Has field-based research projects focusing on apprentices and young workers as well as a large “Youth” cohort [vestliv.dk; amkherning.dk]
- The Danish Centre for Youth Research: Has field-based research projects focusing on youth and their work, education, democracy, marginalization, health and lifestyle [cefu.dk]

Finland

- Finnish Institute of Occupational Health: Field and register-based research and development projects focusing on career management, safety attitudes and mental health of young workers. Dissemination of evidence-based preventive interventions into schools and workplaces. A “Work and Health” study administrated every second year, and a “Still Working” cohort questionnaire study and new health register data focus on the employees of a private sector industry company. Also use register data to estimate work-related fractions in the development of work-related diseases and disorders. Promotion of work ability, working life skills and health of young workers [ttl.fi]
- Finnish Youth Research Society: Research projects focus on topics such as youth culture research, life paths and passage into adulthood, as well as themes of marginalization, ethnic relations, education and youth work [nuorisotutkimusseura.fi]

- National Institute for Health and Welfare: A research and development institute with focus on such topics as promoting well-being of children, organizing a national action plan for injury prevention among children and youth [thl.fi]

Iceland

- Department of Research and Occupational Health, Administration of Occupational Safety and Health: Research is conducted on the relation between work, working conditions and diseases, discomfort and accidents. There are currently no specific projects dealing with young workers [vinnueftirlit.is]

Norway

- National Institute of Occupational Health: Has a project that analyses the working conditions and health of young workers, by following technical school students into working life [stami.no]
- Work Research Institute is a social science institute performing multidisciplinary, action-oriented research including youth in school and work [afi-wri.no]
- International Research Institute of Stavanger: Has field-based research projects in the construction industry focusing on young workers' and apprentices' risk for injuries and health complaints, as well as projects studying the transition from school to working life for apprentices in general (vocational educational training) [iris.no]

Sweden

- AFA Insurance is an organisation owned by Sweden's labour market parties who insure employees within the private sector, municipalities and county councils. Business areas include preventive measures and research grants for improving health in working life [afaforsakring.se]
- Department of Occupational Medicine and Department of Sociology and Work Science, University of Gothenburg: Study of young adults' work-ability, their conceptions of work and identity, and their links to cultural, social and individual conditions [gu.se]
- Institute for Evaluation of Labour Market and Education Policy: Research includes effects of labour market policies, studies of the functioning of the labour market, effects of education policies and labour market effects of social insurance policies [ifau.se]

- Prevent is a non-profit organization working in the area owned jointly by the social partners. Their task is to work with business owners to convey knowledge about health and safety issues to employers, and to develop methods that will serve as a support for each workplace in their current work environment [prevent.se]
- The Swedish National Agency for Education is the central administrative authority for the public school system and adult education, including topics regarding working environment (e.g. in construction trade schools) [skolverket.se]
- The Swedish National Board for Youth Affairs is a government agency that works to ensure that young people have access to influence and welfare, including following up on the objectives set for national youth policy by the Swedish Parliament and the Government, and supporting municipalities in their youth policy work [ungdomsstyrelsen.se]
- The Swedish National Institute of Public Health is a state agency under the Ministry of Health and Social Affairs. The Institute works to promote health and prevent ill health and injury, particularly for population groups most vulnerable to health risks such as young workers [fhi.se]
- The Swedish Work Environment Authority's objective is to reduce the risks of ill-health and accidents in the workplace, and to improve the work environment in a holistic perspective, i.e. from the physical, mental, social and organisational viewpoints. This includes a focus on young workers, and the dissemination of factsheets and brochures for young workers and their employers [av.se]

13. Appendix B:

Recent relevant literature on young workers

Selected reports from the Nordic Council of Ministers:

- Olofsson, J. & Panican, A. (2008). Ungdomars väg från skola till arbetsliv.
- Suikkanen, A. & Kunnari, M. (2008). Principles and concepts in Nordic occupational safety and health policies. Dimensions of strategic thinking and approaches.
- Tómasson, K., Gústafsson, L., Christensen, A., Røv, A. S., Gravseth, H. M., Bloom, K., Gröndahl, L. & Aaltonen, M. (2011). Fatal Occupational Accidents in the Nordic Countries 2003–2008.

Selected reports from the European Agency for Safety and Health at Work regarding young workers:

- A Safe Start for Young Workers in Practice (2007).
- OSH in figures: Young workers – Facts and figures (2006).
- OSH in the school curriculum: Requirements and activities in the EU Member States (2013).
- Preventing risks to young workers: Policy, programmes and workplace practices (2009).

Selected fact sheets from the European Agency for Safety and Health at Work regarding young workers:

- Young worker safety – advice for employers (Facts no. 61).
- Young worker safety – advice for supervisors (Facts no. 62).
- Young worker safety – advice for parents (Facts no. 63).
- Protection for young people in the workplace (Facts no. 64).
- Your rights to safe and healthy work – advice for young people (Facts no. 65).
- Looking out for work hazards – advice for young people (Facts no. 66).
- Young workers – Facts and figures Youth employment (Facts no. 69).

- Young workers – Facts and figures Exposure to risks and health effects (Facts no. 70).
- Good practice in preventing risks to young workers – Summary of a report (Facts no. 83).
- Health promotion among young workers: A summary of good practice cases (Facts no. 101).
- Worker safety representatives and the protection of young workers (E-Fact 7).
- A statistical portrait of the health and safety at work of young workers (E-Fact 8).

Selected Swedish publications (no systematic search in the Nordic countries was done for this):

- Unga i arbete, Arbetsmiljöverket, korta arbetsskadefakta nr 2/2012, Arbetsmiljöverket, Brochure.
- Knäcket – Ficktidningen för dig som ska ut och jobba! Arbetsmiljöverket, Brochure.
- Om minderårigas arbetsmiljö – en vägledning till föreskrifterna AFS 2012:03, Arbetsmiljöverket, Book.

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Young workers' occupational safety and health risks in the Nordic countries

An attractive working environment that is inclusive and prevents work-related health problems is important to ensure that as many as possible can participate in the working life. During the Swedish presidency of the Nordic Council of Ministers 2013, the focus is on youth. This also includes the working conditions of young workers.

This report has been prepared for a conference that is held in October 2013 by the Swedish Presidency of cooperation with the Swedish ILO Committee and The Nordic Institute for Advanced Training in Occupational Health (NIVA).

The objective of the report is to provide important new insight into understanding and preventing young workers' occupational safety and health (OSH) risks in the Nordic countries. The report provides a brief overview of the context of youth employment and its legal framework, the sectors young workers are employed in, the occupational safety and health hazards they are exposed to and the nature of their injuries and health outcomes.

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