

Unge Arbejdsmiljø – projekt nr. 5253

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Forord

Denne afrapportering om unges arbejdsmiljø belyser projektets resultater vedr. de fire hovedformål, kortlægning af fysiske og psykosociale eksponeringer i unges arbejdsmiljø, risikofaktorer for arbejdsulykker blandt unge, arbejdsmiljøfaktorers betydning for frafald fra erhvervsuddannelser og betydningen af mobning for unges psykiske trivsel. Da undersøgelsen baserer sig på en kohorte af unge, som er fulgt fra de er 14/15 år, 17/18 år og 20/21 år har faktorer vedr. ungdomsuddannelse også spillet ind på resultaterne og det har medført at undersøgelsen har genereret data og yderligere artikler, som også belyser mere generelle forhold vedr. de unges livsstil og trivsel. Vi anser det for en styrke at projektet også har kunnet belyse faktorer som ligger før et egentligt etableret arbejdsmiljø. Endvidere har undersøgelsen indeholdt en betydelig datakilde, som har givet anledning til brug i forskellige akademiske specialeuddannelser og forskellige rapporter til fagforbund og offentlige styrelser. Disse er ikke finansierede af AMFF, men har gjort formidlingen bredere på baggrund af et frugtbart samarbejde med uddannelsesinstitutioner og andre institutioner om anvendelsen af data. Projektet har endvidere indeholdt en væsentlig formidlingsindsats, herunder udvikling af et IT-baseret dilemmaspil om psykisk arbejdsmiljø blandt unge, som er videreført i nye ansøgninger om afprøvning af dette koncept i en større sammenhæng. Projektet har indeholdt et ph.d.-forløb, som afsluttes d. 31.7.2014, og denne ph.d.-afhandling vil blive eftersendt til AMFF, når den er færdiggjort. Projektet har profiteret af bidrag fra en række forskellige faggrupper indenfor medicin, psykologi, sociologi, folkesundhed og antropologi, og projektet har dannet baggrund for oprettelsen af et forskningscenter for unges arbejdsliv (www.foca.dk), som er et murstensløst samarbejde mellem arbejdsmedicinsk klinik i Herning, Institut for Sociologi og Socialt Arbejde, Aalborg Universitet og CFK ■ Folkesundhed og Kvalitetsudvikling, Region Midtjylland og Institut for Folkesundhed, Aarhus Universitet. Dette center vil i de kommende år arbejde forskningsmæssigt med at undersøge unges arbejdsliv.

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Om rapporten

Rapporten bygger på resultater, som er publiceret i 6 artikler i internationale, videnskabelige tidsskrifter, 2 manuskripter indsendt til bedømmelse i internationale, videnskabelige tidsskrifter, samt 4 specialeafhandlinger.

Formålet med projektet var at belyse forskellige aspekter af unges arbejdsmiljø ved hjælp af en allerede eksisterende kohorte af unge fra det tidligere Ringkjøbing Amt; også kaldet VestLiv. Helt konkret var formålet med projektet:

- At kortlægge de fysiske og psykosociale eksponeringer unge er udsat for i deres arbejdsmiljø.
- At identificere risikofaktorer for arbejdsulykker blandt unge.
- At undersøge arbejdsmiljøfaktorers betydning for, at unge falder fra deres erhvervsuddannelse samt betydningen af arbejdsmiljø for fra- og tilvalg af bestemte erhverv.
- At undersøge betydningen af mobning for unges psykiske trivsel samt evt. afledte konsekvenser heraf (f.eks. deres færd gennem uddannelsessystemet eller udstødning af arbejdsmarkedet).

Der var således tale om en bred afdækning af forskellige, væsentlige aspekter af unges arbejdsmiljø og mulige konsekvenser heraf.

Rapporten er inddelt i 6 kapitler. Efter denne læsevejledning, sammenfattes i kapitel 1 projektets samlede produktion. Kapitlerne 2-6 præsenterer resultaterne fra de udarbejdede videnskabelige artikler og manuskripter i henhold til strukturen i det oprindelige formål: Kapitel 2 fokuserer på kortlægning af de fysiske og psykosociale eksponeringer unge er udsat for i deres arbejdsmiljø. Kapitel 3 handler om risikofaktorer for arbejdsulykker blandt unge. Kapitel 4 præsenterer resultaterne om arbejdsmiljøfaktorers betydning for, at unge falder fra deres erhvervsuddannelse samt betydningen af arbejdsmiljø for fra- og tilvalg af bestemte erhverv. Kapitel 5 fokuserer på betydningen af mobning for unges psykiske trivsel samt evt. afledte konsekvenser heraf, og det afsluttende kapitel 6 opsummerer projektets formidlingsaktiviteter.

I kapitlerne 2-5 er resultaterne gengivet i form af korte (1-2 sider) ”fakta-ark”. Reprints af de bagvedliggende artikler findes i rapportens bilag 2. Dog findes resultaterne fra de to ikke publicerede manuskripter udelukkende i form af fakta-ark. Enkelte af projektets artikler/manuskripter har resultater der går på tværs af rapportens kapitelstruktur. I disse tilfælde er resultaterne i form af fakta-ark kun gengivet i ét kapitel, hvortil der henvises i øvrige kapitler hvor artiklen optræder.

1. Sammenfatning af projektets produktion

Den samlede produktion fra projekt "Unges Arbejdsliv" i perioden fra oktober 2010 til september 2013:

Publicerede videnskabelige artikler

- Rasmussen K, Hansen CD, Nielsen KJ, Andersen JH. **Incidence of work injuries amongst Danish adolescents and their association with work environment factors.** Am J Ind Med 2011; 54(2):143-52.
- Winding TN, Nohr EA, Labriola M, Biering K, Andersen JH. **Personal predictors of educational attainment after compulsory school: influence of measures of vulnerability, health, and school performance.** Scand J Public Health. 2013; 41(1):92-101.
- Grytnes R. **Making the Right Choice! Inquiries into the Reasoning Behind Young People's Decisions about Education.** Young 2011; 19: 333-351
- Lund T, Andersen JH, Nøhr Winding T, Biering K, Labriola M. **Negative life events in childhood as risk indicators of labour market participation in young adulthood. A prospective birth cohort study.** PLoS ONE 2013; 8(9): e75860. doi:10.1371/journal.pone.0075860
- Glasscock DJ, Andersen JH, Labriola M, Rasmussen K, Hansen CD. **Can Negative Life Events and Coping Style Help Explain Socioeconomic Differences in Perceived Stress Among Adolescents?** A cross-sectional study based on the West Jutland Cohort Study. BMC Public Health. 2013 Jun 2;13(1):532.
- Andersen JH, Labriola M, Lund T, Hansen CD. **Development of health and depressive symptoms among Danish adolescents—Socioeconomic differences and effects of life-style.** Open Journal of Preventive Medicine 2013;3(1):104-10.

Indsendte videnskabelige artikler

- Andersen LP, Pedersen HL, Labriola M, Andersen JH, Hansen CD. **Risk factors for being bullied at age 18 at work or at school. A prospective study from The West Jutland Cohort Study.** Indsendt september 2013 til Journal of Health and Social Behavior.
- Winding TN, Andersen JH, Labriola M, Nohr EA. **Initial non-participation and loss to follow-up in a Danish youth cohort: Implications for relative risk estimates.** Indsendt marts 2013 til JECH.

Kandidatafhandlinger

- Julie Marie Madsen: **Associationen mellem mobning hos unge og brug af antidepressiv medicin - Et analytisk follow-up studie.** Speciale ved den sundhedsfaglige kandidatuddannelse, Aarhus Universitet, 2013.
- Mette Jørgine Kirkeby. **Betydningen af forældres socioøkonomiske position for unges lægemiddelforbrug - Et tværseksstudsie af 17 til 18-årige unge i den vestlige del af Region Midtjylland.** Det Sundhedsvidenskabelige fakultet, Syddansk Universitet, maj 2012
- Ida Rask Moustsen. **Kvantitativ undersøgelse af overvægt og lavt selvværd blandt danske unge i lyset af selvopfattet social position.** Bachelorprojekt Folkesundhedsvidenskab 2012.
- Tine Britt Larsen. **Betydningen af oplevet stress for sygefravær og ledighed hos unge voksne - Et registerbaseret follow-up studie.** Den Sundhedsfaglige Kandidatuddannelse ved København Universitet, okt. 2011

Notater til beslutningstagere/faglige organisationer

- Labriola M. Lund T, Bennedsen G, Pedersen AHM, Sagoo SN, Hansen CD, Winding TN, Andersen JH. **Faktorer af betydning for påbegyndelse, gennemførelse eller frafald fra en ungdomsuddannelse.** Notat udarbejdet for Arbejdsmarkedsstyrelsen, januar 2013
- Labriola M, Lund T, & Andersen JH. **Fysiske og psykiske arbejdsmiljøbelastninger i fritidsjob blandt unge i alderen 13 til 17 år.** LO-dokumentation, april 2011
- Hansen CD, Andersen LP, Andersen JH. **Mobning blandt unge - i skolen og på arbejdspladsen.** Analyse af en ungdomsgruppe, Foreløbige resultater fra ungdomskohorten VestLiv. Øje på arbejdsmiljøet, LO-dokumentation, april 2010.

Videnskabelige konferencer

- Hansen CD, Skjøtt-Larsen J. **Livsmål og (begyndende livsbaner) blandt unge fra forskellige sociale klasser.** Dansk Sociologkongres, Roskilde 2013.
- Lund T, Andersen JH, Hansen CD, Labriola M. **Social and health behavior factors associated with labour market marginalization in a cohort born 1989 in Denmark.** WDPI Healthy ageing in a working society. Gröningen, okt. 2012
- Andersen JH. **Trajectories of low back pain from 15 to 20 years of age.** 12th International Forum on Back Pain Research in Primary Care, Odense, okt. 2012

- Andersen LP, Pedersen HL, Labriola M, Andersen JH, Hansen CD. **Bullied at primary school – bullied at work or upper secondary school?**. 8th International Conference at Workplace Bullying and Harassment. Copenhagen 12-15 June 2012.
- Winding TN. **Parental and personal predictors of educational choice and attainment after compulsory school in Danish adolescents – Results from a 7-year follow-up Study**. Prekonferansen til Arbeid og Helse, Drammen, januar 2012.
- Labriola M, Lund T, Andersen JH. **Work environment, health and wellbeing among children and adolescents in Denmark: results from a study of 545 13–17 year olds**. EPICOH, Oxford, 2011. Occup Environ Med 2011;68:A24
- Hansen CD. **Økonomisk ulighed og selvværd. Nogle (strø)tanker om den sociale uligheds former blandt unge i det tidligere Ringkjøbing Amt Resultater fra VestLiv**. Dansk Sociologkongres, 2011.
- Hansen CD, Andersen JH. **Health and School Performance amongst Danish adolescents: results from VestLiv - West Jutland Cohort Study**. 2nd European Public Health Conference, Lodz, Poland, 2011.
- Andersen JH, Hansen CD. **Socioeconomic differences in the development of self-rated health amongst Danish adolescents –results from a study in the Western Denmark – the VestLiv study**. 2nd European Public Health Conference, Lodz, Poland, 2011.

Temadage, symposier o.lign.

- Lund T, Andersen JH, Labriola M. **A multi-centre research initiative focusing on successful integration of youth into education and employment**. Liberty Mutual, Boston, USA juni 2013.
- Lund T, Andersen JH, Labriola M. **A multi-centre research initiative focusing on successful integration of youth into education and employment**. Institute of Work and Health, Toronto, Canada juni 2013.
- Winding TN. **Personal predictors of educational attainment after compulsory school**. Phd dag 2013, Århus Universitet.
- Winding TN. **Unge introduktion til arbejdsmarkedet. Betydningen af opvækstrelaterede forhold og helbred for arbejdsmarkedsstatus og oplevede arbejdsmiljø**. Ph.d præsentation, Arbejdsmedicinsk klinik, Regionshospitalet Herning, april 2012

- Winding TN. **Unge introduktion til arbejdsmarkedet. Betydningen af opvækstrelaterede forhold og helbred for arbejdsmarkedsstatus og oplevede arbejdsmiljø.** Basic Course in Health Sciences, ph.d kursus, Aarhus Universitet, maj 2012
- Winding T. **Unge introduktion til arbejdsmarkedet. Betydningen af opvækstrelaterede forhold og helbred for arbejdsmarkedsstatus og oplevede arbejdsmiljø.** Ph.d præsentation, Ramazzini Center forskningsmøde, Aarhus Universitet, juni 2012
- Bennedsen G, Labriola M. **Gør det bedre i det psykiske arbejdsmiljø - Nye undervisningsmaterialer til unge om arbejdsmiljø, oplæg om pilotafprøvning af www.ditarbejdsliv.nu, Arbejds- og inspirationsseminar, Arbejdsmiljørådet i samarbejde med Ministeriet for Børn og Unge.** Fredericia, okt. 2012
- Bennedsen G. Labriola M, **Dit Arbejdsliv Nu!** Messepræsentation på "Sundhedsfremme og arbejdsmiljø", messe ved Arbejdsmiljørådet. Aarhus, nov. 2012.
- Bennedsen G, Labriola M. **Sexet eller psykisk arbejdsmiljø? – om at formidle arbejdsmiljøforskning til unge,** workshop nummer 210, AM 2012 - Arbejdsmiljøkonferencen. Nyborg, nov. 2012
- Labriola. M, Lund T. **Tendenser i unges sygefravær!** Temadag "Generation sYg" Moderniseringsstyrelsen, dec. 2011
- Andersen JH, Lund T, Labriola M, Hansen CD. **Social ulighed og helbred.** AM 2012 - Arbejdsmiljøkonferencen, Nyborg, nov. 2011.
- Lund T, Andersen JH, Hansen CD, Labriola M. **Arbejdsmarkedsstatus blandt VestLiv undersøgelsens årgang '89 - hvad sker der for dem?** AM 2012 - Arbejdsmiljøkonferencen, Nyborg, nov. 2011.
- Lund T, Andersen JH, Hansen CD, Labriola M. **Arbejdsmiljø, helbred og trivsel blandt børn og unge i Danmark - Resultater af en undersøgelse blandt 545 13-17 årige.** Workshop, AM 2012 - Arbejdsmiljøkonferencen, Nyborg, nov. 2011
- Hansen CD, Andersen JH, Lund T, Labriola M. **Unge arbejdsmiljø og risiko for arbejdsulykker.** Workshop, AM2012 - Arbejdsmiljøkonferencen, Nyborg. nov. 2011.
- Labriola, M og Bennedsen G. Deltagelse i **Task Force vedr. Unge og Nyansattes arbejdsmiljø,** ved Arbejdsmiljørådet og Beskæftigelsesministeriet
- Bennedsen, G. **Netværksgruppe af arbejdsmiljøundervisere på erhvervsskolerne.**

Internationale samarbejder

- Komparativt studie om marginalisering blandt unge i Holland og Danmark i samarbejde med University Medical Centre Groningen i Holland. Besøg af hollandsk gæsteforsker Karin Veldman marts og april 2013, projekt **Characteristics of the family of origin and educational and occupational attainment: the mediation effect of mental health problems among adolescents in Denmark and The Netherlands.**

2. Kortlægning af de fysiske og psykosociale eksponeringer unge er udsat for i deres arbejdsmiljø.

Unge arbejdsmiljø behandles i to af projektets artikler/manuskripter:

Andersen LP, Pedersen HL, Labriola M, Andersen JH, Hansen CD. **Bullied at primary school – bullied at work or upper secondary school?** Indsendt september 2013.

Resultaterne præsenteres i fakta-ark nr. 5 i kapitel 5.

Rasmussen K, Hansen CD, Nielsen KJ, Andersen JH. **Incidence of work injuries amongst Danish adolescents and their association with work environment factors.** Am J Ind Med 2011; 54(2):143-52.

Resultaterne præsenteres i fakta-ark nr. 7 i kapitel 3, og i sin fulde længde i bilag 2.

Derudover er unges arbejdsmiljøforhold emnet for en separat videnskabelig artikel under udarbejdelse i forbindelse med et igangværende ph.d.-projekt v. Trine Nøhr Winding, som afsluttes 31/7 2014. Foreløbige resultater af denne artikel viser at:

De unge oplever færre kvantitative og følelsesmæssige krav, større indflydelse, tillid og retfærdighed på arbejdspladsen sammenlignet med et repræsentativt udsnit af den voksne danske arbejdende befolkning. Kvantitative krav viser de mest positive resultater med en gennemsnitsscore på 2.2 på en skala fra 0 til 8, hvor høje værdier afspejler høje krav, sammenlignet med et gennemsnit på 3.3 i den øvrige arbejdende befolkning. Oplevet tillid og retfærdighed på arbejdspladsen er også højere blandt unge sammenlignet med den generelle arbejdende befolkning; med en gennemsnitsscore på hhv. 6.2 og 5.6 sammenlignet med 5.4 og 4.8, hvor lave værdier afspejler manglende tillid og retfærdighed på arbejdspladsen. Arbejdstempoet er marginalt forhøjet blandt de arbejdende unge i forhold til den voksne arbejdende befolkning (gennemsnitsscore på 4.8 sammenlignet med 4.7). De unge oplever mere ensidigt gentaget arbejde og i særdeleshed mere hårdt fysisk arbejde sammenlignet med deres ældre kolleger; gennemsnitsscore på hhv. 4.7 og 4.3 sammenlignet med 4.2 og 3.4, hvor høje værdier indikerer belastende fysisk arbejdsmiljø.

En omfattende kortlægning af arbejdsmiljøet blandt de hhv. 17-18 årige og 20-21 årige findes i rapportens bilag 1. Kortlægningen omfatter i 2 tabeller og 44 figurer følgende dimensioner af unges arbejdsmiljø:

- Tilfredshed med arbejde/praktik
- Fysisk hårdt arbejde
- Udførelse af repetitivt arbejde

- Indflydelse på arbejde
- Tid og ressourcer
- Krævende arbejdsopgaver
- Belønning/værdsættelse
- Stemning og socialt klima – herunder mobning
- Hjælp og støtte
- Fysisk hårdt arbejde
- Tid foran computer
- Varme, kulde, træk
- Støj
- Belysning
- Vibrationer
- Hudkontakt m. stoffer, materialer, kemikalier
- Kvantitative krav
- Følelsesmæssige krav
- Udviklingsmuligheder
- Mening i arbejdet
- Rolleklarhed
- Ledelseskvalitet
- Arbejdsulykker

3. Risikofaktorer for arbejdsulykker blandt unge.

Dette tema belyses i følgende artikel:

Rasmussen K, Hansen CD, Nielsen KJ, Andersen JH. **Incidence of work injuries amongst Danish adolescents and their association with work environment factors.** Am J Ind Med 2011; 54(2):143-52.

Artiklen præsenteres i fakta-ark nr. 7 på de efterfølgende sider, og i sin fulde længde i bilag 2.

ARBEJDSMILJØ OG ARBEJDSULYKKER BLANDT UNGE

Incidence of Work Injuries Amongst Danish Adolescents and Their Association With Work Environment Factors

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Baggrund

Den faktiske forekomst af arbejdsulykker kendes ikke. De eneste officielle tal der eksisterer stammer fra Arbejdstilsynets register hvortil arbejdsgiveren har pligt til at anmelde ulykker med mere end 1 dags fravær fra arbejdspladsen. Andre potentielle kilder er skadestuer og praktiserende læger, som imidlertid ikke rutinemæssigt foretager en særskilt registrering af arbejdsulykker. Endelig vil der være en del som blot foretager egen-behandling. Skadestuen på Odense Universitetshospital (OUH) foretager som den eneste skadestue en detaljeret registrering, og herfra stammer de bedste danske tal til supplement af Arbejdstilsynets. En analyse af perioden 2003-10 viste at 33.000 ulykker blev behandlet på skadestuen, mens der i samme periode blev anmeldt 26.000 til Arbejdstilsynets register – kun i 16% af tilfældene var der overlap. Kontrolleret for køn og ulykkestype var underreporteringen størst for de unge, og endvidere størst i de mest risikofyldte erhverv.

Formålet med studiet af arbejdsulykker i Vestliv kohorten har dels været at belyse incidensen blandt 3 alderskategorier af unge de henholdsvis 14/15 årige, 17/18 årige og de 20/21 årige og dels at teste specifikke hypoteser om årsagsforhold for ulykker blandt unge.

Konklusioner og perspektiver

I den foreliggende undersøgelse med udgangspunkt i materialet fra den fortløbende Vestliv unge- kohorte, er der fundet en væsentlig øget risiko for arbejdsulykker både for de helt unge og unge i 20-21 års alderen. I undersøgelsen af de 17/18 årige var den stærkeste risikofaktor for ulykker manglende støtte og hjælp fra nærmeste leder, disse havde ca dobbelt så stor risiko for at komme ud for en ulykke.

Resultaterne fra 2010 viser at social støtte fra nærmeste leder ikke er associeret til arbejdsulykker. En forklaring kunne være at de 17-18 årige som nye på arbejdsmarkedet, har et særligt behov for social støtte fra ledelsen.

Undersøgelsen bidrager sammen med andre nyere undersøgelser af unges arbejdsmiljø til viden om hvilke faktorer der har betydning.

I forebyggelsesmæssig henseende er det vigtigt at være opmærksomhed på sådanne videnskabeligt fundere resultater blandt en stor gruppe unge. Nogle af fundene kan umiddelbart omsættes til handling – her kan næves betydningen af god ledelsesmæssig opbakning, coaching og generel støtte. De unge har en mangel på erfaring relateret til den kortere tid de har været på arbejdsmarkedet.

RESULTATER OG DISKUSSION

Resultater og diskussion

Den første opgørelse af arbejdsulykker i Vestliv kohorten undersøgte forekomsten i 1989 kohorten i 2 runder henholdsvis 2004 og 2007 hvor de unge var 14/15 og 17/18 år:

- 86 af de unge der havde job, var udsat for en arbejdsulykke i 17 års alderen.
Den primære konklusion vedrørende forklarende faktorer, var at hyppige tunge løft (2,3 gange overhyppighed), høje psykologiske krav (2,4 gange overhyppighed) og manglende støtte fra ledelsen (2,2 gange overhyppighed) var signifikant relateret til hyppigheden af ulykker.
- Lærlinge havde med en øget risiko på 5,5 gange den største risiko, hvilket er plausibelt idet de ofte arbejder i et velkendt risikobetonet arbejdsmiljø, sammenlignet med fx unge der arbejder i supermarkeder.

I denne opfølgende undersøgelse steg incidensen fra:

- 65 per mio arbejdstimer blandt de 17/18 årige, til
- 81 per mio arbejdstimer for 20/21 årige i 1989 kohorten
- 63 per mio arbejdstimer for 1983 kohorten, som på måletidspunktet er 20/21 år gamle, og hvor andelen i beskæftigelse er relativ stor.
- Målt i ulykker per 100 fuldtids arbejdende var der en stigning fra 3.4 til 4.2 for 1989 kohorten og med en forekomst på 6.0 per 100 arbejdende er den endnu højere for 1983 kohorten.

Disse sidste tal kan bedst sammenlignes med Arbejdstilsynets tal, som viser 2.0 ulykker for 18-24 årige.

- Dvs. der er tale om en overhyppighed med en faktor 1,7 henholdsvis 2,1 for 1989 kohorten og 3,0 for 1983 kohorten. Sidstnævnte er en større overhyppighed end der er fundet i andre videnskabelige undersøgelser.

De nye resultater for 1989 kohorten i 2010 viste signifikante sammenhænge mellem

- arbejdsulykker og jobusikkerhed ("bekymret for at miste arbejde"), og
- arbejdsulykker og negativ adfærd ("bliver mindet om dine bommerter eller fejltagelser").

Mænd har, også blandt disse unge, en øget risiko (2,6 gange overhyppighed).

Det fund, som var i den første undersøgelse af betydningen af manglende ledelsesmæssig opbakning, kan ikke genfindes her.

Forløbsaspektet i Vestliv undersøgelsen giver mulighed for at studere sammenhænge mellem fund i tidlig alder og tilkomne helbredsproblemer, altså langtidskonsekvenser.

Udsættelse for arbejdsulykker i 17-18 års alderen øger risikoen for at få flere smerter i bevægeapparatet i 20-21 års alderen.

De unge der var udsat for en arbejdsulykke i 2007 havde en ca 3 gange så stor risiko for at have mange smerter i nakke og skulder i 2010. Denne type konsekvenser øger risikoen for sygefravær.



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4. Arbejdsmiljøfaktorerers betydning for, at unge falder fra deres erhvervsuddannelse samt betydningen af arbejdsmiljø for fra- og tilvalg af bestemte erhverv.

Dette tema er belyst i de følgende to artikler:

Winding TN, Nohr EA, Labriola M, Biering K, Andersen JH. **Personal predictors of educational attainment after compulsory school: influence of measures of vulnerability, health, and school performance.** Scand J Public Health. 2013; 41(1):92-101.

Grytnes R. **Making the Right Choice! Inquiries into the Reasoning Behind Young People's Decisions about Education.** Young 2011; 19: 333-351

Disse er præsenteret i fakta-ark 1 & 2 på de efterfølgende sider, samt i deres fulde længde i bilag 2.

RISIKOFAKTORER FOR UDDANNELSESFRAFALD

Det er afgørende for at forebygge fremtidig ulighed i helbreds- og socioøkonomisk status, at unge er i stand til at gennemføre en ungdomsuddannelse.

Men hvilke risikofaktorer blandt danske unge findes er med til at vise, hvorfor nogle unge ikke får en ungdomsuddannelse?

Dette er baggrunden for, at data fra Vestliv spørgeskemaundersøgelse er blevet brugt til at belyse de risikofaktorer blandt danske unge, som kan gøre, at den eneklele ikke gennemfører en ungdomsuddannelse i 20-21 års alderen.

Undersøgelsen består af oplysninger fra 2004 og frem, om 3053 unge født i 1989 i det tidligere Ringkjøbing amt og der er anvendt spørgeskemadata og registerdata fra Danmarks Statistik.

Studiet er netop blevet publiceret som et prospektivt studie, hvor informationer om personlige og familiemæssige risikofaktorer er indsamlet tidligere end informationer om uddannelses gennemførsel.

I undersøgelsen anvendes spørgeskema informationer om selvværd, oplevelse af meningsfuldhed, BMI, depressive symptomer og generelt helbred, mens der anvendes registerinformationer om matematik og dansk karakterer efter 9 klasse, forældres indkomst og uddannelse, om de unge er vokset op med 1 eller 2 forældre samt om de unge har gennemført en ungdomsuddannelse eller ej.

Studiet er publiceret som: *Personal predictors of educational attainment after compulsory school: influence of measures of vulnerability, health, and school performance*. Scand J Public Health. 2013; 41(1):92-101.



Konklusion

Denne undersøgelse viser, at udover forældrenes socioøkonomiske status har en række risikofaktorer, der er knyttet til den unge selv som fx evner i skolen, lav selv-vurderet helbred og manglende oplevelse af meningsfuldhed i sit liv, betydning for den unges fremtidige chance for at gennemføre en ungdomsuddannelse - ikke mindst i forhold til de unge, der er i risiko for at droppe ud af en erhvervsfaglig uddannelse.

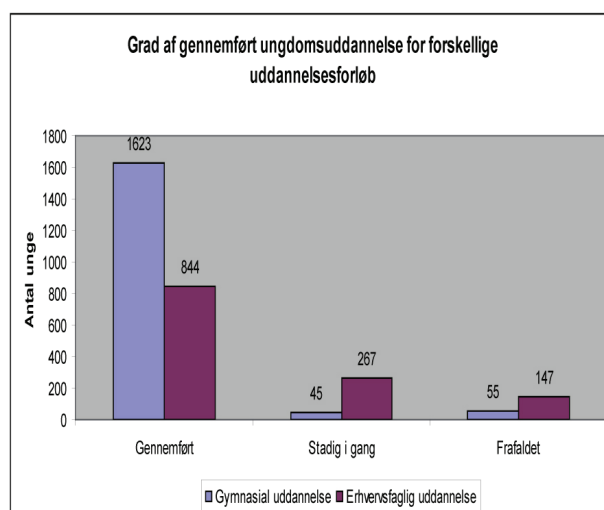
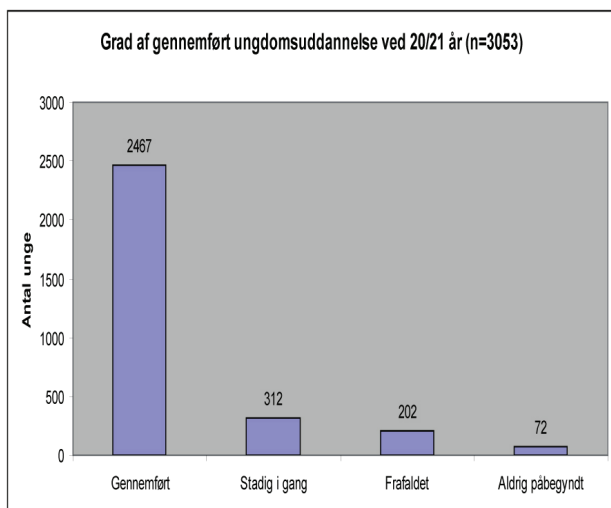
Anbefaling

Det anbefales, at fokus på, og indsats for, disse høj-risiko-grupper øges, når ungdomsuddannelserne evalueres og udvikles, således at risikoen for frafald mindskes.

UDVALGTE RESULTATER

Sandsynlighed for at gennemføre en ungdomsuddannelse

Da de unge var 20-21 år havde 2467 (80.8%) gennemført en ungdomsuddannelse, 312 (10.2%) var stadig i gang med en ungdomsuddannelse, 202 (6.6%) var droppet ud af en ungdomsuddannelse og ikke påbegyndt en ny og 72 (2.3%) havde aldrig påbegyndt en ungdomsuddannelse.



Risiko for at falde fra en ungdomsuddannelse, og ikke være påbegyndt en ny ved 20- 21 års alderen.

For de unge som starter på gymnasiet betyder karaktererne i mundtlig dansk og skriftlig matematik mest. Faktisk stiger risikoen for frafald med ca. det dobbelte, hvis karakteren er under middel i et af de to fag.

Selvurderet helbred er også en risikofaktor. Hvis den unge allerede i 14-15 års alderen vurderer sit helbred middel til dårligt, så stiger risikoen med godt 2, for at droppe ud af gymnasiet.

For erhvervsskoleeleverne gælder også, at selvvurderet helbred er en kraftig indikator på, om eleven er i fare for frafald. Ved lavt selvvurderet helbred stiger risikoen for frafald med næsten 2

For de unge på erhvervsskolerne, er en af de største risikofaktorer for frafald manglende følelse af meningsfuldhed i det, de foretager sig. Ved lav grad af meningsfuldhed da de var 14-15 år, da stiger risikoen med 2 for senere frafald fra erhvervsuddannelsen. Følelsen af meningsfuldhed er derimod ikke så vigtig for en gymnasieelev i forhold til frafald.

Risiko for aldrig at påbegynde en ungdomsuddannelse ved 20-21 års alderen.

Lave karakterer i dansk og matematik er risikofaktorer, for aldrig at begynde på en ungdomsuddannelse. Et højt BMI er også en faktor, som betyder, at risikoen for aldrig at påbegynde en ungdomsuddannelse stiger væsentligt.

Lavt selvvurderet helbred har gennem studiet været en af de vigtigste faktorer, når man i 14-15 års alderen skal forsøge at pege på faktorer, som kan betyde, at den unge enten ikke påbegynder, eller falder fra, en ungdomsuddannelse. Et lavt selvvurderet helbred kan øge risikoen næsten 3 gange, for aldrig starte på en ungdomsuddannelse.



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DET FRIE UDDANNELSESVALG ER IKKE ENS FOR ALLE

Valgfrihed og masser af information er ikke nok i sig selv, når danske unge skal finde deres videre vej efter folkeskolen. Antropolog Regine Grytnes har interviewet 9. klasses-elever om, hvordan de oplever dét at skulle vælge ungdomsuddannelse.



I artiklen *Making the right choice!*, publiceret i tidsskriftet Young, beskrives de unges forskellige strategier og tilgange i forhold til uddannelsesvalg. Artiklen er baseret på interviews af 35 9. klasses elever fra VestLivprojektets årgang 1989.

Undersøgelsen viser, at de unge forholder sig meget forskelligt til det at vælge en ungdomsuddannelse. Det viser sig, at øget information om de enkelte uddannelser ikke giver øget klarhed og beslutningskompetence hos den enkelte elev. Tværtimod fortæller flere unge, at de går lidt i sort over valgmulighederne, og følger kammeraterne i stedet for at udnytte de informationer, de har fået, og reflektere over, hvad de egentlig har lyst og evner til.

Ræsonnement for uddannelsesvalg

Undersøgelsen viser også, at der er stor forskel på, hvilken vejledning, de unge har brug for, når de skal beslutte sig. Undersøgelsen definerer forskellige strategier, de unge primært følger, når de skal træffe et uddannelsesvalg:

Nogle af de unge fokuserer først og fremmest på, at de skal kunne forsynde sig selv i fremtiden. De har mest brug for nogle tørre tal på beskæftigelse og viden om, hvor på arbejdsmarkedet de enkelte uddannelser kan bruges.

Der er også en gruppe unge, der er meget optagede af, at arbejdet skal passe til lige netop dem. De har brug for at se på, hvilke typer jobs, der matcher deres personlige værdier, og de er optagede af selvrealisering.

I en helt anden grøft findes de unge, hvor uddannelsen ikke relaterer sig karriere og ønsker til fremtiden. De følger vennerne og deres uddannelsesvalg har et præg af tilfældighed.

Den personlige bagage bestemmer din uddannelse

Artiklen peger på, at sociale forskelle slår igennem i forbindelse med de unges uddannelsesvalg. Men ikke nødvendigvis på den måde, som man traditionelt forestiller sig. Det er ikke sådan, at unge med ressourcestærke forældre har nemmere ved at vælge en uddannelse. Den forskellige tilgang til uddannelsesvalget handler lige så meget om, at de unge har forskellige personlige oplevelser og erfaringer med i rygsækken, som er med til at definere deres strategi.

For rigtig mange handler uddannelse om selvopfattelse. De unge investerer i sig selv – og er bange for at lave en fejlinvestering.

Forfatteren bag artiklen, Regine Grytnes, håber, at resultaterne af undersøgelsen kan være med til at påvirke den måde, unge rådgives på i det danske uddannelsessystem.

UDVALGTE RESULTATER OG BAGGRUND

Artiklen peger på flere af de strategier, som unge anvender i forhold til uddannelsesvalg, som fx:

Den ubekymrede valg, hvor overvejelser og ønsker for et fremtidigt mål, ikke er en del af strategien. Her er det ofte venner og sociale relationer, som styrer den unges strategi.

Det åbne valg, hvor den unge ofte hente inspiration i families og venners arbejde og erfaringer. En strategi kan være, at den unge henter argumenter for valget i beskrivelser som, "det har jeg altid vist, jeg ville", eller "det har jeg altid været god til",

Det ambitiøse valg, hvor valget er funderet i en form for selvrealisering. Valget skal afspejle den unges identitet, og følelsen af talent og personlig udfordring, skal matches i uddannelsesvalget. Det er ofte en ambitiøs strategi, fordi tanker om en fremtidig høj indkomst og personlig tilfredsstillende kan være med i strategien.

Det sikre valg, hvor jobsikkerhed er i højsædet. Strategien er ikke nødvendigvis sat i relation til fremtidige mål eller selvrealisering, og uddannelsen i sig selv, er ikke valgt på baggrund af personlige kompetencer. Denne strategi følges ofte af angsten for at have valgt forkert, da frykten for arbejdsløshed er en stor del af valgstrategi.

Baggrund

Regine Grytnes, interviewede 35 unge fra årgang '89 første gang i 2005, hvor de var ved at være færdige med 9. klasse. Siden har hun interviewet mange af dem igen – denne gang om deres valg af videregående uddannelse og deres forestillinger om fremtiden og voksenlivet.

De 35 unge er alle en del af VestLivprojektet, hvis deltagere er alle født hhv. 1983 og 1989 og bosiddende i det gamle Ringkøbing Amt ved projektets start i 2004. Siden er mange flyttet fra egnen, men de indgår alle stadig i de fortløbende spørgeskemaundersøgelser og interviews, hvor de end har bosat sig.

Artiklens originaltitel er *Making the Right Choice! Inquiries into the Reasoning Behind Young People's Decisions about Education*, <http://you.sagepub.com/content/19/3/333.abstract>

Regine Grytnes



Antropolog, ph.d.
Forsker
Arbejdsmedicinsk Klinik

5. Betydningen af mobning for unges psykiske trivsel samt evt. afledte konsekvenser heraf (f.eks. deres færd gennem uddannelsessystemet eller udstødning af arbejdsmarkedet).

Mobning, trivsel og arbejdsmarkedstilknytning er belyst i 4 artikler:

Andersen LP, Pedersen HL, Labriola M, Andersen JH, Hansen CD. **Bullied at primary school – bullied at work or upper secondary school?** Indsendt september 2013.

Lund T, Andersen JH, Hansen CD, Winding TW, Biering K, Labriola M. **Childhood adversities as predictors of labour market participation in young adulthood. A prospective birth cohort study.** Indsendt, feb. 2013, PLOS One

Glasscock DJ, Andersen JH, Labriola M, Rasmussen K, Hansen CD. **Can Negative Life Events and Coping Style Help Explain Socioeconomic Differences in Perceived Stress Among Adolescents?** A cross-sectional study based on the West Jutland Cohort Study. BMC Public Health. 2013 Jun 2;13(1):532.

Andersen JH, Labriola M, Lund T, Hansen CD. **Development of health and depressive symptoms among Danish adolescents—Socioeconomic differences and effects of life-style.** Open Journal of Preventive Medicine 2013;3(1):104-10.

Resultaterne er præsenteret i fakta-ark 3, 5, 6 & 8, og de 3 publicerede artikler findes i deres fulde længde i bilag 2.

TIDLIG MOBNING ØGER RISIKOEN FOR MOBNING PÅ UNGDOMSUDDANNELSE OG I ARBEJDSLIVET

Mobning øger risiko for gentagelse. Hvis man først én gang har været udsat for mobning, er der meget stor risiko for, at det gentager sig senere i livet.

Det er efterhånden veldokumenteret, at mobning, på arbejdspladsen, i skole, i fritiden osv., kan have en række negative konsekvenser for den enkeltes trivsel og helbred. Det er derfor vigtigt at få viden om tidlige risikofaktorer – både på arbejdspladsen og i skolen.

Et nyt studie, baseret på VestLiv-data, har undersøgt, om mobning i skoletiden og mobning senere i livet hænger sammen, og hvilke risikofaktorer, der spiller ind.

Ved at følge en ungdomsårgang, årgang 1989, med spørgeskemaer i 2004 og 2007, er de unge blevet spurgt om en lang række personlige, social- og helbredsmæssige forhold. Samtidig blev de unge spurgt, om de havde været udsat for mobning. I alt svarede 2181 personer på begge spørgeskemaer.

Risikofaktorer for at blive udsat for mobning igen senere i livet, hvis man en gang er blevet mobbet.

Resultaterne viser, at kraftig overvægt, lav social status i klassen, lavt selvværd, manglende meningsfuldhed og lav socioøkonomisk status og overbeskyttende forældre er en risikofaktor for at blive mobbet på en ungdomsuddannelse.

Risikofaktorer for at blive mobbet på arbejde, er næsten de samme. Dog er rygning og det at komme fra en dårligt fungerende familie også en risikofaktor.

Men den **vigtigste risikofaktor** for at blive mobbet som 17-18-årig var, hvis den unge var blevet mobbet tidligere som 14-15 årig. Denne risikofaktor er meget stærkere end de ovennævnte risikofaktorer.

Resultatet er så overbevisende, at samtlige øvrige nævnte faktorer reduceres kraftigt som forklaringsfaktor, hvis den unge tidligere er blevet mobbet.



Udsættes man for mobning på arbejdspladsen, er der stor sandsynlighed for, at man blev mobbet i skolegården. Mobbebehandlinger i sig selv øger risikoen betydeligt for atter at blive mobbet.

UDVALGTE RESULTATER OG ANBEFALINGER

Mobbbehandlingen i sig selv er afgørende

Ved at sammenkoble besvarelsenerne fra 2004 og 2007 har det været muligt at identificere en række risikofaktorer for at blive mobbet i 2007.

Studiet har både undersøgt risikofaktorer for, at mobning sker, samt risikofaktorer for gentagen mobning.

Studiet viser, at det alene er mobbehandlingen, der er den afgørende faktor. Det er en meget stærkere risikofaktor end fx lavt selvværd, dårlige karakterer og lav social status.

Det er altså selve mobbehandlingen - kontrolleret for andre faktorer - der udgør en øget risiko for, at de pågældende unge udsættes for mobning igen tre år senere. Det gælder, hvad enten de fortsat går i skole eller har fået et arbejde, hvor de indgår i nye relationer.

De unges selvrapporteringer

Data er indsamlet som selvrapporterede oplysninger i spørgeskemaform. 2181 unge mennesker svarede på spørgeskemaerne både i 2004 og igen i 2007.

- 9,9 % rapporterede, at de hyppigt blev udsat for mobning, da de var 14-15 år.
- da de samme unge blev spøgt 3 år senere, var der 4,7 %, som rapporterede, at de hyppigt blev mobbet på en ungdomsuddannelse.
- og 5,5 %, som rapporterede, at de hyppigt blev mobbet på arbejdet.

Anbefalinger

Resultatet viser, at det er vigtigt at forbygge, at mobning overhovedet opstår. Det kan fx ske gennem en nul-tolerance politik og vedvarende italesættelse af ordentlige omgangstoner i skolerne og på arbejdspladserne samt aktive anti-mobbepolitikker.

Det er vigtigt at forstå, at mobning i skoletiden er determinerende for trivsel og velvære senere i arbejdslivet.



af:

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Forskergruppen:

Psykolog, Lars Peter Sønderbo Andersen, ph.d.; professor Johan Hviid Andersen; sociolog Claus Hansen, ph.d.; Seniorforsker Thomas Lund, ph.d.; seniorforsker Merete Labriola, ph.d.

HAR NEGATIVE LIVSBEGIVENHEDER I BARNDOMMEN BETYDNING FOR SENERE ARBEJDE?

Negative livsbegivenheder i barndommen som risikoindikatorer for deltagelse på arbejdsmarkedet i voksenlivet.

En prospektiv fødselskohorteundersøgelse.

Thomas Lund^{1,2}, Johan Hviid Andersen¹, Trine Nøhr Winding¹, Karin Biering¹, Merete Labriola^{1,3}

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Tidlig marginalisering fra arbejdslivet blandt unge er årsag til en stigende bekymring i de industrialiserede lande. Bl.a. OECD bemærker, at de forværrede forhold på arbejdsmarkedet har ramt unge relativt hårdest.

For at opnå en fast tilknytning til arbejdsmarkedet arbejdslivet igennem, er de første år på arbejdsmarkedet af stor betydning. Dette studie ser nærmere på sammenhænge mellem livsbegivenheder i barndommen og senere arbejdsmarkedsstatus.

Baggrund

De fleste tidligere undersøgelser af modtagelse af sociale ydelser har fokuseret på sundhed, sygefravær, arbejdsmiljø og socioøkonomisk status i voksenalderen. Udvidelse af fokus til også at omfatte tidlige livsbegivenheder kan forbedre vores forståelse af processer, der fører til uddannelses- og erhvervsmæssig marginalisering og udstødelse.

Formålet med denne undersøgelse var at undersøge, om flere negative livsbegivenheder i barndommen påvirkede fremtidig deltagelse på arbejdsmarkedet, og at identificere vigtige negative livsbegivenheder for deltagelse i arbejdsmarkedet i voksenlivet.



Konklusioner

Oplysninger om opvækstvilkår kan øge forståelsen af determinanter for arbejdsmarkedsdeltagelse for unge voksne. Negative livsbegivenheder i barndommen bør tages i betragtning som determinanter for arbejdsmarkedsdeltagelsen og identifikation af højrisikogrupper.

METODE OG UDVALGTE RESULTATER

Resultater

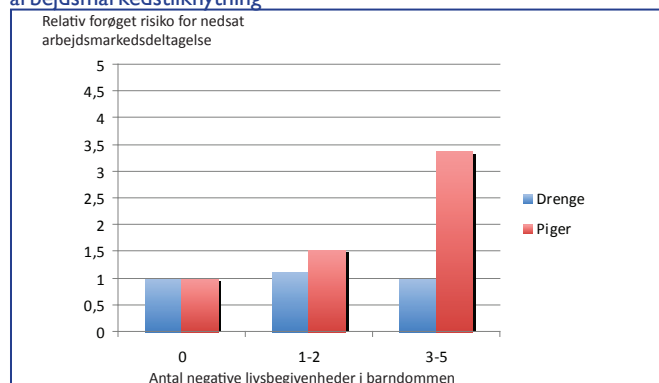
I alt 17,1% (19,9% mænd, 14,4% kvinder) modtog sociale ydelser i mindst 4 uger i follow-up perioden.

Arbejdsmarkedsdeltagelse faldt med antallet af negative livsbegivenheder, især for kvinder: Kvinder, der havde oplevet deres forældres skilsmisse, var blevet misbrugt, eller havde været vidne til en voldsom begivenhed, viste nedsat deltagelse på arbejdsmarkedet, når der var korrigeret for SES, præstation i skolen, uddannelsesplaner, forventninger til arbejdslivet og generelt helbred ved baseline.

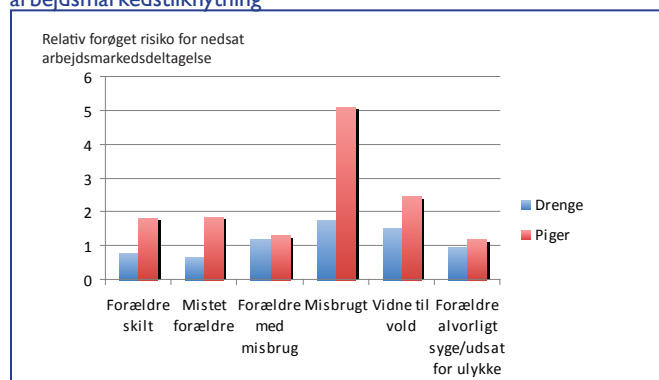
Ætiologiske fraktioner varierede fra 2,4% (forældres alkohol / stofmisbrug) til 16,1% (forældres skilsmisse) for kvinder. For mænd var risikoestimerne lavere og insignifikante i de mest justerede modeller.

Ætiologiske fraktioner varierede fra 1,0% (forældres alkohol / stofmisbrug) til 4,9% for vidne til en voldsom begivenhed.

Antal negative livsbegivenheder og risiko for nedsat arbejdsmarkedstilknøytning



Specifikke negative livsbegivenheder og risiko for nedsat arbejdsmarkedstilknøytning



Metoder

Af en kohorte af 3.681 født i 1989 i det daværende Ringkøbing Amt, udfyldte 3.058 (83%) et spørgeskema i 2004. De blev fulgt i et register om sociale ydelser 12 måneder i 2010-2011. Logistiske regressionsanalyser blev brugt til at undersøge associationer mellem negative livsbegivenheder i barndommen og fremtidige deltagelse på arbejdsmarkedet, idet der tages hensyn til socio-økonomisk position, præstation i skolen, uddannelsesplaner, forventninger til arbejdslivet og generelt helbred.



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UNGES STRESS OG SOCIOØKONOMISK STATUS

Dette studie sætter fokus på sammenhængen mellem unges oplevelse af stress og socioøkonomisk status.



Tidligere forskning har vist, at oplevet stress blandt unge hænger sammen med socioøkonomisk status. Dette er baggrunden for, at data fra VestLiv spørgeskemaundersøgelse er blevet brugt til at belyse, om denne relation kan (delvis) forklares ved sociale forskelle i negative begivenheder i barndommen og den enkelte unges stresshåndteringsstrategier.

Studiet her benytter sig af data, som består af oplysninger fra 2004 om mere end 3000 unge født i 1989 i det tidligere Ringkøbing amt. Der er anvendt både spørgeskemadata og registerdata fra Danmarks Statistik (del af VestLiv Kohorten).

Gennem spørgeskemaer er der indhentet oplysninger om unges oplevet stress, negative livsbegivenheder under barndommen, samt stresshåndteringsstrategier. Fra nationale registre er der indhentet oplysninger om forældres uddannelsesniveau og husstandsindkomst. På baggrund af sidstnævnte er de unge delt op i grupper i forhold til socioøkonomisk status.

Konklusion

Denne undersøgelse viser, at oplevet stress hos unge på 14-15 år er relateret til socioøkonomisk status. Jo højere uddannelsesniveau hos forældrene eller husstandsindkomst, jo mindre stress oplever ungerne.

Et lignende forhold fandtes for både antallet af negative begivenheder og arten af stresshåndtering. Lavere socioøkonomisk status var forbundet med flere negative begivenheder i barndommen samt mindre hensigtsmæssige stresshåndteringsstrategier, fx større anvendelse af undgåelse.

Flere negative begivenheder under barndommen samt mindre hensigtsmæssig stresshåndtering var forbundet med øget oplevet stress.

Undersøgelsen peger på, at socioøkonomisk status er forbundet med oplevet stress til dels på grund af den øget risiko for både større eksponering for stressende forhold samt udvikling af mindre hensigtsmæssige stresshåndteringsstrategier.

UDVALGTE RESULTATER OG ANBEFALINGER

Udvalgte resultater

- Regressionsanalyser viste, at højere husstandsindkomst og højere uddannelsesniveau hos forældre var forbundet med lavere oplevet stress hos de unge.
- Der var ikke tale om en forskel mellem rige og fattige, da hvert trin opad i socioøkonomisk status medførte lavere stress.
- Analyserne viste også, at en del af denne sammenhæng skyldtes forskelle mellem grupperne i antallet af negative livsbegivenheder og foretrukne stresshåndteringsstrategier. Socioøkonomisk status har betydning for eksponering til negative livsbegivenheder samt hvilke stresshåndteringsstrategier de unge udvikle, hvilket har betydning for hvor meget stress de oplever.
- For drenge syntes husstandsindkomst at have større betydning for oplevet stress end forældres uddannelse, mens det forholdt sig modsat for piger.

Anbefalinger

Der er behov for mere viden om, hvordan unges stresshåndteringsstrategier udvikles gennem barndommen. Hvad angår forebyggelse ville det være forkert at konkludere, at man skal fokusere på en ændring af stresshåndteringsstrategier blandt unge fra lav socioøkonomisk baggrund. Såfremt stresshåndtering er socialt betinget er det de sociale forhold, der påvirker stresshåndtering, som skal afdækkes og ændres, hvis unge fra lavere socioøkonomisk baggrund skal have en bedre chance for at takle de stressende forhold, som de møder.

	Oplevet stress Skala: 0 - 16 0 = ingen stress		Negative livsbegivenheder Skala: 0 - 5 0 = ingen begiv.		Aktiv stresshåndtering Skala: 1 - 4 1 = sjældent		Undvigelse stress Skala: 1 - 4 1 = sjældent	
Højeste udd. trin i husstanden	Drenge	Piger	Drenge	Piger	Drenge	Piger	Drenge	Piger
Folkeskole	5,35	6,46	0,83	1,06	2,66	2,60	2,04	2,04
Gymnasium + Erhvervsud- dannelse	4,81	5,59	0,53	0,59	2,62	2,59	1,93	1,99
Kort / mellem- lang videregå- ende udd.	4,76	5,46	0,41	0,50	2,67	2,65	1,92	1,91
Længereva- rende udd.	4,49	5,07	0,31	0,44	2,74	2,79	1,98	1,93
Husstands- indkomst								
Laveste trædjedel	5,42	5,86	1,03	1,13	2,59	2,65	2,02	2,00
Mellemste trædjedel	4,77	5,86	0,41	0,53	2,66	2,55	1,91	1,97
Højeste trædjedel	4,55	5,26	0,31	0,35	2,68	2,66	1,92	1,94

Can negative life events and coping style help explain socioeconomic differences in perceived stress among adolescents? A cross-sectional study based on the West Jutland cohort study

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BMC Public Health 2013, 13:532 doi:10.1186/1471-2458-13-532, Published: 2 June 2013



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UDVIKLING AF HELBREDS- OG DEPRESSIONSSYMTOMER BLANDT UNGE – SOCIOØKONOMISKE FORSKELLE OG EFFEKT AF LIVSSTIL

Den sociale ulighed i børn og voksnes sundhed er veletableret, og viden om de mekanismer der ligger til grund for denne ulighed er afgørende, hvis vi skal forstå hvordan sociale og økonomiske faktorer er relateret til sundhed, og hvor indsatser vil være mest effektive.

Denne undersøgelse havde til formål at undersøge udviklingen i selv vurderet helbred og depressive symptomer over en treårig periode fra alderen 15 år til 18 år.

Resultater

Selv vurderet helbred og depressive symptomer forværredes blandt unge i aldersperioden fra 15 til 18 år: Vurderingen af selv vurderet helbred faldt i perioden, hvorimod antallet af depressive symptomer steg.

Generelt var risikoen for forringet selv vurderet helbred og flere depressive symptomer ca. dobbelt så høj blandt piger som blandt drenge. Risikoen for forværret selv vurderet helbred var størst blandt de unge der kom fra hjem med lavere husstandsindkomst i forhold til de unge der kom fra hjem med højere husstandsindkomst, mens forældrenes uddannelsesniveau ikke var forbundet med udviklingen i selv vurderet helbred eller depressive symptomer.

De negative ændringer i helbred var forbundet med negative ændringer i livsstil fra 15 år til 18 år: Unge, som i løbet af 3-års perioden dyrkede mindre sport, begyndte at ryge, spiste mindre frugt og grønt og øgede deres tidsforbrug foran TV og computer, havde forøget risiko for en forværring i selv vurderet helbred. På samme måde var de unge, der i løbet af 3-års perioden dyrkede mindre sport og spiste mindre frugt, grønt og fuldkornsprodukter, i øget risiko for, at udvikle depressive symptomer.

To dimensioner af unges helbred blev målt: Generelt selv vurderet helbred, og psykisk sundhed:

Selv vurderet Helbred blev målt med spørgsmålet "Hvordan synes du dit helbred er alt i alt?" med svarmulighederne "fremragende", "vældigt godt", "godt", "mindre godt", "dårligt"

Psykologisk Helbred blev målt ved fire spørgsmål med indledningen: "I løbet af den sidste uge, hvor meget har du haft følgende følelser:" "Jeg følte mig glad", "Jeg føler at kammerater ikke var venlige og ikke havde lyst til at være sammen med mig", "Jeg følte mig trist", "Det var hårdt at komme i gang i denne uge". Svarmulighederne var "slet ikke", "lidt", "nogle gange", og "en hel del".

METODE, UDVALGTE RESULTATER OG KONKLUSION

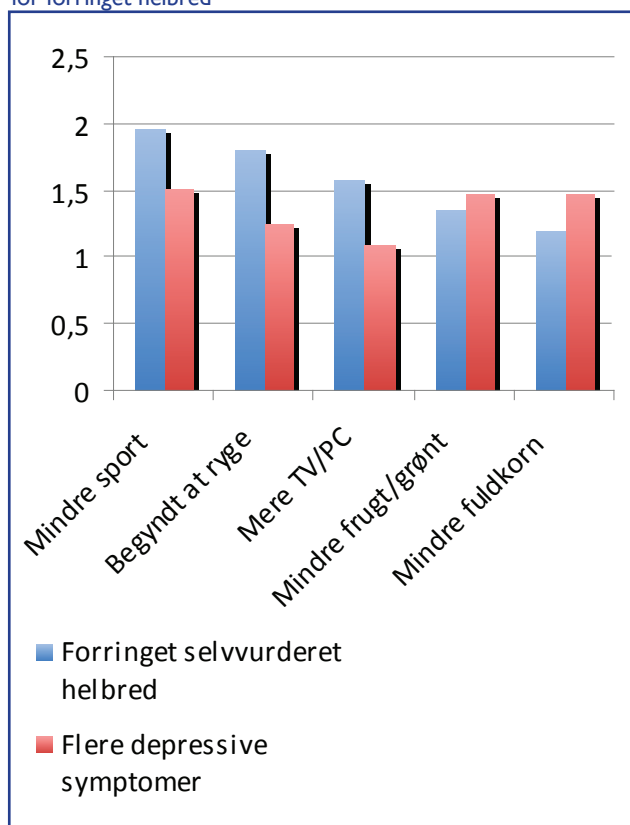
Metode:

Undersøgelsen bestod af 3.681 unge født i 1989. Af disse besvarede 3.058 en spørgeskemaundersøgelse i 2004, da de var ca. 15 år. De blev inviteret til at deltage i en spørgeskemaundersøgelse 3 år senere 2007, hvor 2.400 ca. 18-årige unge deltog. I alt 2.181 unge deltog i begge runder (59% af den oprindelige kohorte). Social baggrundsinformation blev indhentet via registre.

Konklusion

Negative ændringer i livsstil var forbundet med forringet sundhedstilstand. Dette resultat understreger sammenhængen mellem livsstilsændringer og sundhed og indikerer mulige positive helbredseffekter af at understøtte en sund livsstil blandt unge, f.eks. ved at indføre flere timer med bevægelse i skolen samt understøtte ordentlig skolemad.

Ændringer i livsstil fra 15-18-års alderen og risiko for forringet helbred



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Development of health and depressive symptoms among Danish adolescents—Socioeconomic differences and effects of life-style
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6. Formidlingsindsatser

Formidlingen af forskningsprojektet "Unges Arbejdsmiljø" består af flere dele, fx digital formidling og almen medieformidling. Hver del med hver deres formål, strategiske overvejelser, formidlingsfagligt sigte og slutmål.

Projektgruppen har undervejs i forløbet taget formidlingsmæssige beslutninger, som afviger fra den oprindelige ansøgning, beskrevet i ansøgningens bilag 3. Alle beslutninger om ændringer er taget under hensyntagen til den praktiske gennemførelse, effekt og bedre anvendelsesmuligheder af midler og arbejdstid. Derudover er visse beslutninger ændret som følge af ønsker fra målgruppen, herunder især de eksterne arbejdsmiljøprofessionelle, som fx arbejdsmiljøundervisere på landets erhvervsskoler, arbejdsgiverforeninger, fagforeninger og i samarbejde med Arbejdsmiljørådet og Undervisningsministeriets fagkonsulent for arbejdsmiljøundervisning.

Formidling rettet mod interessenter for unges arbejdsmiljø

Undervisere og vejledere med tæt kontakt til de unge førstegangsjobbere eller elever/praktikanter

Gennem hele forløbet, har projektgruppen været i tæt kontakt med interessenter for unges arbejdsmiljø. Især undervisere og vejledere på landets erhvervsskoler har indgået i et tæt netværk om brug og formidling af projektets resultater. Det betyder, at en del formidlingsaktiviteter er målrettet denne målgruppe.

Beslutningen om at knytte arbejdsmiljøunderviserne til projektet gennem deltagelse i bl.a. inspirationsseminarer, mailsnetværk, messer og samarbejde, blev taget på baggrund af de første resultater, som omhandlede lærlinge og fritidsarbejders arbejdsmiljø, sygefravær og arbejdsulykker. Disse resultater blev bl.a. populærformidlet i samarbejde med LO og ugebrevet A4. På baggrund af denne formidling blev projektgruppen kontaktet af Arbejdsmiljørådet, som i samarbejde med Undervisningsministeriets fagkonsulent for arbejdsmiljøundervisning, inviterede forskergruppen til at dele deres viden om emnet til både arbejdsmiljøunderviserne på erhvervsskolerne, samt deltage i messe om sundhedsfremme.

Formålet med at tildele denne interessentgruppe en del opmærksomhed er, at det netop er i skolerne og i arbejdsmiljøundervisningen, at der er mulighed for at præge de unge, inden de går på arbejde første gang. Desuden er underviserne i særlig grad interesseret i ny viden på området, og har efterspurgt materialer, viden og formidling om psykisk arbejdsmiljø, sundhed, trivsel og frafald. Der blev derfor etableret et sparrings- og formidlingsnetværk mellem underviserne og med deltagelse fra projektgruppen.

Hjemmesiden, www.ditarbejdsliv.nu, som stadig er under udvikling og i en sparringsproces med bl.a. arbejdsmiljøunderviserne, skal ses som hovedindgangen til formidlingen til denne målgruppe. Slutmålet er, at hjemmesiden bliver en integreret del af undervisernes fagforløb.

Formidling rettet mod interessenter for unges arbejdsmiljø

De unge selv

De unge førstegangsjobbere, fritidsjobbere, lærlinge og praktikanter, kan på ingen måde anses som en homogen gruppe. Derfor valgte vi primært at nå de unge gennem arbejdsmiljøundervisningen på de erhvervsrettede uddannelser, da undervisningen skaber en naturlig ramme for formidlingen. Samtidig har vi sigtet www.ditarbejdsliv.nu mod unge læsere, både formidlingsfagligt, layout og kommunikations-teoretisk.

DitArbejdsliv.NU

Formålet med "Unges Arbejdsmiljø" var at udviklet et formidlings, videns- og interaktivt site, som tog udgangspunkt i forskningsprojektet. Hensigten med hjemmesiden er at formidle viden om psykisk arbejdsmiljø til unge og nyansatte og tilbyde en undervisningsplatform til arbejdsmiljøunderviserne på erhvervsrettede uddannelser i Danmark.

Formålet med hjemmesiden er:

- at give de unge kompetencer til at begå sig sikkert i det psykiske arbejdsmiljø i deres første job eller læreplads
- at give de unge en platform for at diskutere de ofte komplicerede og etiske dilemmaer, som opstår i det psykiske arbejdsmiljø
- at give de unge viden om, hvad et godt psykisk arbejdsmiljø er
- at tilbyde arbejdsmiljøunderviserne en interaktiv undervisningsplatform

Opbygning og indhold af DitArbejdsLiv.NU

Hjemmesiden, www.ditarbejdsliv.nu er opbygget som et samlende formidlings-, videns- og interaktivt site om unge og nyansattes psykiske arbejdsmiljø. Hjemmesiden er opbygget af tre hoveddele, som har hver deres sigte ift. læring, interaktion, vidensformidling, engagement og refleksivitet.

- 1) Et interaktivt Dilemmaspil (<http://ditarbejdsliv.nu/dk/spil>),
- 2) Forskningsresultater og konklusioner, i formidlet form (fx faktaark, vidensark og undersiderne: <http://ditarbejdsliv.nu/dk/viden-om>.)
Disse undersider fungerer som et digitalt opslagværksværk.
En underdel til vidensformidlingen er undersiden: <http://ditarbejdsliv.nu/dk/viden-om/undervisning-og-materialer>, som via samarbejdet med arbejdsmiljøunderviserne vil blive sted for materiale-udveksling, undervisningsforløb mm.
- 3) Cases og historier. Gennem de forskellige dele af VestLiv undersøgelserne og projekt Unges Arbejdsmiljø, er unge i forskellige jobsituationer blevet interviewet om oplevelser, hændelser

og refleksioner om psykisk arbejdsmiljø. Disse hændelser og refleksioner er samlet i fortællende form som cases og historier.

1) Dilemmaspillet

Omdrejningspunktet på hjemmesiden er Dilemmaspillet

Spillet er opbygget som en række af hverdagsdilemmaer i det psykiske arbejdsmiljø. Primært dilemmaer,

som vi fra forskningsprojektet om unges arbejdsmiljø har fundet, har størst betydning for de unge og nyansattes arbejdsliv.

De enkelte dilemmaer er lavet som animerede scener med forskellige handlemuligheder, der afspejler, at der ingen rigtige muligheder er, men at alle valg skaber reaktioner, fravalg og nye dilemmaer. Formålet med denne tilgang er at gøre spilleren opmærksom på, at der oftest ikke er én skyldig person i en problematik vedr. dårligt (eller godt) psykisk arbejdsmiljø, men at alle med deres handlinger har et ansvar.

På den måde skabes et refleksivt niveau hos spilleren, som kan bruges i læringsøjemed. Samtidig er spillet interaktivt, således at der via spillet interageres med den øvrige forskning og viden fra den kliniske praksis. Det er endvidere tanken, at andre aktører, fx BAR U&F, www.arbejdsmiljoweb.dk, LO ungdom mm. skal kunne inddrages, hvilket flere af dem allerede har ytret ønske om.

2) Faglig viden om psykisk arbejdsmiljø

Hjemmesidens vidensformidlende undersider spiller interaktivt sammen med både spil og cases og historier (pkt 3). Denne del er specielt målrettet unge/nyansatte – samt deres undervisere – i sprog og form. Det faglige indhold på hjemmesiden er baseret på den forskningsmæssige viden, indsamlet via forskningsprojektet”, kombineret med den kliniske erfaring fra afdelingens arbejdspsykologer og de interviews, vi har foretaget. Denne del interagerer med både spil og historier, idet de, gennem hjemmesidens programmering, heler tiden deler de relevante sider med læseren/brugeren.

Vidensdelen præsenterer faglig viden om handlemuligheder og psykiske arbejdsmiljøtemaer, som fx grænsen mellem det personlige og det faglige. Formidlet i form og indhold, så det matcher målgruppen. Hjemmesiden indeholder også viden om, hvor man kan få hjælp, links til andre aktører (ex BAR-området) samt sammenhæng med VestLiv-sitet (VestLiv.dk). På denne måde har de unge mulighed for at indhente mere viden om det, der er vigtigt for den enkeltes situation.

Den faglige viden bliver bl.a. formidlet via faktaark og vidensark, som kan downloades fra <http://ditarbejdsliv.nu/dk/viden-om/forskning-og-viden>. Faktaarkene er to-sidet pdf, som indeholder de vigtigste konklusioner, resultater og anbefalinger fra publicerede artikler. (se vedlagte faktaark 2 - 5 (faktaark 1 er ikke en del af Unges Arbejdsmiljø)). Vidensark er mindre, og præsenterer kort en

tabel, en enkelt pointe, som en-sidet pdf. De er målrettet undervisere mm, der skal have en kort overdigt over et enkelt resultat. (se vedlagte vidensark 1 – 7)

3) Sitet – personlige cases og historier

Dilemmaspillet fungerer i mange tilfælde som hovedindgangen til hjemmesiden, viden og historier. Via spillet føres spilleren over til hjemmesidens tredje element; de personlige cases og historier. Der er også direkte adgang til cases og historier fra hjemmesidens forside. Men en vigtig pointe er, at brugeren, via spillet, ledes videre til de historier, der, sammen med det aktuelle dilemma, danner baggrunden for den aktuelle scene, historie, viden og resultat.

Denne del indeholder alle de kvalitative interviews, som ligger bag spillets udvikling, bearbejdet og formidlet efter emner, reaktionsmønstre og målrettet de unge selv. Historierne handler om alt fra mobning og chikane til overarbejde og håndtering af facebook. Formålet med denne del er, at de personlige historier giver de unge en oplevelse af, at de ikke er alene – at andre har prøvet noget lignende og de kan spejle sig i situationer og reaktionsmønstre og at de får ideer og inspiration til at håndtere lignende problemer. Samtidig giver disse historier et udgangspunkt for at skabe et reflektivt niveau hos eleverne i en læringssituation og de får mulighed for at diskutere dilemmaer og situationer ud fra virkelige hændelser.

Videoptagelser

Undervejs i projektet er de deltagende forskere blevet optaget på video, når de ved konferencer og oplæg har formidlet resultater og konklusioner. Disse optagelser er ved at blive klargjort som podcasts, og vil komme til at ligge til download på <http://ditarbejdsliv.nu/dk/viden-om/forskning-og-viden>.

Formålet med at optage forskernes mundtlige formidling, er at give lytteren/seeren mulighed for, ikke kun at høre om resultater og konklusioner, men også at følge de efterfølgende debatter, som kan kaste lys over spørgsmål og uklarheder, som lytteren/seeren selv måtte have. Det giver en mere konkret forståelse af emnet. www.ditarbejdsliv.nu er klargjort til videoklippene, som vil blive uploadet i løbet af efteråret 2013.

Foredrag, temadage, symposier, messer og øvrig formidling

I hele projektperioden har gruppens forskere og formidlingsmedarbejder deltaget i adskillige konferencer, messer, seminarer og temadage, der alle har haft et formidlende sigte. Se sammenfatningen i rapportens kapitel 1.

Populærformidlede historier i medierne:

- **Fritidsjob giver både penge og selvtillid hos unge**

[B.dk | 17.06.2011 | Side | 492 ord | Artikel-id: e2be6e32](#)

Otte ud af ti unge under 18 år er glade for deres fritidsjob, og samtidig er unge med fritidsjob dem, der psykisk klarer sig bedst.

- historien afledte **14** andre omtaler og citathistorier.

- **Unge offentligt ansatte har højt sygefravær**

[DR P4 Radioavisen 12.00 \(resumé\) | 24.06.2011 | Side | 800 ord | Artikel-id: e2c17707](#)

Unge mellem 20 og 29 år, som er ansat i det offentlige, melder sig oftere syge end deres ældre kolleger. Det koster 170 millioner kroner om året. Det kan blive til en del stillinger, mener analysechef i Dansk Arbejdsgiverforening Karina Ransby. Hvis man nedbragte deres sygefravær, ville man reducere den offentlige beskæftigelse, forklarer hun. Sygefraværet blandt de unge i det private er faldet i samme periode, og derfor kommer opgørelsen bag på forskerne. Det er helt usædvanligt, mener Thomas Lund fra Arbejdsmedicinsk Klinik i Herning, som står bag undersøgelsen. Skal man sygefraværet til livs, kræver det dialog, fortæller han.

- **Danske unges helbred halter**

[UgebrevetA4.dk | 21.02.2012 | Side | 1441 ord | Artikel-id: e31bf1f9 |](#)

Danmark får en bundplacering i EU, når det gælder unges helbred. Kun Portugals unge skranter mere end danske unge. Forskere advarer om, at det kan blive dyrt for samfundet menneskeligt og økonomisk, og sundhedsminister kalder det trist.

- De to versioner af samme historie afledte **98** andre omtaler og citathistorier, i både landsdækkende og regionale medier, radio m.fl. Perioden var medio juni 2011 til medio marts 2012.

- **Unge håndværkere slider sig selv op** [TV 2 Nyhederne 06.30 \(resumé\) | 21.10.2011 | Side | 200 ord | Artikel-id: e2ed6bb6](#)

Håndværkere slider sig op, og det er især de unge, som giver den en ekstra tand på arbejdet. På blot et år er antallet af byggearbejdere med erhvervsskader steget med 12 procent i forhold til sidste år, og på Arbejdsmedicinsk Klinik i Herning kender man godt årsagen. Det er nemlig større konkurrence og pressede timer, som får nogle håndværkere til at arbejde over 200 timer om måneden, og ofte er det samme slags fysiske arbejder, fortæller overlæge Johan Hviid Andersen.

- historien afledte **5** omtaler og citathistorier

- **Unge vestjyske piger flytter hyppigere fra landsdelen end drengene**

[Aoib.dk \(Alt om Ikast-Brandø\) | 09.11.2010 | Side | 680 ord | Artikel-id: e248580a |](#)

Når unge fra Vestjylland flytter fra landsdelen er det oftere piger end drenge, de har hyppigere været på efterskole og så havde mange af dem også planer om videre uddannelse, da de gik i gymnasiet. ... Køn, efterskoleophold og planer om videregående uddannelse ser ud til at være nogen af de forhold, der har indflydelse på de unges mobilitet," udtaler sociolog Claus D. Hansen og fortsætter: "Men der er mange ubekendte i regnestykket og derfor har vi valgt at undersøge dette område nærmere i næste runde af vores underøgelse." Næsten halvdelen af alle pigerne er i 20 års alderen flyttet ud af det tidligere Ringkjøbing Amt, hvor de boede da de var 15 år. ... Af den grund har forskerne fra Arbejdsmedicinsk Klinik, Regionshospitalet Herning valgt at sætte fokus på netop dette tema som en del af kohorteundersøgelsen VestLiv. ... "For at tage en uddannelse og for at opnå mere uddannelse end dine forældre er man som ung fra Vestjylland i høj grad tvunget til at rejse væk fra landsdelen.

- Historien afledte 2 andre citeringer.

- **Sure chefer skræmmer lærlinge væk**

[UgebrevetA4.dk | 02.02.2012 | Side | 1758 ord | Artikel-id: e315106e |](#) [Link til artikel](#)

Hver femte lærling, der har droppet erhvervsuddannelsen eller tænker på at gøre det, klager over, at chefen behandler dem dårligt. Pædagogikken er håbløst gammeldags, og man lærer for lidt, lyder kritikken. Mange unge er forkælede og ikke klar til at arbejde, svarer arbejdsgiverne.

GENERATIONSKLØFT I årevis har man hørt, at manglen på praktikpladser er det store monster, når det gælder det store frafald på erhvervsuddannelserne. Godt hver tredje forlader erhvervsskolerne uden at gøre deres uddannelse færdig. Men spørger man de unge selv, hvorfor de er droppet ud eller overvejer at gøre det, så vægter det lige så højt, at chefen behandler dem dårligt.

Hver femte ung, som enten er stoppet eller overvejer at stoppe på erhvervsuddannelserne, fortæller, at chefen i læretiden ikke behandler dem ordentligt. Dermed er dårlige chefer ifølge de unge et næsten lige så stort problem for frafald som manglende praktikpladser. Det viser undersøgelsen »VestLiv« fra Arbejdsmedicinsk Klinik på Regionshospitalet Herning.

- historien afledte **11** andre omtaler og citathistorier, i både landsdækkende og regionale medier, radio m.fl. Perioden var medio juni 2011 til medio marts 2012.
- historien afledte – sammen med forsker Flemming Lander, som i et andet projekt (i samarbejde med UAG på OUH) har analyseret lærlinges arbejdsulykker og fysiske arbejdspress – yderligere **28** historier og citathistorier.

- **Forsker: Unge mænd sygemelder sig oftere**

[Berlingske | 21.02.2012 | Side 12 | 117 ord | Artikel-id: e31bd57c |](#)

FRAVÆR. Stigningen i sygefraværet blandt unge ansatte skyldes udelukkende, at flere

unge mænd bliver hjemme under dynen. Det konkluderer seniorforsker Merete Labriola og hendes kolleger fra Arbejdsmedicinsk Klinik ved Regionshospitalet i Herning over for Radio24syv.

- Historien afledte 3 yderligere citathistorier, og radio.

Videnscenter for Arbejdsmiljø:

[Dilemmaspil skal lære unge at sige fra - Arbejdsmiljoviden.dk](http://www.arbejdsmiljoviden.dk/Magasin/November-2012/Tema/Dilemmaspil-skal-laere-unge-at-sige-fra)

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21. jun 2012 ... Projektet 'Erling the lærling' fra Videncenter for Arbejdsmiljø; Kampagnen 'Godt du kom' fra Ministeriet for børn og Undervisning; **Dilemmaspil** ...

<http://www.arbejdsmiljoviden.dk/Aktuelt/Nyheder/2012/06/21-Hvem-har-aben>

[Unge over 18 år bør beskyttes lovmæssigt - Arbejdsmiljoviden.dk](http://www.arbejdsmiljoviden.dk/Magasin/November-2012/Tema/Unge-over-18-aar-boer-beskyttes-lovmæssigt)

Ulykkesfugle eller udsat for skodarbejde? Unge over 18 år bør beskyttes lovmæssigt · Mester blev sur, da jeg sagde nej · **Dilemmaspil** skal lære unge at sige fra ...

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Dilemmaspil skal lære unge at sige fra. Unge på arbejdsmarkedet skal lære at sige fra, hvis antallet af arbejdsulykker skal ned. Et nyt onlinespil sætter unge i ...

<http://www.arbejdsmiljoviden.dk/Viden-om-arbejdsmiljoe/Unge/Magasin-relaterede-artikler>

[Tema: Unge og ulykker - Arbejdsmiljoviden.dk](http://www.arbejdsmiljoviden.dk/Magasin/November-2012/Tema)

8. nov 2012 ... **Dilemmaspil** skal lære unge at sige fra. Unge på arbejdsmarkedet skal lære at sige fra, hvis antallet af arbejdsulykker skal ned. Et nyt onlinespil ...

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Ulykkesfugle eller udsat for skodarbejde? Unge over 18 år bør beskyttes

lovmæssigt · Mester blev sur, da jeg sagde nej · **Dilemmaspil** skal lære unge at sige fra ...

<http://www.arbejdsmiljoviden.dk/Magasin/November-2012/Tema/Fem-forskellige-slags-unge>

Bilag 1

Kortlægning af unges arbejdsmiljø

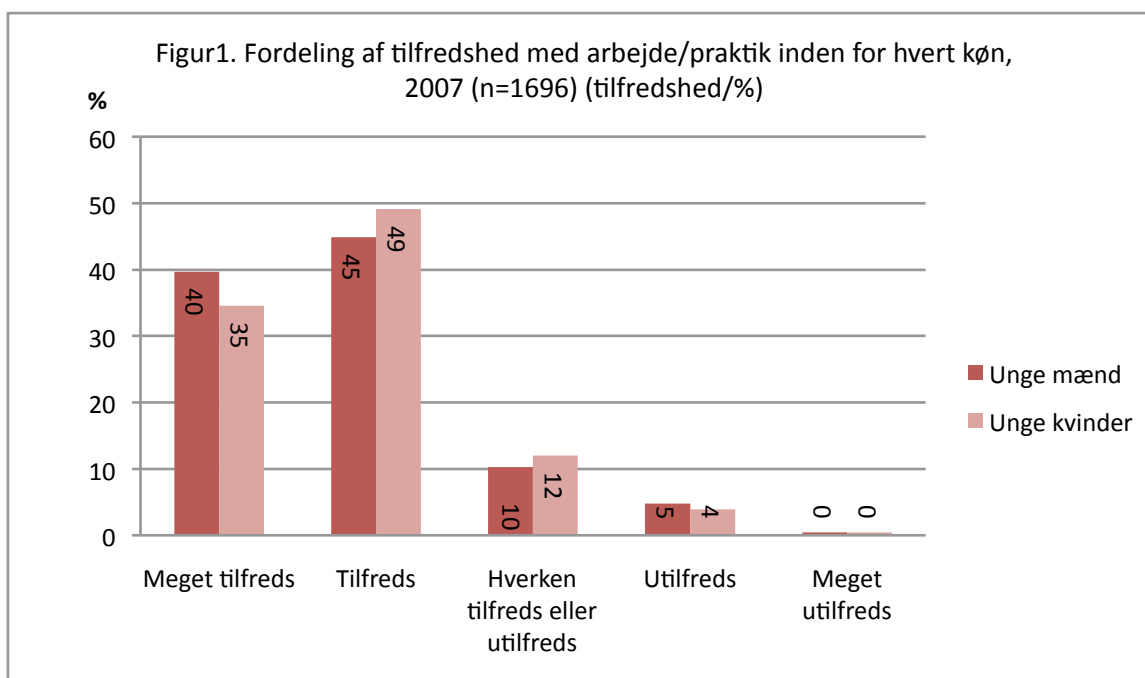
Fysisk og psykisk arbejdsmiljø blandt 17 til 18-årige i 2007

78 % ud af 2341 unge 17 til 18-årige angav i 2007 at være i arbejde med enten fritidsjob ved siden af uddannelse, i lære, praktik eller i arbejde uden at være i færd med en uddannelse. De unge mænd udgjorde 44% (n = 809) og de unge kvinder 56% (n = 1012) af de 17 til 18-årige unge i arbejde.

Tilfredshed med arbejde/praktik

Hovedparten af de 17 til 18-årige (47%) angav at være tilfredse, mens den laveste andel (0,4%) af de unge angav at være meget utilfredse med deres arbejde/praktik.

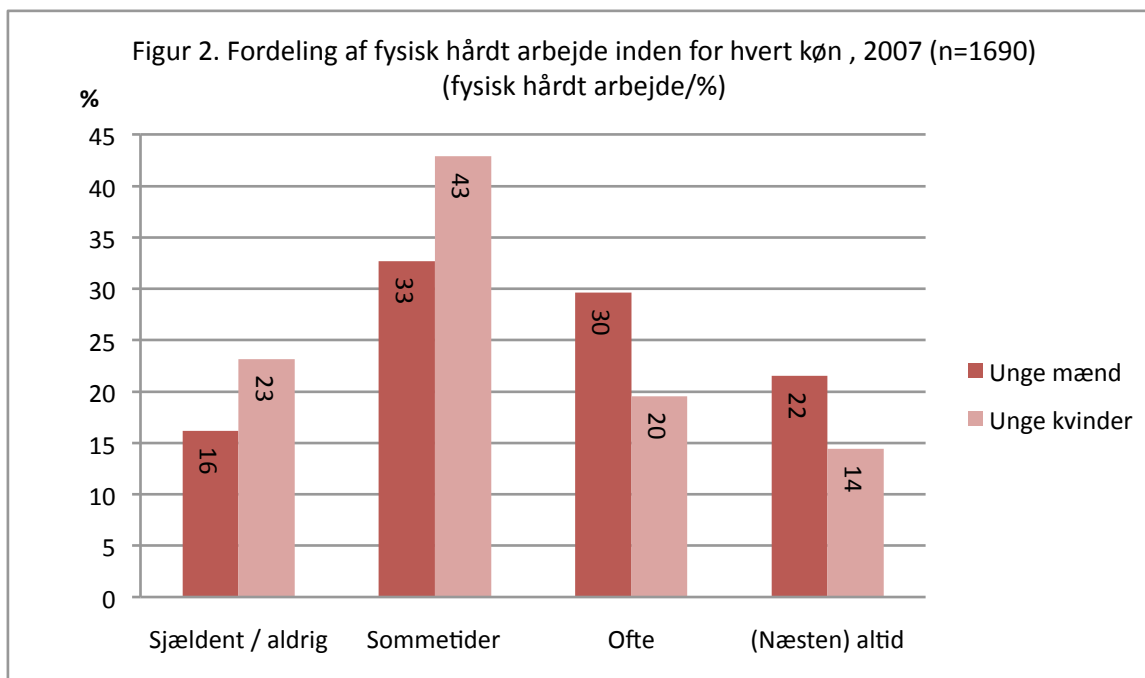
Som det kan ses i Figur 1 var der flere af de unge mænd (40%) end de unge kvinder (35%), der fandt deres arbejde/praktik meget tilfredsstillende. Flere unge kvinder end unge mænd angav at være tilfredse eller hverken tilfredse eller utilfredse med deres arbejde/praktik udgørende henholdsvis 49% af de unge kvinder mod 45% af de unge mænd samt 12% mod 10%.



Fysisk hårdt arbejde

Den største andel (38%) af de unge 17 til 18-årige i arbejde eller praktik angav, at deres arbejde sommetider indebar fysisk hårdt arbejde. Mens den mindste andel (18%) angav, at de (næsten) altid lavede fysisk hårdt arbejde på deres arbejdsplads.

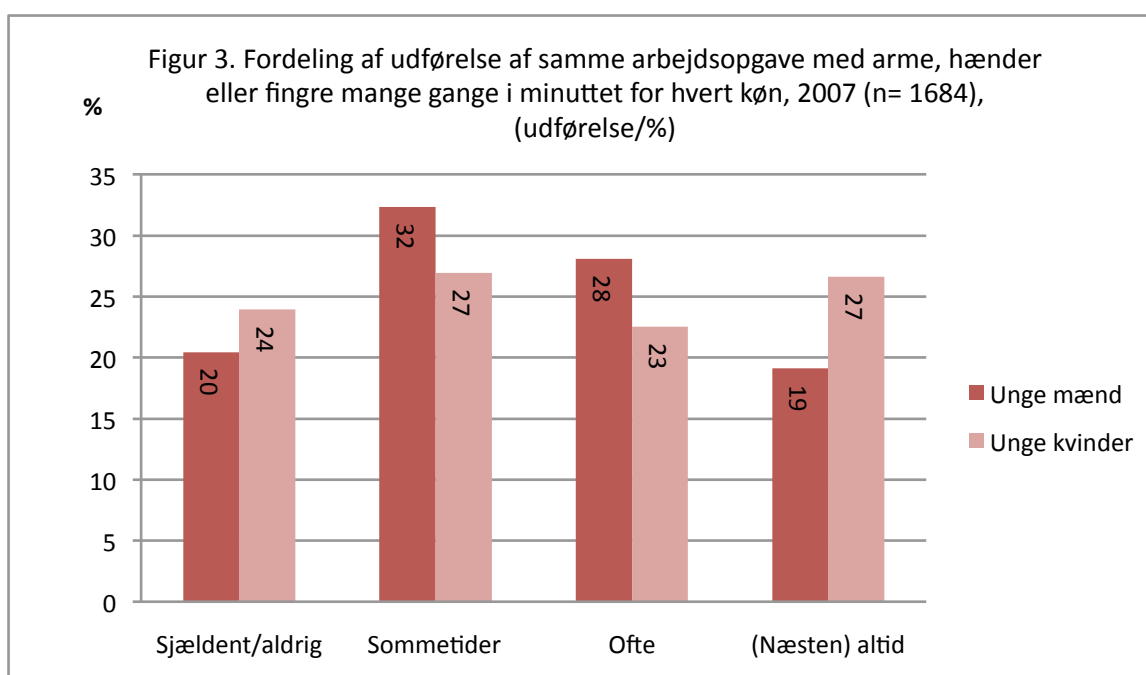
Som det vises i Figur 2 angav de unge mænd hyppigere at have fysisk hårdt arbejde end de unge kvinder. 30% (n=223) af de unge mænd angav således at deres arbejde indebar fysisk hårdt arbejde, mens 22% (n=162) angav, at deres arbejde (næsten) altid indebar fysisk hårdt arbejde.



Udførelse af samme arbejdsopgave

I forhold til udførelse af samme fysiske arbejdsopgave angav den største andel (29%) af de respondenter, der havde et arbejde eller var i praktik, at de sommetider udførte samme arbejdsopgave med arme, hænder eller fingre mange gange i minuttet. Den mindste andel angav sjældent/aldrig eller (næsten) altid med henholdsvis 22% og 23%.

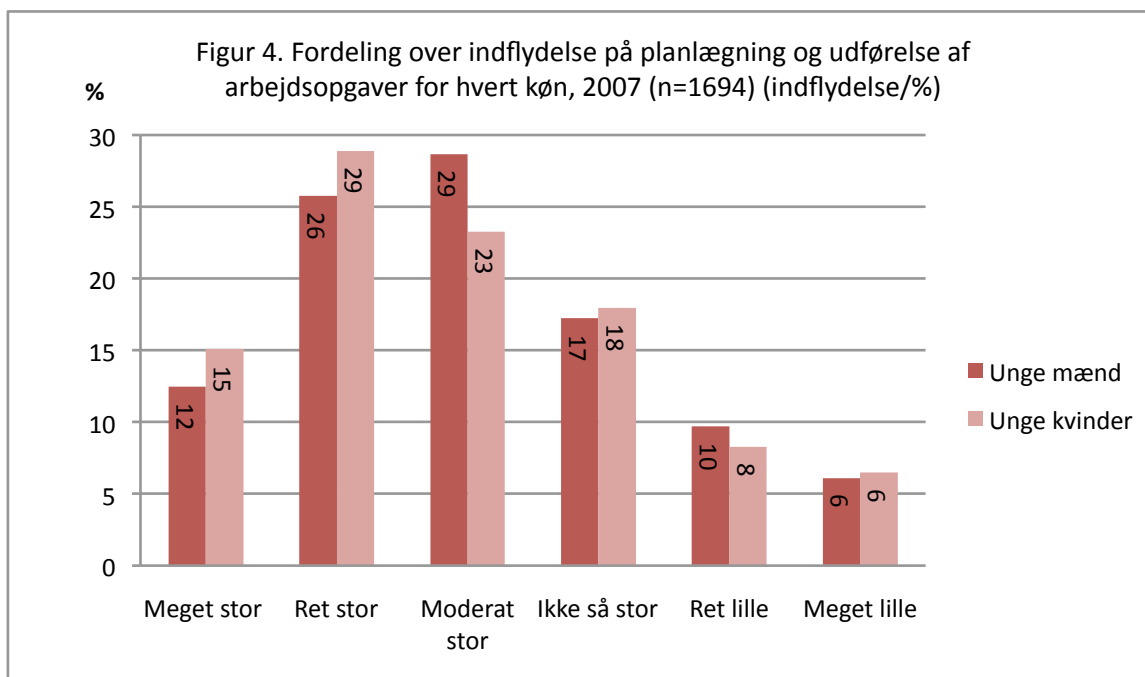
I Figur 3 ses, at der både var en større andel af de unge kvinder end de unge mænd, der angav sjældent/aldrig at udføre samme arbejdsopgave med arme, hænder eller fingre mange gange i minuttet og en markant større andel af de unge kvinder, der svarede (næsten) altid. Den største andel af de unge mænd angav sommetider (32%) eller ofte (28%) at udføre samme arbejdsopgave med arme, hænder eller fingre i minuttet.



Indflydelse på planlægning og udførelse af arbejdsopgaver

Den største andel af respondenterne med et arbejde eller i praktik angav, at de havde ret stor eller moderat stor indflydelse på, hvordan arbejdsopgaver planlægges og udføres på deres arbejdsplads, udgørende henholdsvis 28 % og 26%. 6% angav, at de havde meget lille indflydelse.

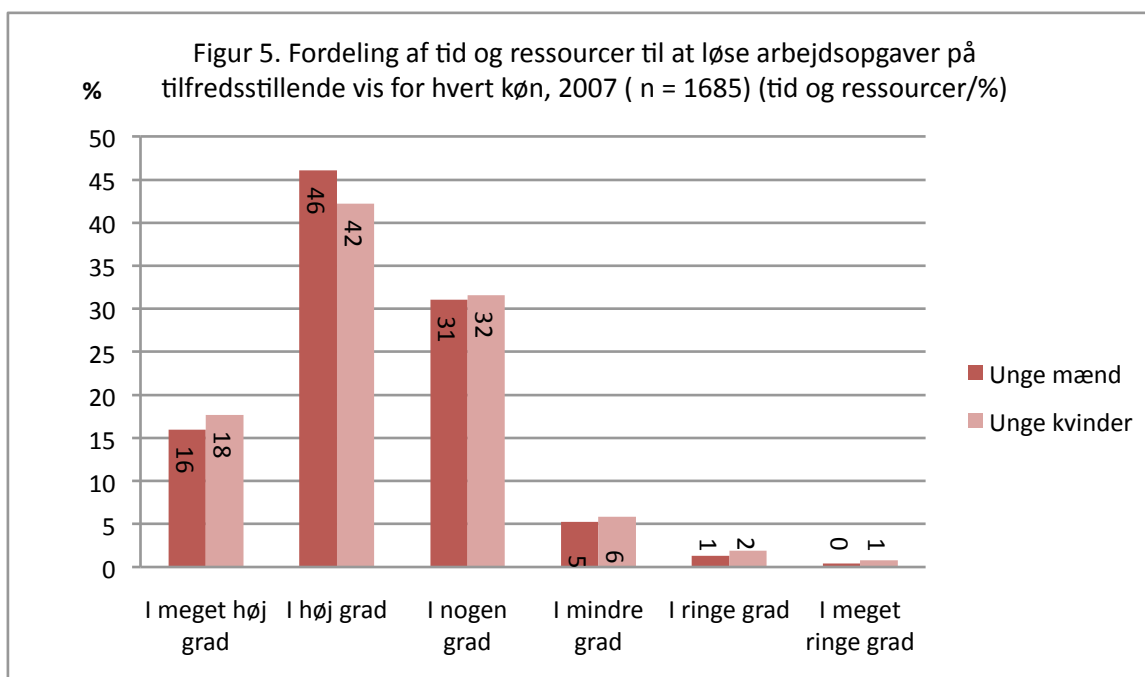
Figur 4 viser, at en større andel af de unge kvinder end de unge mænd angav at have meget stor eller ret stor indflydelse på planlægning og udførelse af arbejdsopgaver på arbejdspladsen med procentdele udgørende henholdsvis 15% og 29 % for de unge kvinder og 12% samt 26% for de unge mænd. Den største hyppighed blandt de unge mænd udgjordes af moderat stor indflydelse (29%).



Tid og ressourcer til tilfredsstillende løsning af arbejdsopgaver

Størstedelen af respondenterne med arbejde eller i praktik angav med 44% i høj grad at have tilstrækkeligt med tid og ressourcer til at løse arbejdsopgaver på tilfredsstillende vis. Kun 0,6% angav i meget ringe grad at have tid og ressourcer.

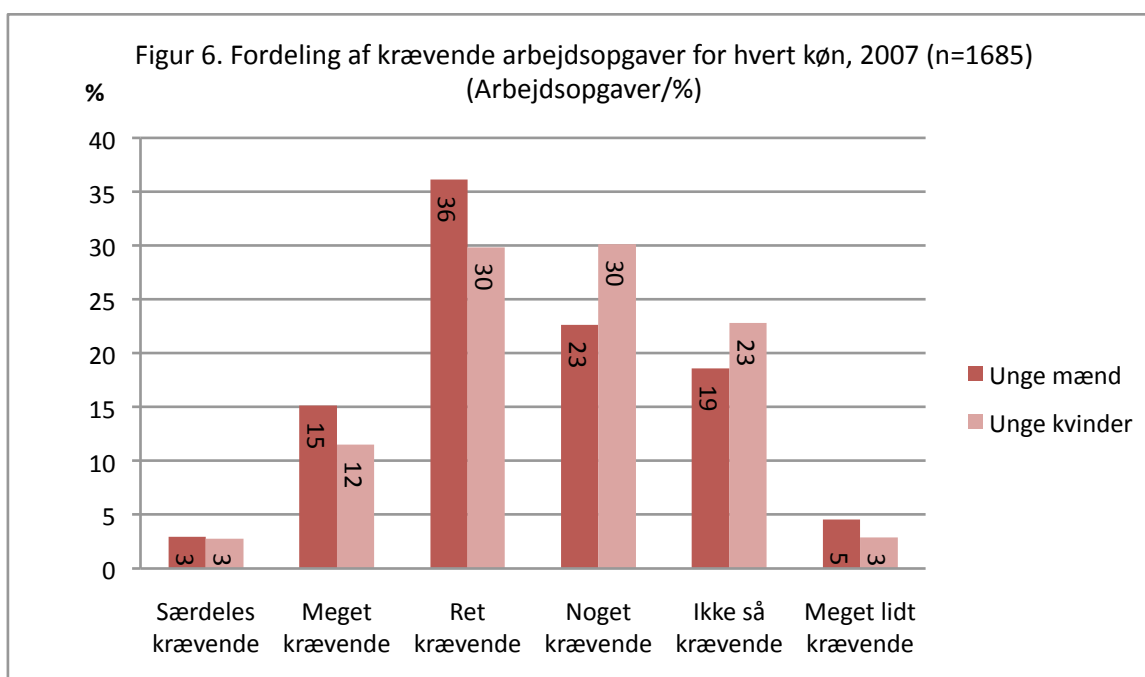
I Figur 5 ses, at der var en lidt større hyppighed af de 17 til 18-årige unge kvinder, der angav i meget høj grad at have tilstrækkeligt med tid og ressourcer til at løse arbejdsopgaver på tilfredsstillende vis. Blandt de 17 til 18-årige unge mænd (46%) var der en større hyppighed af i høj grad at have tilstrækkelig med tid og ressourcer end blandt de 17 til 18-årige unge kvinder (42%).



Krævende arbejdsopgaver

Den største andel af de unge respondenter med arbejde eller i praktik angav, at deres arbejde var ret krævende og udgjorde 33%. Den mindste andel udgjordes af unge, der angav, at deres arbejde var enten særdeles krævende og meget lidt krævende med henholdsvis 3% og 4%.

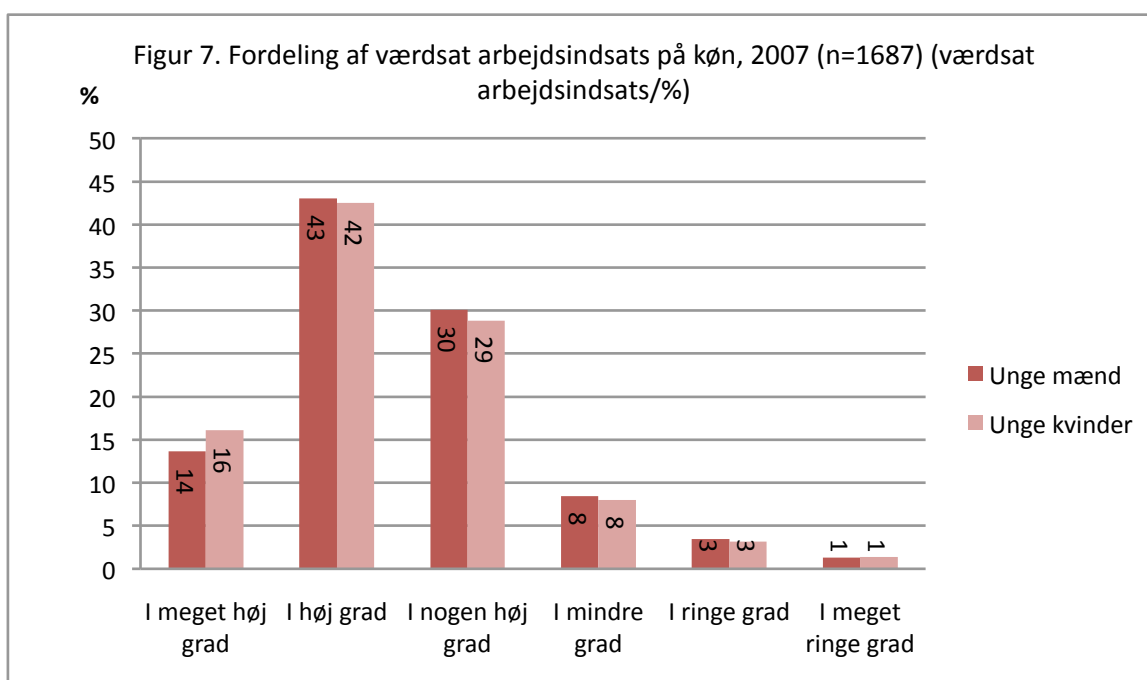
Figur 6 viser, at de unge mænd med større hyppighed angav at have krævende arbejdsopgaver, end de unge kvinder. 15% og 36% af de unge mænd angav således at have henholdsvis meget krævende og ret krævende arbejde/praktik mod de unge kvinders 12% og 30%. 30% og 23% af de unge kvinder angav at have henholdsvis noget krævende og ikke så krævende arbejde/praktik mod de unge mænds 23% og 19%. Dog angav flere unge mænd end unge kvinder at have meget lidt krævende arbejde/praktik.



Værdsat arbejdsindsats

De fleste af de unge med arbejde eller i praktik følte deres arbejdsindsats blev værdsat. Den største andel af de unge med arbejde angav således, at deres arbejdsindsats i høj grad blev værdsat og udgjorde 43%. Færrest af de unge med arbejde angav at deres arbejdsindsats i meget ringe grad blev værdsat og udgjorde 1%.

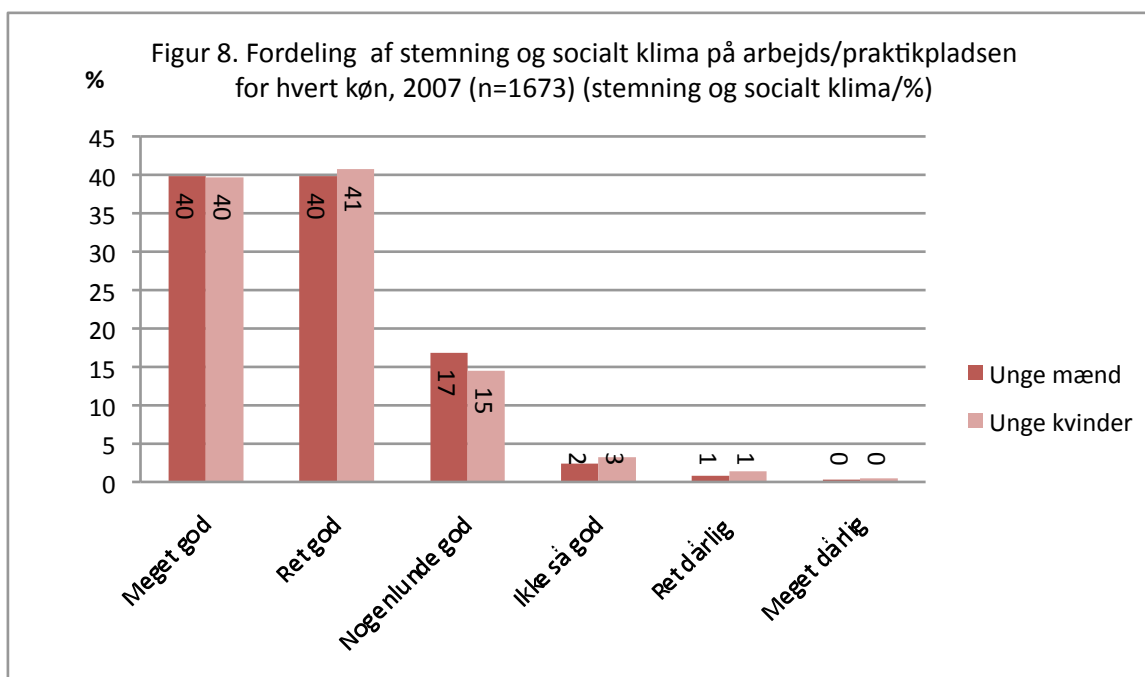
Figur 7 viser, at fordelingen af de unges angivelse af hvorvidt de anser deres arbejdsindsats på arbejdspladsen og i praktik værdsat næsten er lige fordelt kønnene imellem. Dog var der en lidt større hyppighed af unge kvinder, der angav, at deres arbejde/praktik i meget høj grad var værdsat samt en lidt større hyppighed af unge mænd, der angav, at deres arbejde/praktik i nogen grad var værdsat.



Stemning og socialt klima

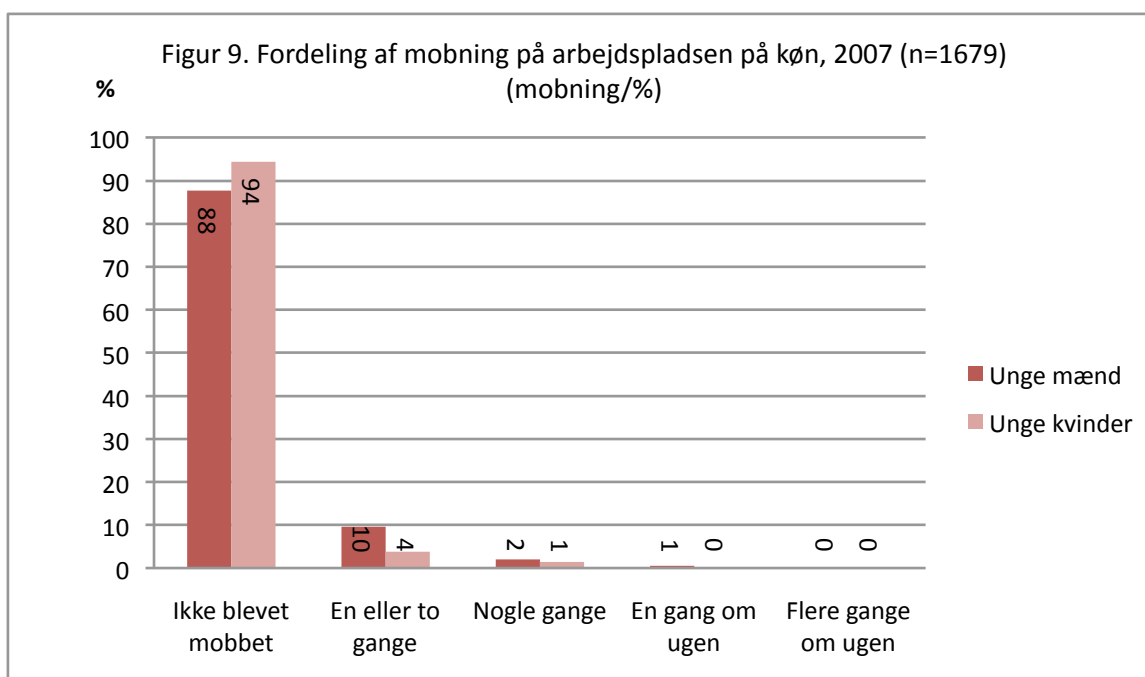
Størstedelen af de 17 til 18-årige respondenter med arbejde eller i praktik angav at stemningen og det sociale klima var ret godt (40%) og meget godt (40%). Kun 0,4% angav, at stemningen og det sociale klima var meget dårligt.

Som det vises i Figur 8 er fordelingen af angivelse af stemning og socialt klima på arbejds- eller praktikpladsen ligeligt fordelt mellem kønnene. En lidt større procentdel af de unge mænd (17%) end de unge kvinder angav dog, at stemningen og det sociale klima var nogenlunde godt (15%).



91% og dermed langt størstedelen af de unge respondenter i arbejde eller praktik angav, at de ikke var blevet udsat for mobning på deres arbejds- eller praktikplads. 6% angav at være blevet udsat for mobning en eller to gange.

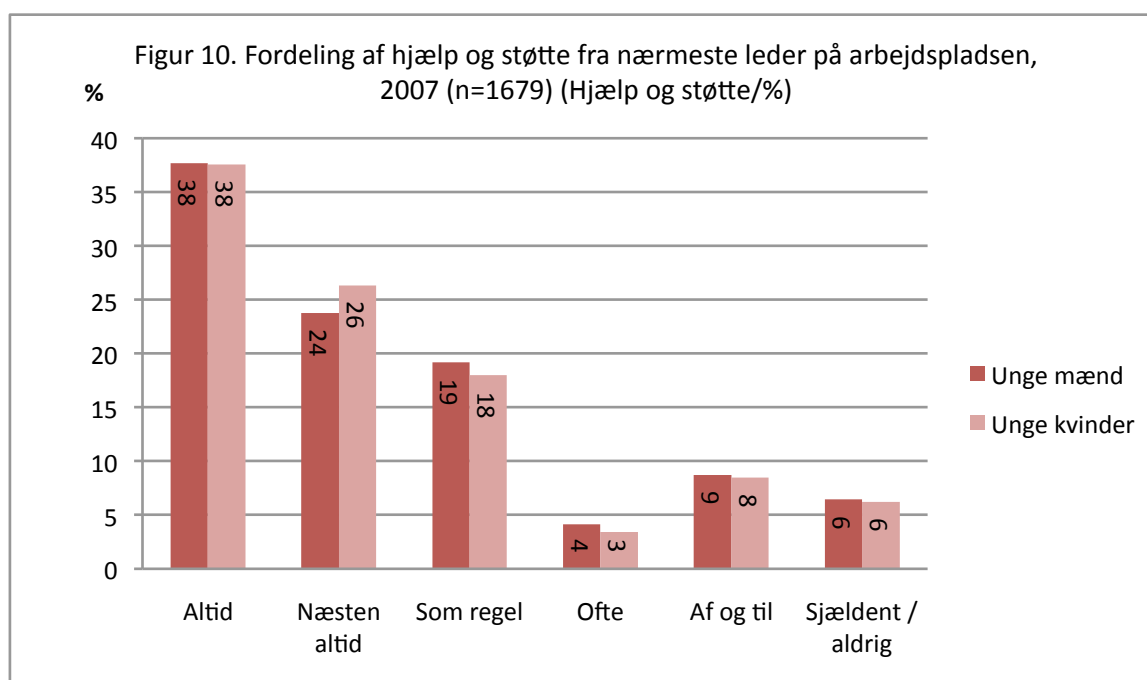
Som det ses i Figur 9 angav flere unge mænd end unge kvinder at være blevet udsat for mobning på arbejds- eller praktikpladsen. Mere end dobbelt så mange unge mænd end unge kvinder angav således, at være blevet mobbet en eller to gange og udgjorde henholdsvis 10% og 4%.



Hjælp og støtte fra nærmeste leder

I forhold til, om de 17 til 18-årige i undersøgelsen, som var i arbejde eller praktik, mente, at de fik hjælp og støtte af deres nærmeste leder, angav den største andel (38%), at de altid fik hjælp og støtte. Den mindste andel angav med 4%, at de ofte fik hjælp og støtte.

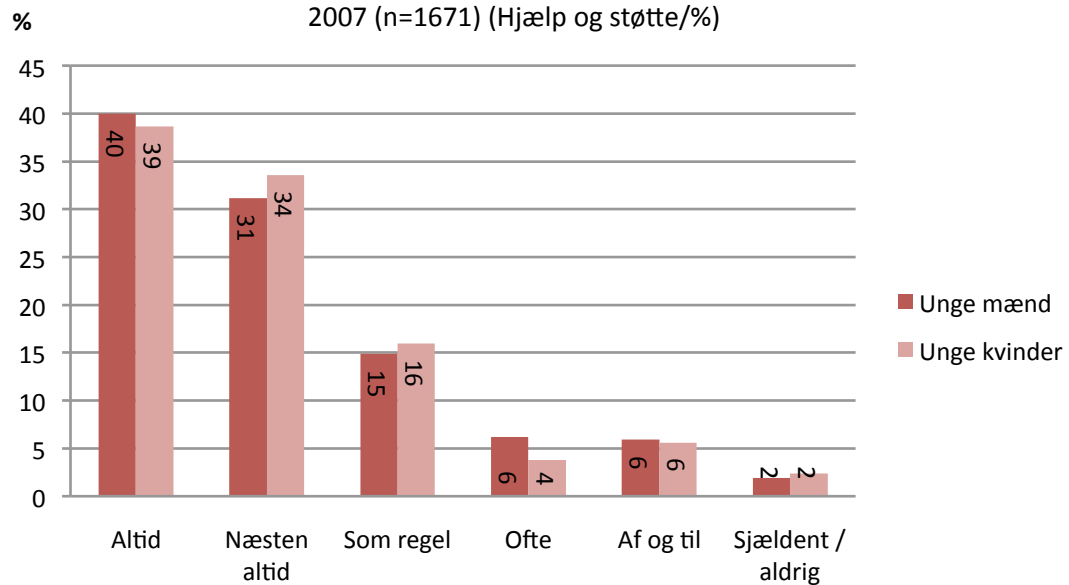
Figur 10 viser, at den største andel af både unge mænd og kvinder angav, at de altid fik hjælp og støtte fra deres nærmeste leder på arbejdspladsen eller på praktikstedet udgørende henholdsvis 37% og 38% af kønnene. Flere af de unge kvinder (26%) end af de unge mænd (24%) angav, at de næsten altid fik hjælp og støtte fra deres nærmeste leder. Flere af de unge mænd (19%) end de unge kvinder (18%) angav, at de som regel fik hjælp og støtte fra deres nærmeste leder.



Med 39% angav størstedelen af de respondenterne, der var i arbejde eller i praktik, at de altid fik hjælp og støtte fra deres kolleger på arbejds- eller praktikpladsen. Færrest havde med 2% angivet, at de sjældent eller aldrig fik hjælp og støtte fra deres arbejdskolleger.

Som det kan ses i Figur 11, angav flere af de unge mænd end de unge kvinder, at de altid eller ofte fik hjælp og støtte fra deres kolleger på arbejds- eller praktikpladsen med henholdsvis 40 % og 6% for de unge mænd samt 39% og 4% for de unge kvinder. Flere af de unge kvinder end de unge mænd angav til gengæld, at de næsten altid og som regel fik hjælp og støtte fra deres arbejdskolleger med henholdsvis 34% og 16% for de unge kvinder samt 31% og 15% for de unge mænd.

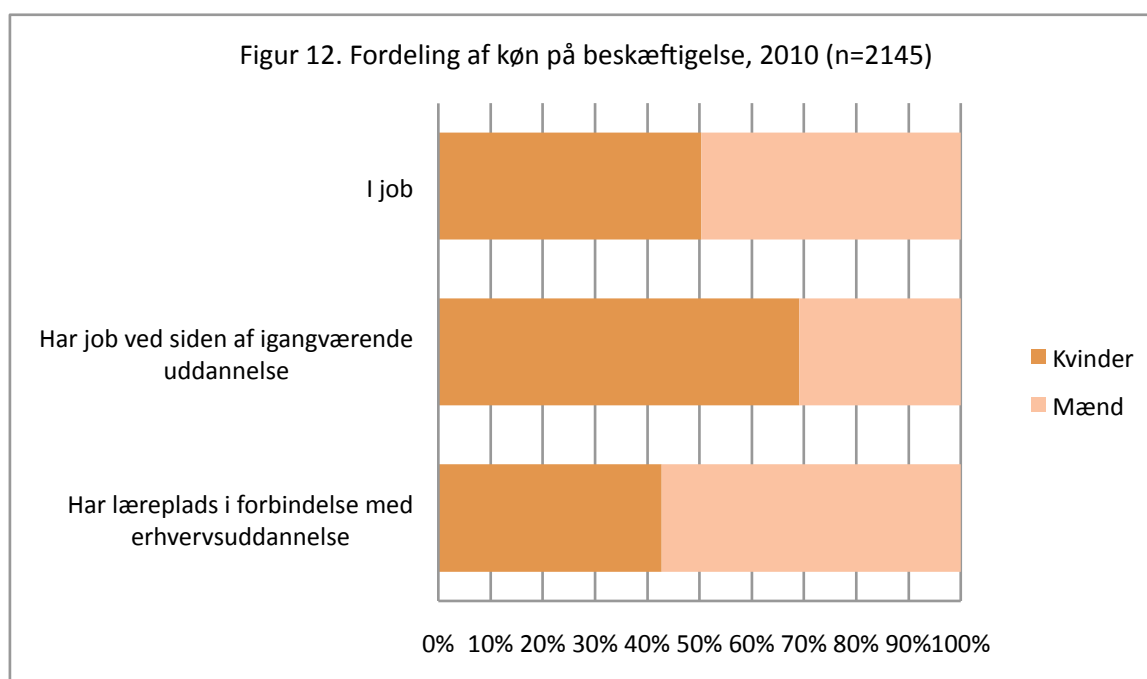
Figur 11. Fordeling af hjælp og støtte fra kolleger på arbejdspladsen på køn, 2007 (n=1671) (Hjælp og støtte/%)



Fysisk og psykisk arbejdsmiljø blandt 20 til 21-årige i 2010

61 % (n=1301) ud af 2145 20 til 21-årige angav i 2010 enten at være i job, have job ved siden af igangværende uddannelse eller at have læreplads i forbindelse med erhvervsuddannelse. Kvinderne udgjorde 57 % (n=735) og mændene 43 % (n=566). 27 % (n=576) ud af 2145 20 til 21-årige angav i 2010 at være i job, 10 % (n=206) angav at have læreplads i forbindelse med erhvervsuddannelse og 24 % (n=519) angav at have et job ved siden af uddannelse.

Beskæftigelse fordelt på køn ses i Figur 12. Ud af den gruppe 20 til 21-årige, som havde et arbejde udgjorde kvinderne og mændene henholdsvis 50% (n=290) og 49,65 % (n=286). Kvinderne udgjorde 70% (n=357) og mændene 31 % (n=162) af den gruppe, som angav at have et job ved siden af uddannelse. Ud af dem, der angav at have en læreplads i forbindelse med erhvervsuddannelse udgjorde kvinderne 43% (n=88) og mændene 57% (n=118).



Fysisk arbejdsmiljø

Størstedelen af respondenterne angav, at de sjældent/meget lidt eller aldrig var udsat for gener fra det fysiske arbejdsmiljø på deres arbejde. Støj så høj, at man må hæve stemmen for at tale samt kulde var de hyppigst forekomne gener blandt respondenterne. Støj og kulde var også den hyppigst angivne belastning blandt mændene, mens udsættelse for hudkontakt med rengøringsmidler og/eller desinfektionsmidler i arbejdet var den hyppigste gene blandt kvinderne. Mændene oplevede generelt større belastning i forhold til fysisk arbejdsmiljø end kvinderne.

Fysisk hårdt arbejde og gentagne bevægelser

Fysisk hårdt arbejde og gentagne bevægelser i arbejdet blev målt ud fra en skala fra 2 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af henholdsvis fysisk hårdt arbejde og gentagne bevægelser i arbejdet.

Som det vises i Tabel 1 varierede respondenternes scorer på skalaerne fra 2 til 8. Gennemsnitscoren for gentagne bevægelser i arbejdet var 4,68 (median = 4) for begge køn samlet, 4,89 (median = 5) for kvinderne

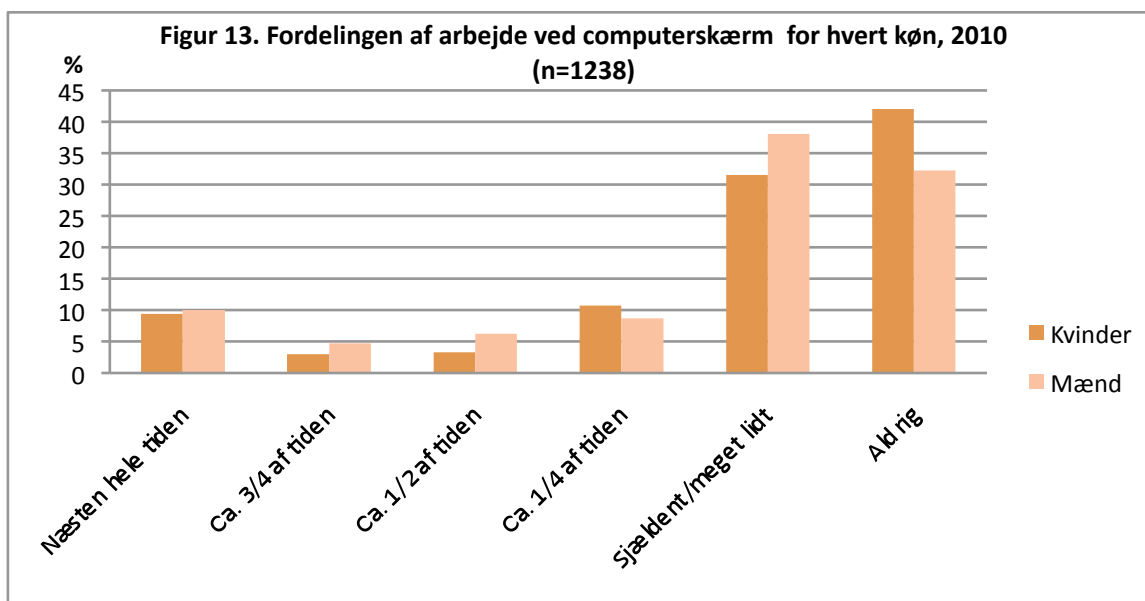
og 4,48 (median = 4) for mændene. Kvinderne angav således i højere grad end de mandlige respondenter, at opleve at have et arbejde hvor de udfører gentagne bevægelser. Gennemsnitsscoren for fysisk tungt arbejde var 4,25 (median = 4) for begge køn samlet. Mændenes gennemsnitscore var en anelse højere end kvindernes.

Tabel 1. Oversigt over skalaer for fysisk arbejdsmiljø, 2010 (n=1301)

	Mean	Median	SD	Min	Max
Gentagne bevægelser	4,68	4	1,95	2	8
Kvinder	4,89	5	2,05	2	8
Mænd	4,48	4	1,83	2	8
Fysisk tungt arbejde	4,25	4	1,73	2	8
Kvinder	4,1	4	1,74	2	8
Mænd	4,39	4	1,7	2	8

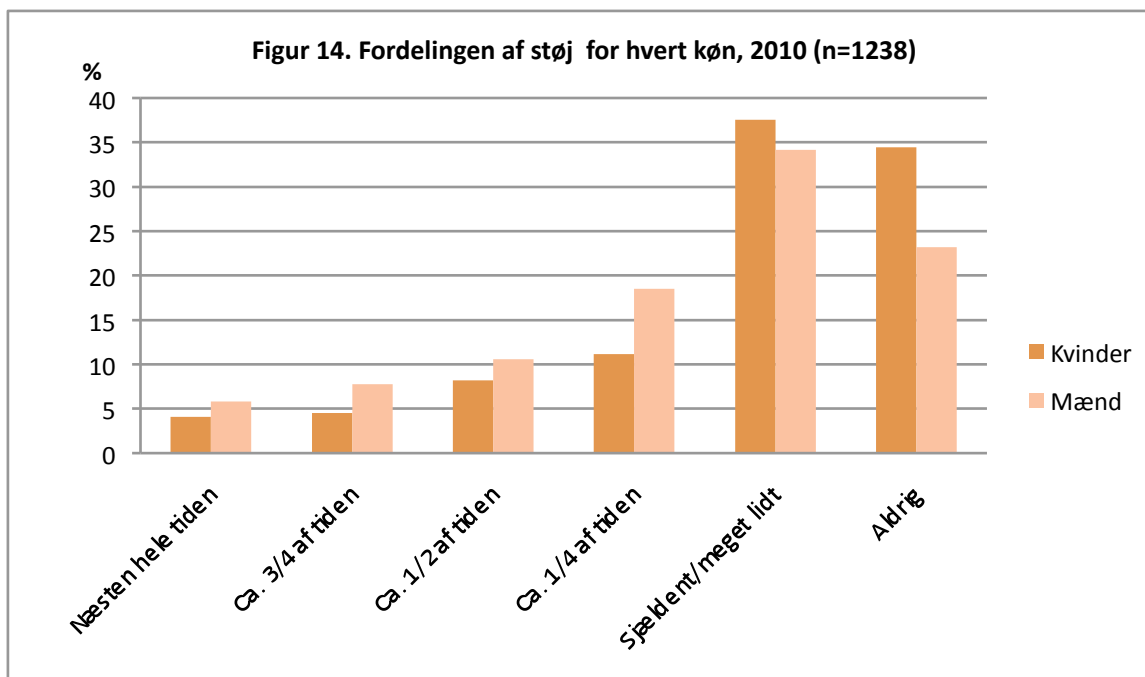
Tid foran computer

72 % af respondenterne angav, at de sjældent/meget lidt eller aldrig arbejdede ved en computerskærm som en del af deres arbejde. Som det ses i Figur 13 angav en lidt større andel af mændene (30 %) end kvinderne (26 %) at arbejde ved computerskærm som en del af deres arbejde.



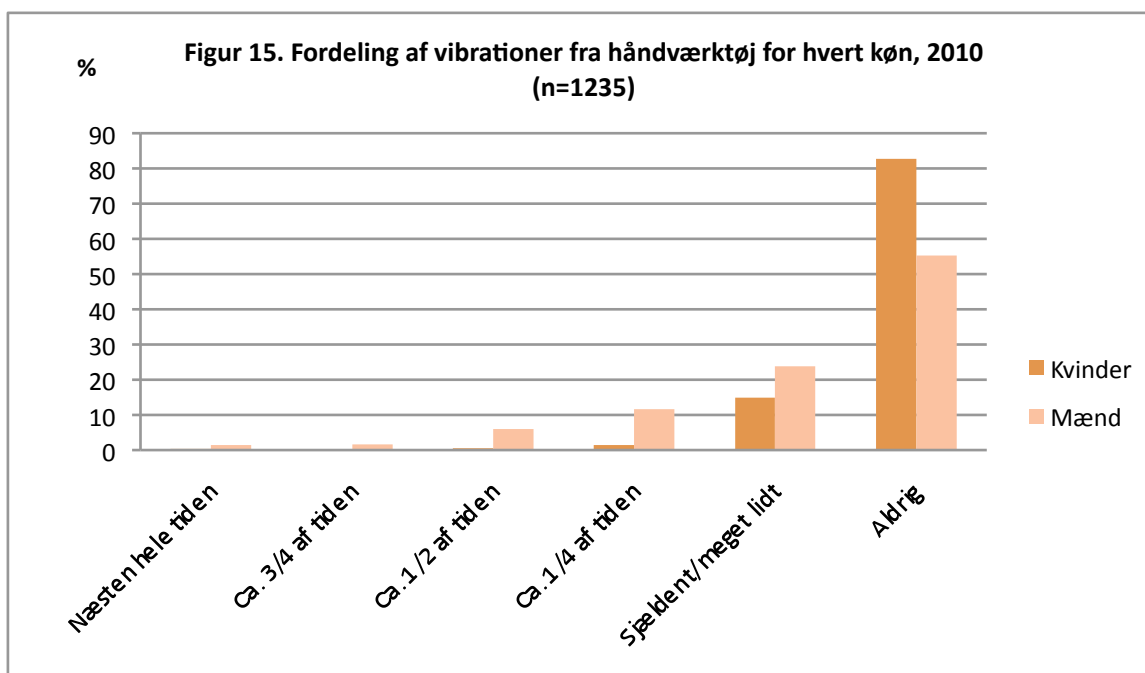
Støj

66% af respondenterne angav, at de sjældent/meget lidt eller aldrig var udsat for støj i en sådan grad, at de måtte hæve stemmen for at tale med andre. Udsættelse for støj fordelt på køn kan ses i Figur 14, som viser, at andelen af mænd, der udsættes for støj i en sådan grad, at de måtte hæve stemmen for at tale med andre, var større end andelen af kvinder. 43 % af mændene svarede, at de næsten hele tiden, ca. $\frac{3}{4}$ af tiden, ca. $\frac{1}{2}$ af tiden eller ca. $\frac{1}{4}$ af tiden var udsat for støj så høj, at man må hæve stemmen for at tale med andre, mod kvindernes 28 %.



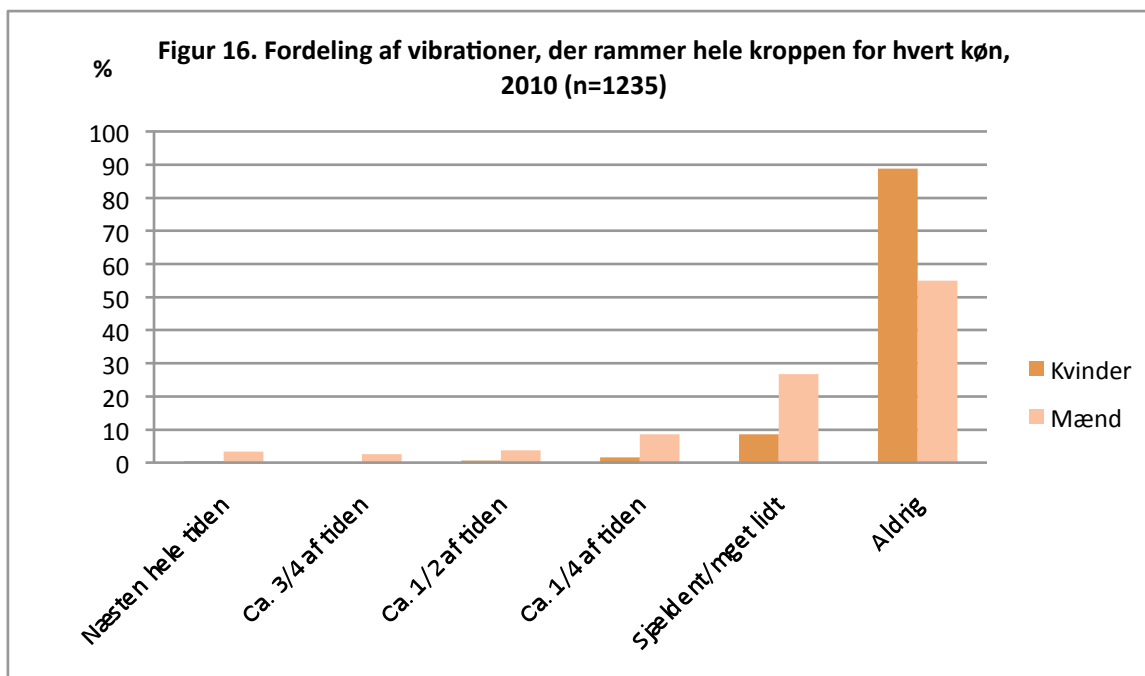
Vibrationer fra håndværktøj

90% af respondenterne angav, at de sjældent/meget lidt eller aldrig var udsat for vibrationer fra håndværktøj. Andelen af mænd (43 %), der svarede, at de næsten hele tiden, ca. $\frac{3}{4}$ af tiden, ca. $\frac{1}{2}$ af tiden eller ca. $\frac{1}{4}$ af tiden var udsat for vibrationer fra håndværktøj var større end andelen af kvinder (28 %) (Figur 15).



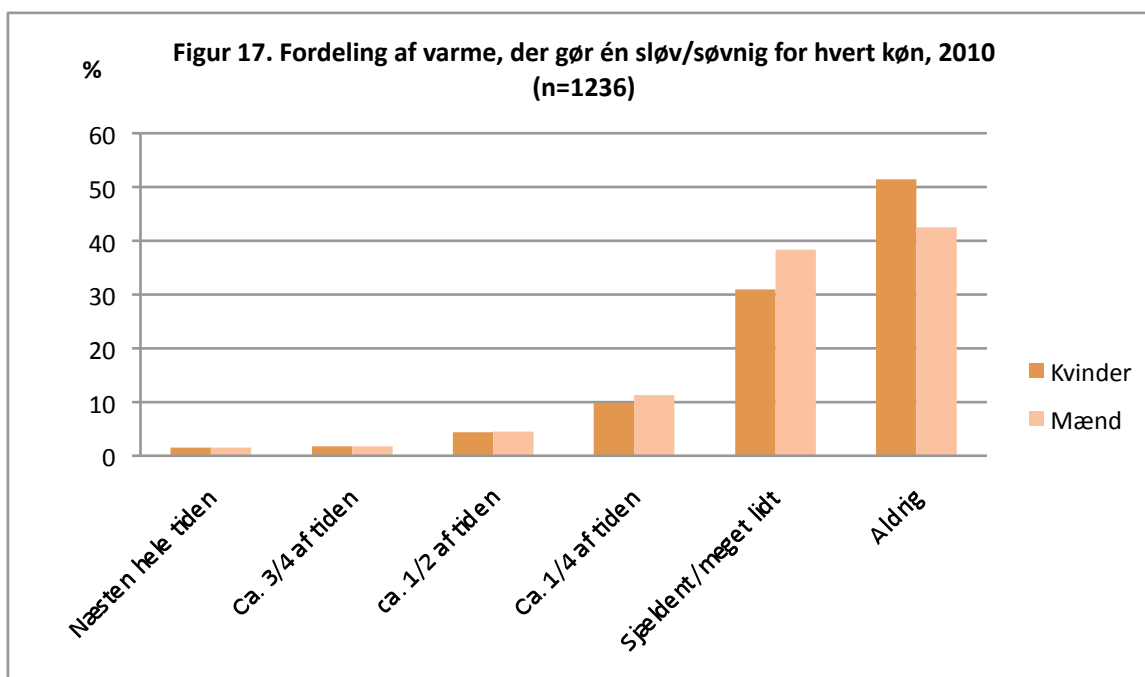
Vibrationer, der rammer hele kroppen

91 % af respondenterne angav, at de i forbindelse med arbejde sjældent/meget lidt eller aldrig var udsat for vibrationer, der rammer hele kroppen. Som det vises i Figur 16 angav 97 % af kvinderne, at de i deres arbejde sjældent/meget lidt eller aldrig var udsat for vibrationer, der rammer hele kroppen. 18% af mændene svarede, at de næsten hele tiden, ca. $\frac{3}{4}$ af tiden, $\frac{1}{2}$ af tiden eller ca. $\frac{1}{4}$ af tiden på arbejde var udsat for vibrationer, der rammer hele kroppen.



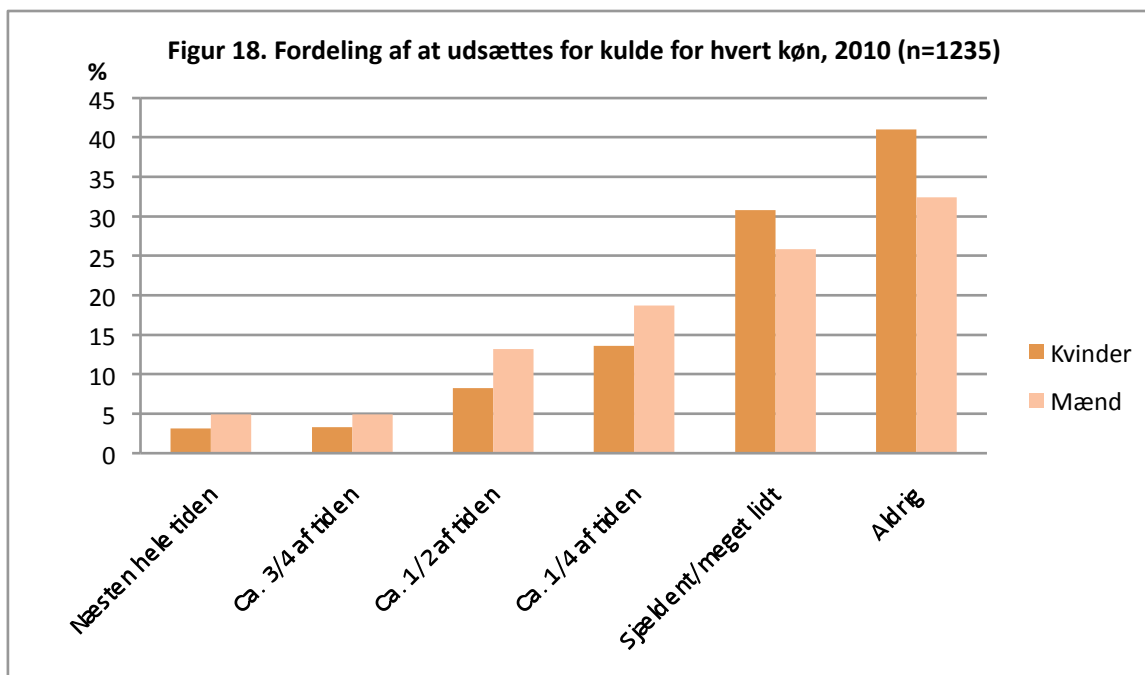
Varme, der gør én sløv/søvnig

82% af respondenterne angav, at de sjældent/meget lidt eller aldrig var udsat for varme, der gør dem sløve eller søvnige. Omkring 18 % af både kvinderne og mændene svarede, at de næsten hele tiden, ca. $\frac{3}{4}$ af tiden, ca. $\frac{1}{2}$ af tiden eller ca. $\frac{1}{4}$ af tiden var udsat for varme, der gør én sløv/søvnig (Figur 17).



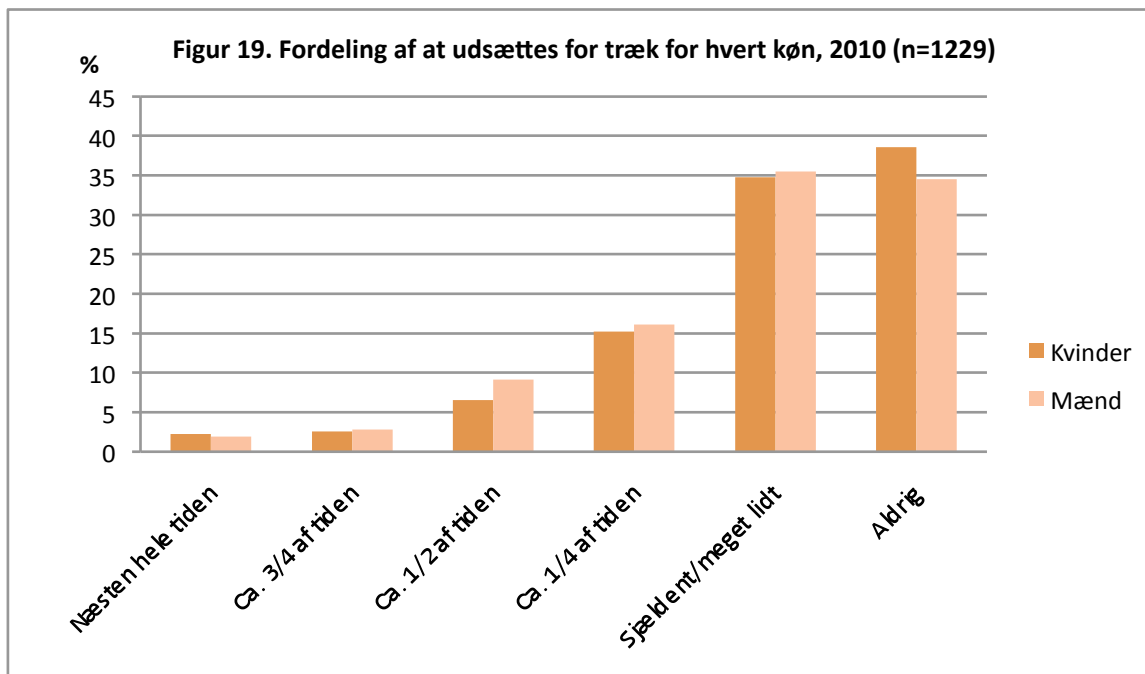
Kulde

66 % af respondenterne angav, at de sjældent/meget lidt eller aldrig var udsat for kulde i deres arbejde eller på deres arbejdsplads. 42 % af mændene og 28 % af kvinderne angav, at de næsten hele tiden, ca. ¾ af tiden, ca. ½ af tiden eller ca. ¼ af tiden var udsat for kulde i forbindelse med arbejde (Figur 18).



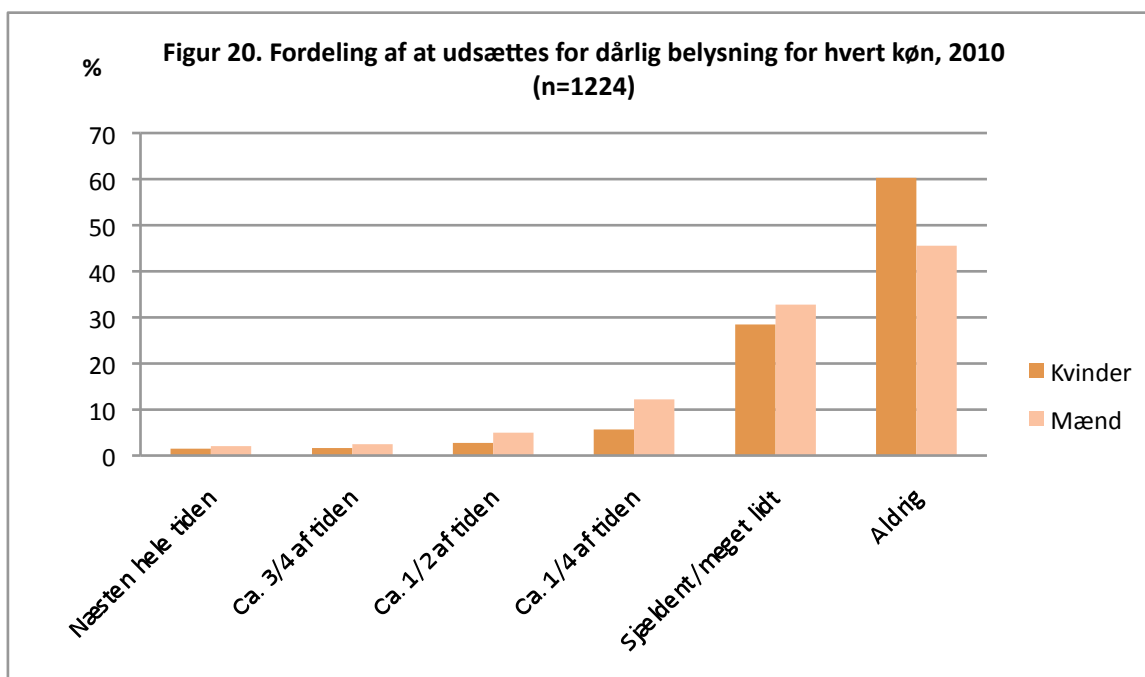
Træk

72% af respondenterne angav, at de sjældent/meget lidt eller aldrig var udsat for træk på deres arbejde. Fordeling af hyppigheden for at blive udsat for træk på arbejde ses i Figur 19. 30 % af mændene og 27 % af kvinderne svarede, at de næsten hele tiden, ca. ¾ af tiden, ca. ½ af tiden eller ca. ¼ af tiden var udsat for træk i forbindelse med arbejde.



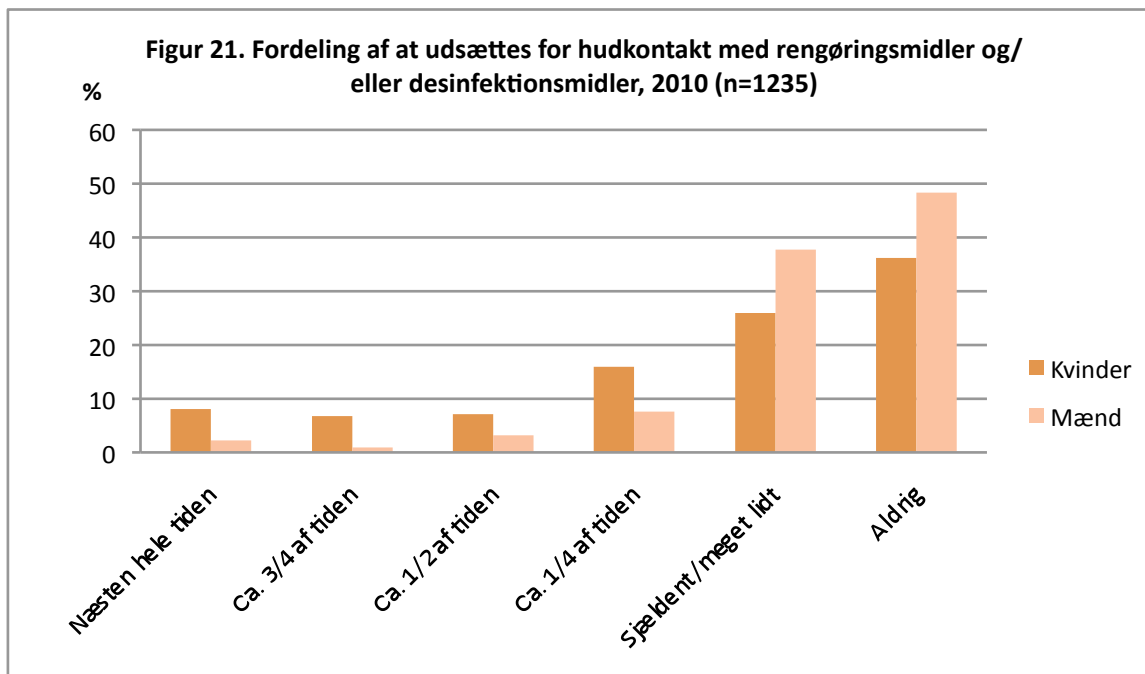
Dårlig belysning

84% af respondenterne angav, at de sjældent/meget lidt eller aldrig var udsat for træk på deres arbejde. Som det ses i Figur 20 var andelen af mandlige respondenter, der havde været udsat for træk på arbejde, var større (22%) end andelen af kvinder (11 %).



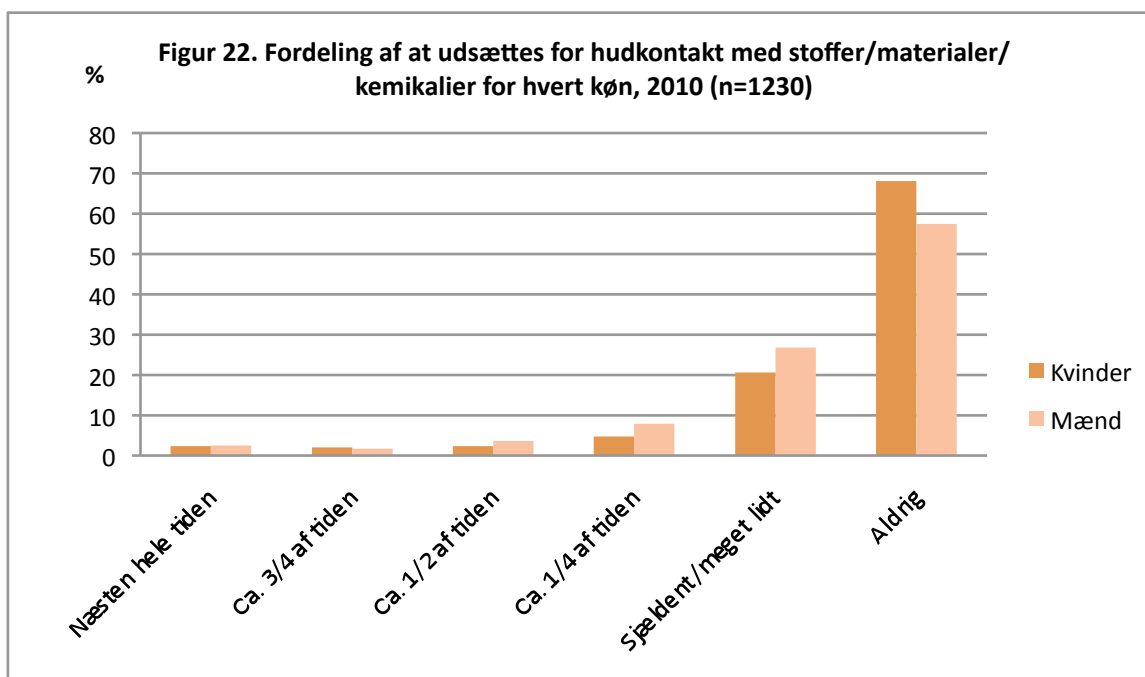
Hudkontakt med rengøringsmidler og desinfektionsmidler

72% af respondenterne angav, at de sjældent/meget lidt eller aldrig var udsat for hudkontakt med rengøringsmidler og/eller desinfektionsmidler i deres arbejde. Større andel af kvinderne (38%) end mændene (14 %) angav at de næsten hele tiden, ca. ¾ af tiden, ca. ½ af tiden eller ¼ af tiden på arbejde var udsat for hudkontakt rengøringsmidler og/eller desinfektionsmidler (Figur 21).



Hudkontakt med stoffer/materialer/kemikalier

87% af respondenterne svarede, at de sjældent/meget lidt eller aldrig havde hudkontakt med stoffer, materialer og/eller kemikalier. Mændene angav en smule hyppigere end kvinderne, at være udsat for hudkontakt med stoffer, materialer og/eller kemikalier i forbindelse med arbejde (Figur 22).



Psykisk arbejdsmiljø

Kvantitative krav

Arbejdsomængde

Krav om arbejdsomængde blev målt ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af krav om arbejdsomængde. Respondenternes scorer på skalaen varierede fra 0 til 7. Gennemsnitscoren var 2,2. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Arbejdshastighed

Arbejdshastighed måles ud fra en skala fra 0 til 8. Højere værdi på skalaen svarer til højere grad af oplevelse af krav om højere arbejdshastighed. Kvindernes scorer på skalaen varierede fra 1 til 8 og mændenes fra 0 til 8. Gennemsnitscoren for begge køn samlet var 4,8. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Følelsesmæssige krav

Følelsesmæssige krav i arbejdet måles ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af følelsesmæssige krav i arbejdet. Respondenternes scorer på skalaen varierede fra 0 til 8. Gennemsnitscoren for begge køn samlet var 2,6. Kvinderne havde med en gennemsnitscore på 2,9 en højere gennemsnitscore end mændene, hvilket vil sige, at kvinderne i højere grad end mændene oplevede følelsesmæssige krav i arbejdet.

Indflydelse

Indflydelse i arbejdet måles ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af indflydelse i arbejdet. Respondenternes scorer på skalaen varierede fra 0 til 8. Gennemsnitscoren for begge køn samlet var 4,2. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Udviklingsmuligheder

Udviklingsmuligheder i arbejdet måles ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af udviklingsmuligheder i arbejdet. Respondenternes scorer på skalaen varierede fra 0 til 8. Gennemsnitscoren for begge køn samlet var 5,5. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Mening i arbejdet

Mening i arbejdet måles ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af mening i arbejdet. Respondenternes scorer på skalaen varierede fra 0 til 8. Gennemsnitscoren for begge køn samlet var 5,9. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Involvering i arbejdspladsen

Involvering i arbejdspladsen måles ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af involvering i arbejdspladsen. Respondenternes scorer på skalaen varierede fra 0 til 8. Gennemsnitscoren for begge køn samlet var 5,5. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Rolleklarhed

Rolleklarhed på arbejdspladsen måles ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af rolleklarhed på arbejdspladsen. Respondenternes scorer på skalaen varierede

fra 0 til 8. Gennemsnitscoren for begge køn samlet var 5,9. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Ledelseskvalitet

Ledelseskvalitet på arbejdspladsen måles ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af ledelseskvalitet på arbejdspladsen. Respondenternes scorer på skalaen varierede fra 0 til 8. Gennemsnitscoren for begge køn samlet var 5,4. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Tillid mellem ledelse og medarbejdere

Tillid mellem ledelse og medarbejdere på arbejdspladsen måles ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af tillid mellem ledelse og medarbejdere på arbejdspladsen. Respondenternes scorer på skalaen varierede fra 0 til 8. Gennemsnitscoren for begge køn samlet var 6,3. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Retfærdighed

Retfærdighed i arbejdet måles ud fra en skala fra 0 til 8, hvor højere score på skalaen svarer til oplevelsen af højere grad af retfærdighed i arbejdet. Gennemsnitscoren for begge køn samlet var 5,6. Hverken kvindernes eller mændenes gennemsnitscore afveg fra den samlede gennemsnitscore.

Tabel 2. Oversigt over skalaer for psykisk arbejdsmiljø, 2010 (n=1301)

	Mean	Median	SD	Min	Max
Arbejdsmængde	2,2	2	1,41	0	7
Kvinder	2,15	2	1,53	0	7
Mænd	2,24	2	1,36	0	7
Arbejdstempo	4,8	5	1,51	0	8
Kvinder	4,87	5	1,53	1	8
Mænd	4,74	5	1,48	0	8
Følelsesmæssige krav	2,6	2	1,82	0	8
Kvinder	2,94	3	1,87	0	8
Mænd	2,29	2	1,73	0	8
Indflydelse	4,2	4	1,87	0	8
Kvinder	4,13	4	1,86	0	8
Mænd	4,26	4	1,88	0	8
Udviklingsmuligheder	5,53	6	1,86	0	8
Kvinder	5,44	6	1,92	0	8
Mænd	5,62	6	1,79	0	8
Mening i arbejdet	5,89	6	1,79	0	8
Kvinder	5,83	6	1,85	0	8
Mænd	5,95	6	1,73	0	8
Involvering	5,5	6	1,45	0	8
Kvinder	5,59	6	2,04	0	8
Mænd	5,42	6	1,86	0	8
Rolleklarhed	5,92	6	1,45	0	8
Kvinder	5,9	6	1,41	0	8
Mænd	5,95	6	1,49	1	8
Ledelseskvalitet	5,39	6	1,91	0	8
Kvinder	5,38	6	1,2	0	8
Mænd	5,39	6	1,82	0	8
Tillid i arbejdet	6,25	6	1,44	0	8
Kvinder	6,3	6	1,44	1	8
Mænd	6,19	6	1,44	0	8
Retfærdighed	5,61	6	1,62	0	8
Kvinder	5,54	6	1,67	0	8
mænd	5,71	6	1,57	0	8

Samarbejde på arbejdspladsen

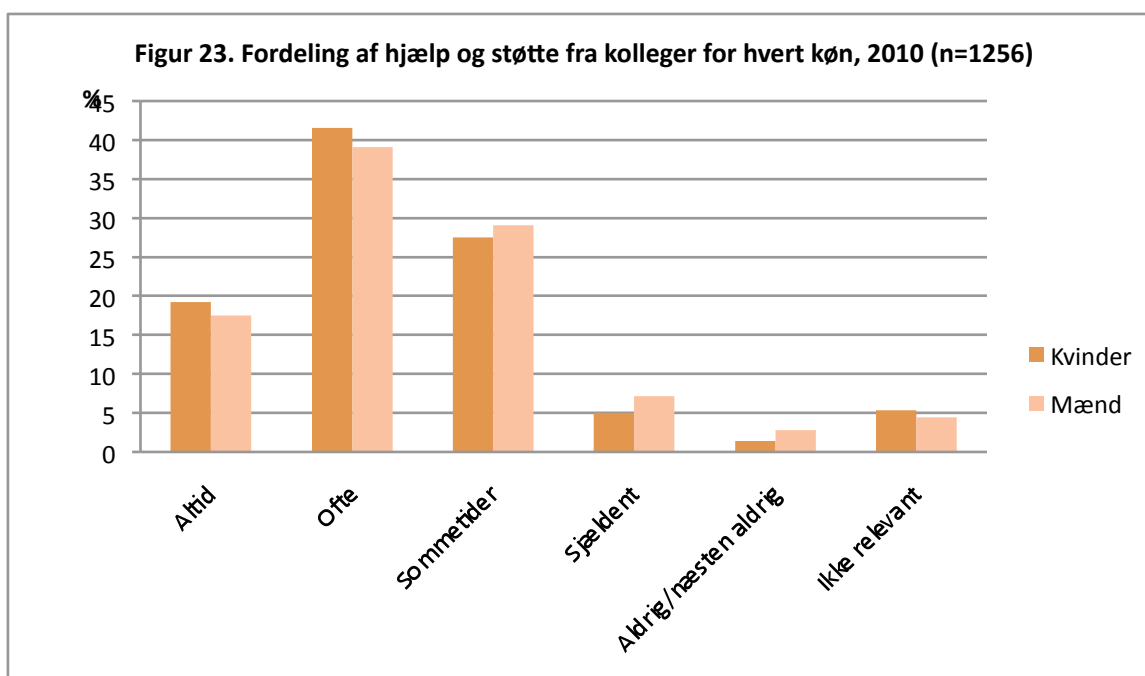
Hjælp og støtte fra kolleger

Størstedelen af respondenterne angav, at de altid, ofte eller sommetider fik hjælp og støtte i deres arbejde. Den største andel af respondenterne (95 %) angav, at der altid, ofte eller sommetider var "god stemning mellem dig og dine kolleger". Mens den mindst hyppigst angivne hjælp og støtte blandt respondenterne var hjælp og støtte fra den nærmeste overordnede (80%). Både kvinderne og mændene angav "god stemning mellem dig og dine kolleger" som den hyppigst forekomne hjælp og støtte og den mindst hyppigst forekomne form for hjælp og støtte på arbejdspladsen for både mænd og kvinder var hjælp og støtte fra den nærmeste overordnede.

Hjælp og støtte fra kolleger

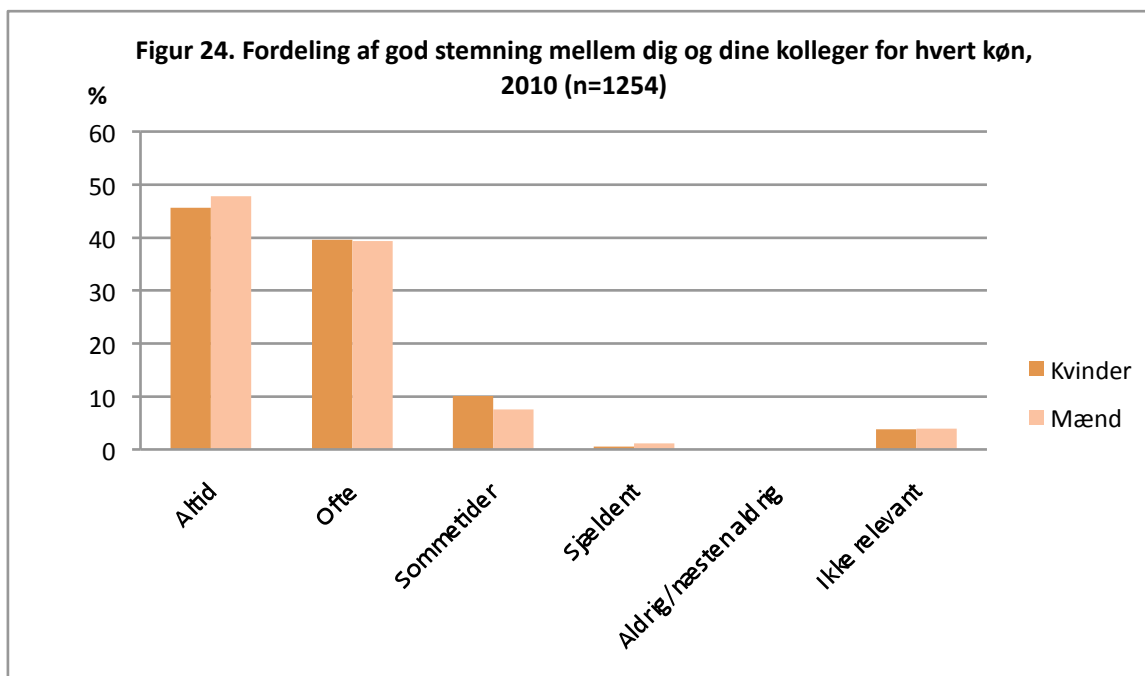
59 % af respondenterne angav, at de altid eller ofte fik hjælp og støtte fra kolleger.

Som det vises i Figur 23 var der en større andel af kvinderne (61%) end mændene (57%), der angav altid eller ofte at få hjælp og støtte fra kolleger, mens der var en større andel af mændene (19%) end kvinderne (6%), der angav, at de sjældent eller aldrig/næsten aldrig fik hjælp og støtte fra kolleger.



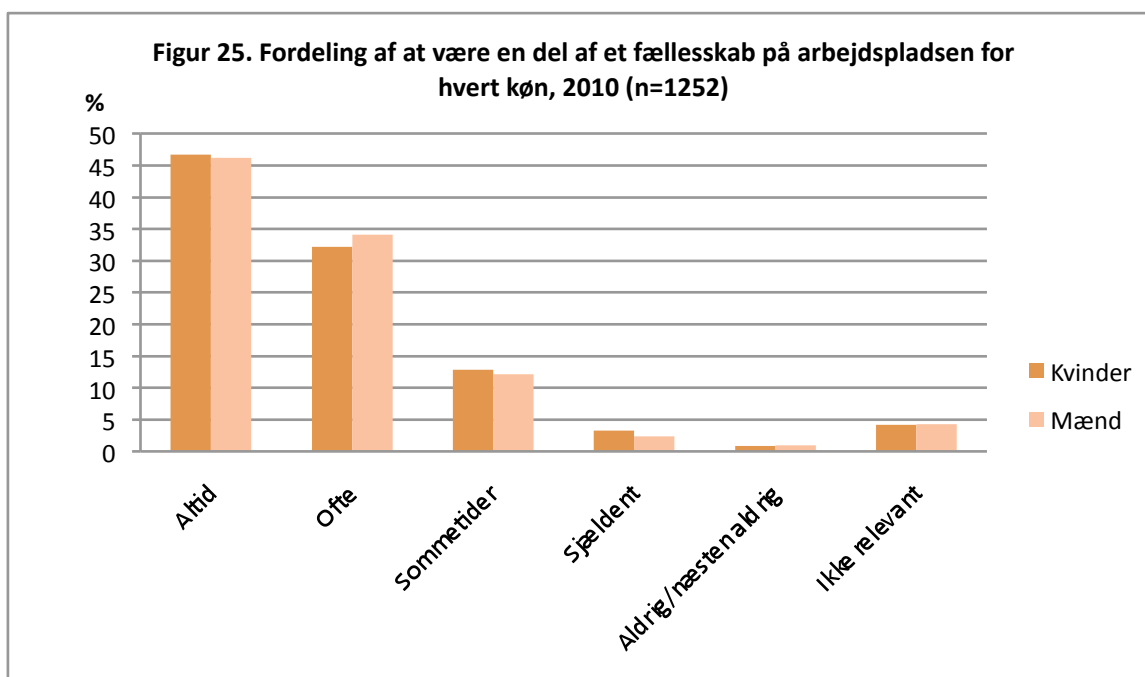
God stemning mellem dig og dine kolleger

86% af respondenterne angav, at der altid eller ofte var god stemning mellem den enkelte og dennes kolleger. Som det vises i Figur 24 angav mændene (48%) lidt hyppigere end kvinderne (46%), at der altid var god stemning mellem dem og deres kolleger.



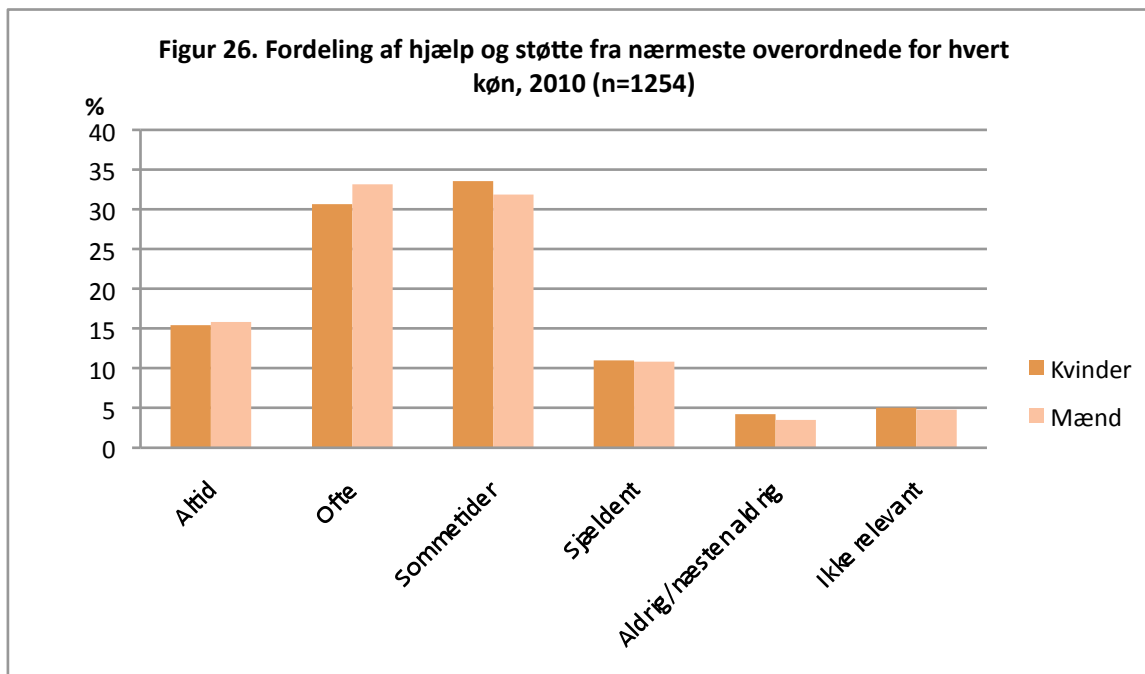
En del af et fællesskab på arbejdspladsen

79% af respondenterne angav, at de altid eller ofte følte sig som en del af fællesskabet på arbejdspladsen. Som det vises i Figur 25, fordelte svarene sig næsten lige for hvert køn.



Hjælp og støtte fra nærmeste overordnede

Under halvdelen af respondenterne (47%) angav, at de altid eller ofte fik hjælp og støtte fra deres nærmeste overordnede. 15% angav, at de sjældent eller aldrig/næsten aldrig fik hjælp og støtte fra deres nærmeste overordnede. Som det kan udledes af Figur 26 var andelen af mænd (33%), der angav, at de ofte fik hjælp og støtte fra deres nærmeste overordnede en smule større end kvinder (31%).

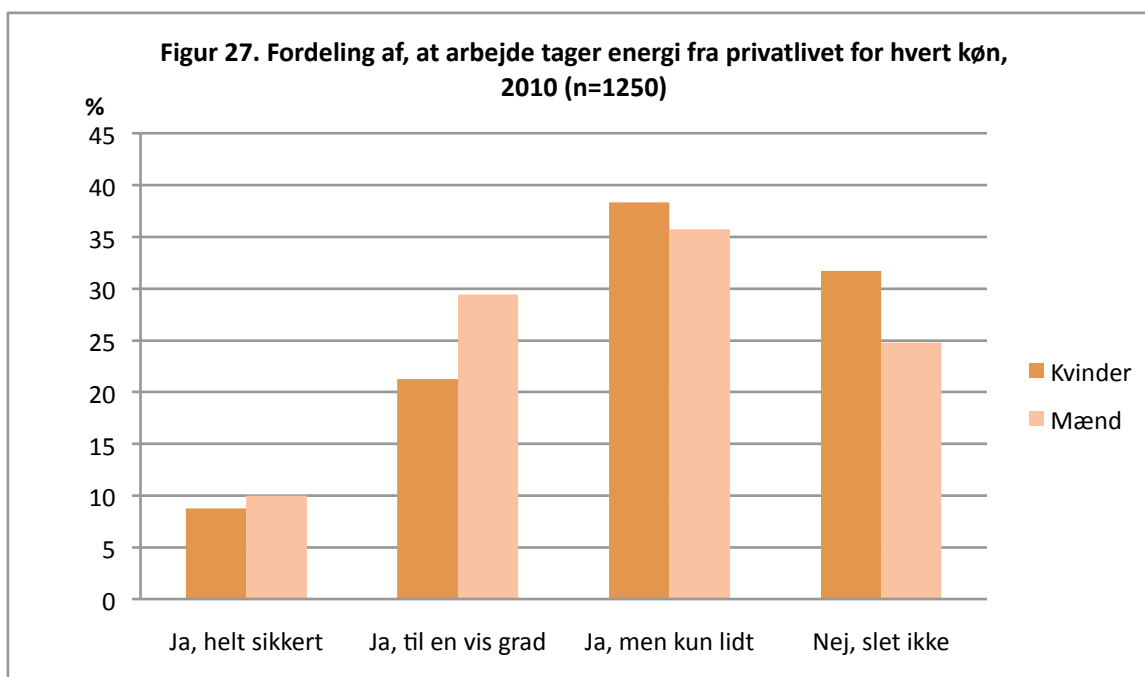


Forholdet mellem arbejde og privatliv

Størstedelen af respondenterne (71%) angav, at det, som tog mest energi i forholdet mellem arbejde og privatliv eller uddannelse var arbejdet, der tog så meget energi, at det gik ud over fritiden. Det forhold, som respondenterne mindst hyppigt (32%) angav at tage energi i forholdet mellem arbejde og privatliv eller uddannelse var privatlivet, der tog så meget energi, at det gik udover arbejdet. Større andel af mændene end kvinderne angav at være belastet i forholdet mellem arbejde og privatliv eller uddannelse. Mændene angav således i større grad, at arbejdet tog så meget energi, at det gik ud over både privatliv og uddannelse og, at privatlivet tog så meget energi at det gik ud over arbejdet.

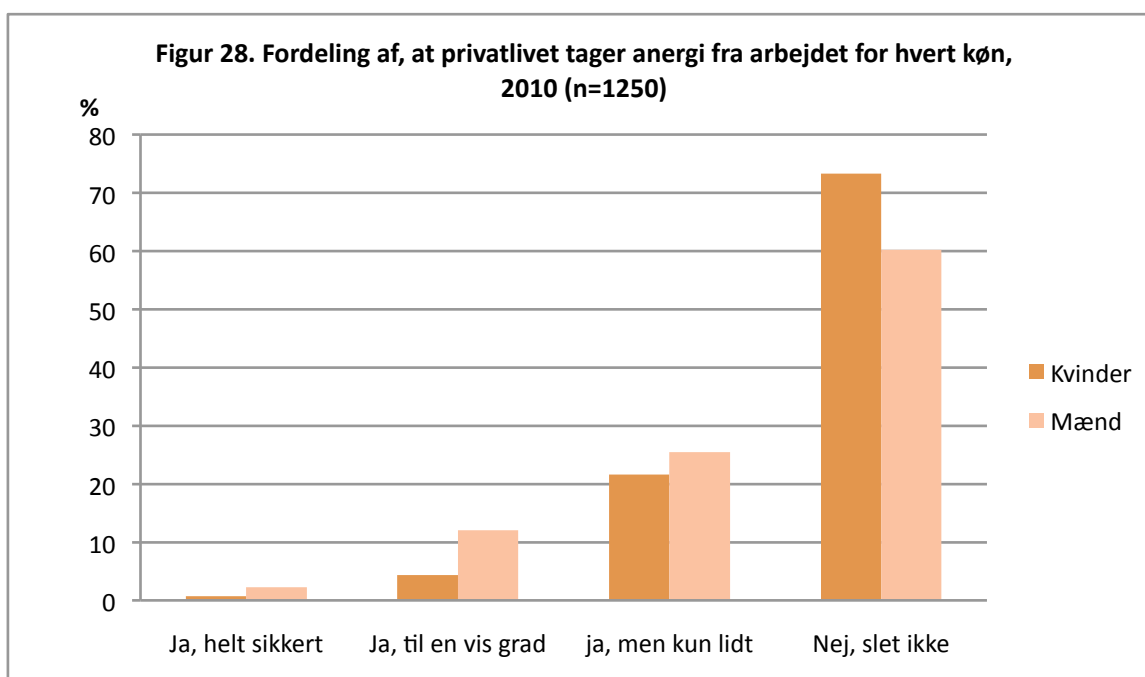
Arbejdet tager energi fra privatlivet

29% af respondenterne svarede, at arbejdet slet ikke tager så meget energi, at det går ud over fritiden. Som det kan ses i Figur 27 angav en større andel af mændene (39%) end kvinderne (30%), at arbejdet helt sikkert eller til en vis grad tager så meget energi, at det går ud over arbejdet.



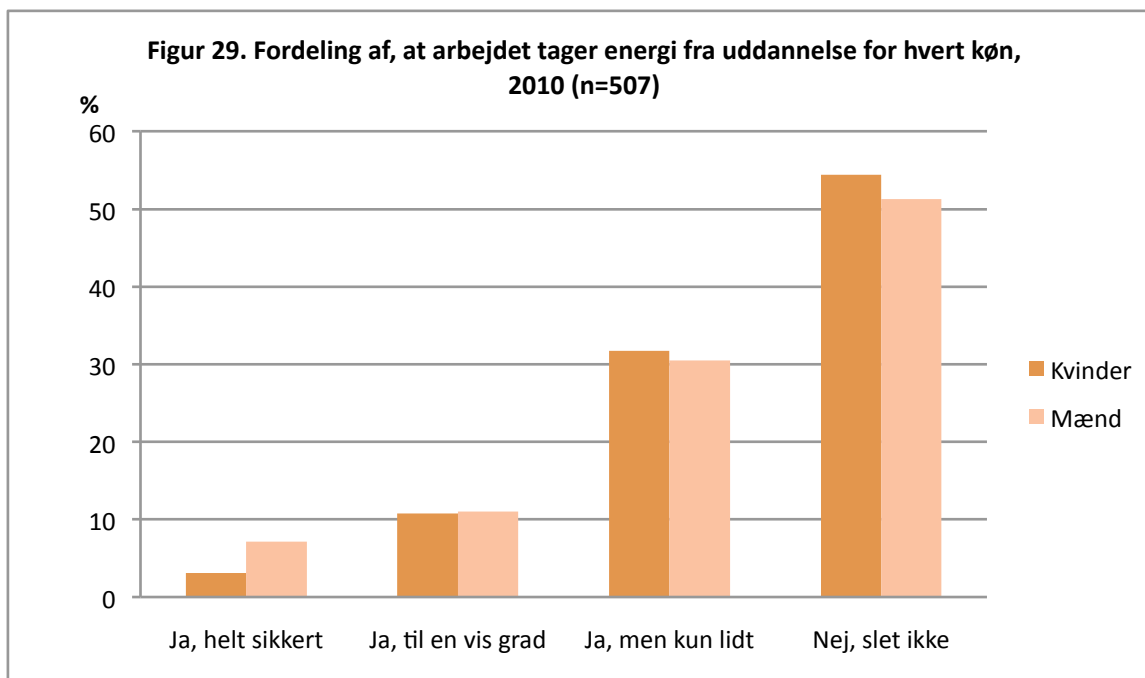
Privatlivet tager energi fra arbejdet

68% af respondenterne svarede, at privatlivet slet ikke tager så meget energi, at det går ud over arbejdet. Som det kan ses i Figur 28 angav mændene (40%) i højere grad end kvinderne (27%), at privatlivet tager så meget tid, at det går ud over arbejdslivet, mens 73% af kvinderne svarede, at privatlivet slet ikke tager så meget energi, at det går ud over arbejdet.



Arbejdet tager energi fra uddannelse

53% af respondenterne svarede, at arbejdet slet ikke tog så meget energi, at det gik ud over uddannelsen. Som det vises i Figur 29 var der en over dobbelt så stor procentdel af mændene (7 %) end kvinderne (3%), der angav, at arbejdet helt sikkert tog så meget energi, at det gik ud over uddannelsen. Større andel af kvinderne (54%) end mændene (51 %) angav, at arbejdet slet ikke tog så meget energi, at det gik ud over uddannelsen.

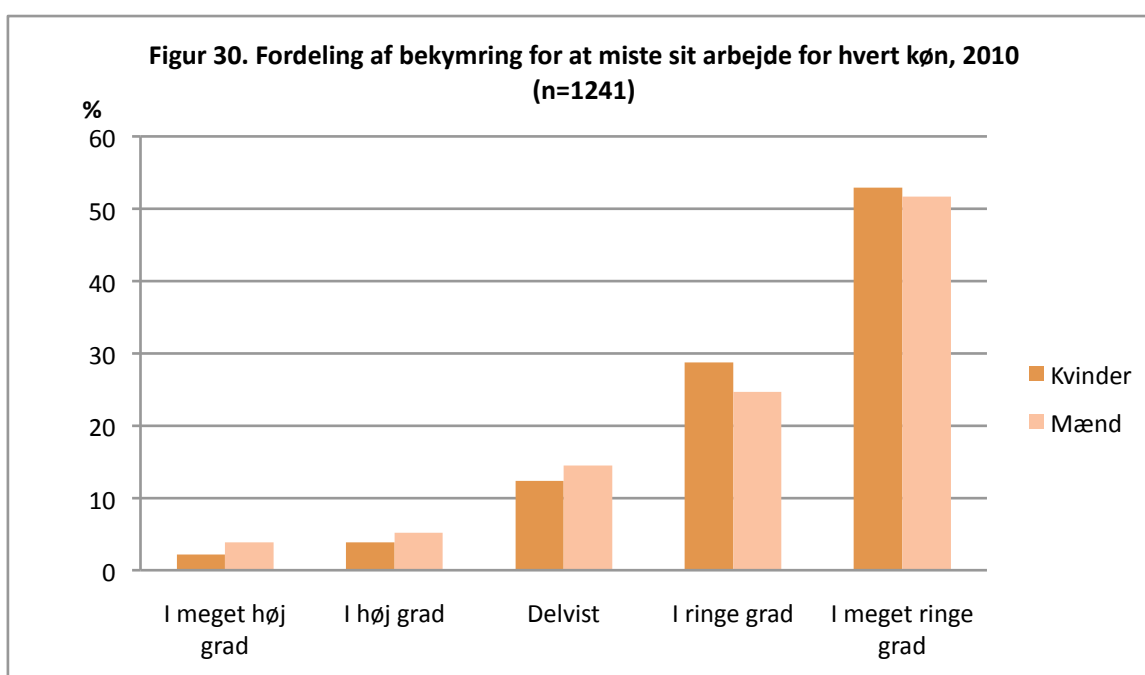


Jobusikkerhed

De største bekymringer i forhold til ansættelse blandt respondenterne var dels bekymring for at få svært ved at finde et arbejde i tilfælde af arbejdsløshed (65 %) og dels bekymring for at få svært ved at finde et arbejde efter endt uddannelse (65%). Kvinderne angav generelt i højere grad end mændene at være bekymret i forhold til ansættelse, undtagen i forhold til bekymring for at miste sit arbejde, hvor mændene (24%) angav at være mere bekymrede end kvinderne (18%). Den mindste bekymring blandt kvinderne var at miste deres job (18%), mens den for mændene var at blive overflødig på grund af udviklingen (16 %).

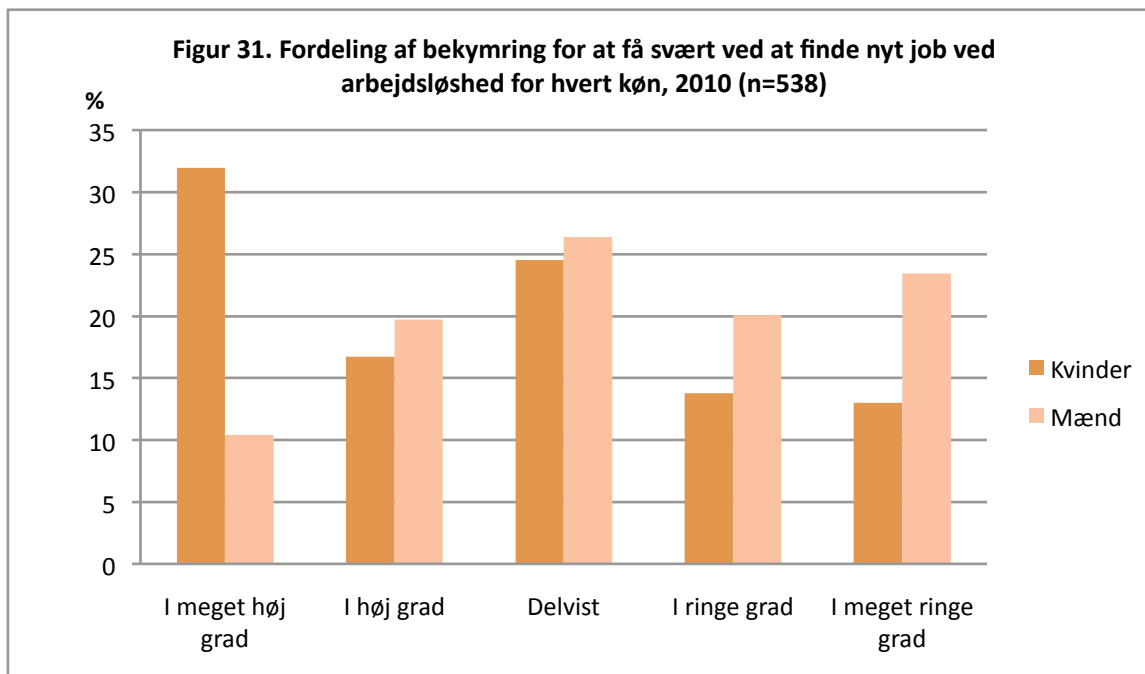
Bekymring for at miste sit arbejde

79% af respondenterne angav, at de i ringe grad eller i meget ringe grad var bekymrede for at miste deres arbejde. Som det kan ses i Figur 30 svarede en større andel af mændene (24%) end kvinderne (18%), at de i meget høj grad, i høj grad eller delvist var bekymrede for at miste deres arbejde.



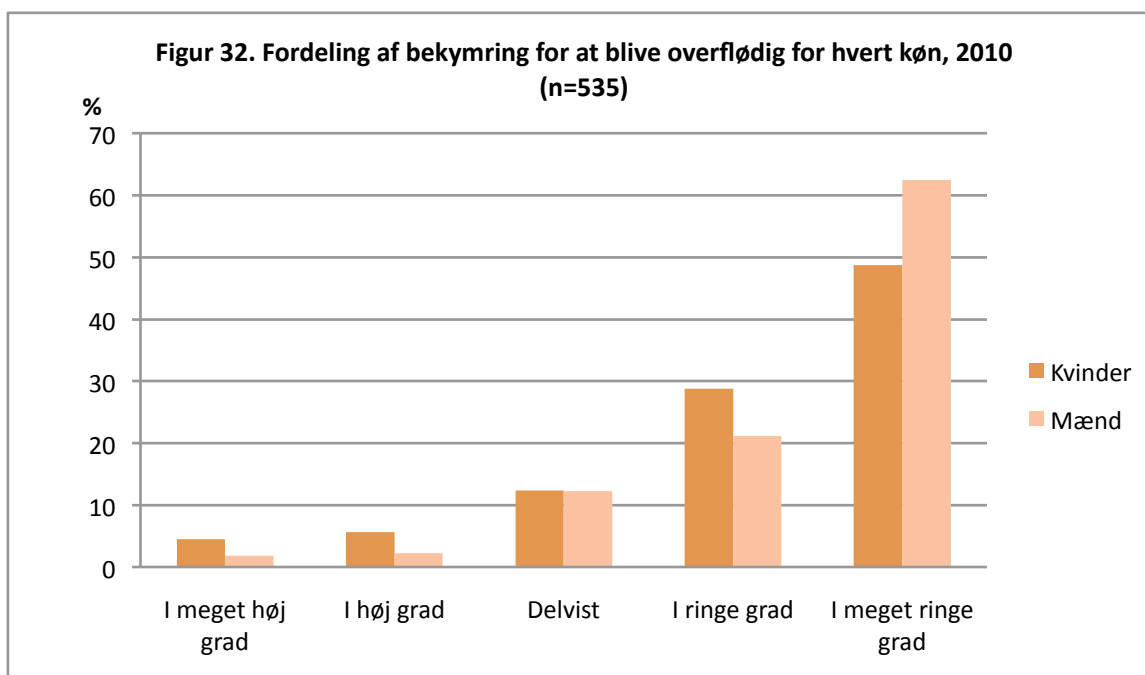
Bekymring for at få svært ved at finde nyt job i tilfælde af arbejdsløshed

Som det vises i Figur 31 var andelen, der i meget høj grad var bekymret for at få svært ved at finde et nyt job i tilfælde af arbejdsløshed næsten tre gange større blandt kvinderne (32%) end hos mændene (10%). 44% af mændene svarede, at de i ringe eller i meget ringe grad var bekymret for at få svært ved at finde et nyt arbejde i tilfælde af arbejdsløshed mod kvindernes 27%.



Bekymring for at blive overflødig på grund af udviklingen

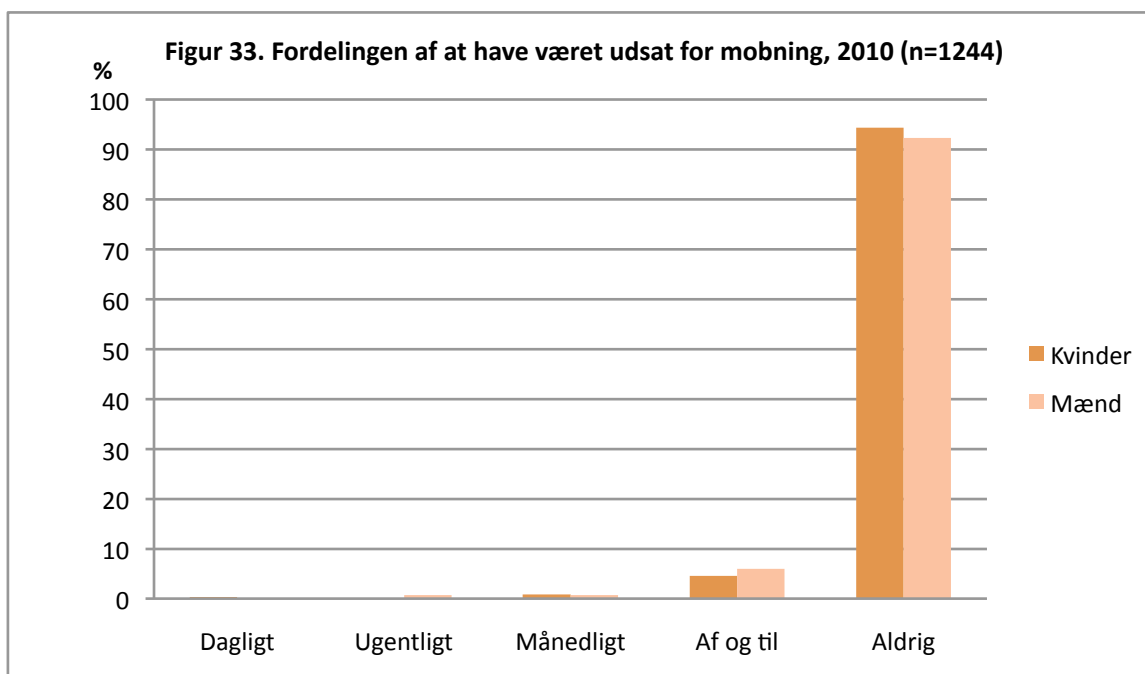
81% af respondenterne angav, at de i ringe eller meget ringe grad var bekymrede for at blive overflødig på grund af udviklingen. Større andel af kvinderne (10%) end mændene (4%) svarede, at de i meget høj grad eller i høj grad var bekymrede for at blive overflødige på grund af udviklingen (Figur 32).

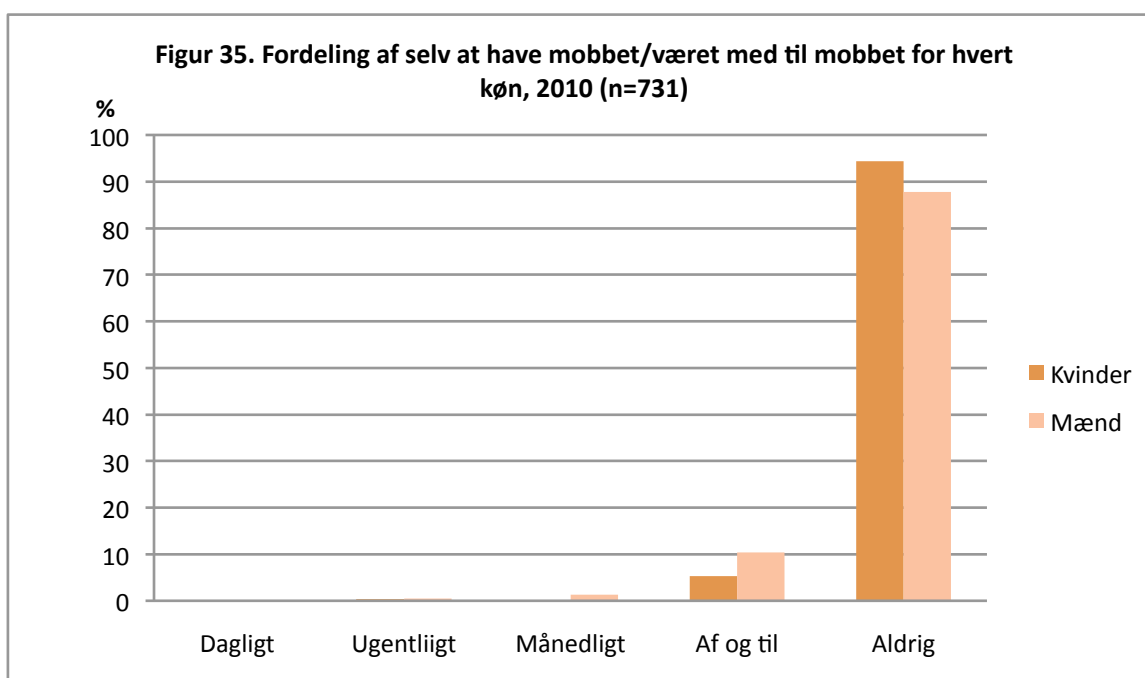
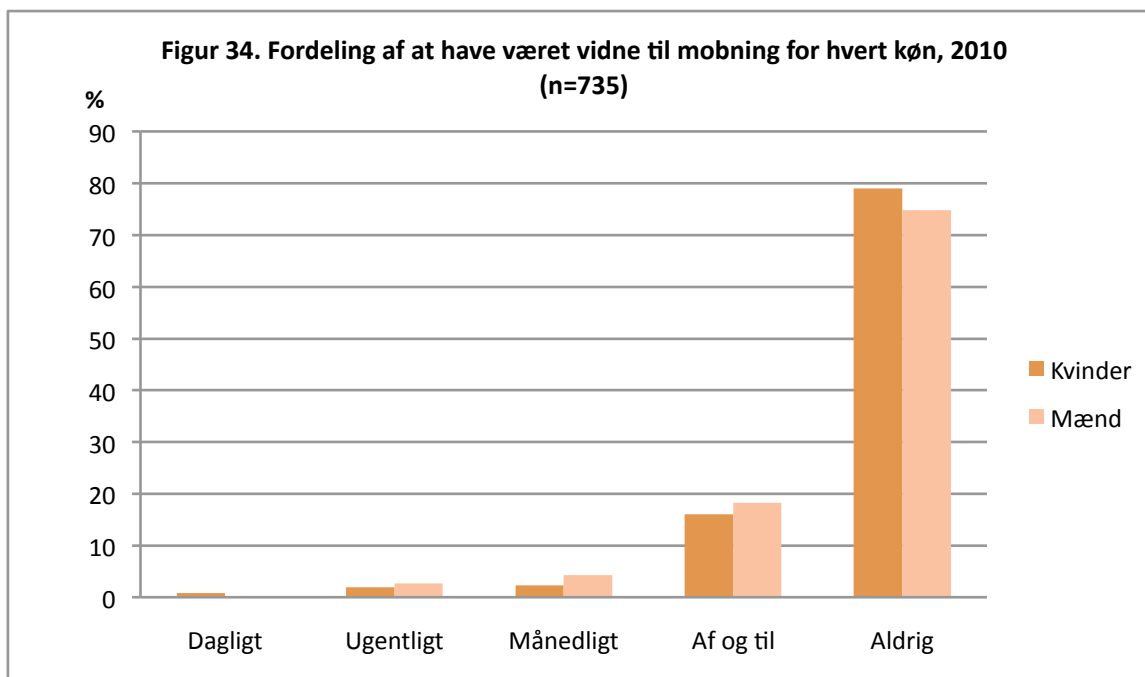


Mobning

Over 90 % af respondenterne angav, at de aldrig selv var blevet mobbet eller selv havde mobbet andre inden for de sidste seks måneder. Alligevel angav 23% af respondenterne, at de havde været vidne til mobning dagligt, ugentligt, månedligt eller af og til. Respondenterne angav, at den hyppigst forekomne form for mobning var at blive mindet om sine fejltagelser og ”bommerter” (25%). Den mindst forekomne form for mobning var at blive ignoreret, udelukket fra eller frosset ude af det sociale fællesskab (5%).

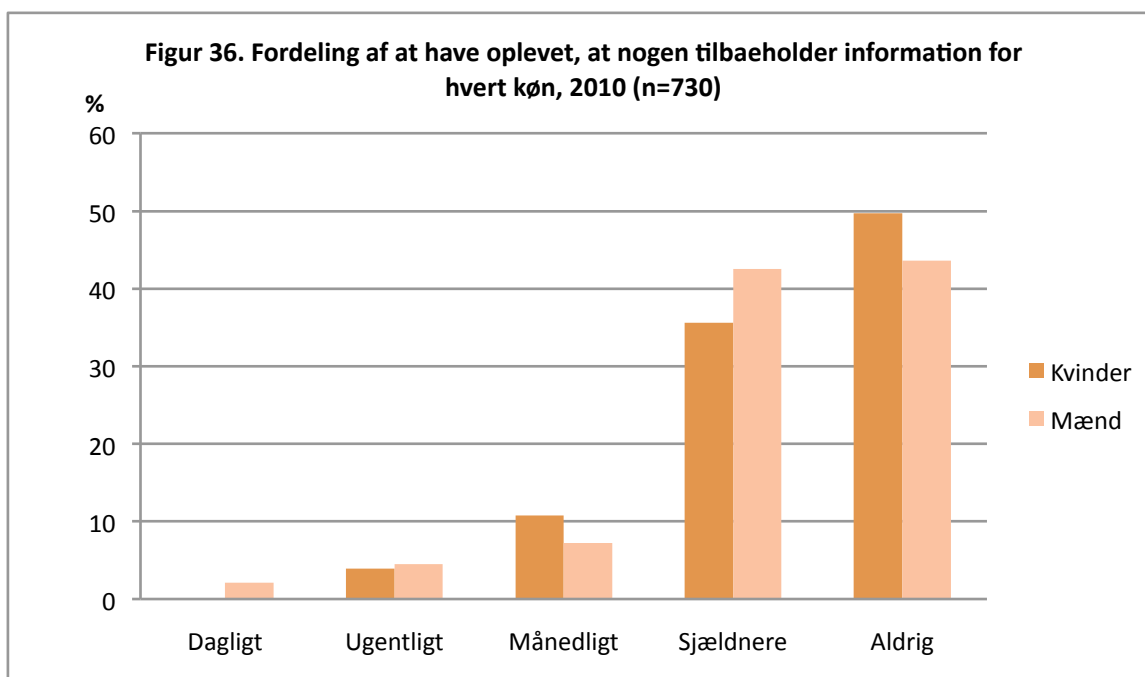
Under 2 % af respondenterne angav, at de inden for de sidste seks måneder dagligt havde været udsat for nogle former for mobning. Større andel af mændene end kvinderne angav, at de inden for de sidste seks måneder selv havde været udsat for mobning, havde været vidne til, at andre var blevet mobbet og en større andel af mændene havde også selv mobbet eller været med til at mobbe i forbindelse med arbejde. (Figur 33, 34 og 35). Mændene angav generelt i større grad end kvinderne, at have været udsat for former af mobning de sidste seks måneder - Undtagen at have været udsat for tilbageholdelse af information, som påvirkede arbejdsindsatsen.





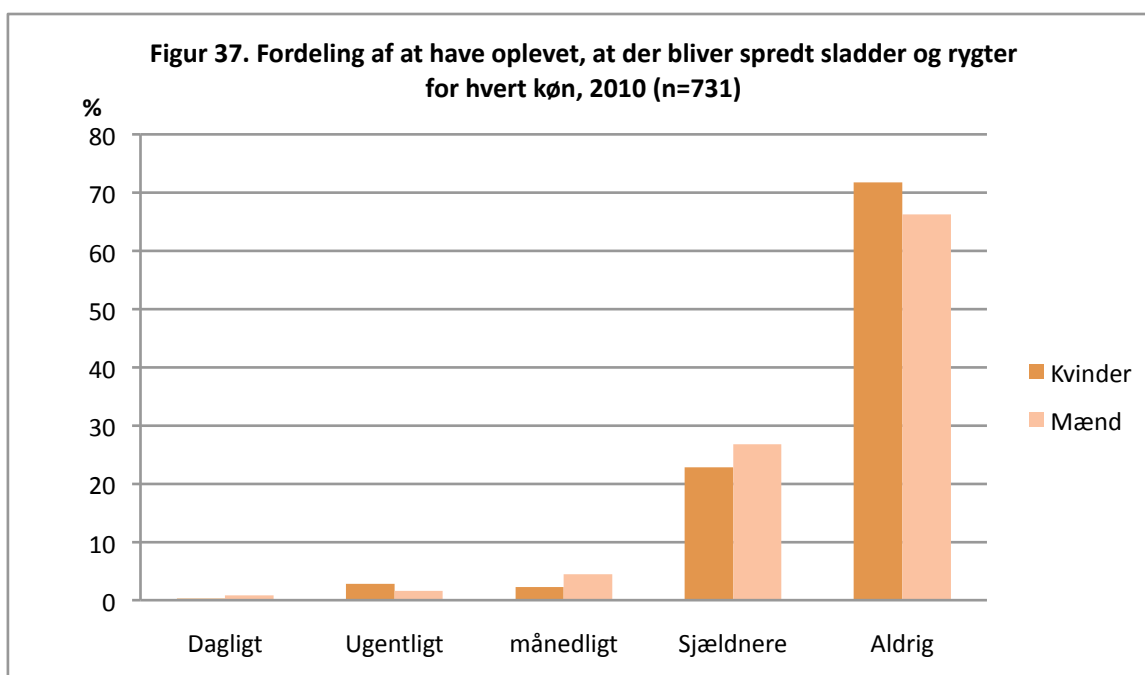
Tilbagehold af information, som påvirker arbejdsindsatsen

Under halvdelen af respondenterne (47 %) angav, at de inden for de sidste seks måneder aldrig havde oplevet, at nogen tilbageholdt information, som påvirkede deres arbejdsindsats. Som det kan ses i Figur 36 angav mændene (7%) i større grad end kvinderne (4 %) dagligt eller ugentligt at have været udsat for, at nogen tilbageholder informationer, der påvirker arbejdsindsatsen.



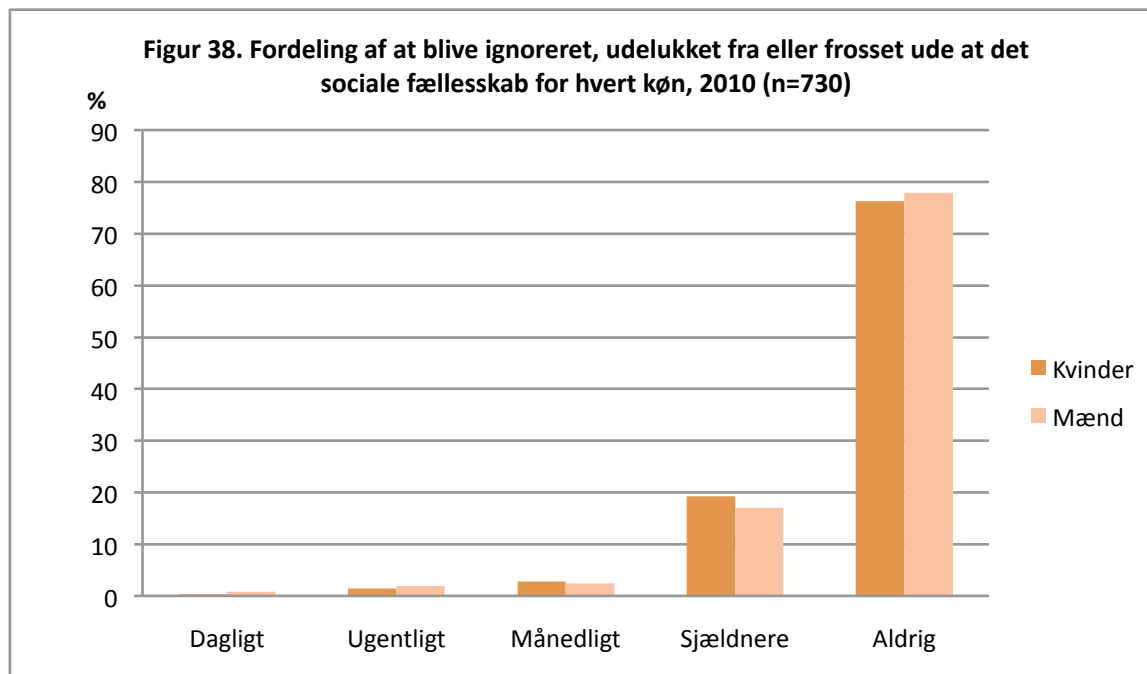
Bliver spredt sladder og rygter om dig de sidste seks måneder

69% af respondenterne angav, at de i de sidste seks måneder aldrig havde været udsat for, at der blev spredt sladder og rygter dem i forbindelse med arbejde. Som det vises i Figur 37, havde en større andel af mændene (7%) end kvinderne (5%) svaret, at de havde været udsat for denne form for mobning.



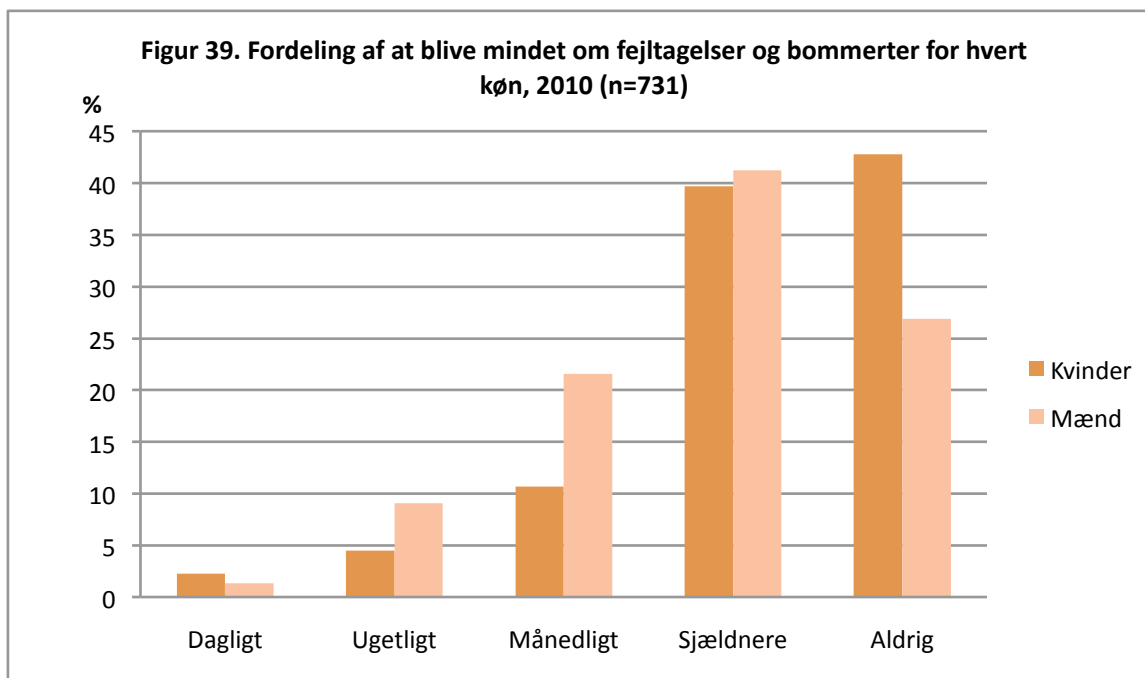
Blive ignoreret, udelukket fra eller frosset ude af det sociale fællesskab

77% af respondenterne angav, at de inden for de sidste seks måneder aldrig var blevet udsat for at blive ignoreret, udelukket fra eller frosset ude af det sociale fællesskab i forbindelse med arbejde. Som det ses i Figur 38 havde omkring 5 % af både kvinderne og mændene angivet, at de inden for de sidste seks måneder dagligt, ugentligt eller månedligt havde oplevet at blive ignoreret, udelukket fra eller frosset ude af det sociale fællesskab.



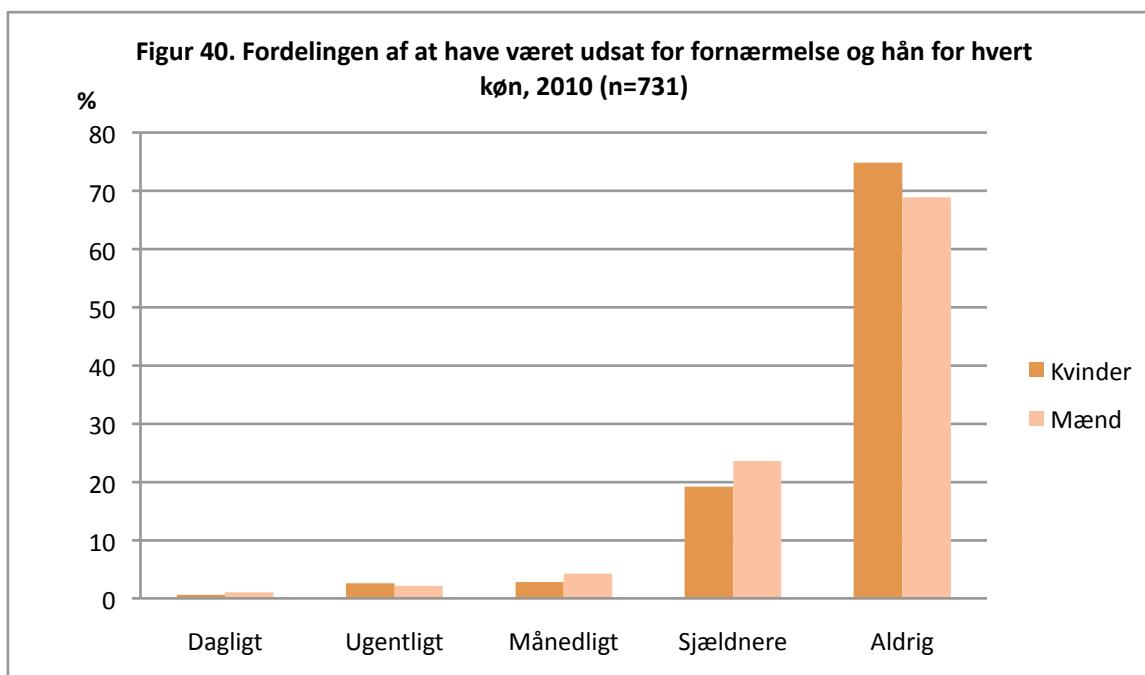
Blive mindet om fejltagelser eller "bommerter"

25% af respondenterne svarede, at de inden for de sidste seks måneder dagligt, ugentligt eller månedligt var blevet udsat for at blive mindet om fejltagelser eller "bommerter" i forbindelse med arbejde. Som det vises i Figur 39, var der en større andel af kvinderne (2%) end mændene (1%), der dagligt havde været udsat for at blive mindet om dine fejltagelser eller "bommerter". Der var til gengæld en dobbelt så stor andel af mændene (31%) end af kvinderne (15%), der ugentligt eller månedligt havde været udsat for denne form for mobning inden for de sidste seks måneder. 43% af kvinderne svarede, at de aldrig havde været ude for at blive mindet om dine fejltagelser eller "bommerter" mod mændenes 27%.



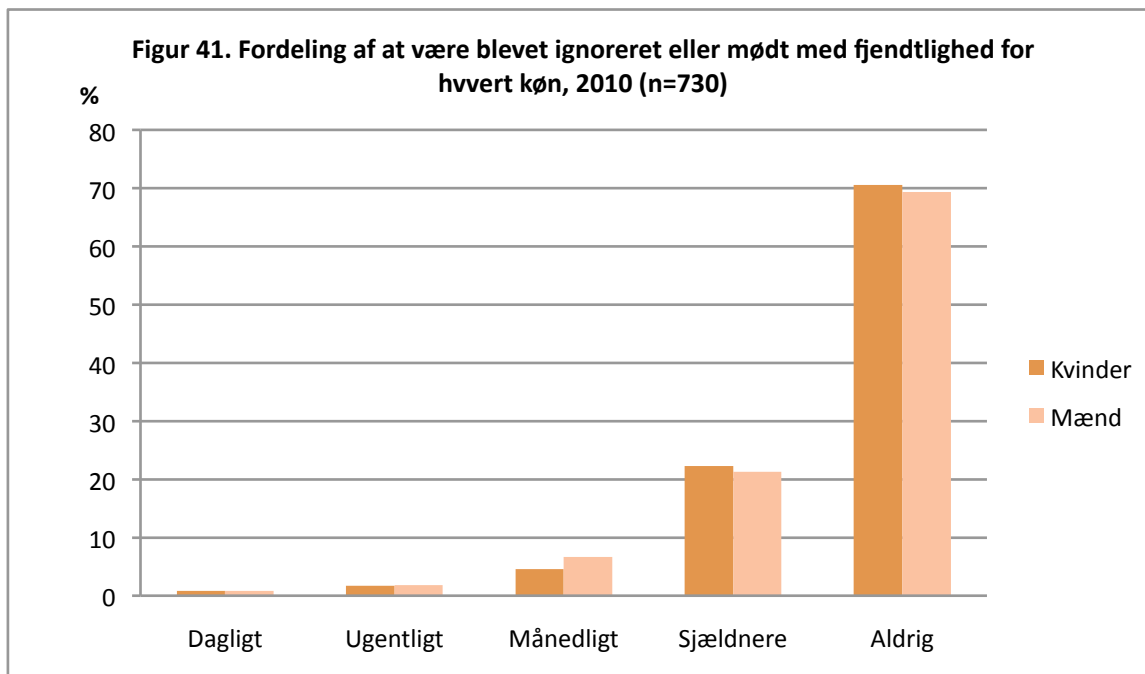
Fornærmelse og hån

72% af respondenterne angav, at de aldrig havde været udsat for at nogen havde fornærmet eller hånet dem som person, deres holdninger eller deres privatliv de sidste seks måneder. Figur 40 viser Større andel af mændene (7%) end kvinderne (6%) havde oplevet denne form for mobning dagligt, ugentligt eller månedligt inden for de sidste seks måneder.



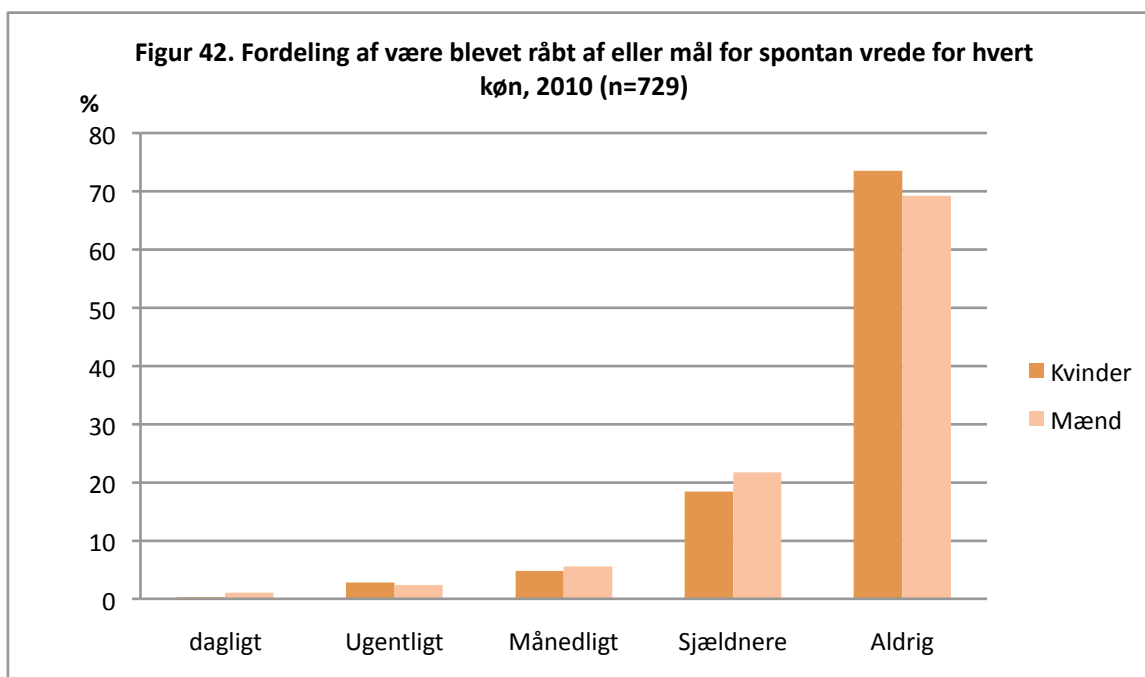
Ignoreret eller mødt med fjendtlighed ved henvendelse

70 % af respondenterne svarede, at de aldrig inden for de sidste seks måneder var blevet udsat for at de i forbindelse med arbejde var blevet ignoreret eller mødt med fjendtlighed ved henvendelse til andre. Som det kan ses i Figur 41 havde en større andel af mændene (7%) end kvinderne (5%) angivet månedligt at opleve denne form for mobning.



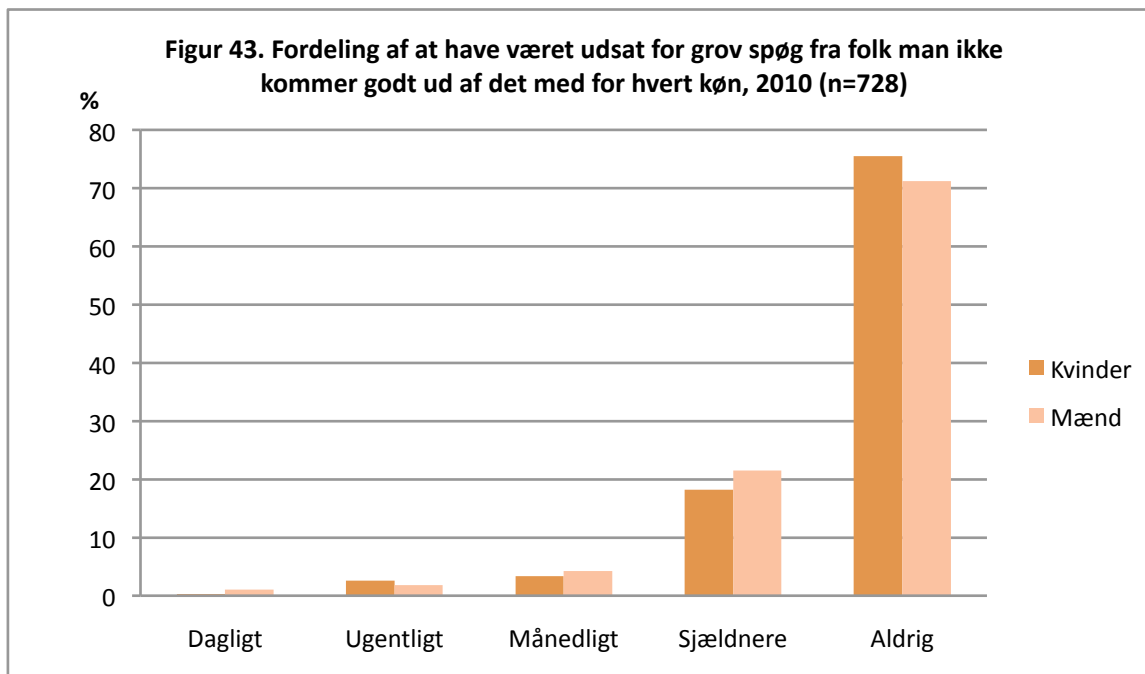
Råbt af eller mål for spontan vrede (raserianfald)

71% af respondenterne angav, at de aldrig i løbet af de sidste seks måneder havde oplevet at blive råbt af eller at være mål for spontan vrede i forbindelse med arbejde. Som det vises i Figur 42, så var andelen af mænd, der havde angivet at have oplevet denne form for mobning lidt større end andelen af kvinder.



Grov spøg

73 % af respondenterne svarede, at de aldrig inden for de sidste seks måneder havde været ude for grov spøg fra folk, som de ikke kom godt ud af det med. Som det vises i Figur 43, så angav omkring 7 % af både mændene og kvinderne, at de dagligt, ugentligt eller månedligt havde oplevet denne form for bobning inden for de sidste seks måneder.



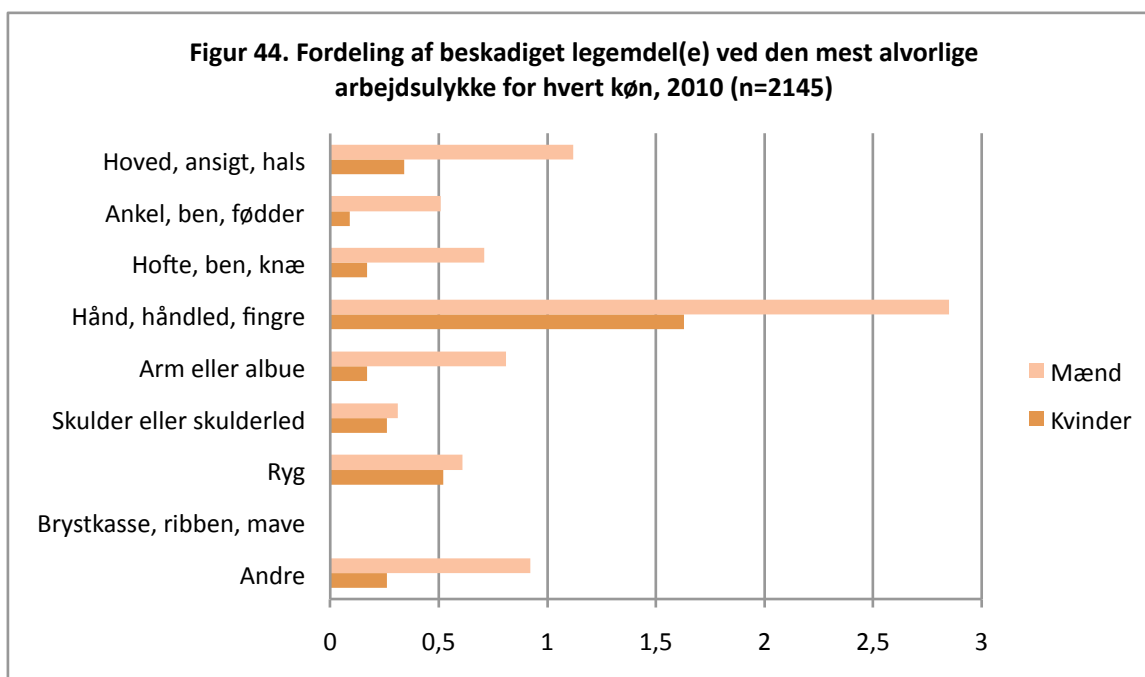
Arbejdsulykker

8% (n=102) af de respondenter, der var tilknyttet arbejdsmarkedet angav inden for de sidste 12 måneder at have været udsat for en arbejdsulykke, der medførte lægekontakt. 5% (n=33) af kvinderne og 13% (n=69) af mændene.

Antallet af arbejdsulykker blandt de respondenter, der havde været udsat for arbejdsulykke(r) var fordelt således, at 77% (n=78) havde været udsat for en, 16% (n=16) havde været udsat for to og 7% (n=7) havde været udsat for 3 arbejdsulykker. Andelen af to og tre arbejdsulykker var større blandt mændene (26%) end blandt kvinderne (15%).

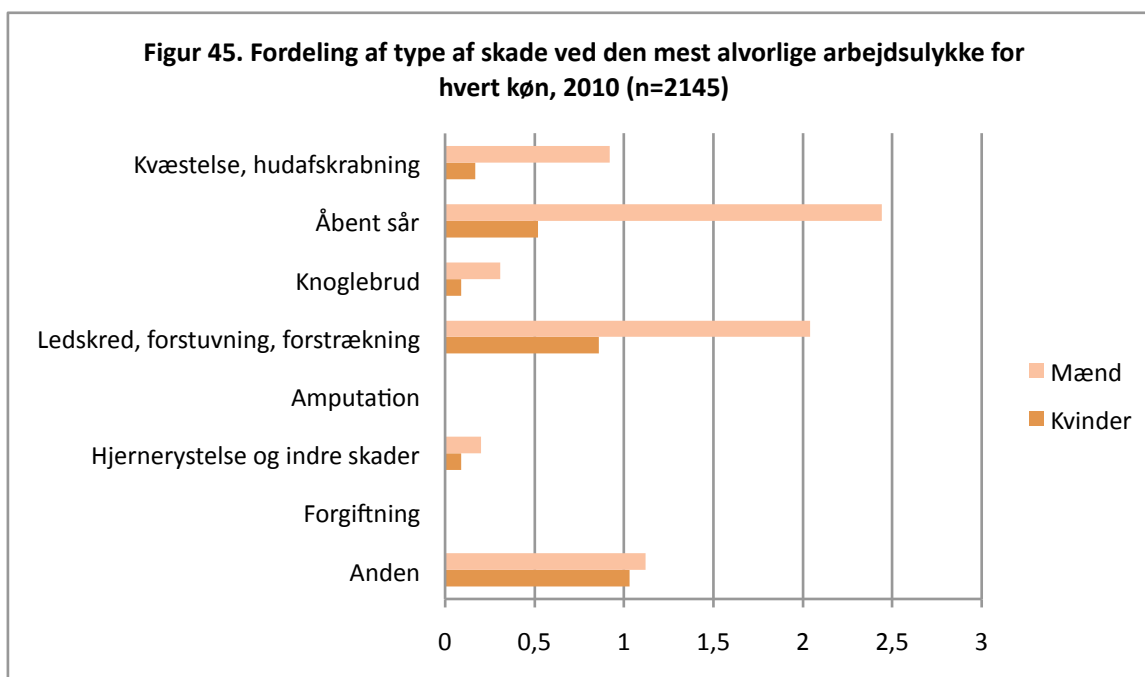
Beskadiget legemsdel/legemsdele ved den mest alvorlige arbejdsulykke

Den legemsdel, der hyppigst blev angivet som beskadiget ved den mest alvorlige arbejdsulykke var hånd, håndled, fingre for begge køn (n=47). Den næst hyppigst beskadiget legemsdel var ryg for kvinderne (n=6) og hoved, ansigt, hals for mændene (n=11) (Figur 44)



Type af skade

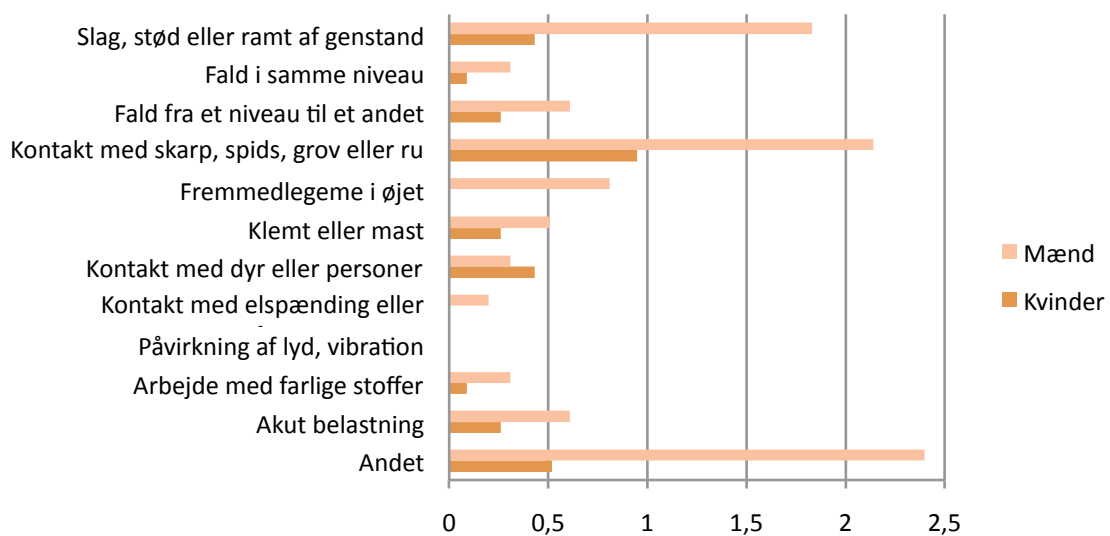
Den hyppigst forekomne type af skade, der skete i forbindelse med den mest alvorlige arbejdsulykke var åbent sår blandt mændene (n=24) og ledskred, forstuvning, forstrækning blandt kvinderne (n=10) (Figur 45)



Hændelse, der førte til ulykken

Den hyppigst angivne hændelse, som førte til den mest alvorlige arbejdsulykke var kontakt med skarp, spids, grov eller ru genstand for begge køn (n=32). Den næsthøypigste hændelse var slag, stød eller ramt af genstand (n=23) (Figur 46).

Figur 46. Fordeling af type hændelse, der førte til den mest alvorlige arbejdsulykke for hvert køn, 2010 (n=2145)



Bilag 2

Reprints af projektets publicerede videnskabelige artikler

Rasmussen K, Hansen CD, Nielsen KJ, Andersen JH. **Incidence of work injuries amongst Danish adolescents and their association with work environment factors.** Am J Ind Med 2011; 54(2):143-52.

Winding TN, Nohr EA, Labriola M, Biering K, Andersen JH. **Personal predictors of educational attainment after compulsory school: influence of measures of vulnerability, health, and school performance.** Scand J Public Health. 2013; 41(1):92-101.

Grytnes R. **Making the Right Choice! Inquiries into the Reasoning Behind Young People's Decisions about Education.** Young 2011; 19: 333-351

Lund T, Andersen JH, Nøhr Winding T, Biering K, Labriola M. **Negative life events in childhood as risk indicators of labour market participation in young adulthood. A prospective birth cohort study.** PLoS ONE 2013; 8(9): e75860. doi:10.1371/journal.pone.0075860

Glasscock DJ, Andersen JH, Labriola M, Rasmussen K, Hansen CD. **Can Negative Life Events and Coping Style Help Explain Socioeconomic Differences in Perceived Stress Among Adolescents?** A cross-sectional study based on the West Jutland Cohort Study. BMC Public Health. 2013 Jun 2;13(1):532.

Andersen JH, Labriola M, Lund T, Hansen CD. **Development of health and depressive symptoms among Danish adolescents—Socioeconomic differences and effects of life-style.** Open Journal of Preventive Medicine 2013;3(1):104-10.

Incidence of Work Injuries Amongst Danish Adolescents and Their Association With Work Environment Factors

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and Johan H. Andersen, MD, PhD¹

Background *The objective was to examine the incidence of work accidents that required medical attention among Danish adolescents and to identify possible work environment factors associated with such accidents.*

Methods *We collected information in two questionnaire rounds (2004 and 2007) from a birth cohort comprising all adolescents born in 1989 ($n = 3,687$) living in Ringkjøbing County, Denmark. The questionnaire contained items on self-reported number of accidents and number of working hours in both rounds and on work environment factors in the second round.*

Results *Approximately 5% of the adolescents who held a job, experienced a work injury at the age of 17. This equals an incidence of 65 accidents per million working hours. Most adolescents had decent working conditions, although nearly half reported that their work was heavy, monotonous or psychologically demanding. Heavy work, high psychological demands and low social support increased the risk of experiencing work injuries after adjustment for a number of factors.*

Conclusions *The incidence of work injuries among adolescents appears to be higher than the incidence among their older colleagues. Lack of social support from management significantly raised adolescents' risk of experiencing a work injury. This suggests that more direct supervision may be a good way of preventing accidents in this age group.* Am. J. Ind. Med. 54:143–152, 2011. © 2010 Wiley-Liss, Inc.

KEY WORDS: *Denmark; adolescents; work accidents; injuries; work environment; lifestyle*

INTRODUCTION

In Denmark, the incidence of work accidents among employees aged 18–24 years is higher than that of the rest of the work force and it has risen by 20% over the past 6 years

(2003–2008) [The Danish Work Environment Authority, 2009]. It is assumed that the national notification system does not give reliable figures for those under 18 years of age because of underreporting related to the specific type of labor market participation of young employees (part time jobs, frequent job changes, etc.). Data from emergency departments, which provide more reliable figures, show approximately 23 incidents demanding hospital treatment per 1,000 persons in the 15 to 19-year age group and approximately 14 for those aged 45–64 years, that is, a more than 50% risk level difference [National Institute of Public Health, 2009]. Unadjusted for working hours, these figures do not take into account the fact that adolescents are generally employed in part-time jobs in their spare time and therefore work fewer hours than the 45–64-year-old employees, who mostly work

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full time. Thus, taking into account the actual working hours of adolescents might substantially increase the relative risk of work injuries for this age group compared to other age groups. The Danish national rates of reported injuries show a 20% higher occurrence of injuries among those aged 18–24 years—even though the rate of underreporting is estimated to be approx. 70% [The Danish Working Environment Authority, 2008]. Underreporting is rooted partly in the reporting procedure, which stipulates that the employer must report accidents to the Danish Working Environment Authority if the employee becomes unfit for work for 1 day or more after the day of the accident. However, as many adolescents work only part-time and are not necessarily at work every day, they may not be absent from work even if they suffered an accident that would have been notified if they had been adults, simply because they were not scheduled to be at work. This causes systematic underreporting of accidents among adolescents and other part-time employees. We thus lack precise estimates of the real incidence of work-related accidents among adolescents. This is essentially no different than in the rest of the world. Moreover, the lack of a common definition of work accidents makes it even more difficult to obtain precise, comparable estimates of the prevalence of this problem in general, and among adolescents in particular [Runyan and Zakocs, 2000].

The body of literature on adolescent work injuries is substantial. The studies fall into three broad categories: studies based on emergency department data, studies based on worker compensation registers, and finally, self-report surveys. While the first two types of studies are often representative, they rarely contain information about those work-related factors that might cause accidents. Studies using self-reported data are often based on small, non-representative samples, which makes the question of generalization problematic. Overall, most of these studies have been descriptive analyses of, for example, injury occurrence by type of injury, occupational branch, gender, education and training, etc. [for a review of the American literature, see Runyan and Zakocs, 2000]. Only a few of these studies have had an analytic approach, aiming, for instance, to find predictors of work injuries among adolescents, and even fewer have examined this question using a multivariate approach. The primary risk factors for work accidents among adolescents identified in existing studies include physical hazards, excessive workloads, perceived work-pace pressure, personality factors, poor physical health, and substance use [Stueland et al., 1996; Frone, 1998; Evensen et al., 2000; Shipp et al., 2005]. Rather than using a multivariate approach, most of these studies have examined the association between a few of these factors and work accidents. The only exception is Frone [1998] who found that job tenure, exposure to physical hazards, excessive workload and job boredom all contributed to a higher risk of suffering work accidents, even when adjusting the results for the other

work characteristics as well as gender, personality factors, health, and substance use. However, their sample was non-representative and we therefore do not know whether this result can be generalized to adolescents elsewhere.

The majority of the previously conducted studies were localized to an American or Canadian setting. While general predictors of work accidents among adolescents will likely not vary substantially between countries, there will be differences in the prevalence of the factors producing work accidents for this age group as adolescent job types vary between countries. Evidence on work accidents among adolescents from a non-North American context are also interesting because it provides insight into potential differences in the nature and incidence of work accidents rooted in legislative differences and in the nature and kinds of jobs that this group may hold.

The aims of this paper are (1) to estimate the incidence of work accidents among Danish adolescents, and (2) to establish which work environment factors are most closely associated with work accidents that demand medical attention among adolescents. We used multivariate statistics including a broad variety of both work environment as well as lifestyle factors. This study allows us to better understand the relative contribution of each of these factors to the risk of experiencing a work accident.

MATERIALS AND METHODS

Data

The data were taken from the first and second round of VestLiv—the West Jutland Cohort Study, a static birth cohort study of all individuals born in 1989 living in the county of Ringkjøbing, Denmark in early April 2004. The questionnaires were for the most part (65%) handed out to the participants while they were attending school in May 2004. Questionnaires were mailed to those who were not present (or who were attending schools that declined the invitation to participate). A second round was conducted in the autumn of 2007 and data were collected using a combination of internet and postal questionnaires. All participants were asked to give informed consent before answering the questionnaire.

The cohort comprised 3,687 individuals of whom 3,057 answered the first-round questionnaire (response rate 83%). Everyone who had not opted out of the study ($n = 3,293$) was sent the second-round questionnaire of whom 2,328 answered (response rate 71%); 2,181 individuals participated in both rounds (59% of the original cohort).

Using information from the Central Office of Civil Registration (CPR) in which the respondents are linked to their legal parents or guardians via a personal identification number given to everyone in Denmark at birth (or upon entry for immigrants), the questionnaire data were linked to information from official registers held at Statistics Den-

mark. Using register-based information, an analysis of the non-responders showed that on average they had poorer and less educated parents and that they were more often foreigners. The study as well as the linking of information using CPR was approved by the Danish Data Protection Agency (Study No. 2009-41-3761).

Outcome

Two questions were used as the outcome measures. First, respondents were asked how many accidents they had experienced during the past 12 months that had required medical attendance. The response categories included: “none,” “one,” “two,” “more than two.” Second, those reporting a minimum of one accident were asked to specify in which category the most serious of these accidents fell. The response categories were: “traffic accident,” “sports accident,” “work accident,” “accident at educational institution,” “accident at home,” and “other.” Both questions were asked in round 1 as well as in round 2. For use in this paper, we created two dichotomous variables to establish whether the respondent had reported a work accident as the most serious of the accidents he/she had experienced in either round.

Independent Variables

Working hours

We estimated the incidence of work accidents per million working hours by extracting information from the questionnaire on the number of self-reported working hours for the participants in round 1 as well as in round 2. All subsequent analyses were adjusted for the number of working hours to reflect the actual time each participant spent at risk of experiencing a work accident. Participants who did not hold a job were excluded from the multivariate analyses ($n = 518$).

Work environment

Physical work environment: monotonous repetitive work and heavy lifting was measured using two single items from the Dutch Musculoskeletal Questionnaire (DMQ) [Hildebrandt et al., 2001]. The nine questions measuring different aspects of the participant’s psychosocial work environment have all been used in other Danish studies [Andersen et al., 2007]. Appendix 1 shows the full wording and response categories of these variables.

Lifestyle factors

Lifestyle was measured using three questions: one indicating whether the participant smoked daily, one measuring

overall alcohol consumption over the past 30 days, and one indicating whether the participant had consumed a minimum of five units of alcohol in a row over the past 30 days. The full wording is shown in appendix 1.

Statistical analysis

Multiple logistic regression models were used to study the association between work accidents and work environment. Three models were tested: we calculated the association between each of the independent variables and work accidents adjusted for number of working hours only (Model 1). After this procedure, several independent variables were removed because they were not significantly associated with the outcome ($P > 0.20$). The following variables were removed: binge drinking, monotonous work tasks, and working climate. We then applied a new model in which all the remaining variables were mutually adjusted for each other and for number of working hours (Model 2). Finally, we used a model in which stepwise backwards selection was used to reduce the number of independent variables (Model 3). The aim of this approach was to obtain an appropriate number of independent variables per outcome. The final model contains six independent variables, which are within the bounds of the 5–10 cases with events per independent variable often stated as the ideal in the literature [Bagley et al., 2001]. The Hosmer–Lemeshow Goodness-of-fit was used to evaluate the quality of the models [Hosmer et al., 1997]. The inclusion of working hours reduced the fit of the model. However, removing working hours from the analyses produced significant differences in some of the estimates, for example, job type, and it was therefore decided to keep working hours in the model. We tested for interaction effects between all independent variables selected for the final model (i.e., 20 interaction effects). Among the interaction terms between the final six independent variables, one came out as statistically significant (psychological demands \times social support from management), but inclusion of the interaction term into the model yielded an inferior Goodness-of-fit and the result of the interaction term was non-interpretable. We interpret the significant interaction term as a consequence of random type 1 error. All regression models were conducted using only respondents with no missing data. All in all, the sample used for the multivariate analyses consisted of 1,610 respondents; participants with missing data on any of the variables were excluded ($n = 211$). The analyses were performed using STATA 11.

RESULTS

Table I shows the result for the study sample obtained in round 2. Most adolescents (60%) worked in their spare time only, but a large proportion of apprentices and a minority (6%) had ordinary jobs as their main activity. More than 85%

TABLE I. Description of Study Population in Round 2

	N	%
Job type ^a		
No job	520/1,821	22.1
Spare time jobs (held while studying/having an apprenticeship)	1,388/941	59.6
Working as an apprentice	420/1,980	17.5
In ordinary jobs (as opposed to studying/having an apprenticeship)	134/2,187	5.8
Gender		
Girls	1,265/2,328	54.3
Lifestyle		
Consumed alcohol > 10 days during the past month (alcohol consumption)	208/2,120	8.9
Intoxicated once or more during the past month (binge drinking)	945/1,369	40.8
Smokes daily	355/1,973	15.2
Work environment (% of those in job n = 1,823) ^b		
Heavy lifting	703/987	41.6
Monotonous work tasks	813/871	48.2
High psychological demands	819/866	48.6
No social support from colleagues	133/1,547	7.9
No social support from management	250/1,430	14.9
Bad working climate	73/1,600	4.4
Low degree of influence on work tasks	557/1,137	32.9
Bullied at least once during past year	144/1,535	8.6
Time pressure	132/1,553	7.8
Dissatisfied with work	270/1,426	15.9

Proportion of participants with different work environment factors and lifestyle factors (N = 2,328).

^aThe job types do not sum to 100% because it was possible for the adolescents to indicate that they held a spare time job besides having an apprenticeship.

^bN for each variable differs between the individual variables due to missing data.

of the working adolescents were satisfied with their work, even if a large proportion (>40%) reported heavy lifting, monotonous work tasks, or psychologically demanding work tasks. The psychosocial work environment was reported by most to be partly healthy: <5% reported a poor working climate and 9% reported having been “bullied in an unpleasant way” at least once during the past year. However, a small group (15%) indicated that they received insufficient social support from their management when they were experiencing work-related problems. In addition, 8% did not receive sufficient social support from their colleagues.

Table II contains an estimate of the incidence of work accidents based on the number of weekly hours worked as reported by the participants. The proportion of working adolescents rose from 66% at the age of 14 to 78% at the age of 17. The number of working hours per week more than doubled from 7.5 at the age of 14 to 16 hr per week at the age of 17. This entailed an increase in the proportion of working adolescents having experienced a work accident during the past 12 months from 2.8% to 4.7% from the age of 14 to the age of 17 years. However, taking into account the increase in average working hours, the incidence of work accidents decreased from 89 per million working hours at the age of

14–65 at the age of 17 years. Converted into accidents per 100 full-time equivalent workers, this equals: 4.6 accidents at the age of 14 and 3.4 at the age of 17. The most prevalent injuries were contusions, cutting on sharp edges, and strains and sprains (results not shown).

Table III shows the association between the different lifestyle and work environment factors and work accidents. Teenage boys had a larger risk of experiencing a work accident compared to their female peers. The association weakened when adjustment was made for lifestyle and work environment factors, and it disappeared entirely in the stepwise selection procedure used for Model 3. This suggests that the increased risk for boys is caused by a selection into job types where they are more prone to experience accidents.

An association between drinking and work accidents was demonstrated only in the bivariate analysis; however, adolescents smoking on a daily basis were twice as likely to experience a work accident as those who did not smoke or only smoked irregularly.

Being an apprentice increased the risk of experiencing a work accident fivefold and this association persisted even after adjusting for all the other work environment factors. For that very reason, this group is of special interest as a target for

TABLE II. Prevalence and Incidence of Work Accidents Among Danish Working Adolescents Aged 14 and 17 Years

	2004 (14/15 years)	2007 (17/18 years)
Participants	3,057	2,328
Proportion of working adolescents	66.0%	77.9%
Average hours worked per week	7.54	16
Number of work accidents past year	57	86
Prevalence of working adolescents with a minimum of one work accident	2.8%	4.7%
Incidence per 1 million work hours	89	65
Incidence per 100 full-time equivalent worker	4.6	3.4

preventive action because their increased risk compared with other adolescents cannot be explained by the few available work environment indicators included in the present study (i.e., a more hazardous work environment).

Heavy lifting, a psychologically demanding job as well as low social support from management were all associated with an increased risk of experiencing work accidents even when adjusting for all other factors.

A low degree of influence on work tasks, social support from colleagues, time pressure, bullying and dissatisfaction with work all indicated a raised risk of experiencing a work accident, but the association was substantially weakened when adjusting for the other factors.

DISCUSSION

Incidence of Work Accidents Among Adolescents and Young Adults

In this study, the incidence of work accidents was nearly twice as high among adolescents as among the adult Danish work force in terms of incidents per million working hours. This incidence measure should give a rather precise estimate of the incidence because it takes time at risk into account, which is missing when comparing accidents rates on the basis of, for example, number of treatments at emergency departments per 1,000 persons in a selected age group. The number of work accidents in the present study was 89 per million working hours at the age of 14/15 and 65 per million working hours at the age of 17/18.

The multitude of definitions of accidents used in previous studies represents one of several barriers to proper understanding of work accidents among adolescents and to comparison of existing studies. In the present study, we defined an accident as an incident that demanded medical attention. This definition of accidents is more precise than for example absence from work which, when used as a definition, may involve serious underreporting. However, a definition that rests on the criterion of medical attention is

also biased by the availability of medical attention and by personal preferences and thresholds for seeking medical attention. This is, of course, mainly relevant in minor injuries.

Comparison of the figures presented in this study with figures from the national rates of lost time injuries (LTI = at least 1 day off work) gives a difference of 70–230%. The number of work accidents per 100 full-time equivalent workers was 4.6 at the age of 14/15 in this cohort, and 3.4 at the age of 17/18. This figure should be compared with national figures, which show 2.0 accidents for the 18–24-year-olds and 1.2–1.9 for the rest of the workforce (i.e., 25–64-year-olds), depending on age group [The Danish Work Environment Authority, 2009]. The authorities consider that figures from adolescents up to age 18 are non-reliable, presumably due to substantial underreporting. However, the definition of work accidents used in the national system may result in systematic underestimation of the extent of accidents among adolescents and young adults because of their non-standardized participation in the labor market (e.g., by working part-time, on short term contracts, etc.). In other words, this comparison may be imprecise due to the difference in the definition of accidents.

Bearing in mind these differences, it is difficult to compare the results of the present study with existing studies from other countries. However, in their review of the American literature on adolescent work injuries, Runyan and Zakocs [2000] found somewhat higher incidences of work accidents among adolescents than was the case in the present study. Studies based on representative data from emergency departments indicate an incidence of work accidents between 4.7 and 7.0 per 100 full-time equivalent workers depending on the nature of the occupation held [Layne et al., 1994].

The study that resembles the present most is Zierold et al. [2004], which included high school students aged 10–14 years. Among the total study population of 5,464, 2.7% experienced an injury defined as incidents affecting their activities at home, work, or school for at least 3 days. The corresponding injury rate for 15-year-olds in our sample was 2.8%.

TABLE III. Associations Between Work Accidents, Lifestyle, and Work Environment Factors

		Model 1 (Adjusted for working hours only) ^a	Model 2 (Adjusted for working hours and all other variables) (N = 1,610)	Model 3 (Stepwise backwards selection) ^b (N = 1,610)
Gender				
Girls	Ref	1.00	1.00	Removed
Boys		2.10 (1.30–3.39)	1.58 (0.83–3.02)	
Lifestyle factors				
Alcohol consumption				
Consumed alcohol <10 days past month	Ref	1.00	1.00	Removed
Consumed alcohol >10 days past month		1.93 (1.06–3.51)	1.17 (0.56–2.45)	
Smoking				
Does not smoke/smokes occasionally	Ref	1.00	1.00	1.00
Smokes daily		2.70 (1.66–4.38)	2.13 (1.17–3.88)	2.23 (1.25–3.96)
Work environment factors				
Heavy lifting				
No heavy lifting	Ref	1.00	1.00	1.00
Heavy lifting		3.15 (1.75–5.67)	2.13 (1.10–4.11)	2.31 (1.22–4.39)
Psychological demands				
Low psychological demands	Ref	1.00	1.00	1.00
High psychological demands		2.39 (1.31–4.37)	2.42 (1.25–4.68)	2.36 (1.23–4.54)
Social support from management				
Social support from management	Ref	1.00	1.00	1.00
No social support from management		2.10 (1.17–3.75)	1.99 (0.90–4.37)	2.21 (1.16–4.19)
Social support from colleagues				
Social support from colleagues	Ref	1.00	1.00	Removed
No social support from colleagues		1.97 (0.94–4.15)	0.95 (0.37–2.45)	
Decision latitude				
High degree of influence on work tasks	Ref	1.00	1.00	1.00
Low degree of influence on work tasks		1.63 (0.98–2.73)	1.62 (0.90–2.94)	1.72 (0.97–3.03)
Time pressure				
No time pressure	Ref	1.00	1.00	Removed
Time pressure		1.84 (0.94–4.17)	1.10 (0.46–2.65)	
Work satisfaction				
Satisfied with work	Ref	1.00	1.00	Removed
Dissatisfied with work		1.62 (0.88–3.01)	1.27 (0.57–2.82)	
Bullying				
Not bullied	Ref	1.00	1.00	Removed
Bullied at least once during past year		1.94 (0.99–3.80)	1.16 (0.55–2.43)	
Job type				
Spare time job	Ref	1.00	1.00	1.00
Apprentice		7.77 (3.37–17.92)	4.57 (1.88–11.09)	5.36 (2.28–12.62)
Ordinary full-time job		3.71 (1.35–10.23)	2.27 (0.77–6.71)	2.35 (0.81–6.87)
Hosmer–Lemeshow Goodness-of-fit			Chi-square 1.01 ($P = 0.06$)	Chi-square 560.61 ($P = 0.215$)
Nagelkerke Pseudo R ^b			0.171	0.165

Logistic regression (95% confidence intervals).

^aN varies for each independent variable due to missing data.^bNumber of work hours was kept in the model despite being removed due to a non-significant association with work accidents. This was done in order to take into account the number of hours participants were at risk of experiencing a work accident.

In another, currently unpublished study from our group, we found that during a 4-month period 75–80% of apprentices in the building industry experienced an injury, defined as a work incidence creating a need to interrupt work for a while. If this result is extrapolated to the 300 apprentices of the present study's round 2, where participants were 17 years old, we would see 240 accidents according to this definition—so at least for this group of apprentices, we probably only registered the tip of the iceberg. Driscoll and Hanson [1997] also studied apprentices, and with a definition of injury severity resembling ours, they found that apprentices at the construction and engineering schools had odds ratios (ORs) ranging from 5 to 7 compared with a reference group of apprentices at the Arts and Design School at the same educational institution.

Most reviews of the literature find that age is negatively associated with injury occurrence. In the most recent review of the literature, Salminen [2004] found that the majority of studies reported higher injury risks among young workers than among older workers although the risk of fatal injuries was lower among the former. This is consistent with an analysis based on 900,000 national Canadian compensation cases by Breslin et al. [2003]. This study demonstrated the highest injury rate for 20 to 24-year-old young adults and the second highest rate among 15 to 19-year-old adolescents. The injuries, however, were more severe among adults aged 25+ than among younger workers, and the former were more often permanently impaired by their injuries than the latter. In a review from 1995 on age differences in work injuries, Laflamme and Menckel [1995] concluded that the direction as well as the magnitude of the relation between aging and occupational accidents reported so far had been inconclusive. They suggested that this ambiguity be rooted in the fact that some types of accidents become less frequent with age because of increased experience with the work tasks generating accidents, while other accidents become more frequent with age because they are more difficult to carry out at older ages. This is consistent with a study by Breslin and Smith [2005] who found that age was not associated with work accidents when job and work place factors were taken into account.

Experience and work environment factors may partly explain the age differences in work accidents. Some researchers have speculated about a third explanation: Do young people have a lower threshold for consulting their doctor in the event of accidents than their adult colleagues? If so, this would lead to overestimation of the number of accidents in this age group compared with the adult population, especially when data are self-reported. This interpretation appears to be consistent with the finding that adolescents suffer more injuries than their older colleagues, even if they are less severe [Breslin et al., 2003]. This may be the case for those participants in our population who were

working, for example, in supermarkets and restaurants, even if we have no data supporting this.

The Association Between Work Environment Factors and Work Accidents Among Adolescents

We found that three work environment factors contributed independently to a higher risk of experiencing a work injury at the age of 17/18 when adjusting for other work-related factors, including working hours. Heavy lifting, psychological demands, and lack of support from management all doubled the risk of suffering a work accident.

On some points these findings converge with the very few multivariate studies so far conducted on this age group. Breslin and Smith [2005] found that physical exertion raised the risk and that this association accounted for some of the age differences in injury incidence. However, on a number of issues, our study differs from what has been observed in the literature so far. Some studies have found that work pace is a risk factor [Frone, 1998; Evensen et al., 2000], and while we observed a bivariate association between time pressure and work injuries, this association disappeared when other work environment factors were taken into account. Finally, in contrast to the associations reported by Frone [1998] who found that supervisor monitoring was not associated with injury occurrence, we observed a strong effect of lack of social support from management in our cohort. This confirms earlier hypotheses mentioned in Runyan and Zakoc's literature review [2000] and in a study of injured adolescents in which Knight et al. [1995] found that 25% of those injured had been alone at the time of their accident and that 80% had been without supervision. The inconsistencies between our study and Frone's might be related to differences in the selection of supervisor contact aspects between the two studies. The questions used in this study emphasize a situation in which the respondent needed support to conduct his or her work tasks adequately, whereas Frone tapped into a more general case of supervisor monitoring, which in some cases may be seen as intrusion instead of support from the point of view of the adolescents.

Interestingly, the bivariate analysis indicated an association between work injury and bullying, job influence and work satisfaction even if the associations were marginally insignificant. We interpret this as evidence that these working environment factors are, indeed, related to the occurrence of accidents although they are mediated through the effect of other working environment factors. Thus, for example bullying does not lead to accidents directly, but being bullied at the workplace implies that the subject is assigned to more dangerous work tasks, or perhaps it means that social support from colleagues and management is less available when needed. Psychosocial factors at the workplace are thus of

some importance to the prevention of work accidents among adolescents.

The association found between lack of management support and occurrence of accidents is hardly surprising given that management commitment is generally recognized as the single most important factor for companies' safety performance [Dedobbeleer and Beland, 1991; Simard and Marchand, 1995; O'dea and Flin, 2001; Zohar, 2000]. Furthermore, studies have shown that managerial practices related to building more supportive relationships between workers and managers have an effect on accident occurrence [Zohar, 2002; Barling et al., 2002].

Risks related to specific jobs in specific trades and the level of safety training, are, of course, essential [Sahl et al., 1997], especially in hazardous occupations like the building industry. We found a more than fourfold increased risk for the 17/18-year-old apprentices than for adolescents holding spare time jobs. This association persisted even after adjusting for differences in work environment and for working hours, which indicates that apprentices may be in special need of training and prevention efforts.

Smoking and Alcohol Consumption as Predictors of Work Injuries

We found that alcohol consumption was not associated with an increased risk of work accidents when adjusting for all other variables included in the study. This finding is consistent with Frone [1998] who found that both on-the-job and general substance use were associated with work accidents, but only the former association remained significant when adjusting for the other factors included in the study. Shipp et al. [2005] found that alcohol consumption and binge drinking were both significantly associated with work injuries. In Shipp's study, however, no adjustment was made for the importance of other factors that could explain the difference between her study and ours as well as Frone's.

In our study, smoking on a daily basis was also found to be associated with work accidents, even after adjusting for all other variables. We hypothesize that smoking as a risk marker serves as a proxy for a special group of adolescents who are particularly prone to risk-taking behavior that could result in work accidents.

Strengths and Limitations of the Study

This paper benefits from drawing on data from the West Jutland Cohort Study, a birth cohort which enjoys a high participation rate and a great variety of questions tapping into different areas of adolescent life which makes it possible to perform multivariate analyses of the risk of experiencing work injuries. This particular paper does not deploy a longitudinal design because no information about work environment factors was collected in the first round of questionnaires

at the age of 14/15. However, the development in the incidence of work accidents per million working hours compares the prevalence of accidents with the number of hours worked in the first and second round.

The study, however, also has some limitations. Accidents were relatively few in number, and this could invite type 2 errors, and associations could be overlooked. We used only self-reported accident data, which made it difficult to compare the results of this study with those of other studies on the subject of adolescent work accidents. Combined with the fact that the study mostly focuses on psychosocial factors of importance for social inequalities in health in a life-course perspective, we are unable to give details on injury description. In addition, the physical work environment factors were not covered in detail and there were no questions on exposure to chemical agents at all. Although, we feel confident that the study is representative of adolescents from the Western part of Denmark, we have to take into consideration the limitations in generalizing from this population to adolescents elsewhere. Basically, the working environment in supermarkets, restaurants, and many other sites where adolescents typically work in the Western world will look very much alike. Even for adolescents doing farm work and apprentices in the construction and metal industry, there will be many similarities. In other words, while the incidences presented in this study may differ quite substantially from what would be observed in other settings, for example, in the United States, due among others to differences in legislation, we have no reason to believe that the associations observed between work environment and lifestyle factors would be different in other contexts.

We therefore need to consider what can be done to reduce the high level of work accidents among young people. We found that lack of social support was a separate, important factor. This problem was rooted in attitudes and acts from management rather than from co-workers. As the majority of the working adolescents in this population (>93%) were still attending schools and institutions, these seem to be an obvious setting for educational measures targeted at work environment matters in general, while the undertaking of specific safety instruction and training should be the competence of the work site. From a Danish context, we know that the safety training offered to apprentices, for example, in the construction industry, is insufficient [Pedersen, 2004]. The results from this study should encourage more cohort studies of accidents among adolescents.

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Appendix 1: DETAILED DESCRIPTION OF MEASUREMENTS

The questionnaire included many questions on issues relating to working conditions and attitudes towards sickness absence and work. Unless otherwise noted, these variables were recoded into dichotomous variables for use in the analysis. The cut-off points were chosen from theoretical considerations so that in each case they reflected a problematic situation.

Psychosocial Work Environment

'High Psychological demands' of work were measured by the question 'How demanding do you feel your work is, all in all?' with the response categories ('extremely demanding', 'very demanding' = 1, 'quite demanding', 'fairly demanding', 'not very demanding', 'hardly demanding at all' = 0).

'No social support from colleagues' was measured by the question 'If you have problems with your work, can you obtain the necessary help and support from your colleagues?' with the response categories ('always', 'almost always', 'usually', 'often' = 0, 'now and again', 'rarely/never' = 1)

'No social support from management' was measured by the question 'If you have problems with your work, can you obtain the necessary help and support from your management?' with the response categories ('always', 'almost always', 'usually', 'often' = 0, 'now and again', 'rarely/never' = 1)

‘Bad working climate’ was measured using the item: ‘What is the atmosphere and psychological working climate like at your workplace?’ with the response categories (‘very good’, ‘rather good’, ‘reasonably good’ = 0, ‘not very good’, ‘rather bad’, ‘very bad’ = 1).

‘Low degree of influence on work tasks’ was measured by the question: ‘How much influence do you normally have on the organisation and execution of your work?’ with the response categories (‘a lot’, ‘quite a lot’, ‘moderate’ = 0, ‘not very much’, ‘rather little’, ‘very little’ = 1)

‘Time pressure’ was measured by the question: ‘Do you have sufficient time and resources to perform your tasks satisfactorily?’ with the response categories (‘to a very great extent’, ‘to a great extent’, ‘to some extent’ = 0, ‘to a lesser extent’, ‘to a very limited extent’, ‘hardly at all’ = 1).

‘Dissatisfied with work’ was measured by the question ‘How satisfied are you with your work, all in all?’ with the response categories ‘very satisfied’, ‘quite satisfied’, ‘satisfied’ = 0, ‘slightly dissatisfied’, ‘quite dissatisfied’, ‘very dissatisfied’ = 1).

‘Bullied at least once during past six months’ was measured by the question: ‘How often have you been bullied in a negative way at your work place during the past

six months?’ with the response categories (‘have not been bullied’ = 0, ‘once or twice’, ‘a couple of times’, ‘once a week’, ‘several times a week’ = 1).

Lifestyle Factors

‘Alcohol consumption’ was measured by the question ‘In the past 30 days, on how many days have you been drinking alcohol (at least one unit)?’ with the response categories (‘0 days’, ‘1-2 days’, ‘3-5 days’, ‘6-9 days’ = 0, ‘10-19 days’, ‘20-29 days’, ‘all 30 days’ = 1).

‘Binge drinking’ was measured by the question ‘In the past 30 days, on how many days have you been drinking at least 5 units of alcohol in a row, i.e. within a few hours?’ with the response categories (‘0 days’, ‘1 day’, ‘2 days’, ‘3-5 days’ = 0, ‘6-9 days’, ‘10-19 days’, ‘20 days or more’ = 1)

‘Smoking’ was measured by the question ‘Do you smoke?’ with the response categories (‘Yes, on a daily basis’, = 1, ‘Yes, not daily, but at least once a week’, ‘Yes, but more seldom than once a week’, ‘No, but I have smoked regularly at some point’, ‘No, I have never smoked regularly’ = 0)



ORIGINAL ARTICLE

Personal predictors of educational attainment after compulsory school: Influence of measures of vulnerability, health, and school performance

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Abstract

Aims: Getting a secondary education is essential in preventing future inequalities in health and socioeconomic status. We investigated to what degree personal predictors like low school performance, high vulnerability, and poor health status are associated with not completing a secondary education in a Danish youth cohort. **Methods:** This prospective study used data from a questionnaire in 2004 and register data in 2010. The study population consisted of 3053 adolescents born in 1989. Information on educational attainment from Statistics Denmark was divided into four categories: completed, still studying, dropped out, or never attained a secondary education. Data was analysed using multinomial logistic regression. **Results:** Low grades when completing compulsory school predicted not having completed a secondary education by age 20/21 (odds ratios (OR) between 1.7 and 2.5). Low sense of coherence in childhood was associated with dropping out from a vocational education (OR 2.0). Low general health status was associated with dropping out (OR 2.2) or never attaining a secondary education (OR 2.7) and overweight was associated with never attaining a secondary education (OR 3.5). **Conclusions:** The study confirms the social gradient in educational attainment. Furthermore, the results indicate that factors related to the individual in terms of low school performance, low health status, and high vulnerability predict future success in the educational system. It is recommended that these high-risk groups are recognised and targeted when designing guidance and supervision programmes for youth at secondary education.

Key Words: educational attainment, health, school performance, vulnerability, young people

Background

Social inequality in health and the strong linkage between decreasing educational level and poor health has been the subject of a number of studies [1–3]. Data suggests that this undesirable inequality in health is established already in childhood and adolescence [3–5]. The path through the educational system is a key issue for understanding how childhood conditions can lead to future inequalities in health [6]. It has particular relevance for youth, since young people may still have the potential for avoiding negative consequences of low educational attainment for poor health and low socioeconomic status later in life. In an international perspective, education improves

job prospects in general and the likelihood of remaining employed in times of economic hardship [7].

The literature indicates that young people's attainment of education is affected by different factors. The most frequently examined factor is socioeconomic status measured as parental education, income, and growing up in single-parent families, which all have been shown to be related to educational attainment [8–10]. Additionally, school performance and health problems during childhood and adolescence are associated with educational attainment [10,11]. Some health measures, such as depressive symptoms and poor general health, seem to have a negative influence

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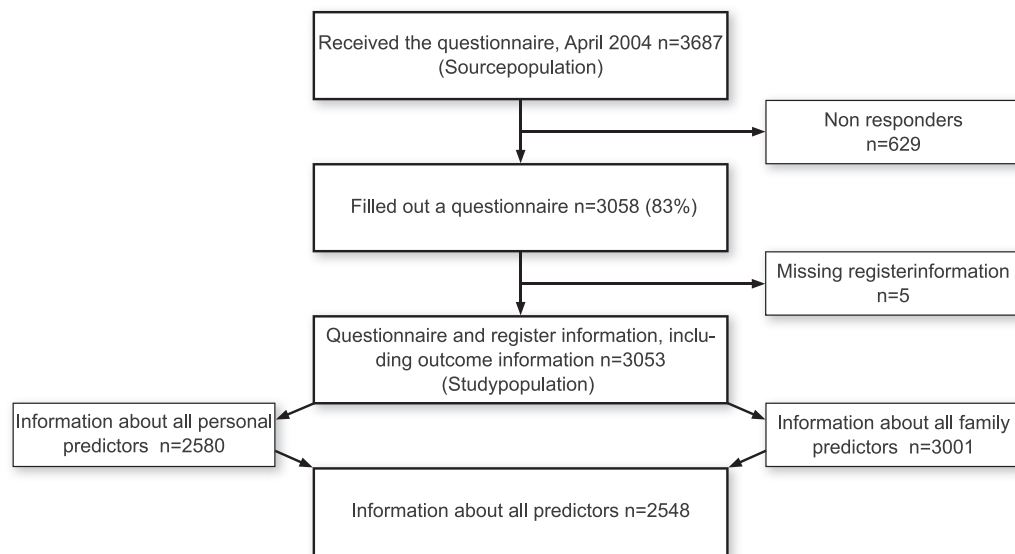


Figure 1. Distribution of the study participants

on chances of completing an education [11–13], whereas results from previous work are conflicting regarding factors such as obesity [14,15]. Few studies have addressed the association between vulnerability in childhood and educational attainment, but high sense of coherence (SOC) was found to increase school achievement among young people [16,17].

A major transition in the Danish education system is the one from compulsory school to secondary education. After compulsory school, the first major differentiation of a cohort of young people takes place between those who complete a secondary education (in Denmark approximately 77%) and those who stop their educational career [18]. With the known linkage between decreasing educational level and social inequality in health in mind [1–3], more knowledge about the influence of personal aspects on the chance of completing a secondary education is needed in order to improve the support of vulnerable young people.

Aims

Data from a large prospective cohort of Danish young people was used to investigate to what degree low school grades, increased vulnerability, and health problems can explain differences in educational attainment after compulsory school.

Materials and methods

Study population

The source population for the present study consisted of all individuals born in 1989 living in the

county of Ringkjøbing, Denmark in early April 2004, altogether 3687 adolescents, for whom addresses, gender, and age when completing 9th grade were identified by help from The Central Office of Civil Registration [19] and from public schools. Information for the present study was derived from a questionnaire and from registers. Questionnaire information was collected at baseline in 2004 when the participants were 14/15 years old and took place during school hours at the respondents' schools. Those not at school at the day of collection received the questionnaire by mail. All together 3058 adolescents filled out the questionnaire (response rate 83%). Register information was missing for five participants resulting in a final study population consisting of 3053 individuals. Complete information on both personal and family predictors was available for 2548 participants (Figure 1).

To gather information on family predictors, respondents were linked to their parents or guardians by using their personal identification number (CPR number), which is given to every inhabitant in Denmark at birth (or upon entry for immigrants) [19]. The study and the data linkage procedures were approved by the Danish Data Protection Agency.

Outcome

Education beyond compulsory school (secondary education) consists primarily of a high school academic track of three years, (in this study called “upper secondary school”) and vocational education. Vocational

education, which lasts between 2 and 4 years, is typically a mixture of theoretical courses at branch specific schools and practical training in apprenticeships. The outcome of the present study was educational attainment after compulsory school in October 2010 when the participants were 20/21 years old which allowed a follow up of 6.5 years. Data on secondary education was derived from Statistics Denmark [20].

The participants were categorised into one of the following four categories: (1) Completed: consisting of participants who had completed a secondary education; (2) Still studying: consisting of those who were still attaining a secondary education; (3) Dropped out: if they had dropped out of their last secondary education and never attained another, and (4) Never attained: if they had never attained a secondary education. A distinction was made between “upper secondary school” and “vocational education”.

Exposure variables

The main exposures were the personal predictors, which were categorised into three domains: “school performance”, “vulnerability”, and “health”. Information about exposures, except final grades in maths and Danish, was derived from the questionnaire at baseline. Information about final grades was based on register information from Statistics Denmark [20].

School performance. In Denmark, all children are required to receive education for at least 9 years. The oral Danish and written maths exam grades after compulsory school (9th grade) were used. Before September 2007, grades were given using the so-called 13-point scale (00, 03, 5, 6, 7, 8, 9, 10, 11, 13). A dichotomous variable indicating “high grades” (8–13 equivalent to B+ and above) and “low grades” (00–7) was generated. In the period 2004–2007, 90% and 91% of the participants completed exams in written maths and oral Danish, respectively.

Health. Self-rated health was used as a general indicator of health, as it is a strong predictor of both mortality and morbidity [21,22]. It was measured using a single item from SF-36 [22]. By adding a cut point after the two highest categories, the variable was dichotomised into “high” and “low” general health status.

Depressive symptoms were measured using the four-item validated version of The Center for Epidemiologic Studies Depression Scale for Children [23]. Higher CES-DC scores indicate increasing levels of depression. The recommended cut-off at 3 and above was used to dichotomise the responses into

two categories: “depressive symptoms” and “no depressive symptoms” [23].

Information about body mass index (BMI) was categorised, as suggested by Cole et al. [24], into low weight, normal weight, and overweight for 15-year-old children. BMI cut-off points were for low weight $<17 \text{ kg/m}^2$ for both boys and girls, for normal weight $17\text{--}23.29 \text{ kg/m}^2$ for boys and $17\text{--}23.94 \text{ kg/m}^2$ for girls, and for overweight $>23.29 \text{ kg/m}^2$ for boys and $>23.94 \text{ kg/m}^2$ for girls [24].

Vulnerability. Vulnerability covers the way individuals think about themselves and their situation. Vulnerability was measured by using two scales measuring self-esteem and sense of coherence.

Sense of coherence is a theoretical construct, which is used to measure the degree to which a person finds the world comprehensible, manageable, and meaningful. Meaningfulness, according to Antonovsky [25], is a belief that things in life are interesting and a source of satisfaction, that things are really worth it and that there is good reason or purpose to care about what happens in life. From the “Sense of coherence – revised short version for children”, four items about meaningfulness out of a total of 13 were used [26,27]. The items were: (1) What do you think of the things you do every day? (2) How often do you do things you find meaningful? (3) How often do you have the feeling that you don’t really care about what goes on around you? and (4) How often do you have the feeling that there is little meaning in the things you do in your daily life?. Response alternatives were “Very exciting, exciting, all right, boring, very boring” in the first question and “Very often, often, sometimes, seldom, never” in the last three questions with a score between 1 and 5. Data was categorised with cut-off point at the 25% percentile as normal/high SOC score (SOC score >12) and low SOC score (SOC score ≤ 12).

Self-esteem was measured by using six items from Rosenberg’s 10 items self-esteem scale [28]. Data was dichotomised into normal/high self-esteem and low self-esteem by applying a cut-off point at the 25% percentile corresponding to a self-esteem score >17 .

Socioeconomic status. To measure socioeconomic status, the following information was used: highest attained education, income, and family type at the end of 2003. Yearly household income was recoded into tertiles corresponding to lowest ($<64,540 \text{ EUR}$), middle ($64,540\text{--}82,402 \text{ EUR}$), and highest ($>82,402 \text{ EUR}$) [29]. Highest attained education in the household was recoded into four categories: < 10 years, $10\text{--}12$ years, $13\text{--}15$ years, >15 years [20]. If the

participants' parents were divorced, information stemmed from the household where the participants' address was listed. Register-based information was used to dichotomise family type into "living with one parent or not living with parents" or "living with two parents" [19].

Statistical methods

A correlation analysis between exposure variables was initially performed and no correlation exceeded 0.48.

We estimated crude and adjusted odds ratios for subtypes of educational attainment (four categories) according to personal and family predictors using multinomial logistic regression ($n=3053$). Those who had completed a secondary education were used as reference. The adjusted analyses were carried out in two steps. First, personal predictors were mutually adjusted for all other personal predictors and vice versa for family predictors. Secondly, all predictors were mutually adjusted.

We then examined the two types of educational tracks, upper secondary school and vocational education, separately. The participants who never attained a secondary education were excluded so the outcome variable now consisted of three categories ($n=2981$). In this analysis, we mutually adjusted for all other predictors.

The exposure variables were first included in the analysis as continuous or in finer categories. Since it did not change the main results, several variables were dichotomised to gain power and comprehensibility of the estimates.

Gender and age when completing 9th grade were included in all models. p -values <0.05 were considered statistically significant, and results are presented with 95% confidence intervals. STATA statistical package (version 12.0; Stata, College Station, TX, USA) was used for all analyses.

Results

At follow up, 2467 (80.8%) had completed a secondary education, 312 (10.2%) were still attaining a secondary education, 202 (6.6%) had dropped out and never attained another secondary education, and 72 (2.4%) had never attained a secondary education.

Personal predictors

School performance. Young people with low grades in oral Danish when completing compulsory school were more likely to still be studying, to have dropped out, or to never have attained a secondary education

compared to those with high grades (ORs between 1.7 and 2.1). For those with low maths grades, these associations were even stronger (ORs between 2.4 and 2.5; Table I).

Vulnerability. Individuals with low self-esteem or low sense of coherence were at increased risk of being still studying, dropping out, or never attaining a secondary education (ORs between 1.3 and 1.8). The strongest associations were seen for low sense of coherence and the risk of dropping out (OR 1.8, 95% CI 1.2–2.6) or never attaining a secondary education (OR 1.8, 95% CI 0.7–4.5; Table I).

Health. Low general health status was associated with dropping out or never attaining a secondary education (OR 2.2 and OR 2.7, respectively). Overweight was associated with never attaining a secondary education (OR 3.5). Low weight and depressive symptoms were not associated with educational attainment (Table I).

Family predictors

Young people from households within the lowest income group were more likely to still be studying, to have dropped out, or to never have attained a secondary education (ORs between 1.6 and 3.7). The same patterns were seen when no parent within the household had education above compulsory school. Living with one parent or without parents was not associated with educational attainment (Table I).

Educational tracks. Young people with low grades in oral Danish or written maths were at increased risk of being still studying or to have dropped out from upper secondary school (ORs between 2.3 and 2.9). These associations were somewhat weaker for vocational education (ORs between 1.0 and 1.9).

Low self-esteem was a predictor of still being studying in upper secondary school (OR 1.9) while sense of coherence was associated with being still studying and with dropping out of vocational education (OR 1.5 and OR 2.0, respectively; Table II).

Young people with low general health status had approximately a 2-fold greater risk of dropping out of both upper secondary school and vocational education compared to those with high general health status. No clear associations were found between depressive symptoms or body mass index and the risk of dropping out or still being studying for the two educational tracks (Table II).

Confidence intervals of the family predictors were wide and the estimates imprecise, but a tendency in relation to educational attainment was seen. Young

Table I. Personal and family predictors for educational attainment after compulsory school.

n	%	Completed (n=2467)	Still studying (n=312)				Dropped out (n=202)				Never attained (n=72)			
			OR crude adjusted 1	OR adjusted 2	95% CI	OR crude	OR adjusted 1	OR adjusted 2	95% CI	OR crude	OR adjusted 1	OR adjusted 2	95% CI	
Personal predictors														
Grades: oral	2889													
Danish														
8 or above	2102	72.8	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
7 or below	787	27.2	2.5	1.8	1.4-2.5	1.7	1.2-2.3	3.3	2.4	1.6-3.4	2.1	1.5-3.1	2.6	0.7-3.2
Grades: written	2874													
maths														
8 or above	1962	68.3	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
7 or below	912	31.7	3.2	2.4	1.8-3.3	2.4	1.8-3.3	3.9	2.6	1.8-3.8	2.5	1.7-3.6	4.0	1.6-6.3
Self-esteem	2973													
Normal/high	2236	75.2	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Low	737	24.8	2.0	1.6	1.1-2.2	1.6	1.1-2.2	1.7	1.3	0.8-1.9	1.3	0.8-1.9	2.9	0.6-2.8
Sense of coherence	3022													
Normal/high	2438	80.7	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Low	584	19.3	1.7	1.4	0.99-2.0	1.4	0.98-2.0	2.1	1.8	1.2-2.7	1.8	1.2-2.6	2.2	0.8-4.1
General health	3033													
status														
High	2904	95.8	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Low	129	4.3	1.8	1.2	0.6-2.5	1.2	0.6-2.4	2.6	2.2	1.1-4.2	2.2	1.1-4.2	4.2	0.8-7.9
Depressive symptoms	2999													
No	1958	65.3	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Yes	1041	34.7	1.2	0.9	0.7-1.3	0.9	0.7-1.3	1.4	1.1	0.8-1.6	1.1	0.7-1.6	1.6	0.4-1.8
Body mass index	2878													
Low weight	273	9.5	0.9	0.8	0.5-1.3	0.8	0.5-1.3	0.8	0.7	0.4-1.4	0.7	0.4-1.4	0.97	1.1
Normal weight	2301	80.0	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Overweight	304	10.6	1.0	0.9	0.6-1.4	0.9	0.6-1.4	1.4	1.4	0.9-2.3	1.3	0.8-2.1	2.1	1.1-6.0
Family predictors														
Income	3052													
Highest	1017	33.3	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Middle	1018	33.4	1.5	1.4	0.98-1.9	1.2	0.8-1.8	1.5	1.3	0.9-2.0	1.3	0.8-2.2	1.4	1.7
Lowest	1017	33.3	2.3	1.9	1.3-2.7	1.6	1.1-2.5	3.6	2.6	1.7-4.0	2.2	1.3-3.6	3.8	3.6

(Continued)

Table I. (Continued)

<i>n</i>	%	Completed (<i>n</i> =2467)	Still studying (<i>n</i> =312)				Dropped out (<i>n</i> =202)				Never attained (<i>n</i> =72)			
		Base	OR crude adjusted 1	OR crude adjusted 1	95% CI	OR adjusted 2	95% CI	OR crude adjusted 1	OR adjusted 2	95% CI	OR crude adjusted 1	OR adjusted 2	95% CI	95% CI
Highest education														
>15 years	170	5.7	1.0	1.0		1.0		1.0	1.0		1.0	1.0		
13–15 years	924	30.8	1.4	1.3	0.6–2.5	1.3	0.6–2.8	3.0	2.6	0.8–8.4	1.8	0.4–21.7	1.6	0.2–12.8
10–12 years	1548	51.6	2.1	1.6	0.8–3.2	1.3	0.6–2.8	4.0	3.0	0.9–9.7	1.6	0.2–15.0	0.5	0.1–4.5
<10 years	359	12.0	3.0	2.1	1.0–4.3	1.4	0.6–3.3	1.0	5.9	1.8–19.8	2.6	0.5–34.8	1.3	0.1–11.7
Family type	3053													
Two adults	2652	86.9	1.0	1.0		1.0		1.0	1.0		1.0	1.0		
One adult/hot at home	401	13.1	1.7	1.1	0.7–1.6	1.1	0.7–1.8	2.4	1.0	0.7–1.6	1.1	0.4–1.7	0.95	0.3–2.8

Values are odds ratios based on mlogit calculations. All the analyses are adjusted for gender and age when completing 9th grade.

Crude sample: Participants who completed the questionnaire at baseline in 2004 and with outcome information ($n=3053$ where 2467 completed, 202 dropped out and 72 never attained).

Adjusted 1 sample (personal predictors): adjusted for other personal predictors ($n=2580$ where 2152 completed, 240 were still studying, 150 dropped out and 38 never attained a secondary education).

Adjusted 1 sample (family predictors): adjusted for other family predictors ($n=3001$ where 2442 completed, 305 were still studying, 194 dropped out and 60 never attained a secondary education).

Adjusted 2 sample: adjusted for all personal and family predictors ($n=2548$ where 2134 completed, 236 were still studying, 146 dropped out and 32 never attained).
education).

Table II. Personal and family predictors for educational attainment after compulsory school in different educational tracks.

	Upper secondary school						Vocational education					
	n	%	Completed still studying (n=45)			Dropped out (n=55)	n	%	Completed (n=844)			Dropped out (n=147)
			Base	OR crude	OR adjusted	95% CI			Base	OR crude	OR adjusted	95% CI
Personal predictors												
Grades: oral Danish	1680						1161					
8 or above	1443	85.9	1.0	1.0		1.0	632	54.4	1.0	1.0		
7 or below	237	14.1	2.8	2.5		1.2–5.2	529	45.6	1.2	1.0	0.7–1.5	0.98–2.5
Grades: written maths	1678						115					
8 or above	1365	81.4	1.0	1.0		1.0	579	50.4	1.0	1.0		
7 or below	313	18.7	3.8	2.9		1.4–6.0	571	49.7	1.5	1.4	0.97–2.0	1.1–3.0
Self-esteem	1695						1210					
Normal/high	1313	77.5	1.0	1.0		1.0	884	73.1	1.0	1.0		
Low	382	22.5	2.6	1.9		0.8–4.2	326	26.9	1.6	1.4	0.9–2.0	0.8–2.1
Sense of coherence	1710						1247					
Normal/high	1431	83.7	1.0	1.0		1.0	963	77.2	1.0	1.0		
Low	279	16.3	1.9	1.0		0.4–2.4	284	22.8	1.5	1.5	1.0–2.2	1.2–3.3
General health status	1716						1247					
High	1656	96.5	1.0	1.0		1.0	1186	95.1	1.0	1.0		
Low	60	3.5	3.5	1.1		0.1–8.7	61	4.9	1.1	0.96	0.4–2.2	0.8–4.3
Depressive symptoms	1703						1226					
No	1132	66.5	1.0	1.0		1.0	789	64.4	1.0	1.0		
Yes	571	33.5	1.3	0.8		0.4–1.6	437	35.6	1.1	0.98	0.7–1.4	0.8–1.9
Body mass index	1644						1171					
Low weight	149	9.1	0.95	0.8		0.3–2.5	117	10.0	0.8	0.7	0.4–1.2	0.4–1.9
Normal weight	1357	82.5	1.0	1.0		1.0	898	76.7	1.0	1.0		
Overweight	138	8.4	0.6	0.6		0.1–2.7	156	13.3	0.7	0.7	0.4–1.2	0.6–2.1
Family predictors												
Income	1723						1258					
Highest	705	40.9	1.0	1.0		1.0	300	23.9	1.0	1.0		
Middle	566	32.9	1.3	1.3		0.5–3.4	436	34.7	1.0	1.0	0.7–1.6	0.9–3.5
Lowest	452	26.2	4.2	3.5		1.4–9.1	522	41.5	1.1	1.0	0.6–1.7	1.2–4.7
Highest education	1709						1232					
>15 years	143	8.4	1.0	1.0		1.0	26	2.1	1.0	1.0		
13–15 years	655	38.3	1.7	0.9		0.2–4.3	250	20.3	0.8	1.0	0.4–2.9	0.3–18.0
10–12 years	797	46.6	2.0	0.96		0.2–4.5	726	58.9	0.6	0.6	0.2–1.7	0.2–11.1

(Continued)

Table II. (Continued)

	Upper secondary school						Vocational education												
	n	%	Still studying (n=45)			Dropped out (n=55)			n	%	Completed (n=844)			Still studying (n=267)			Dropped out (n=147)		
			Base	OR crude	95% CI	OR crude	95% CI	Base			OR crude	95% CI	OR crude	95% CI	Base	OR crude	95% CI		
<10 years	114	6.7	3.2	1.3	0.2-7.8	5.7	2.7	0.5-14.9	230	18.7	0.7	0.6	0.2-1.8	4.6	2.1	0.3-17.0			
Family type	1723								1258										
Two adults	1537	89.2	1.0	1.0	1.0	1.0	1.0		1062	84.4	1.0	1.0		1.0	1.0				
One adult/not at home	186	10.8	1.8	0.8	0.3-2.2	1.9	1.0	0.4-2.6	196	15.6	1.4	1.5	0.8-2.5	2.1	1.2	0.6-2.2			

Values are odds ratios based on mlogit calculations. All analyses are adjusted for gender and age when completing 9th grade.

Crude sample (n=2981): participants who completed the questionnaire at baseline in 2004 and with outcome information (upper secondary school n=1723, where 1623 completed, 45 were still studying and 55 dropped out; vocational education n=1258 where 844 completed, 267 were still studying and 147 dropped out).

Adjusted 1 sample (n=2516): adjusted for all personal and family predictors. Upper secondary school n=1537, where 1453 completed, 38 were still studying and 46 dropped out; vocational education n=979 where 681 completed, 198 were still studying and 100 dropped out).

people from households with low income had a 3.5-fold higher risk of still being studying in upper secondary school, and approximately a 2-fold greater risk of dropping out of both upper secondary school and vocational education compared to young people from households with high income. Same trend was seen for young people with low educated parents (Table II).

Discussion

This 6.5-year prospective study showed that low grades when completing compulsory school predicted not having completed a secondary education by age 20/21. Furthermore, low sense of coherence in childhood was associated with dropping out from vocational education. Low general health status was associated with dropping out or never attaining a secondary education, and overweight was associated with never attaining a secondary education. Low family income and low parental education also decreased chances of having completed a secondary education while no association was found for not living with two parents at age 14/15.

Previous studies have described school performance to be positively related to educational attainment [9,10]. The present study indicates that school performance in terms of grades in oral Danish and written maths are essential for the transition from compulsory school into secondary education.

Our findings on general health status are in accordance with the results from a study of de Ridder et al. [13], who found a strong association between poor self-rated health, high school drop-out, and the risk of receiving medical and non-medical benefits in young adulthood. We found overweight to be a predictor of never attaining a secondary education but not educational achievement otherwise. Fowler-Brown et al. [15] found that obesity during adolescence was associated with lower likelihood of attaining a college degree and Karnehed et al. [14] found that men who had a BMI ≥ 25 kg/m² at age 18 were less likely to complete 15 years of school, compared to those with BMI < 25 kg/m² at age 18 [14]. In the present study, depressive symptoms were not associated with completing a secondary education, which is not consistent with results from the study of Fletcher [12], who found that adolescent depressive symptoms decrease years of schooling completed, increase the probability of dropping out of high school, and decrease the probability of college enrolment. That study used the CES-D depression score instead of the CES-DC, which was used in our study and is a derived and validated score for children and adolescents [23]. A sensitivity analysis of the

CES-DC was conducted but this did not change the results. It is not clear if the different findings in relation to depressive symptoms in this study and the study of Fletcher are due to the use of different scales but we found the CES-DC most relevant for this study.

Few studies have focused on sense of coherence in relation to educational attainment. A cross-sectional study by Madarasova Geckova et al. [17] found that respondents perceiving the world as more manageable, meaningful and comprehensible were more likely to plan further education and a study by Kristensson et al. [16] found that sense of coherence correlated significantly positively with many of the primary and upper secondary marks. In the present study, we used the four items about meaningfulness from the sense of coherence scale and found it to be strongly associated with dropping out from vocational education. Why sense of coherence is related to dropping out of vocational education but not dropping out of upper secondary education is unclear. This study showed low self-esteem to be less associated to completing secondary education compared to sense of coherence, but both measures pointed in the same direction. A study by Mahaffy [30] didn't find self-esteem to be associated with educational attainment when aspects of social context and individual level factors were taken into account. The use of selected items instead of the complete questionnaires when measuring sense of coherence and self-esteem is a limitation of this study, although the item selection was done on the basis on other studies and validated subscales. A Cronbach alpha on 0.82 revealed a high internal consistency of the six selected items.

The association between parental socioeconomic status and educational attainment found in the present study is in accord with the findings of others [9,10]. However, the lack of association between living with one parent and educational achievement does not agree with the study by Wojtkiewicz [8], who found adolescents from one-parent families to be less likely to graduate from high school [8]. The different results could be due to variation in welfare systems in USA and Denmark and consequently different social and economic living conditions of single parents.

The strong effect of family predictors, especially parental education, was attenuated when personal predictors were included in the models. This was especially true for secondary school completion, where school grades may be a mediator of the educational status of the parents (results not shown).

When defining our outcome variable, a follow-up time of 6.5 years was used. This might be somewhat short especially in relation to those still studying at

vocational education. This category will contain a minor group of subjects who are being still studying without delay, since a few types of vocational education last up to 5 years. This means that they are more comparable to those who completed a secondary education than those dropping out or never attaining a secondary education.

An analysis stratified by gender was performed and since no essential differences were found between boys and girls we chose to adjust for gender in the final analyses.

In the present cohort, 80.8% completed a secondary education during follow up which is a relatively large number compared to the fact that 77% of all Danish young people at age 25 in year 2010 had completed a secondary education [18]. A comparison of parental socioeconomic status and educational attainment between the 629 non-responders and the 3053 participants showed that the participants came from better socioeconomic background than the non-responders and only 59% of the non-responders had completed a secondary education by follow up. This means that those who dropped out or never attained a secondary education were underrepresented in our study. It is uncertain if this selection has induced bias related to the ORs. If the young people participating in this study and not having completed a secondary education are representative of all young people not completing a secondary education, then the ORs were not affected.

This is a large prospective study with a high response rate and almost complete follow-up information from the registers. The study benefits from investigating risk factors from several personal and family factors within the same study. Although the study reveals associations, caution about causal inference is warranted. It is most likely that other factors related to school environment, teachers' recommendations and parents' educational aspirations for their children are also relevant to include when trying to understand the causes for not completing a secondary education. Nevertheless, the associations that remained after mutually adjustments bear witness to the importance of personal as well as socioeconomic factors.

This study points out some of the predictors of dropping out or never attaining a secondary education and shows some differences related to educational track. Dropping out or never attaining a secondary education could be the first step into a marginalisation, which could potential lead to an exclusion from the labour market, already in young adulthood.

In conclusion, this study confirms the social gradient in educational attainment. Furthermore, the

results indicate that, in spite of equal access to education, factors related to the individual in terms of school performance, health, and vulnerability in adolescence predict future success in the educational system, regardless of socioeconomic status. It is recommended that these high-risk groups are recognised and targeted when designing guidance and supervision programmes for youth at secondary education.

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Conflict of interest

The author declares that there is no conflict of interest.

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Making the Right Choice! Inquiries into the Reasoning Behind Young People's Decisions about Education

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Abstract

The article looks at how different types of reasoning about educational choices within a group of ninth graders have influenced their participation in the Danish educational system. The study, based on interviews with 15-year-olds,¹ shows how social background and differing personal experiences and strategies influence young people's ability and desire to engage in the decision-making process. The article identifies six different ideal types of reasoning about educational choice and shows that types of reasoning are a vital component in managing the transition from compulsory to post-compulsory education.

Keywords

Choice, educational transition, adolescents, social inequality, biography, reasoning

A Cultural Model of Educational Choice

Choices of post-compulsory education or job are not 'free choices'; they are part of a process of negotiation in which habitual understanding of opportunities is coupled with past experiences and reflections about the role of education. In addition to this process, the educational system itself also influences how choices are made; young people operate within a specific system and negotiate their choices in relation to it. In order to inquire into the different forms of reasoning and how these interact with the educational guidance system to facilitate the transition from compulsory education to youth education, the article takes as its point of departure a European Union study of young people across the continent. In this, Walther (2007) points to three main European educational regimes: the Nordic social-democratic model, the conservative continental model and the Anglo-Saxon liberal model (Walter, 2007: 124). In the Danish version of the Nordic social-democratic model, education has been

understood as being a driver of individual development rather than purely a means of getting a job. This conception leaves each individual ultimately charged with the task of fulfilling his or her own development. However, there is currently pressure towards more structured management of educational choices. In an effort to make young people's educational strategies more effective, ninth graders are compelled, in obligatory guidance sessions and by other means, to make choices about their futures in a certain sequence and to produce a logbook of this trajectory. This particular form of educational regime constitutes, according to Walther and Plug (2006), a model of a comprehensive school system that aims at 'individual initiative coupled with entitlements that also might explain why marginalization of the disadvantaged persists, despite various opportunities for individual educational paths' (Walther and Plug, 2006: 132).

Within this system, individuals need to engage reflexively with their social environment in order to make sense of the increasing range of alternatives. This engagement may open opportunities for social mobility; it also, however, increases the risk of disconnection with an educational system that urges one to make choices in a culturally acceptable manner. Those who drop out of education and who do not manage to enter another educational programme are being labelled 'the residual group' (in Danish *rest gruppe*), young people who have difficulties in complying with the traditional progression to post-compulsory education. This, according to Walther, could suggest that the Danish system of transition demands 'the internalization of a particular cultural model of participation and individual biography construction' (Walther, 2007: 131). This is a process that may prove difficult not only for this 'residual group' but also for others. Those who do not engage in the processes of reflexive biography construction may also find it difficult to respond to this cultural model. They may not actually be excluded from the system but they manage to make only limited use of its possibilities and then make their 'choices' in terms other than those the system presupposes. The questions, then, are: what is an educational 'right choice' for whom? What about those who do not reflexively engage in their educational choice? And how are understandings of differentiated opportunities for educational choice managed?

The article will be structured as follows: First, methods and study design will be outlined, followed by the identification of different types of reasoning. Then, the concept of educational choice will be scrutinized and examined, exemplified with two forms of reasoning from the empirical data. Before exploring the other types of reasoning, we look at the structured opportunities on offer to young Danes. Finally, after presenting the remaining four forms of reasoning, the article elaborates on the implications of young people's differing capacities for participation in the educational system.

Methods and Study Design

The interviews this article draws on were conducted as part of a larger epidemiological study investigating pathways to social inequality in health within a cohort

comprising 3,500 individuals born in 1989² and their parents. Interviews were conducted a year later, in 2005, to supplement the quantitative data with in-depth knowledge about the lives of these young people at the time of ending compulsory education. Participants were recruited from three³ different school classes, selected on the basis of differences in parents' income (economic capital) and educational status (educational capital). Private compulsory schools had the highest score on both education and income. These schools were excluded because we wanted to compare ordinary public schools.⁴ Consequently, the segment with the highest score on social status is excluded from this material. The purpose of this selection of schools was to gain data that could show differences in young people's reasoning and ways of dealing with the challenges they were facing at a time just before they left compulsory education.

In all, 37 pupils were interviewed, 12 individually and 25 of them in six different focus groups. Prior to interviewing, observations in the three classes were conducted. Given that the theme of the interviews was future perspectives, with an emphasis on educational paths, utterances in the interviews may be somewhat biased towards this area of aspiration and away from others (family formation, work, leisure or travel).⁵ If the interview is understood as a specific social context, this is not surprising, as the interview itself becomes a part of the process of negotiating a meaningful social identity (cf. Riessman, 2002).

With the purpose of developing a set of types or forms of reasoning at this point in life, an analysis developed of the interview material that used a thematic, study-specific coding. This focused mainly on habitus and social status of the family, the function of education in each interviewee's future perspective, the degree to which they reflected on their choice and the way in which they participated in the decision-making process set by the educational system (i.e., their reasoning about the coming change in their school life). Six different ideals and typical forms of reasoning were formed on the basis of the specific patterns of reasoning identified in the empirical material. These were: (i) 'unconcerned choice', (ii) 'obvious choice', (iii) 'keeping choices open', (iv) 'ambitious choice', (v) 'safe choice' and (vi) 'restricted choice'. The types represent an accentuation of essential tendencies and traits in the ways the interviewees deal with the 'choice' of post-compulsory education. In the article, these forms will be illustrated and discussed through six case studies. The interviews used as cases were chosen because of their exemplary power in relation to the specific types.

We will now look at the Danish educational system which constitutes some of the context of young people's educational choices.

The Educational System

The Danish educational system is based on a comprehensive school system, going from first to ninth grade; a voluntary 10th-school year is offered in public schools and in private residential schools. Thereafter, young people can continue in different

forms of post-compulsory education⁶ with either an academic or vocational orientation. Additionally, there are so-called production schools which aim to support young people with no formal education who need means of access other than those the mainstream education system offers. The vast majority of all educational programmes are free of charge. For several years, unemployment among young people under 25, and particularly among those under 18, has been almost nonexistent since the guidance system and the social services work together to find places in either education or the job market.

The empirical data used in this article is drawn from interviews conducted in a medium-sized town in the west of Denmark. A wide range of youth education programmes is offered in the town as well as certain kinds of short- and medium-cycle higher education programmes, especially in subjects related to business, technology, design and fashion.

In the literature on transitions and decision-making, the focus is predominantly on transition from school to work or from compulsory school to higher education (i.e., Ball et al., 2002; Hodkinson et al., 1996; Heinz, 2009; Hodkinson and Sparkes, 1997; Lehmann, 2005; Walther and Plug, 2006). This study, however, focuses on the transition from compulsory schooling to post-compulsory youth education. In the Danish context, this transition is understood as being important because it is the first time young people are obliged to make choices that will influence their educational path (Pless and Katznelson, 2007). It can thus be understood as the first 'structural turning-point' (Hodkinson and Sparkes, 1997) that young people experience as regards future careers.

Notions of Choice (VS No Choice)

The individualized culture of choice mentioned earlier is fostered by an educational guidance system that focuses on individual clarification or preparation which is supposed to be based on information, practical on-the-job training and planning. This process implicitly assumes that when information is given, young people will consider their individual abilities, resources and aspirations, assess the available opportunities and make their own decisions. From this perspective, choice is intimately linked to 'action' which is considered to be the effect of thinking. But this sequencing of events is rare. Rather, choice takes the form of a flow of actions that is rationalized only in retrospect and only then appears as a series of rational(ized) choices. The consequence of making too close an association between action (choice) with conceptualizations, acts, intentions, purposes and reasons is, according to Giddens, that acts are abstracted from their location in time and the way in which they are regularized in situated practices (Giddens, 1979: 55–56). Instead of referring to decision-making as a rational, individual and planned process, Hodkinson and Sparkes refer to it as neither technically rational nor irrational but rather as 'pragmatically rational'. In so doing, they understand choice as taking place in interaction with the social environment and emphasize that choices should be interpreted within life-courses (Hodkinson and Sparkes, 1997: 32). Pragmatism means that young people are using the information they have at hand from family and friends in the

workforce as well as their own workplace experience (Taylor, 2005: 496). Drawing on these un-official sources of information is a natural way of envisaging the future and answering questions such as: what can I manage; what can I become; what do I want?

In considering the above questions, the issue of meaningful choice is pertinent. Addressing this, Du Bois-Reymond refers to choice as a 'biography' (Du Bois-Reymond, 1998). Biography is understood as the way in which (young) people link their current situation to past experiences and future expectations and thus personalize choice. The literature discusses two different forms of biography. 'Choice biography' refers to young people considering all different possibilities and reflecting on the available options and justifications for these; a 'normal biography', on the other hand, is characterized by a more linear and predictable mode of consideration and is rooted in an established life world (Ball et al., 2002: 57).

A normal biography is characterized by an absence of decisions, if these are understood as 'reflexive choices': the choice of a certain form of education has been naturalized and appears the only possible course as an inevitable continuation of something that started a long time ago. For young people with a normal biography, choice of education or job orientation is something that comes naturally or easily, fitting into the everyday flow of actions without the need for subsequent rationalizations, except perhaps for those needed for an educational logbook. A choice biography, on the other hand, will generally be based on subjective understandings of opportunities and awareness of the provisional nature of a choice made at a particular moment, that is, a reflexive choice.

It is important to remember here, however, that a habitually limited range of options may be addressed in resourceful and ingenious ways, even if these contribute to reproducing a family tradition (Lehmann, 2005: 345). As Giddens notes, situating agency (choice) in 'time and space' provides for different forms of consciousness: that is, practical vs discursive consciousness (Giddens, 1979: 250). Practical consciousness about future plans, in this sense, emphasizes the agency involved in even normal biography construction.

The Unconcerned Choice: 'It's Not Something I Worry About'

Two of the boys interviewed, David and John, provide further insight into how educational choices are made and agency acted out within a normal biography framework. Their cases illustrate aspects of 'choice' at the margins of the cultural model of participation and biography construction. David⁷ is tired of school, and at the time of the interview he does not know what he wants to do after compulsory education or what kind of job he wants to do.

His indecision about these questions does not worry him, particularly. For David, the most important thing in school is his friends: 'They keep me going,' he says. He talks about himself as 'not too bright', so for him the worst-case scenario is to be in an educational setting where he feels others are 'cleverer'. Jokingly, he says, there has to be someone 'as stupid as me', indicating that being socially comfortable is the most important thing for him when it comes to choosing post-compulsory education. He says:

I talk with my friends about what they are going to do because then I can perhaps enrol at the same place. [It is important] to know someone there.

This consideration is the most developed reasoning in David's narrative. When it comes to his friends, he knows what he wants. He has developed a sense of what he can achieve and of what to avoid so he can feel accepted among people like himself. He articulates a plan that aims at preserving things as they are: he will follow his friends into a new school.

David is the younger of two children in his family, and he experiences a certain pressure to do as well as his sister who is at the 'gymnasium' (upper secondary). His father dropped out of school early and has worked as a meat factory worker whereas his mother is a teacher who, according to David, 'has an extremely long education'. Although his mother is concerned about his grades, and urges him to read books and engage in schoolwork, she does not sit down with him or communicate any specific ambitions for his education. He feels pressured by his mother's attempt to discipline him, but he says he understands her because, 'Every parent wants their child to do well.' In fact, he says, it is not only the parents who want this:

I think everyone wants good grades, but not everyone can be bothered to do something to get them.

Education plays no real role for David either as a way to realize a plan for a future job or as a route to personal satisfaction. For David, the transition from compulsory to post-compulsory education or a job involves no real choice but is rather an inevitable event that he will consider as he goes along. He has, however (like his friends), decided to apply for the vocational school, though he has no clear idea which branch to choose. He says he wants to try some things and knows for certain he does not want to build houses or engage in long educational programmes. 'I just want a job and to feel good', he says.

For David, future education is frankly absent as an ingredient in 'the good life'. His 'choice', at this point, is to follow his friends into post-compulsory education. This means he chooses to stay on in education, a choice that on the surface corresponds with the discursive notion of education as a good and as a vehicle for a 'better life'. But David's considerations about his future are disconnected from the premises of the educational system, and his reason to stay in education therefore diverges fundamentally from its presuppositions. This disconnection between education and a reflexive engagement in future plans in David's case contrasts with that of John as we shall see in the following.

The Obvious Choice: 'I have wanted this since I was a Kid'

John experiences a 'perfect fit' between aspirations and 'choice' of education and future job. This is an intrinsic part of his biography construction. He wants to become a mechanic working with cars or motorbikes. To achieve this, he explains, he will attend the 'logistics and transport' branch of the local vocational school. He is already

experienced in his future trade, thanks to a traineeship with the local bicycle repairer and through his part-time job in a car garage. Besides, his father is a lacquerer and a car mechanic, and he has always wanted to follow in his father's footsteps.

John clearly draws on the experiences of his family, friends and workmates in order to articulate what he wants for himself. Not only is he familiar with the work of a mechanic, he is also inspired by the way workmates organize their lives, as the following quote indicates:

I also like the idea of driving for a security company. They drive around to companies at night to check on things. I would really like to do that. There is someone at my work who does that. He is a car mechanic and a security guard at the same time.

His aims are very much in line with his family background but it is important to note that his reasoning is based on what he likes to do: it is not legitimized by the family tradition. His agency is to be found in the ways he looks to his network when assessing what he would like to do rather than exhausting the guidance systems in place or seeking information from educational institutions. It is not because his father is a mechanic that he wants to become one, but rather, the family tradition is incorporated in his habitus, and this informs his preferences and competences. His reasoning lies within a normal biography construction, and since he is continuing into youth education, neither he nor the educational system challenges his choice. But education and future work are already incorporated into his habitus and are thus not reflexively considered as options among a range of others.

The examples of John and David show how reasoning within a normal biography construction at the margins of the educational system functions. These forms of reasoning are at the margin in the sense that John and David fail to engage reflexively in choices about youth education in the way that the educational system presupposes even though they both 'choose' to stay on in youth education for the time being. In David's case, choice of education is determined entirely by non-educational aspects: that is, his friends. Future goals will remain unaddressed within the educational system even if he enters an educational programme. These cases show how choice can be contingent upon aspects utterly different from those the educational system focus on and pose questions about the ways in which differences in the experiences of limitation and opportunity are structured.

Structured Opportunities

Choice of educational path is acted out within structural and individual constraints and therefore often becomes an exercise in 'making a virtue of necessity' (Payne, 2003: 8–9; Rabo, 1997; Reay and Lucey, 2003). This means intellectual, cultural and other kinds of limitation restrict individuals' choices, making the notion of a 'pickn'mix' of all the possible options more true for some than for others (cf. Reay, 1996). This is clearly illustrated in the interview with Marianne whose case is presented below. Her academic performance was low, and she was tired of school,

so most of the youth education programmes were not readily accessible for her. Making a 'choice' thus became more of an obstacle race. She tried to find alternatives to education, arguing that these alternatives would support the possibility of education in the future. However, structural limitations are not an explanation in themselves. Insight into the actual decision-making process of individuals is crucial in order to understand more fully how choices are actually made, since 'young people can actively shape some important dimensions of their experience' (Evans, 2002 in Lehmann, 2005: 329).

Present choices can also be thought of as being linked to earlier experiences through embodied habits, ways of orientation, cognitive forms, aesthetic tastes, normative ideas, etc. (Bourdieu et al., 1981 in Harrits, 2005: 126). To conceptualize differences in experiences, Bourdieu's concept of 'distance to necessity' is useful (Bourdieu, 1984: 372 ff) because it acknowledges that social practices are shaped by the daily life of groups, families and individuals. For example, a life regulated by systemic demands as a consequence of social welfare dependency would be a life characterized by closeness to necessity. These circumstances are part of the concept of habitus and are structuring practices (ibid.). Closeness (or submission) to necessity is thus associated with a position in a 'dominated' social class. In a Danish setting, submission to necessity is associated with relative poverty (not being able to participate in the consumer society) as well as with cultural or social 'deprivation', such as unemployment, illiteracy and/or lack of familiarity with the educational system or the labour market.

The consequences of living in conditions marked by closeness or distance to necessity may impact on a person's orientation towards the future. In theory, distance from necessity enables a tendency to engage in the world in reflexive and abstract terms. Submission to necessity, on the other hand, leads to a more practical and concrete 'aesthetic' where focus is placed on the ultimate goal rather than on the process leading to it. In justifying their educational choices, young people's reasoning can thus be characterized according to the value they put on certain choices above others. A social situation characterized by submission to necessity would, in theory, influence individuals into valuing education as a means of securing a job or an acceptable position in society in the future, focusing on ideas and forms rather than content (Bourdieu, 1984: 374–76). This difference was reflected in the interviews with Marianne and Mille. Both are unsure about their future education and career but because Marianne spends her daily life close to necessity, she reasons in a more concrete way. For example, finding a job that can support her is her highest priority, even though, ideally, she wants to 'do better than her parents'. For Mille, though, the most important thing is to find out what she really wants to do, and until she does, she chooses to attend a residential school and 'develop herself'. The desires and interests of these individuals are therefore socially constructed and promote different dispositions to act. There are, however, no simple relations between past experiences and present actions/practices (cf. Harrits, 2005: 130). It is by focusing on young people's subjective interests and how these have been formed, as well as on what

lies before, that socially stratified choices of education can be revealed (Hutters, 2004). As Hodkinson and Sparkes argue: 'Using habitus allows us to place school-work transition processes in a framework that can account for the active formation of dispositions for certain educational and occupational choices' (Hodkinson and Sparkes, 1997: 332).

Types of Reasoning: Forms of Participation

The above enables us to point to three central elements in young people's processes of making educational choices: (i) habitus and the person's distance or closeness to necessity, (ii) reflexivity or their form of participation in the process of biography construction and (iii) their form of reasoning in relation to their choice(s). Or, to put it the other way round, young people's forms of reasoning are influenced by their form of participation in individual biography construction as well as by their relation to necessity. The interviews have been analyzed with this in mind, and each individual account has been associated with one main form of reasoning. In Table 1, these elements are displayed and categorized into six different forms of reasoning. It is also shown how these forms are distributed among the three schools (high, middle and low, in terms of economic and educational capital). These types should be understood as ideal types in the Weberian sense (Weber, 1949: 90ff). Consequently, they are not meant as descriptions of how specific individuals act in real life. The types are used here to compare and to show, using empirical cases, how different 'real-life' strategies correspond or contradict with these types. The first two forms of reasoning are specifically concerned with choice vs no choice, and have already been discussed, in the cases of David and John. The next two forms, (iii) 'keeping choice open' and (iv) 'ambitious choice', are forms of reasoning in which education is an end in itself. They illustrate different forms of aesthetic choice focused on how to get the most relevant and fulfilling education, (v) 'Safe choice' and (vi) 'restricted choice', on the other hand, represent forms of labour-marked orientation towards education, focusing on education as a means of securing a job. The last four forms are all forms of 'choice biography construction', and in what follows we will look at how these different forms sit with the discursive understandings of what the educational choice is.

Keeping Options Open: 'I haven't Settled for Anything Specific Yet'

As already mentioned, Mille's central concern is with choosing something she really wants. She has not settled on any specific form of youth education yet, but she sees herself as someone who wants to 'work with people'. She wants to keep an open mind about possible future options in order not to miss any possibilities. In looking to the future, Mille focuses not on a specific job but rather on an undefined notion of 'what is right for her'.

Despite her desire to work with people, Mille inclines towards opting for upper secondary education, focusing on commercial subjects. This is in line with her

Table 1. Characteristics of the Different Reasoning Types

	(1) Unconcerned Choice	(2) Obvious Choice	(3) Keeping Choices Open	(4) Ambitious Choice	(5) Safe Choice	(6) Restricted Choice
Habitus	Not considered	Not considered	Distance	Distance	Closeness	Closeness
The function of education	Education not linked to future goals	Education intrinsically linked to personal competences	Education as a part of self (realisation) Value oriented	Education as a part of self (realisation) Value oriented	Education as means of securing a job Labour market oriented	Education as means of securing a job Labour market oriented
Reflexivity/ Form of biography	+/ Normal biography: Educational choice and identity strategies not linked directly. Might be a provisional type of reasoning, related to young age	+/ Normal biography: Correspondence between identity and future job, applies a practical consciousness	+/ Choice biography: Fear that wrong choice fail to serve as self-realisation. Self-realisation is important	+/ Choice biography: confidence in ability to choose and to achieve correspondence with identity. Focus on goal, but also the process	+/ Choice biography: Fear that wrong choices, will lead to unemployment, which in turn lead to unfulfilled hopes	+/ Choice biography: Managing limited opportunities Disconnect identity from education, deny the value of education
Reasoning	'I will go where my friends go.' No idea about future education, but no worries. Non-educational aspects determine choice	'Have always wanted to become...' Choice is natural and easy and motivated by personal experiences	'Want to find something that is really me.' Difficult to choose between all possible options. Choice linked to the process of finding out 'who am I'	'Want to use my talents and challenge myself.' Ambitions regard earning money as well as personal satisfaction	'It is good to have something to fall back on.' Focuses on a foreseeable future and breadwinning aspects	'Can't just choose anything, it is important to be realistic'. Choosing 'down' in order to escape the risk of being disappointed
Distribution of forms related to participant's school	3 in the low school, 1 in the middle school	1 in the low school, 6 in the middle school, 3 in the high school	1 in the low school, 2 in the middle school, 4 in the high school	1 in the low school, 1 in the high school	4 in the middle school, 3 in the high school	6 in the low school, 1 in the high school

family's orientation: her mother works in finance and her father owns a shop. She is afraid, however, that by choosing business-related subjects she may be ruling out other possibilities in the future.

It is possible for Mille to postpone her choice of youth education because she has chosen to attend a residential school⁸ for the following year, a school focusing on sports. Her elder sister also attended this school, and her whole family, except her mother, plays team handball. Mille comes from a social background that is relatively distanced from necessity in the sense that her family is economically well off: her mother and father hold stable, well-paid jobs. They are not, however, highly educated, and they want Mille to aspire higher in education than they have done themselves. When advising her about youth education and future jobs, her parents are concerned for her to find something that 'she is good at' and something that is in line with her personality. Her father has told her not to become a shop assistant because he thinks she can 'do better than that'. This places importance not only on Mille's ability to estimate her own academic ability but also on her feelings about a range of educational and working paths. But without a clear idea of what kind of employment she wants, it is difficult for her to negotiate the variety of educational choices. She says:

I will find something! But what if I am unable to find what I want? Well, it makes you worry, when you feel a little lost. There must be a lot of jobs that one simply doesn't know about.

Mille finds it difficult to navigate all the educational possibilities at this point, and she is worried about her ability to cope with a tight educational programme. She explains that she has had difficulties both in school and on the handball court over the past few years. She says:

I think it's the same when it comes to school. If I get upset and there is something I just can't get right, then I get completely... But at other times, I really fight for it. I won't give up.

She loves the highly competitive game of handball but would prefer 'an ordinary job' and 'an ordinary, quiet life', she says. She knows from handball that it takes a lot of effort to face her own shortcomings, and this makes her anxious that she could drop out (of an education) if things did not go well for her.

Her own sense of opportunities and limitations is influenced not only by her grades, which are above average, but also by the doubts she has about her own abilities to follow certain educational paths. Her family's position—especially her parents' orientation towards business—influences her and makes it difficult for her to see her own way forward through education and towards a job. Pressure is on her to make something of her talents and to pursue what she really wants, so finding out what it is she actually wants is the most important thing for Mille. The possibility of postponing her choice is justified by a need to be clearer about what it

is she wants; the residential year, she believes, will clarify this and buy her time. Her reflexive understanding of her choice of education is expressed in her anxiety about making a wrong choice. Compared with the previous cases, Mille sees education as an opportunity for self-realization, and this is linked to her considerations about the future. Mille's uncertain but reflexive way of dealing with the forthcoming 'choice' is in contrast with the case of Lisa below.

Ambitious Choice: 'One should Always Do One's Best'

Lisa has always been stimulated to do her level best when there has been some kind of reward involved. She tells about a bicycle race in which she came in second, winning 1,000 Danish kroner (about €130) and how this motivated her to set her goals higher. About schoolwork, she says:

I think it is typical of me to aim high: sixth form, A-levels, the 'gymnasium', the toughest of them all. It is quite typical that I need to plan it in detail. I like to be able to see the final goal, something I can look forward to.

In line with her need to have things planned, Lisa has a clear plan for the foreseeable years of her education. She opts for the general gymnasium in the adjacent town, and after that she wants to train as an architect, preferably in the capital city. She has considered different gymnasiums but even though one of them seems better socially, she has chosen the other one because of its academic reputation and the subjects it offers.

Even though Lisa has planned her educational path quite clearly already, at times she has had a feeling of 'a mist before the eye'. At some point, she approached her parents because she did not know what to do. She describes this:

I came home and said, 'I have no idea...because it can involve risking my whole life, if it doesn't work out well.' And eventually, they said: 'You would probably make a good architect. That could be a possibility.' We began looking into it more, and then it just became that.

For Lisa, the motivating factor is what she will end up doing after education. It is imperative that it is something she finds interesting, that it is something that will earn her a good salary and that she is able to choose the 'right' school/academy. She expects herself to put a lot of energy into the choices that she makes and to get good results. And at the same time, she is focused on the outcome of her efforts: the job she can get and the size of the pay cheque. She puts it this way:

I guess you could say I think most about the final goal; the rest just follows along with it. When I consider the subjects I must choose, I don't think: 'Oh, chemistry, that's not a subject I appreciate, but that's what it takes to get this job so I'll probably have to choose it.' If it was all fun, then it probably wouldn't be challenging enough.

Even if Lisa is focused on the goal of her education, the important thing for her is not 'a job as such' but a job as a satisfying result of her own efforts, preferences and identity.

Summing up, the two forms of reasoning discussed above point to aesthetic forms of reasoning, where emphasis is put on how education is achieved, and its correspondence with identity. These types of reasoning illustrate how distance from necessity makes it possible to approach education as a way of constructing oneself. The 'keeping choice open' form of reasoning illustrates how ontological aspects are linked to choice of educational path and how young people, in the process of understanding themselves, have difficulties choosing just one option since the consequent narrowing down of possibilities narrows their understanding of themselves. The 'ambitious choice' form of reasoning, on the other hand, is more goal focused but at the same time the process of arriving at the goal is important because it says something about who you are.

Safe Choice: 'I Want to become a Police Officer'

In the following, the cases of Sebastian and Marianne will be presented. More than in the previous interviews focus is on education as a means to a job in the future. First we turn to Sebastian. He plans to become a police officer, but since he cannot apply to the police academy until he is 21, he is in doubt about what to do immediately after compulsory school. He says:

I have been in doubt as to whether I wanted a youth education at all. I would have taken 10th grade somewhere or other and then worked until I became 18, the time for my national military service.

However, his parents, his brother and the school career counsellor have urged him to continue with youth education, and he has come to realize that youth education will provide him with 'something to fall back on' if the police officer plan does not work out. He has therefore (almost) decided to attend a technical upper secondary school. He places importance on having a good job in the fairly near future but at the same time he has been convinced that education is the best way to secure a future in which he will have a 'fair income', a 'respectable house' and 'financial security'.

Sebastian's father works as an unskilled meat factory worker while his mother is a nursing assistant. A vital concern for Sebastian is his father's somewhat unstable position in the labour market. The father fears he will be unable to get a new job in the event of being sacked because he has no formal education. Sebastian seems therefore to be structuring his practice according to a notion of the value of education as something instrumental that will ensure a secure position in the labour market in the future. At the same time, though, he opts for a profession that is something of a 'boy's dream', expecting to have fun at work while he is there.

Sebastian's choice for his future is rationalized with reference to a generalized understanding of education as 'important'. His family's experience of vulnerability

in the labour market has an impact on his understanding of education as a safety measure, and the arguments of his family and school seem relevant and justified to him. He has therefore reflexively considered his options and made choices aimed at avoiding a negative future scenario. It seems Sebastian's boredom with school and desire to do something different are not socially accepted as a legitimate basis to build choice on and are therefore omitted from his 'choice'. He therefore ends up endorsing a discursive understanding but he does so in a way that reflects his own preferences and understandings of an acceptable way of managing his opportunities.

Restricted Choice: 'I am not Clever Enough'

The restricted choice form of reasoning will be exemplified in Marianne's case which illustrates the management of very limited opportunities within the educational system. Marianne focuses her future plans on the practical options she sees for herself and on jobs she knows she can take on, even without education. She says:

I have considered many different things I would like to become. But then I think, 'No, that doesn't really interest me' and, 'That takes too long'. I don't want to spend enormous amounts of time on an education, becoming a doctor, for example. I can't be bothered with spending my time on that. I'm not clever enough, either.

She accounts for her lack of interest in 'long education' with an explanation of how she wants to prioritize her time. She has a feeling there are lots of interesting jobs out there but when she finds out what it takes to get this or that education, she loses interest. Besides, she is dyslexic, which she translates as 'not being clever enough'. This characterization of herself is structuring her reasoning, in the sense that she does not want to take a 'long education'. Her great passion is her pony. In the past, she says, she could not even be bothered to do her homework but this has changed during the past year because of her success with her pony. According to Marianne, her teachers also support her horse riding because:

[My] teachers have said all along that if I didn't have the horse riding, then things wouldn't go so well either...so now I've started to study a bit and so on. It starts improving just as soon as things get going at the riding school.

Marianne is the child of a mixed marriage: her mother is Danish, her father is from Turkey. Over the years, they have had disagreements about Marianne's horse riding. Her mother supports her hobby both financially and personally whereas her father is of the opinion that Marianne should invest more time in schoolwork. Her parents are both unskilled workers, her father now retired, and Marianne says of them:

I would prefer to have an education, to not be like my parents, who have no education... My big sisters have [education]: nurse and nursing assistant. So there is quite a bit of pressure.

Marianne's sense of opportunities and limitations is shaped by her family's closeness to necessity in the sense that the concrete and known possibilities are favoured and pictured as realistic in contrast to, say, becoming a doctor. Even though Marianne is aware of the advantages of having a formal education, this awareness is difficult to put into practice because of her school experience. So in practice, horse riding has proved to be her personal turning point in the sense that it offers her a notion of opportunities outside education. The most obvious opportunity is to take advantage of her success with her pony which she can ride until she turns 16. She says:

Now I have just this year left, and I'd like to make the most of it. And I would like to go as far as I can with this horse. So I'm not indifferent about school, but this is what I want right now, because I only have it for one more year. Otherwise, I can't do it.

Marianne's reasoning unfolds between a situation close to necessity and the unpredictability of her opportunities. She chooses to focus on the known, namely her pony, since it has proved to be her most reliable option, an option that also involves a future perspective. She rationalizes her priorities with reference to the positive impact her horse riding has on her schoolwork as well as to actual job possibilities. She is aware of the objective advantages of education, and she consciously postpones her engagement in formal youth education with reference to the present possibilities she has with her horse. She argues within the educational discourse even though at the moment she has difficulties seeing her own active role in it.

The cases above have demonstrated how reaching a choice that seems 'right' develops through a process of argument in which dominant views about education are adopted but also recreated and altered (see Archer and Leathwood, 2003; Jöhncke et al., 2004) and where realistic expectations for the future are engendered by present realities (Jenkins, 1992: 28). We have also seen that educational choices are influenced by understandings of structural as well as personal constraints and capacities (Andres et al., 2007: 136), as in the case with Mille who tried to assess her possibilities in education in light of her experiences in team handball. In the following, some of the questions posed in the article will be discussed.

The Right Choice, Revisited

What characterizes an educational choice? It has been argued that reasoning is a vital part of making a choice and that choice of education is socially situated and embedded in biography construction. Choosing is thus not just the act of entering one or another educational programme but rather is a reflexive process of reasoning. The cases have illustrated how young people display resourceful agency in that respect, regardless of form of reasoning. Habitual understandings of opportunities and limitations, future orientation and biographic identity processes are negotiated. As ideal types, the forms of 'unconcerned choice' and 'ambitious choice' are examples of different ways of engaging in this choice: David disconnects the question of future plans from

educational choice at this point whereas Lisa actively exhausts the possibilities in the educational system in the process of making sense of individual aspirations.

Despite strong incitements from the social and educational system to educate and thereby find education or 'activation' for everyone, some forms of reasoning answer the questions this system asks better than others. This has been illustrated in the case of Marianne who feels the educational system has little to offer in her search for answers to the question of what it is she wants to do. However, in her reasoning, horse riding is turned into an agent for her improved results in school. In the 'keeping choice open' and 'ambitious choice' forms of reasoning, focus is on how the choice is made 'in the right way' in order to reach goals in the correct manner. In the case of Sebastian, on the other hand, we have seen how personal motivation works to change choices and preferences: he reconsiders his choice in the light of other people's attitudes towards it and ends up endorsing systemic notions of a right choice. Bourdieu points to the fact that limited life choices often become naturalized, becoming part of the individual's sense of reality (Bourdieu, 1977: 164; Gillies, 2005). This is true, but the present analysis has also shown that that 'sense of reality' is acted upon in a pragmatically rational way. Sometimes, the outcome of such a process results in the endorsement of dominant views and sometimes not.

We have seen that educational choice not only concerns the rational assessment of possibilities and limitations but is also, for some, a way to manage the need for a predictable and planned future. For these individuals, therefore, choosing 'something' is the best option. This was the case for David who planned to start at vocational school even though he lacked a defined plan. Sebastian similarly chooses to 'choose something' in order to leave all doors open. Mille, on the other hand, actively postpones her choice because she cannot accept just choosing 'anything' as this would conflict with her habitual understanding of her own opportunities and ways of dealing with them.

Conclusion

Exploring how young people engage in the transition from compulsory to post-compulsory education, this article contributes to an understanding of the uneven distribution of possibilities for young people to participate in the educational system in the 'right' way. It has pointed out a variety of aspects that contribute to young people's management of choice of education at this critical juncture, and the cases have illustrated differences in individuals' capacity for engagement in the educational system, based on forms of reasoning about choice. Defining 'the margins' of the educational system may prove less than fruitful in understanding differences but we have nonetheless seen that some forms of reasoning fit more neatly than others within the discourse of the educational system. Some young people, therefore, have to bend over backwards in order to benefit from the educational system. On the basis of this analysis, we can conclude that marginalization is not necessarily a simple question of whether one is or is not marginalized: rather, marginalization should be understood as a process with social inequality reflecting complex, masked webs of

feelings, practical considerations and notions of self, all of which determine one's engagement with the educational system at any given point. The inquiries into the forms of reasoning about educational choice thus show how differences in managing the transition from compulsory to post-compulsory education are structured and how the 'right choice' is negotiated.

Notes

1. This project is part of a larger project, VestLiv, funded jointly by Aarhus University, Ringkjøbing Amts Sundhedsvidenskabelige Forskningsfond, Egmont Fonden, Augustinus Fonden and Helsefonden. I am thankful for discussions and inputs on earlier drafts of this article from colleagues in the VestLiv project as well as from the reviewers.
2. The VestLiv study investigates pathways to social inequality in health, focusing mainly on psychosocial determinants related to health outcomes. The cohort consists of about 3,500 respondents living in the county of Ringkjøbing, Denmark, in May 2004.
3. Henceforth referred to as 'low', 'middle' and 'high' social status.
4. In the whole VestLiv cohort 73.8 per cent reported attending eighth grade in a public school and 8.2 per cent attended eighth grade in a private compulsory schools.
5. An indication of this is that very few of those interviewed ruled out continuing their education. In contrast, others have found that among eighth grade students, 23 per cent of the boys and 14 per cent of the girls want to find a job or take a break from school after they finish ninth grade (Pless and Katznelson, 2005: 23).
6. In this article, compulsory education refers to primary- and lower-secondary education which in Denmark is compulsory for 7- to 16-year-olds. Post-compulsory youth education refers to upper-secondary education: in Danish, 'youth education'. When leaving lower-secondary education at 15 or 16 years of age, higher education lies a minimum of three years ahead; higher education is not explicitly debated in this article. Consult <http://eng.uvm.dk/> for further information about the educational system.
7. To secure anonymity, all names of interviewees used in this article have been changed.
8. This is an independent residential school at lower-secondary level for students between the ages of 14 and 18. There are about 250 of these schools in Denmark.

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Negative Life Events in Childhood as Risk Indicators of Labour Market Participation in Young Adulthood: A Prospective Birth Cohort Study

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Abstract

Background: Most previous studies on reliance on social benefits have focused on health, sickness absence, work environment and socioeconomic status in adulthood. Extending the focus to include early life circumstances may improve our understanding of processes leading to educational and occupational marginalisation and exclusion. The aim of this study was to investigate if multiple negative life events in childhood determined future labour market participation, and to identify important negative life events for labour market participation in young adulthood.

Methods: Of a cohort of 3,681 born in 1989 in the county of Ringkjøbing, Denmark, 3,058 (83%) completed a questionnaire in 2004. They were followed in a register on social benefits for 12 months in 2010–2011. Logistic regression analyses were used to investigate associations between negative life events in childhood and future labour market participation, taking into account effects of socio-economic position, school performance, educational plans, vocational expectations and general health.

Results: A total of 17.1% (19.9% males, 14.4% females) received social benefits for at least 4 weeks during follow-up. Labour market participation decreased with number of negative life events, especially for females: Females who had experienced their parents' divorce, had been abused, or had witnessed a violent event, showed decreased labour market participation, when adjusting for SES, school performance, educational plans, vocational expectations and general health at baseline. Attributable fractions ranged from 2.4% (parents' alcohol/drug abuse) to 16.1% (parents' divorce) for women. For men, risk estimates were lower and insignificant in the most adjusted models. Attributable fractions ranged from 1.0% (parents' alcohol/drug abuse) to 4.9% for witnessing a violent event.

Conclusions: Information on childhood conditions may increase the understanding of determinants of labour market participation for young adults. Knowledge of negative life events in childhood should be taken into account when considering determinants of labour market participation and identifying high-risk groups.

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Introduction

Early marginalisation from working life among young people has caused growing concerns in several industrialised countries [1]. Understanding the determinants leading young people to dependency of social benefits rather than starting an education or entering working life is therefore of great interest for both researchers and decision makers, especially in times of economical decline. It is generally accepted, that education improves job prospects in general and the likelihood of remaining employed in times of economic hardship [2]. Also,

positive early work experiences and education are critical to development of young people into healthy adults [3]. The risk of being excluded from the educational system and the labour market has shown to have negative health consequences, and during a severe economic recession, entry into working life for younger people becomes harder to achieve [1]. OECD finds that the worsening conditions on the OECD labour market are more severe for younger workers than for older workers. On the other hand, it could be argued that the ageing of the population and the decline in the population of 15–29 year-olds in OECD countries favour employment among young adults [1].

Nevertheless, in order to ensure future demands of labour and decrease the individual and societal costs associated with poor labour market participation, it is important to understand the mechanisms behind not entering into education or work in the early years of life, and rather rely on social benefits. Previous studies have concentrated on adulthood predictors of receiving social benefits, such as health status, sickness absence, work environment and socioeconomic status (SES) [4–6]. Extending the focus to cover potential determinants from earlier life circumstances seems to be justified: A Finnish longitudinal cohort study found a 3.5-fold risk of disability pension when the respondents had experienced 5–6 negative events (divorce or separation of parents, long-term financial difficulties in the family, frequent fear of a family member, severe illness of a family member and alcohol-related problems of a family member) during childhood [7]. A British birth cohort study on life course approach to long-term sickness absence, found that a measure of IQ, at age 11, had an impact on long-term sickness absence measured at age 42 [8]. Additionally, experience of stressful life events is a well-established risk factor for health measures such as the development of depressive problems in adolescence and adulthood [9–15]. However, expanding focus to include determinants from early life may increase our understanding of the complex process and determinants non-participation in working life, and provide insight into the mechanisms that determine why working life for some is over before it has begun.

The purpose of this study was to investigate whether adverse circumstances in terms of specific negative life events (NLE) in childhood determined later labour market participation, and to identify which negative life events constituted the largest risk. The analyses took into account the simultaneous effects of socio-economic position, school grades, educational plans, vocational expectations and general health at age 14–15.

Methods

Ethics Statement

The study was approved by the Danish Data Protection Agency, according to Danish law for studies using questionnaire and register data (The Act on Processing of Personal Data - Act No. 429 of 31 May 2000). Informed consent was not required as data were analyzed anonymously.

Population

The source population for the present study consisted of individuals born in 1989 in the county of Ringkjøbing, Denmark and still living there in early April 2004. A total of 3,681 fulfilled these criteria, and contact information was retrieved from the Central Office of Civil Registration and from public schools in the county of Ringkjøbing. All 3,681 individuals were contacted and asked to fill out a questionnaire. Recruitment took place at the schools within the county where a baseline questionnaire was filled out during school hours. Those not at school on the day of collection received the questionnaire by mail. A total of 3,058 participated in the questionnaire survey, corresponding to a response rate of 83%.

Data

Information for the present study derived partly from a questionnaire survey conducted in spring 2004, when the respondents were 14–15 years old, and partly from register data on social benefits gathered from September 2010 to September 2011.

Data on social benefits derived from the DREAM register [16,17], a national register on all transfer payments from mid 1991 until September 2011 at the time of this study. DREAM includes payments related to unemployment benefits, sickness absence compensation, disability pension, state educational grants, immigration and death, and was merged with the questionnaire data using the CPR number of each participating individual.

Outcome

The outcome of this study, labour market participation (LMP), was defined according to degree of receiving social benefits in a 52-week period from week 35 in 2010 through week 34 in 2011, when the respondents were 21–22 years old. People were divided into two LMP categories, depending on receiving social benefits: Those not receiving any social benefits, receiving maternity leave benefits or state educational grants, and those receiving all other social benefits. These benefits were either health related benefits (sickness absence compensation, vocational rehabilitation benefits, permanent disability benefits) or unemployment benefits of some sort, including leave benefits and training benefits offered to people after a 4 weeks of unemployment. The two LMP categories were further defined as either “High” (those who did not receive any benefits, received maternity leave benefits or state educational grant for at least 48 of the 52 week follow-up period) and “Low” (those who were on any other kind of social benefit other than maternity leave and State Educational Grant for more than four of the 52 week follow-up period).

Risk factors

Negative life events. Negative life events (NLE) were assessed using 6 items, partly from a 13 items scale developed by Newcomb, Huba and Bentler [18] and items from The Social Stress Indicator developed by Turner, Wheaton and Lloyd [19]. The six questions were: “In your life-time....”: 1: “Have your parents divorced?” 2: “Have you lost any of your parents because they died?” 3: “Have any of your parents abused alcohol or drugs to an extent where it caused problems in the family?” 4: “Have you been abused by someone you knew?” 5: “Have you witnessed a very violent event?” and 6: “Have your parents suffered a life-threatening disease or accident?”. Response options were yes/no. A missing answer was classified as not having experienced the adverse childhood circumstance, given that the respondent had replied to at least one of the other specific questions. NLEs were subsequently divided into 3 categories according to number of NLEs: 0, 1–2, and 3–5, inspired by Harkonmäki and colleagues 2007 [7].

Socio-economic position. Socio-economic position was measured using the MacArthur Scale of Subjective Social Status [20], asking respondents to place an “X” of where they stand on a ladder depicting the respondents perceived social

level in the Danish society. The ladder has ten steps, which are subsequently coded into an SES variable ranging from 1–10.

School grades. School grades were assessed with two questions on self-reported grades in the latest test in Danish and mathematics. At the time of the questionnaire survey, grades were awarded on a 10-point scale ranging from 0 to 13 in the order: 0, 3, 5, 6, 7, 8, 9, 10, 11, and 13.

Educational plans and vocational expectations. Educational plans were measured with a question on whether or not the respondent had firm educational plans for the next 2 years, with six response options. Five of these reflected various firm scenarios such as continuing in high school or similar, whereas one option was “I don’t know”. Responses were dichotomized into those with firm plans vs. those who answered “I don’t know”.

Vocational expectations was assessed with a similar tool, where respondents were asked in an open question to specify which type of job they imagined having at the age of 30. There was also an option to tick off the response option “I don’t know”, and responses were dichotomized into those specifying a job and those who used the “I don’t know” option.

Health. Global self-rated health (SRH) was measured using a single question: “How do you rate your health in general?” with five response options (very good, good, fair, poor, very poor) [21].

Background variables. The data furthermore contained information on the gender of the respondents.

Analysis

Initial analysis of univariate associations between various risk factors and LMP was performed using Chi Square test and Students T-test, depending on type of variable. Logistic regression methods were used to analyze the association between NLE measured at baseline and LMP at follow-up. Analysis was performed for three exposure categories (0, 1-2, 3-5) according to numbers of NLE during childhood, as well as for each single NLE item. These analyses were performed in four steps: Step one presented the crude OR for associations, step two was adjusted for SES, step three was further adjusted for school grades, educational plans and vocational expectations, and the final step four was further adjusted for self-rated health. In step 1 we tested for interaction between NLEs and LMP for men and woman - no significant interactions were found. Attributable fraction (AF) was calculated for each single NLE item, based on the most adjusted estimate for the effect of the NLE item on LMP [22]. All logistic regression analyses were stratified by gender. All analyses were performed using STATA MP2 version 12 for Mac OS X. [23]

Results

A total of 17.1% were categorized with low labour market participation at follow-up, significantly more men than women (Table 1). Across gender, a total of 78.2% did not receive social benefits at any time during the 12-month follow-up period, whereas 10.8% received benefits up to 25% of the 12-month period, an additional 4.2 received benefits from 25% to 50% of the period, further 2.4% from 50% to 75% and finally

Table 1. Labour Market Participation (LMP) at age 21-22 in 2010-2011 distributed by gender.

Variable	Level	Women, N (%)	Men, N (%)	Total, N (%)	P, gender diff.
LMP	High	1,317 (85.6)	1,217 (80.1)	2,534 (82.9)	<0.000
	Low	221 (14.4)	303 (19.9)	524 (17.1)	

N=3,058.

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4.3% from 75% to 100%. Of the latter group, a total of 2.7% received social benefits for the full 12-month follow-up period. Looking at the combined bulk of social benefits during the 12-month follow-up period, the majority of benefits (80%) fell within unemployment related benefits, whereas as 20% were health related (sickness absence compensation). Analysing the use of social benefits from age of eligibility (18 years), showed that 9 individuals (0.3%) were on permanent disability pension, 18.3% had at some point received sickness absence compensation, whereas 11% had at some point received unemployment benefits (not shown). Unpublished analyses have confirmed that responders and non-responders do not differ on educational and vocational outcomes (Winding TN, personnel communication).

The MacArthur Scale score of self-assessed SES strata in childhood was only marginally associated with future LMP. The number of childhood adversities experienced before age 14-15 was significantly associated with future LMP, and especially parents' divorce, parents' alcohol/drug abuse, having been abused or having witnessed a violent event, was associated with low labour market participation. Having fixed educational plans at the age of 14-15 and firm vocational expectations were not associated with future LMP, whereas school grades were. Self-rated health at age 14-15 was not associated with later LMP (Table 2).

The number of NLE was significantly associated with future LMP among females in a dose-response manner: The unadjusted ORs for having experienced 1-2 or 3-5 NLE vs. 0 were 1.54 (95% CI 1.13-2.11) and 3.50 (2.09-5.85) respectively. This only altered slightly when taking into account the simultaneous effects of SES, school grades, educational plans, vocational expectations and self-rated health, yielding ORs of 1-2 or 3-5 NLE of 1.54 (95% CI 1.07-2.22) and 3.37 (95% CI 1.82-6.24) respectively in the most adjusted model (Table 3, model IV). The risk associated with childhood adversities was generally smaller for males, and became insignificant when entering school grades and educational plans and vocational expectations into the model (Table 3). For men, test for trend was significant for models 1 and 2 ($p=0.01$ and 0.05 respectively), but insignificant in models 3 and 4. For women, test for trend was significant in all models (not shown).

Among females, separate analysis of the individual NLE items yielded a significant effect of experiencing ones' parents divorcing, having parents who abused alcohol or drugs, being abused by someone known to the respondent, and having witnessed a violent event. These effects persisted independently of SES score. The effect of parents' alcohol/drug abuse became insignificant when entering the four school

Table 2. Risk indicators at age 14-15 in 2004 of Labour Market Participation (LMP) at age 21-22 in 2010-2011.

Risk factor	Level	High LMP	Low LMP	Total	P, LMP diff.
		N (%)	N (%)	N (%)	
Gender	Women	1,317 (52.0)	221 (42.2)	1,538 (50.3)	<0.000
	Men	1,217 (48.0)	303 (57.8)	1,520 (49.7)	
SES	Highest tertile	831 (33.7)	156 (30.5)	987 (33.2)	0.061
	Mid tertile	714 (29.0)	136 (26.6)	850 (28.6)	
	Lowest tertile	918 (37.3)	219 (42.9)	1,137 (38.2)	
Negative life events	0	1,550 (62.3)	268 (52.8)	1,818 (60.7)	<0.000
	1-2	842 (33.8)	200 (39.4)	1,042 (34.8)	
	3-5	96 (3.9)	40 (7.9)	136 (4.5)	
Parents divorced	No	1,988 (79.2)	383 (74.4)	2,371 (78.4)	0.016
	Yes	523 (20.8)	132 (25.6)	655 (21.6)	
Lost parents	No	2,438 (97.1)	496 (96.1)	2,934 (96.9)	0.245
	Yes	73 (2.9)	20 (3.9)	93 (3.1)	
Parents alcohol/drug abuse	No	2,353 (93.8)	461 (89.7)	2,814 (93.1)	0.001
	Yes	155 (6.2)	53 (10.3)	208 (6.9)	
Abused	No	2,460 (98.0)	479 (93.0)	2,939 (97.2)	<0.000
	Yes	50 (2.0)	36 (7.0)	86 (2.8)	
Witness to violent event	No	2,289 (91.3)	438 (85.4)	2,727 (90.3)	<0.000
	Yes	218 (8.7)	75 (14.6)	293 (9.7)	
Parents accident/disease	No	2,122 (84.7)	425 (83.0)	2,547 (84.5)	0.323
	Yes	382 (15.3)	87 (17.0)	469 (15.5)	
Educational plans	Yes	2,297 (92.6)	463 (91.5)	2,760 (92.4)	0.420
	No	185 (7.4)	43 (8.5)	228 (7.6)	
Voc. expectations at 30 yrs	Yes	1,552 (61.3)	323 (61.6)	1,875 (61.3)	0.866
	No	982 (38.8)	201 (38.4)	1,183 (38.7)	
Danish grades	Mean (range 0-13)	8.6	8.3	8.6	<0.000
Math grades	Mean (range 0-13)	8.6	8.1	8.6	<0.000
Self-rated health	Good	2,413 (95.9)	495 (95.0)	2,908 (95.7)	0.378
	Poor	104 (4.1)	26 (5.0)	130 (4.3)	

N=3,058.

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variables into the model, leaving parents' divorce (OR 1.82, 95% CI 1.26-2.63), being abused (OR 5.10, 95% CI 2.60-9.97) and having witnessed a violent event (OR 2.47, 95% CI 1.54-3.94) as significant risk indicators in the most adjusted models (Table 4).

For males, the crude models yielded a significant effect of having parents who abused alcohol/drugs, having been abused, and having witnessed a violent event. The associations became insignificant when entering the four variables assessing school grades, educational plans and vocational expectation into the model, yielding no significant associations of childhood adversities on future LMP among males.

Attributable fractions (AF) were calculated for childhood adversities based on the most adjusted models. For women, AFs ranged from 2.4% for parents alcohol/drug abuse, to 16.1% for parents divorce. Being abused in childhood attributed 12.7% of the excess risk of future low labour market participation. For males, NLE explained less than was the case

for women: AFs ranged from 1.0% (parents abused alcohol/drugs) to 4.9% for those who witnessed a violent event.

Discussion

The present study showed, that among a cohort of 14-15 year olds, 17.1% received social benefits for at least 4 weeks in a 12-month period seven years later at the age of 21-22 years. This was the case for significantly more males (19.9%) than females (14.4%). The risk of low labour market participation increased if one had experienced certain negative life events in childhood, especially for females. Females who in their childhood had experienced their parents' divorce, had been abused, or had witnessed a very violent event, had increased risk of future low labour market participation, when adjusting for SES, school performance, educational plans, vocational expectations and general health at age 14-15. Especially those who had been abused by someone they knew had highly increased risk (OR 5.10, 95% CI 2.60-9.97). This findings supports the findings by Harkonmäki and colleagues, who

Table 4. Risk of low labour market participation among women (n=1,538) and men (n=1,520) associated with different negative life events (NLE) in childhood.

	Negative life event	Model I	Model II	Model III	Model IV	AF
Women	Parents divorced	1.84 (1.35-2.52)	1.84 (1.34-2.52)	1.86 (1.29-2.68)	1.82 (1.26-2.63)	16.1%
	Lost parents	1.73 (0.87-3.44)	2.00 (0.99-4.01)	1.92 (0.84-4.40)	1.87 (0.82-4.28)	2.8%
	Parents alcohol/drug abuse	1.71 (1.08-2.71)	1.72 (1.08-2.73)	1.37 (0.77-2.42)	1.31 (0.74-2.33)	2.4%
	Abused	4.89 (2.79-8.57)	4.92 (2.79-8.65)	5.40 (2.78-10.49)	5.10 (2.60-9.97)	12.7%
	Witness violent event	2.21 (1.46-3.33)	2.23 (1.47-3.37)	2.56 (1.61-4.08)	2.47 (1.54-3.94)	12.0%
	Parents acc./disease	1.09 (0.75-1.58)	1.06 (0.73-1.56)	1.26 (0.83-1.92)	1.21 (0.79-1.85)	3.5%
Men	Parents divorced	0.99 (0.72-1.36)	0.97 (0.70-1.34)	0.80 (0.53-1.21)	0.79 (0.52-1.20)	-
	Lost parents	1.07 (0.51-2.25)	1.02 (0.48-2.16)	0.65 (0.19-2.20)	0.66 (0.19-2.24)	-
	Parents alcohol/drug abuse	1.96 (1.22-3.16)	1.78 (1.09-2.91)	1.17 (0.61-2.27)	1.18 (0.61-2.29)	1.0%
	Abused	2.84 (1.39-5.81)	2.74 (1.33-5.63)	1.72 (0.68-4.33)	1.75 (0.69-4.41)	1.6%
	Witness violent event	1.51 (1.02-2.21)	1.52 (1.03-2.23)	1.53 (0.98-2.40)	1.51 (0.95-2.38)	4.9%
	Parents acc./disease	1.25 (0.88-1.77)	1.14 (0.79-1.63)	0.92 (0.59-1.44)	0.96 (0.61-1.50)	-

OR and 95% CI for response option "yes" compared to "no".

Model I crude. Model II adjusted for SES. Model III further adjusted for educational factors. Model IV further adjusted for SRH

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Table 3. Risk of low labour market participation among women (n=1,538) and men (n=1,520) associated with number of negative life events (NLE) in childhood.

			Model I	Model II	Model III	Model IV
NLE		N				
Women	0	879	1 (-)	1 (-)	1 (-)	1 (-)
	1-2	536	1.54 (1.13-2.11)	1.53 (1.12-2.09)	1.58 (1.10-2.27)	1.54 (1.07-2.22)
	3-5	82	3.50 (2.09-5.85)	3.54 (2.11-5.95)	3.52 (1.91-6.48)	3.37 (1.82-6.24)
Men	0	939	1 (-)	1 (-)	1 (-)	1 (-)
	1-2	506	1.30 (1.00-1.70)	1.27 (0.97-1.67)	1.13 (0.82-1.56)	1.11 (0.81-1.55)
	3-5	54	1.74 (0.94-3.23)	1.51 (0.80-2.87)	0.96 (0.38-2.41)	0.99 (0.39-2.49)

OR and 95% CI.

Model I crude. Model II adjusted for SES. Model III further adjusted for educational factors. Model IV further adjusted for SRH

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found frequent fear of a family member to be the strongest predictor of disability pension in a similar battery of NLEs in childhood [7].

Attributable fractions of various NLE ranged from 2.4% (parents' alcohol/drug abuse) to parents divorce (16.1%) for women. For men, risk estimates were generally lower and tested statistically insignificant in the most adjusted models. Attributable fractions ranged from 1.0% (parents' alcohol/drug abuse) to 4.9% for witnessing a very violent event.

When interpreting the study findings, one should consider the potential error induced by the 7 years from baseline to follow-up, where we have no information about the study participants. Life events could occur that affect LMP, which

were unmeasured in this study. An individual experiencing for example an NLE during follow-up, would appear in the group of unexposed in the performed analyses. This could potentially underestimate the effects of NLEs on LMP. Regarding the measurement of NLE, this covers events taking place in an age span of 0-14/15 years of age, and therefore covers both early childhood, middle childhood and adolescence. Asking about events in early childhood could potentially introduce recall bias. This could potentially underestimate the effects of NLEs on LMP. However, considering the severity of the NLEs assessed in this study, we consider recall bias to be a minor issue. Another concern is the subjective nature inherent in certain of the NLE items. Surely, whether or not ones parents have been divorced or have died is not open for interpretation, but, for example, the degree to which an event is "very violent" or not, is to a large extent a matter of personal norms. Unpublished analyses of the data showed, that females more often report to have witnessed a very violent event than males did, but whether or not this is due to females witnessing more violence or interpreting violent episodes differently than males do, is unknown. However, in relation to this study, we argue that it is the experience that constitutes the adversity, rather than, in the case of this example, how one assesses a specific level of violence.

On the positive side, the study features a relatively high participation rate of 83%. An additional strength is the 100% follow-up due to use of register data, which furthermore eliminates common method variance [24]. A further advantage compared to the study by Harkonmäki and colleagues [7] is this study's assessment of adverse circumstances in childhood while the study participants are still children, which minimizes potential recall bias compared to asking adults about events in early childhood.

The present study does not shed light on the pathway from NLE to future LMP: It can be hypothesised that NLE affects health [9–15,25], which again can affect LMP. To which degree

this is the case for the participants in this study is unknown, but the larger proportion of the social transfer payments defining “low LMP” were related to unemployment benefits rather than health related benefits. We adjusted for health in Model 4 only, as the role of health as a confounder is dubious. Previous studies have also shown a strong association between socio-economic status and not only health [1,3,26–28], but also labour market attachment [4–6]. The present study only found a borderline significant association between socio-economic position in childhood and LMP in young adulthood. According to Rahkonen et al., both past and present socioeconomic status are important determinants of adult health [27]. This discrepancy could be due to the assessment of SES in this study: Strong evidence of the construct validity of the MacArthur scales is found in both middle-aged and older men and women [28], and the validity in relation to young people has been tested with good results previously [29–31]. However, Rahkonen et al. argue that the socioeconomic status of destination, that is one’s own education, has a higher impact on health status across age groups [27]. The weak association between childhood SES and LMP in young adulthood could also be due to the relatively young age of the study participants at follow-up: The differences in labour market participation caused by socio-economic inequalities in childhood might not have come through fully in the early twenties, especially not in Denmark, where people generally are older before entering working life compared to many other countries.

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Conclusion

The effects of negative life events in childhood should be taken into account when considering both the determinants of labour market participation, as well as when identifying high-risk populations. Recognition and alleviation of negative life events in childhood should be promoted in relation to policies and practices aiming at integrating youth, especially young females, into education and working life.

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Author Contributions

Conceived and designed the experiments: TL ML. Performed the experiments: TL ML JHA. Analyzed the data: TL ML KB. Wrote the manuscript: TL. Contributed to the first manuscript draft with important intellectual content: ML JHA TNW KB. Revised accordingly and wrote the final manuscript: TL. Approved the final version: TL ML JHA TNW KB.

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RESEARCH ARTICLE

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Can negative life events and coping style help explain socioeconomic differences in perceived stress among adolescents? A cross-sectional study based on the West Jutland cohort study

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Abstract

Background: Previous research suggests that perceived stress in adolescence is socially patterned, but that this relationship may depend on the measure of socioeconomic status (SES) used. This study examines if social gradients in perceived stress, negative life events, and coping exist amongst Danish adolescents, and, if life events and coping strategies can partly account for an association between SES and perceived stress. These relationships are studied separately for two different measures of SES.

Methods: Questionnaire data were collected from 3054 14–15 year old youths (83% response rate) during baseline measurement in the West Jutland birth cohort study. Parents were identified via the Central Office of Civil Registration in which the respondents are linked to their parents or guardians via their CPR-number, a personal identification number given to everyone in Denmark. The study employs data from two independent sources, adolescent self-report data (stress, life events and coping) and national registers (parental educational level, household income and confounder variables). Ordinary Least Squares regression estimated the effects of parental SES, negative life events and coping on perceived stress. Analyses were stratified by gender.

Results: Girls reported more perceived stress than boys. SES accounted for a small but significant amount of the variance in perceived stress. Lower parental education and lower household income were associated with higher stress levels irrespective of gender, but the social gradient was strongest amongst girls when parents' education was used to measure SES, and strongest for boys when income was used. Life events and coping were also found to be associated with SES and both mediated part of the SES-perceived stress relationship. In general, the social gradient in perceived stress was accounted for by the study variables to a higher degree among girls than among boys.

Conclusions: Lower parental education and household income are associated with higher levels of perceived stress amongst Danish adolescents. Furthermore, both life events and coping appear to mediate this relation. Gender differences in the ways SES and stress are related may exist.

Keywords: Social gradient, Perceived stress, Life events, Coping, Adolescence

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Background

Associations between health and socioeconomic status (SES) are well documented in many countries [1-3], including Denmark [4-7]. These associations often take the form of a social gradient in health whereby each positive increment in social position, ie. better education or higher income, is related to a reduced risk of illness. The higher the status in the social hierarchy, the healthier a person is likely to be. This social gradient in health has also been referred to as the status syndrome [8]. Many models and theories have been suggested as explanations for such social inequalities in health, amongst them psychosocial pathways and stress mechanisms [9-14]. One of these, the reserve capacity model, proposed by Gallo & Mathews [13], acts as the theoretical framework or heuristic for the 'West Jutland Cohort Study'. 'The West Jutland Cohort Study' is a longitudinal follow-up study of the social gradient in health which focuses particularly on psychosocial pathways that may connect SES and physical health outcomes throughout the life course. This paper presents analyses of data from the baseline year of this ongoing study, when the cohort is in its adolescent years.

The general framework proposed by Gallo & Mathews [13] aims at understanding the roles of cognitive-emotional factors during the life course that potentially link SES with physical health. The model suggests that low-SES environments are stressful and reduce individuals' reserve capacity to manage stress, thereby increasing vulnerability to negative emotions and cognitions. In other words, the lower a person's SES, the greater the exposure to stressful events and conditions, and the longer the exposure, the more the individual's reserve capacity and ability to cope with stress will be eroded. The model suggests cumulative effects over long time-spans. In the course of time chronic stress influences physical health indirectly via health behaviours and directly via changes in metabolic functioning. In our adolescent sample the focus is not on physical health outcomes but rather on some of the psychosocial factors proposed by Gallo & Mathews [13] to mediate the SES – health relationship. More specifically, we examine if a social gradient in stress can be detected at this early age and if so, whether differential exposure (negative life events) and/or differential vulnerability (coping) can help explain this.

Existing research on negative life events, coping style and perceived stress among adolescents

It is well established in adult populations that the socially disadvantaged are more likely to experience symptoms of mental distress [15]. Findings of greater exposure to stressors such as life events in lower as compared to higher SES-groups have also been reported [15-18]. Orpana and Lemyre [19] found that exposure to

stressors, including negative life events, accounted for a large proportion of the relationship between income group and poor self-rated health among adults in Canada, especially for men. Lantz et al. [20] also present data, this time from a prospective study, supporting the hypothesis that differential exposure to stress and negative life events is one way in which socioeconomic inequalities in health are produced.

Coping resources that may influence how individuals react to stressful events and conditions once they arise have also been found to be unequally distributed between adult SES-groups. For example, a positive relationship with SES has been reported for belief in personal control or mastery [21-23], optimism [24], social support [25]. However, evidence for a relation between actual coping strategies and SES is meagre [24]. The coping literature often distinguishes between active and avoidant coping strategies (*ibid*). Using active coping strategies is generally thought to be a better and more adaptive way of dealing with stressful events, while avoidance coping is considered less adaptive [26].

Research on social differences in psychological stress and factors related to its cause has usually focussed on adult populations. Only recently has research on social disparities in stress amongst adolescent populations appeared. Findings of a social gradient that indicate poorer health amongst lower SES-groups have been consistent for many health outcomes in both child and adult populations. Amongst adolescents the picture is less clear cut. Some studies with teenage populations, including Danish ones, find social gradients in both physical and psychological symptoms [27-30], while others find no or very weak gradients in this age group [31-33].

Goodman et al. [34] suggest that adolescence is a critical developmental period for understanding how social characteristics such as SES, which are linked to social disadvantage, are related to the development of poor health. They present analyses showing higher levels of perceived stress among adolescents from lower SES families. However, this was the case when parental education was used as a measure of SES, but not household income. Finkelstein et al. [35] examined possible mechanisms of the relationship between SES and stress, focusing on psychological resources. They found that optimism partially mediated the relation between SES and stress. Adolescents from lower SES backgrounds were more pessimistic, while pessimism increased the risk of high stress.

Wills et al. [36] report that lower SES (parental education) was associated with greater substance use and more negative life events. Furthermore, the relation between SES and substance use was partly mediated by stressful life events, but not coping. Gore et al. [37] also report a higher frequency of life

events for lower SES ninth through eleventh grade adolescents.

Among Danish adolescents, Nielsen et al. [38] did not find a clear relationship between SES (Family Affluence scale [39]) and stress. For boys a medium level of family affluence was associated with the lowest stress levels, while low family affluence was associated with the highest stress levels. No relationship was found for girls. However, a greater frequency of stressful life events was found for adolescents with lower Family Affluence.

An important issue in research on relations between SES and health or stress is the conceptualisation and measurement of SES. SES has been measured in many different ways and there remains a lack of consensus concerning the extent to which these measures (e.g. occupational status, income, education, composite measures combining two or more of these) tap into the same construct, different aspects of the same construct, or represent separate entities. One possible explanation for mixed research results could be the use of different SES measures that are assumed to be alternatives. But research suggests that different measures of SES, such as income and education, affect health through different pathways, for which reason combining them is not recommended [40–43]. For example, Goodman [28] reports findings showing that income is related to adolescent suicide attempts, while parental education and occupation is not. Other researchers have found that the extent to which income and parental education are correlated with each other depends on other factors such as ethnic background [44]. In a Danish setting, we found that parental education was associated with obesity while household income was not. In that paper, we employed a Bourdieu-inspired argument for using household income (economic capital in Bourdieu's terminology) and educational level in the household (a proxy for 'cultural capital') as the two most important measures of SES [7]. The main argument Bourdieu provides is his idea that modern societies are primarily stratified by two independent yet interrelated mechanisms: economic capital and cultural capital [45]. These are likely to be linked to health and in this case perceived stress in different ways: having low levels of economic capital could make a person more prone to experience negative life events and living in situations that are more stressful e.g. instance due to lack of material resources. On the other hand, lower levels of cultural capital e.g. education and knowledge would make a person less susceptible to make use of health related information and influence the way in which they cope with stressful situations. There are clearly good reasons for using more than one measure of SES within the same study so that eventual differences in how they are associated with stress or health related outcomes can be uncovered and

examined. This approach is employed in the present study. Given the present state of research, it seems likely that different aspects of SES are related to adolescents' experience of stress and that mechanisms are complex and varied. The use of both income and education in this paper thus tries to take into account both aspects of the socioeconomic differentiation of modern societies.

Aims of this paper

The purpose of the cross-sectional analyses presented here is to contribute to the sparse literature on social disparities in stress among adolescents. We examine if negative life events and coping mediate the relationship between SES and perceived stress. To do this we address the following research questions: a) Is a social gradient in perceived stress already present in this age-group? b) Is there a social gradient in the number of negative life events experienced during childhood? c) Is SES related to differences in the ways adolescents cope with stress? d) Are life events and coping associated with perceived stress? e) Do life events and/or coping mediate the relation between SES and perceived stress? f) Are these relations affected by the choice of SES-measure employed?

Methods

Data

The data is taken from the first round of the West Jutland cohort, a birth cohort consisting of all individuals born in 1989 living in the county of Ringkjøbing, Denmark, primo April 2004. Baseline data was collected in 2004 when the birth cohort was 14–15 years old. The study setting is a predominantly rural area of Denmark, where the occupational structure is dominated by industry, commerce and agriculture. As can be seen from Table 1, the social structure is comparable to the rest of Denmark, although families in this part of the country are less likely to have a long educational background than in more urbanized areas. Average disposable household income for members of the cohort is virtually identical when they are compared to peers of the same age from other parts of Denmark using register based information. More adolescents from the West Jutland Cohort Study live with parents who are married. Compared with non-Scandinavian countries differences in individual income are considerably reduced due to a progressive taxation system. Educational differences are comparable to most Western countries.

All schools in the study area were contacted and asked to permit the research team to administer questionnaires to the pupils in class. This approach was employed to ensure a high response rate. Permission was obtained from most schools and 65% of the completed questionnaires were obtained in this way during May 2004. For those not present (or for those attending schools who did not permit

Table 1 Sociodemographic characteristics of Ringkjøbing County compared to the rest of Denmark 2003

	West Jutland Cohort Study (n = 3677)	Rest of Denmark (n = 60889)
Gender (in %)		
Boys	51.7	51.3
Girls	48.3	48.7
Family income		
Mean disposable income (Dkr)	163717	168550
Highest household education (in %)		
Primary school	20.3	15.2
Vocational training	4.8	2.4
University degree	2.9	6.3
Cohabitation status (in %)		
Living alone	1.9	2.2
Living with married parents	75.2	66.2
Living with cohabitating parents	10.4	11.5
Living with lone parents	12.5	20.1

access to the research team) questionnaires were sent by mail.

The cohort comprises 3,681 individuals of which 3,054 answered the questionnaire resulting in a response rate of 83%. Parents were identified using Central Office of Civil Registration in which the respondents are linked to their parents or guardians via CPR, a personal identification number given to everyone in Denmark at birth (or upon entry for immigrants). CPR was also used to link information from the questionnaires to official registers held at Statistics Denmark. The study and the linking of information across registers were approved by the Danish Data Protection Agency (Study No. 2009-41-3761).

The study thus employs data from two independent sources, adolescent self-report data (stress, life events and coping) and national registers (SES and confounder variables).

An analysis of the non-responders showed that they on average had poorer and less educated parents and that they were more likely to have a non-Danish ethnic background.

Measures

All the measures were translated into Danish by the research group using the translation/back-translation procedure recommended by Brislin [46]. The translation/back-translation process was carried out by three individuals independently of each other and in the event of disagreement the items were discussed and a final decision was agreed upon. The questionnaire was tested in a pilot study by administering it to groups of 14–15 year olds and

subsequently conducting interviews to ensure correct understanding and receive feedback on suggested changes.

Perceived stress

Perceived stress was measured using the 4 item version of Cohen's Perceived Stress Scale (PSS) which has been found to be a good measure of the extent to which individuals perceive their situation to be unpredictable and without control [47]. Higher scores indicate more stress. In this sample the scale had Cronbach's alpha of 0.62. This is identical to the coefficient (0.60) reported by Cohen & Williamson [48]. The scale is used as a continuous variable in the analyses after performing check for normality.

Negative life events

Negative life events were measured by 6 items taken from Newcomb, Huba, & Bentler's [49] measure and the Social Stress Indicator [50]. The wording of the question was the following: "In your life-time": 1: "Have your parents divorced?" 2: "Have you lost any of your parents because they died?" 3: "Have any of your parents abused alcohol or drugs to an extent where it caused problems in the family?" 4: "Have you been abused by someone you knew?" 5: "Have you witnessed a very violent event?" and 6: "Have your parents suffered a life-threatening disease or accident?". Response options were yes/no and were summated for each individual yielding an index score between 0 and 5 since none of the participants indicated to have experienced all six negative life events. The variable was used as a continuous variable in the analyses in order to be able to include in the mediational analyses. Analysing the variable as a categorical variable showed a monotonically increasing trend in the beta coefficients for higher number of negative life events which supports the use of the variable as a continuous predictor. We considered using register-based information to create an indicator of parental death and divorce. However, we decided to use the self-report data instead because combining the measures would be difficult. Most importantly, however, the register based data may not reflect the actual relationship the adolescents have to their parents or those they consider their parents (e.g. a step-mother or -father they are more emotionally connected to than their biological or legal parents which may be the only thing that can be derived from the registers).

Coping

Coping was measured using 5 subscales of two items each from the Brief COPE Scale [50]. Each item had four response categories yielding scores on each item between 1 and 4. The decision not to include all 14 subscales from this measure was based on considerations about questionnaire length. The subscales used here were

chosen partly for their appropriateness in a Danish youth context, partly on the basis of Cronbach alpha coefficients reported by Carver [51]. The subscales employed in this paper are 'active coping', 'planning', 'positive reframing', 'self distraction', and 'behavioural disengagement'. Cronbach's Alpha for the subscales ranged from 0.49 to 0.86. This was similar to the α values reported by Carver supporting the adequacy of our translation. To simplify analyses we rationally grouped the 5 subscales into two coping dimensions that emphasise either an 'active' approach to problem solving, generally considered to be more adaptive, or an 'avoidance' based approach, considered to be less adaptive. Other researchers have adopted a similar approach when using the Brief COPE Scale, e.g. Schnider et al. [52]. The 6 items from the subscales 'Active coping', 'planning' and 'positive reframing' were combined to form the 'active' coping scale (Cronbach's Alpha = 0.75) and the 4 items from the subscales 'self-distraction' and 'behavioural disengagement' were used to form the 'avoidance' coping scale (Cronbach's Alpha = 0.53). Both scales were created taking the mean of the items thus yielding two scales with scores between 1 and 4 where higher scores indicates higher levels of that type of coping.

Socioeconomic status

To measure SES we used information about the participants' parents from national registers on income and education in 2003 (i.e. the year before data was collected). We used household income as one measure of SES and highest attained educational level in the household as another. In those cases where the participants' parents had been divorced we used information on the household in which the participants had their place of residence according to CPR. Information on income was taken from the tax register (recoded into tertiles for some of the analyses) and information on educational attainment was taken from the Danish Educational Register and recoded into four categories: compulsory school (< 10 years of education), high school/vocational training (10–12 years), short and medium term higher education (called KVV and MVU in Danish) (12–15 years), university degree or equivalent (15 years or more).

Confounder variables

In order to take into account factors that could confound potential associations between SES and perceived stress we included three confounders: cohabitation status of parents in the household (lone parent vs. cohabitating), number of siblings (coded into 4 categories), and ethnic background (Danish parents vs. at least one immigrant parent). These variables might affect household income and

parental education. These data were taken from national registers.

Statistical analyses

In order to describe the study sample, mean scores on the four key variables (perceived stress, number of negative life events, avoidance and active coping) are reported for each of the independent variables (i.e. the two measures of SES). The results of these analyses are presented in Table 2. Ordinary Least Squares (OLS) regression was used to estimate the associations between perceived stress, parental SES, negative life events and coping. Residuals were checked to see whether the data were in concordance with the assumptions behind OLS (i.e. multivariate normality, homoscedasticity). The Q-norm plot showed a slight deviation from the normality assumption but excluding cases with the highest residuals (Studentized residuals >3) did not change the associations substantially (i.e. all changes in the beta coefficients were below 0.03). Robust standard errors were computed, but they did not change the results. In order to assess whether the association between parental SES and adolescent perceived stress is mediated by negative life events and coping, the analysis was carried out in four steps entering different variables at each step. The variables entered at each step can be seen from the notes in the tables. The proportion of the original association explained by coping and life events respectively was calculated as $((\beta_{\text{Crude}} - \beta_{\text{Adjusted}}) / (\beta_{\text{Crude}}) * 100)$. For education this was calculated entering the variable as a linear term and comparing the β values before and after adjusting for the two SES measures. In order to test the statistical significance of the mediation Sobel's tests were carried out on each of the mediators [53] using the *sgmediation* command in STATA. The analyses were stratified by gender as a consequence of the gender differences found in Table 2. After exclusion of all those with missing data on any of the variables used in the multivariate analysis ($n = 157$), the sample used for the analyses consisted of 2901 respondents, 1445 boys and 1456 girls. Analyses were performed using STATA v12.

Results

Table 2 contains descriptive statistics of the variables used in the analyses. Girls report significantly higher levels of perceived stress than boys do ($p < 0.001$). For that reason we decided to stratify the analyses by gender in case there were substantial differences in the relation between SES and perceived stress as well as the way in which the two measures of SES were mediated by negative life events and coping.

There is a consistent social gradient in perceived stress amongst both boys and girls regardless of the measure of SES one uses, although the amount of variance in

Table 2 Mean levels (including 95% Confidence Intervals) of perceived stress, number of life events, active and avoidance coping for adolescents by parents' highest education and household income

		Perceived Stress (range: 0–16)		Negative life events (range: 0–5)		Active coping (range: 1–4)		Avoidance coping (range: 1–4)	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
		4.87 (4.75–4.99)	5.64 (5.51–5.78)	0.54 (0.50–0.59)	0.65 (0.60–0.69)	2.65 (2.62–2.68)	2.62 (2.60–2.65)	1.94 (1.92–1.97)	1.97 (1.94–1.99)
Highest educational level in household (2003)	N (percent)	p = 0.071	p = 0.003	p = 0.002	p < 0.000	p = 0.167	p = 0.035	p = 0.669	p = 0.004
Primary school (< 10 years)	229 (10.2)	5.35 (4.97–5.74)	6.46 (6.08–6.84)	0.83 (0.68–1.00)	1.06 (0.89–1.22)	2.66 (2.56–2.75)	2.60 (2.53–2.68)	2.04 (1.96–2.13)	2.04 (1.96–2.11)
High School/Vocational training (10–12 years)	1169 (52.0)	4.81 (4.64–4.98)	5.59 (5.41–5.77)	0.53 (0.47–0.59)	0.59 (0.53–0.66)	2.62 (2.58–2.66)	2.59 (2.56–2.63)	1.93 (1.89–1.96)	1.99 (1.96–2.02)
Higher education (KVU/MVU) (13–15 years)	704 (31.3)	4.76 (4.54–4.97)	5.46 (5.21–5.70)	0.41 (0.35–0.48)	0.50 (0.43–0.57)	2.67 (2.62–2.72)	2.65 (2.60–2.69)	1.92 (1.88–1.97)	1.91 (1.87–1.95)
University or equivalent (> 15 years)	148 (6.6)	4.49 (4.03–4.94)	5.07 (4.57–5.57)	0.31 (0.19–0.43)	0.44 (0.29–0.59)	2.74 (2.63–2.85)	2.79 (2.68–2.90)	1.98 (1.87–2.10)	1.93 (1.84–2.01)
Household income (2003)		p < 0.000	p = 0.004	p < 0.000	p < 0.000	p = 0.234	p = 0.003	p = 0.072	p = 0.472
1. tertile (< 77,382 US \$)	593 (26.1)	5.42 (5.18–5.67)	5.86 (5.63–6.09)	1.03 (0.93–1.13)	1.13 (1.02–1.23)	2.59 (2.53–2.64)	2.65 (2.60–2.69)	2.02 (1.97–2.06)	2.00 (1.96–2.05)
2. tertile (77,382–100,531 US \$)	805 (35.4)	4.77 (4.57–4.98)	5.86 (5.63–6.10)	0.41 (0.35–0.47)	0.53 (0.46–0.60)	2.66 (2.61–2.70)	2.55 (2.51–2.60)	1.91 (1.87–1.96)	1.97 (1.93–2.01)
3. tertile (>100,531 US \$)	879 (38.6)	4.55 (4.36–4.74)	5.26 (5.05–5.48)	0.31 (0.26–0.36)	0.35 (0.29–0.40)	2.68 (2.64–2.73)	2.66 (2.62–2.71)	1.92 (1.88–1.96)	1.94 (1.90–1.97)

P-values indicate test for mean differences across the two SES- measures estimated separately for boys and girls.
Stratified by gender.

perceived stress accounted for by SES is small ($r^2 < 0.03$ for both measures of SES). Lower parental education and lower household income are associated with higher stress levels. However, it would seem that the gradient is strongest amongst girls if parents' education is used as the measure of SES, while income has the strongest gradient for boys. There is a clear social gradient for negative life events. Each downward step in SES is connected with an increased number of life events during childhood. This is not specific to the SES measure used or to gender, though girls report more events than boys ($p = 0.002$). This may in part be caused by slightly more girls experiencing their parents being divorced. While there is no gender difference in the amount of coping used and the SES differences in coping style is rather weak as well. For girls, higher parental education is associated with more active coping and less avoidance coping. These relationships do not reach significance for boys. On the other hand, boys show a non-significant trend regarding active coping. Increased income is connected with more active coping. This relationship is absent for girls.

Tables 3 and 4 show the associations between the two SES measures and perceived stress, when entering the different mediator and confounder variables in separate steps in the regression analyses, for boys and girls respectively.

The beta coefficients in model 1 show the impact of the two SES measures on perceived stress for each gender. The results show that SES differences are rather small but income seems to be more important for boys

while education is correlated stronger with perceived stress in girls. The decrease in the β values for household income and parental education in model 2 indicates that the SES – perceived stress relation is partly mediated by life events. This is confirmed by the Sobel tests for model 2 in both Tables 3 and 4. After inclusion in the model of life events, education is no longer significantly associated with stress among boys (Table 3). Comparing the crude β with the adjusted indicates that life events mediate between 13% and 23% of the original SES differences in perceived stress. In model 3, life events are replaced by the two coping variables. This produces larger beta coefficients than was seen in model 2, indicating that coping is more strongly associated with perceived stress than life events. The proportion of the SES differences in perceived stress mediated by coping is of the same magnitude (approximately 18%) as was the case for life events amongst boys and substantially higher for girls (46% vs 13%). For girls, but not boys, a larger proportion of the SES-stress gradient is accounted for by coping than by life events when parental education is the indicator of SES. Overall, the total SES differences mediated by negative life events and coping are somewhat higher among girls (49% and 56%) than is the case for boys (37% and 50%).

In Table 5 associations between the mediator variables and perceived stress are examined, both with and without controlling for SES and confounders. We can see that the strongest associations are between coping and stress. Coping appears to be more strongly related to perceived stress among girls. For both

Table 3 Perceived stress and its association with SES adjusted for negative life events and coping among boys

	Model 1			Model 2			Model 3			Model 4		
	B	Std. β	SE	B	Std. β	SE	β	Std. β	SE	β	Std. β	SE
Household income (in 1000 Dkr)	-0.001***	-0.106	0.000	-0.001**	-0.089	0.000	-0.001**	-0.086	0.000	-0.001**	-0.078	0.000
% of total income effect mediated	–			15.6%			18.9%			36.9%		
				(Sobel's test = 3.22, $p < 0.01$)			(Sobel's tests = 0.37, $p = 0.71$)			(Sobel's test = 5.66, $p < 0.01$)		
Parental education												
Primary school (< 10 years)	reference			reference			Reference			reference		
High School/vocational training (10–12 years)	-0.399	-0.084	0.211	-0.360	-0.125	0.212	-0.304	-0.064	0.195	-0.267	-0.056	0.192
Higher education (kvv/mvu) (13–15 years)	-0.425	-0.084	0.222	-0.365	-0.130	0.229	-0.287	-0.057	0.205	-0.231	-0.046	0.202
University (> 15 years)	-0.739*	-0.071	0.326	-0.578	-0.103	0.333	-0.605*	-0.058	0.301	-0.451	-0.043	0.298
% of total educational effect mediated	–			22.8%			28.2%			50.0%		
				(Sobel's test = 2.70, $p < 0.01$)			(Sobel's test = 2.90, $p < 0.01$)			(Sobel's test = 4.15, $p < 0.01$)		

* .05 > p > .01; ** .01 > p > .001; *** $p \leq .001$.

Ordinary Least Squares regression. (n = 1445).

For each SES measure (i.e. household income and parental education) the following four models were carried out adjusted for confounders (no. siblings, parents cohabitation status & ethnicity):

Model 1: Individual SES measure and perceived stress.

Model 2: Individual SES measure + life events.

Model 3: Individual SES measure + active and avoidance coping.

Model 4: Individual SES measure + life events, active and avoidance coping.

Table 4 Perceived stress and its association with SES adjusted for negative life events and coping among Girls

	Model 1			Model 2			Model 3			Model 4		
	β	Std. β	SE	B	Std. β	SE	β	Std. β	SE	β	Std. β	SE
Household income (in 1000 Dkr)	-0.001**	-0.095	0.000	-0.001**	-0.081	0.000	-0.001*	-0.059	0.000	0.000	-0.050	0.000
% of total income effect mediated	-			14.7%			37.7%			49.2%		
				(Sobel's test = 2.99, $p < 0.01$)			(Sobel's test = 15.46, $p < 0.01$)			(Sobel's test = 11.97, $p < 0.01$)		
Parental education												
Primary school (< 10 years)	reference			reference			reference			reference		
High School/vocational training (10–12 years)	-0.734**	-0.142	0.213	-0.646**	-0.125	0.212	-0.688***	-0.134	0.189	-0.618**	-0.120	0.189
Higher education (kvu/mvu) (13–15 years)	-0.856***	-0.150	0.230	-0.743**	-0.130	0.229	-0.612**	-0.107	0.205	-0.524*	-0.092	0.204
University (> 15 years)	-1.265***	-0.117	0.334	-1.115**	-0.103	0.333	-0.815**	-0.075	0.298	-0.697*	-0.064	0.297
% of total educational effect mediated	-			13.3%			45.9%			56.3%		
				(Sobel's test = 3.08, $p < 0.01$)			(Sobel's test = 24.18, $p < 0.01$)			(Sobel's test = 17.98, $p < 0.01$)		

* .05 > p > .01; ** .01 > p > .001; *** $p \leq .001$.

Ordinary Least Squares regression. (n = 1456).

For each SES measure (i.e. household income and parental education) the following four models were carried out adjusted for confounders (no. siblings, parents cohabitation status & ethnicity):

Model 1: Individual SES measure and perceived stress.

Model 2: Individual SES measure + life events.

Model 3: Individual SES measure + active and avoidance coping.

Model 4: Individual SES measure + life events, active and avoidance coping.

sexes, higher levels of active coping are related to less stress, while higher levels of avoidance coping are related to more stress. Negative life events are also clearly related to stress. More life events are predictive of higher stress levels. There is no gender difference in the strength of the association. The main gender difference here seems to be the association between active coping and stress, which is strongest for girls. This is also confirmed when running a regression analysis on the whole sample incorporating an interaction effect between gender and active coping ($p < 0.000$). Apart from the association between life events

and perceived stress amongst boys, the confounder variables do not seem to attenuate the observed associations (see Table 5, model 3).

Discussion

Overall findings

In terms of the research questions posed in the introduction, the main results of the study can be summarized as follows: a) There is a consistent social gradient in perceived stress irrespective of gender or the SES measure used. In general, adolescents with lower SES report higher levels of perceived stress. However, the amount of variance in

Table 5 Perceived stress and its associations with coping and negative life events

	Model 1			Model 2			Model 3		
	β	Std. β	SE	β	Std. β	SE	β	Std. β	SE
Boys									
Life events	0.587***	0.196	0.078	0.503***	0.168	0.072	0.535***	0.091	0.091
Active coping	-1.129***	-0.258	0.111	-0.958***	-0.219	0.105	-0.948***	-0.105	0.105
Avoidance coping	1.596***	0.328	0.121	1.410***	0.290	0.117	1.407***	0.117	0.117
Girls									
Life events	0.531***	0.186	0.073	0.435***	0.153	0.066	0.398***	0.140	0.087
Active coping	-1.895***	-0.375	0.123	-1.638***	-0.324	0.118	-1.637***	-0.324	0.118
Avoidance coping	1.874***	0.332	0.140	1.479***	0.262	0.132	1.448***	0.256	0.132

* .05 > p > .01; ** .01 > p > .001; *** $p \leq .001$.

Ordinary Least Squares regression. Stratified by gender.

For all mediating variables (i.e. Life events, Active coping and Avoidance coping) the following models were tested:

Model 1: Bivariate associations between each mediating variable and perceived stress.

Model 2: Associations between each mediating variable and perceived stress adjusted for other mediating variables.

Model 3: Fully adjusted model i.e. all mediating variables, both SES measures, no. siblings, parents cohabitation status & ethnicity.

perceived stress accounted for by SES is very small. b) There is also a social gradient in the number of negative life events experienced during adolescence, and c) the ways Danish adolescents attempt to cope with stress appears to be socially patterned. d) Life events and, to a greater extent, coping are associated with perceived stress. e) Furthermore, both life events and coping partly mediate the SES differences in perceived stress. When both life events and coping are included in the model between 37 and 56% of the social gradient in perceived stress is mediated, depending on gender and the measure of SES employed. Sobel's tests confirmed the existence of mediation for all the associations with the exception of coping style as a mediator of income differences in perceived stress for boys. f) Finally, the analyses presented here indicate that different measures of SES are related to perceived stress in slightly different ways, that is, via different mediational pathways. In general, parental education appears to have more influence on female adolescents' stress, while household income appears to have more influence on male adolescents' stress.

SES and perceived stress

It was mentioned in the introduction that research into SES differences in stress amongst adolescents has been sparse, but that others have found higher levels of perceived stress among adolescents from lower SES families. Goodman et al. [34] report a similar finding, although in their sample, the association was only present when parental education was the indicator of SES, and absent when household income was employed. Both measures of SES were related to perceived stress in our sample, though the amount of variance in perceived stress accounted for by SES was very small. It is likely that both the amount of variance accounted for and the question of which SES-markers will be related to stress will be affected by contextual factors in the area in which a study is undertaken. It is possible, for example, that the amount of variance that can be accounted for will be larger in countries with a less egalitarian welfare system than that found in Denmark. Another possible explanation of the rather small differences in perceived stress across SES could be the inadequacy of tapping into actual status hierarchies influencing adolescents' psychological well-being using information on parental status. It may be that the equalization of SES-differences in adolescents across a range of different measures of health [33] is caused by inadequate measures of SES among adolescents because their socioeconomic status is partly caused by the resources provided to them by their parents but is partly influenced by their own prestige and status in peer groups where different mechanism might be working (e.g. popularity due to sports achievements, intelligence, physical attractiveness etc.). If this is the case

only the use of more subjective measures of SES could remedy this. Others have also reported higher frequencies of negative life events amongst lower SES adolescence [e.g. [36,37,54]].

SES and coping

Research into associations between SES and coping strategies is meagre [24]. Wills et al. [36] examined associations between SES and many different coping variables, amongst them 'helpless coping', which consisted of items from Carver et al's [55] disengagement coping scale. Items from this scale constitute 50% of the items in our avoidance coping scale. 'Helpless coping' was found to be significantly related to parental education; higher parental education was related to lower levels of helplessness, which is in line with our results. More adaptive forms of coping were found to be positively related to parental education.

Both life events and coping were, as expected, related to perceived stress levels. There are at least two possible explanations of why coping was more strongly associated with perceived stress than were life events. The first explanation concerns temporal proximity. While the life events measured here occurred throughout childhood, our measure of coping concerns how adolescents generally attempt to manage stress in the present. Coping is therefore closer in time to present stress levels than are life events. Many mediating and moderating variables intercede between initial stressors, such as life events, occurring during the course of life, and present day stress levels. Coping styles are likely to be the result of expectations of control, which in turn are shaped by previous experiences of success and failure in dealing with the challenges of life and an awareness of available resources. Coping is "farther along on the psychosocial chain as a mediator" [24]. Secondly, there is likely to be a greater degree of causal reciprocity between coping and perceived stress than between life events and perceived stress. That is, stress levels are not purely a result of coping, but also something that partly determine the choice of coping strategy. When stress levels are higher, as they are for lower SES adolescents, this will often reflect expectations of inadequate control, which is likely to promote avoidance rather than attempts to change the (uncontrollable) situation.

Life events and coping as mediators

The main aim of the present study was to examine the extent to which life events and coping mediated SES-differences in perceived stress. In the present study, both life events and coping mediated some of these differences. For both boys and girls coping appear to be a stronger mediator than life events, irrespective of which SES-indicator is employed. In general, coping mediates

SES-differences in perceived stress to a larger degree among girls than boys. This is most apparent for the gender difference in the effect of household income mediated by coping where 37% of the income differences in SES are mediated among girls and the mediation effect is not statistically significant for boys. These differences cannot be explained by the data available. It is possible that gender differences in socialisation and maturational processes play a part. That is, girls of this age may be psychologically more mature on average than their male peers, which might affect the extent to which their coping reflects strategies and habits that are learned from their parents. This may therefore be a very age-specific gender difference. It is also possible that girls for some reason are more sensitive to childhood conditions connected with parental education, that parental education has a more formative influence on coping for girls, while boys' coping strategies are more influenced by material conditions reflecting household income. Perhaps higher parental education seems to promote more active coping and less avoidance coping.

Unfortunately there is very little in the literature that can help unravel such speculations. We have found only one previous study that investigates possible mechanisms connecting SES with perceived stress among adolescents by looking for mediation effects. Using cross-sectional analyses, Finkelstein et al. [35] examined the extent to which optimism and adaptive coping influence the relation between parental education and perceived stress. SES was related to stress, optimism and 'disengagement coping', but not 'engagement coping'. Higher optimism and engagement coping were also related to less stress, while higher disengagement coping was related to more stress. Conceptually these coping measures appear very similar to the distinction in the present study between active coping and avoidance coping. Engagement coping and active coping entail attempts to deal directly with problems that one acknowledges, and is considered more adaptive, while disengagement and avoidance coping involve cognitions and behaviours that aim at creating distance to problems which one tries not to acknowledge. However, unlike in the present study, adding the coping variables to the regression model did not attenuate the effect of SES on stress. While optimism was found to mediate the SES – perceived stress relationship, no evidence of a meditational role for coping was found. This may reflect the fact that relations between coping and stress and between SES and coping appear weaker in Finkelstein et al's study than in ours. The age range in Finkelstein et al's sample was larger (12–20 years) compared with our birth cohort. Since coping behaviours are likely to change quite dramatically from year to year during this crucial developmental period, employing a sample with such a large age-range may mask differences that are

present at a more specific age. Furthermore, there is recent evidence that the developmental trajectories of psychological resources such as self-esteem and mastery, which are likely to affect coping, are influenced by social class. Falci [56] found that high SES adolescents experience steeper gains in self-esteem and mastery compared to low SES adolescents during the high school years.

It is also possible that different variables will mediate the SES-stress relationship depending on the social, cultural and economic context. This may especially be the case with coping. If coping behaviour is in part socially determined, as the results of the present study suggest, then its measurement is likely to be sensitive to the social context in which it occurs. This presents researchers of adolescent stress and coping with a challenge. One approach would be to create context specific coping measures, which might make it easier to uncover relationships if they exist. The drawback of such an approach would be to muddy comparisons between studies and contexts.

While Wills et al. [36] did not include a measure of perceived stress in their study; they did test whether or not life events and coping mediated their observed relation between parental education and adolescents' substance use. Life events were found to mediate this relation but coping variables did not.

Chen et al. [44] used two composite measures of SES, one combining parental education and occupation into a prestige-based SES measure, and one combining income and savings into an assets-based SES measure. Their cross-sectional study employed a sample of 15 to 19 year old adolescents, and tested the role of psychological interpretations of threatening and ambiguous stimuli in the relationship between low SES and physiological stress responses. They also collected data on negative and positive life events during the previous 6 months. Prestige SES was related to adolescents' interpretations of ambiguous videos such that lower SES adolescents were more likely to interpret these as threatening than higher SES adolescents. This was not found when the analysis was repeated using the assets based SES measures. Lower prestige based SES was also related to higher heart rate reactivity and diastolic blood pressure while talking about the ambiguous video. Again, this was not found when using assets based SES. Threat interpretations partially mediated relationships between SES and physiological reactivity. General life events (e.g. a lack of positive events) partially explained the relationship between low SES and threat interpretations. Chen et al. [44] note that "... the experience of repeated and unpredictable negative life events in low-SES children may lead them to develop patterns of thinking in which they come to expect the worst even in ambiguous circumstances." Using this reasoning in the interpretation of our own results, this may in

turn lead to a greater use of avoidance coping amongst low SES adolescents. This illustrates how complex the relations between life events (and other sources of stress), coping and perceived stress are likely to be in reality. One may question the meaningfulness of trying to discern whether differential exposure or differential impact best explains SES-differences in perceived stress, since coping behaviours are presumably formed through socialisation and learning processes throughout childhood, and these processes will in turn be influenced by exposure. In this way vicious cycles may develop, so that greater exposure to negative and uncontrollable life events leads to expectations of less control and more threat, which in turn promotes more avoidance, which reduces the likelihood of successfully dealing with problems, even when such problems are objectively controllable. In other words, greater exposure may lead with time to greater impact. It is important that 'dispositional' measures of coping strategies, such as those used here, should not be thought of purely as properties of the individual, since they partly reflect socialisation to differential social conditions that promote or restrict these strategies. As Baum et al. [11] note, many psychological factors "are products of environmental exposures associated with lower or higher SES, such as learned helplessness, a sense of powerlessness, or an orientation towards mastery and efficacy..."

Using two measures of SES – advantages and disadvantages

Our results, in keeping with the studies discussed above, confirm the need to employ different indicators of SES in the same study. We found that both parental education and household income are related to adolescents' perceived stress, while others have found this relation for parental education but not income [34]. On the other hand, we found that the amount of the SES – perceived stress effect that could be explained by life events and coping was to some extent dependent upon the measure of SES used. In general, mediation was strongest when parental education was used. An exception is seen in model 2 for girls (Table 4), where the choice of SES measure does not have much influence on the extent to which life events mediate the SES – perceived stress relation. The choice of SES measure influences results most clearly in model 3 for boys (Table 3). Here, coping is seen to mediate the relation between parental education and stress, but not the relation between household income and stress. The present study suggests that employing different indicators of SES could provide a means of examining gender differences in meditational processes connecting SES with stress.

We found that a clear social gradient in life events was apparent irrespective of SES-measure. Brady et al. [54] also found greater life event exposure in lower SES

adolescents. Interestingly, different indices of SES were predictive of different types of life events. For example, greater assets (a composite measure of material resources) predicted fewer negative life events that were considered to be independent of respondent behaviour, and fewer total life events, while fathers' education predicted fewer negative life events that were not independent of respondents' behaviour. The study also included a measure of positive life events, but these were not related to any SES index.

Strengths and limitations

Several limitations of our study need to be addressed. Firstly, given the cross-sectional nature of the study, the meditational analyses cannot conclude whether life events and coping operate in a causal fashion. Both could account for some of the variance in the SES-perceived stress relation. Given that major life events, such as parental divorce or death, were reported, it seems unlikely that present day stress levels would influence recall or actual event occurrence. With coping however, there is likely to be more reciprocity. As mentioned previously, a greater use of avoidance coping could conceivably be a consequence of higher stress levels as well as a cause. Our results do however indicate a need to further investigate the possibility of a mediating role for coping. A second potential limitation concerns the possibility of response bias. As might be expected, non-responders were more likely to have lower SES. However, since all SES-groups were well represented in the sample we consider any potential for response bias to be minimal. Ensuring sufficient numbers in each SES group was in part achieved via our strategy of gaining access to schools and asking pupils to fill out the questionnaires there, during class-time. Another possible limitation is that we only collected data on negative life events. Given Chen et al. [44] finding that lack of positive events, rather than a greater frequency of negative events, mediated the relation between SES and physiological stress reactivity, the present study could have been strengthened by measuring both types of events. A final possible limitation concerns the generalizability of our findings. As our sample we used a whole birth cohort from a well defined region in Denmark. The region is predominantly rural and relatively affluent. Denmark is one of the richest countries in the world. Because of a progressive tax system and a welfare state, that ensures free education and health services for everyone, material differences between rich and poor are relatively small. In less egalitarian societies one might expect SES differences in perceived stress to be larger. It was also mentioned above that different variables might mediate the SES-stress relationship depending on the social, cultural and economic context.

Whether or not specific coping strategies, for example, are beneficial, is indeed likely to be very context dependent. The consequences of life events, such as parental divorce, in terms of changed life trajectories, chronic living conditions and future possibilities are also likely to be dependent upon the societal conditions in which they occur. Again, the Danish context of the present study seems more likely to weaken rather than intensify the 'stressfulness' of low SES, compared to countries with a less established welfare system.

The present study also has a number of strengths. Firstly we employ data from a large cohort study with a very high response rate. Secondly, since we use two independent sources of data, self-report questionnaire data combined with data from national registers, the relationships found between SES and perceived stress cannot be accounted for by common method variance. Thirdly, the use of national registers enabled a reliable and objective categorisation of participants into SES-groups. Fourth, because we use two different measures of SES, our study can contribute to the ongoing discourse regarding the nature of SES and its relation with stress. While income and education are related, our analyses suggest that they may exert an influence on stress via different mechanisms, and that these mechanisms to some extent vary according to gender.

Conclusions

The main conclusion of this study is that negative life events during childhood and coping behaviour mediate the social gradient in perceived stress among 14–15 year old Danish adolescents. The higher level of perceived stress reported by lower SES adolescents is related to more exposure to negative life events and increased vulnerability to stress reflected by less adaptive coping. As far as we are aware, this is the first time that such a meditational role for coping has been found in this age-group, though there is very little research addressing this question. We have provided possible explanations for discrepant findings.

Adolescence is likely to be a formative period with regard to many psychological variables that potentially mediate the SES – stress relationship. There is a clear need for longitudinal research that can unravel the complex interplay between SES, gender, differential exposure, context dependent socialisation and learning processes, the development over time of coping and coping resources, and the long term effect of these relationships on stress reactivity. How are coping strategies developed during adolescence? In what ways are these strategies affected by SES and/or exposures to stressful conditions and events? Future research will benefit from employing different measures of SES in the same study. It will also be a good idea to include assessment of the influence of positive

events and conditions on stress and coping, rather than focussing narrowly on negative events.

A greater understanding of how coping and coping resources are formed over time is important for preventative efforts. However, it would be too simplistic to conclude, on the basis of the present study, that the coping behaviours of low-SES adolescents need to be changed, e.g. that they should be encouraged to employ more active coping and less avoidance coping. If coping patterns are socially determined then it is the social determinants of coping that we need to uncover and alter, if lower SES groups are to have a better chance of dealing with the stressors they encounter.

Competing interests

All authors declare that they have no competing interests.

Authors' contributions

DG conceived the idea for the paper. CH performed the statistical analyses. JHA provided supervision for the statistical analyses. DG, KR and CH jointly drafted the manuscript with the main part of the introduction and discussion written by DG and the main part of the methods and results section drafted by CH. Revisions were made by CH. All authors interpreted the data and approved the final manuscript.

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Development of health and depressive symptoms among Danish adolescents—Socioeconomic differences and effects of life-style

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ABSTRACT

While the existence of social inequality in health in childhood as well as among adults is well established, research of mechanisms underlying this inequality is still sparse. The study aim was to report on the development of self-rated health and depressive symptoms from age 15 to 18 years in a cohort study of Danish adolescents. Methods: The cohort comprised 3,681 individuals born in 1989, 3058 individuals answered the baseline questionnaire in 2004, and 2400 responded to a follow-up questionnaire in 2007, with 2181 individuals participating in both rounds (59% of the original cohort). Social background information of the participants was derived from a national register. For the analysis two variables indicating change in the two health indicators was computed by subtracting the 2007 levels of the variables from the levels experienced in 2004. Results: After 3 years, mean self-rated health (SRH) deteriorated slightly in adolescents (-0.24 ; 95% CI = -0.28 to -0.19) across all socioeconomic status (SES) groups and depressive symptoms increased (0.64 ; 95% CI = 0.52 to 0.75). High household income was protective for decrease in SRH (0.62 ; 0.43 - 0.91). Negative life-style changes were associated with poorer SRH and more depressive symptoms. Conclusions: Self-rated health and depressive symptoms changed to the worse among Danish adolescents from age 15 to 18 years. Negative changes in several lifestyle factors were found to accompany the deterioration of health. This result stresses the intrinsic relationship between lifestyle changes and health and the pos-

sible positive effect of maintaining and enhancing positive lifestyle factors.

Keywords: Longitudinal Cohort Study; Lifestyle; Self-Rated Health; Depressive Symptoms

1. INTRODUCTION

Whilst social inequality in childhood and adult health is well established, research into the mechanisms underlying this inequality is essential if we are to understand how social and economic factors are related to health and where interventions will be effective. Assessments of individual overall health status have been widely studied by means of self-rated health (SRH), originally developed for the ShortForm-36 (SF-36) and SF-12. In adult populations, this single self-perception measure has revealed systematic associations with later morbidity, mortality and disability [1,2]. Despite a large body of work examining adult SRH, only a few studies have evaluated the role of SRH among adolescents as a measure of actual health status.

Among US adolescents' self-rated health was found to be moderately stable and was characterized as an enduring self-concept among adolescents [3]. The Norwegian young-Hunt study followed adolescents aged 13 - 19 years for 4 years and found that SRH was a relatively stable construct during adolescence and that it was related to both general well-being and disability as well as to use of healthcare, and health-compromising behaviours. The study, however, lacked information on family income and parents' educational level rendering socioeconomic comparisons impossible [4].

The German Bella-study [5] found children from lower social status homes to report a lower health-related quality of life compared to children from middle social

status homes, who, in turn, were surpassed by children with a high family social status. Various mechanisms that could explain the relationship between socioeconomic status, and the well-being and health-related quality of life of children and adolescents are being widely discussed in the literature [6-10]. Many of the hypothesized mechanisms refer to differences in access to material and social resources or to reactions to stress-induced conditions to which children and adolescents are exposed. One of the most prominent explanations of social inequality of health is the behavioural/cultural explanation that hypothesize that the observed health differentials are primarily the result of social class differences in health related lifestyle behaviours [6].

Depression is another commonly studied measure of health and wellbeing among adolescents and young adults [11-15]. First onset is usually in adolescence [11-12]. Depression early in life can have serious implications for the individuals' school performance, school absence and dropout and later professional careers [14]. Furthermore, depression in adolescence can increase use of tobacco and alcohol [15]. Other studies have shown a moderate association between physical activity and depression amongst adolescents [16,17]. However, due to cross sectional designs, the causal relation between depression and physical activity is unclear.

This study reports on the development of self-rated health and depressive symptoms, from age 15 to 18, in a prospective cohort study among Danish adolescents. The aim was to study life-style related predictors for health change among children with different social backgrounds defined by household income and parents' education.

2. METHODS

2.1. Study Population

Data were gathered as part of the ongoing West Jutland Cohort Study (VestLiv), which is a survey following a complete regional cohort of adolescents in the Western part of Denmark, gathering comprehensive information on the occurrence, severity and impact of manifold symptoms of physical and mental health problems—both self-reported and register-based [18]. Information on socioeconomic status of parents is from official registers.

The cohort comprised of 3681 individuals born in 1989, of which 3058 answered the baseline questionnaire in 2004, resulting in a response rate of 83%. Everyone who had not opted out of the study ($N = 3293$) was sent the second round questionnaire in 2007, and 2400 answered the questionnaire resulting in a response rate of 73%; 2181 individuals participated in both rounds (59% of the original cohort). These 2181 individuals constitute the basis of analysis in this study.

Information on the social background of the participants (e.g. household income, parents' highest education etc) derived from a national register in Statistics Denmark by using information from the Central Office of Civil Registration (CPR) in which the respondents are linked to their legal parents or guardians via a personal identification number given to everyone in Denmark at birth (or upon entry for immigrants).

Ethical approval: The study has been notified to and registered by Datatilsynet (the Danish Data Protection Agency). According to Danish law, questionnaire and register-based studies do not need approval by ethical and scientific committees, nor informed consent.

2.2. Health Indicators

This study examines two aspects of adolescents' health status: self-rated health (SRH), and psychological health. For SRH the question was "In general, how would you rate your health?" with response options from 1 "Poor" to 5 "Excellent." Psychological health was measured using the Center for Epidemiological Studies Depression Scale for Children (CES-DC), 4-item version [19]. Responses were scored 0 "Not At All", 1 "A Little", 2 "Some", 3 "A Lot".

2.3. Independent Variables

Socioeconomic status (SES) was defined according to household income and parents' educational level in the year before baseline (2003). Household income was divided into quartiles, and parents' highest education was divided into four levels: under 10 years, 10 - 12 years, 13 - 15 years and >15 years of education.

Life-style factors were measured by a series of questions on leisure-time and sporting activities, smoking habits, time spent watching television and using a computer, and eating habits at age 15 and 18 years. We constructed dichotomous variables for a change in life-style indicating a potentially negative change versus no change/change to a healthier life-style during the 3-year follow-up period e.g. starting smoking versus continuing to smoke/stopping smoking. Characteristics of the study population at baseline 2004 are described in **Table 1**.

2.4. Statistics

Adolescents who participated in both waves of the study (2004 and 2007) were eligible for data analysis ($n = 2181$). For the analysis, two variables indicating a change in the two health indicators was computed by subtracting the 2007 levels from the level reported in 2004. These are the dependent variables. A decrease of at least one scale point on a scale from 1 to 5 was considered a relevant change for SRH, and for CES-DC scale, which runs from 0 to 12, a change of at least 3 scale-

Table 1. Characteristics of study population at baseline 2004 and at follow up 2007, and changes in negative direction for included variables from 2004 to 2007.

Variable	Level	2004 N (%)	2007 N (%)	2004/2007 N (%)
Gender	Female	1180 (54.1)		
	Male	1001 (45.9)		
Self-rated health (SRH)	Excellent	645 (29.8)	477 (22.5)	
	Very good	999 (46.1)	909 (42.8)	
	Good	442 (20.4)	608 (28.6)	
	Fair	76 (3.5)	138 (6.5)	
	Poor	6 (0.3)	21 (1.0)	
<i>Poorer SRH at follow-up</i>	<i>Decrease of ≥ 1 point</i>			780 (35.8)
Depress. symptoms (score 0 - 12)	0 - 3	1665 (78.5)	1446 (67.1)	
	4 - 12	455 (21.5)	708 (32.9)	
<i>More depressive at follow up</i>	<i>Increase of ≥ 3 point</i>			465 (24.3)
Parental educational level	<10 yrs	214 (9.8)		
	10 - 12 yrs	1107 (50.8)		
	13 - 15 yrs	709 (32.5)		
	>15 yrs	138 (6.3)		
Household income, EURO	<60,000	473 (21.7)		
	60 - 75,000	533 (24.4)		
	75 - 90,000	573 (26.3)		
	>90,000	590 (27.1)		
Participation in sports, hrs/week	0	32 (1.5)	99 (4.6)	
	Approx. 0.5	84 (3.9)	102 (4.7)	
	Approx. 1	214 (9.8)	295 (13.6)	
	Approx. 2 - 3	565 (25.9)	668 (30.7)	
	Approx. 4 - 6	756 (34.7)	649 (29.8)	
	7 or more	511 (23.4)	360 (16.6)	
<i>Reduction in sports</i>				338 (15.5)
Smoking habits	Non smoker	1889 (89.2)	1555 (73.5)	
	<Once/week	94 (4.4)	158 (7.5)	
	Not daily, but >once/week	39 (1.8)	98 (4.6)	
	Daily	94 (4.4)	305 (14.4)	
<i>Begun to smoke</i>				386 (17.7)
TV/video and computer use	<2hrs/day	913 (42.3)	470 (22.0)	
	2hrs +/day	1246 (57.7)	1668 (78.0)	
<i>More TV and computer use</i>				1435 (65.8)
Fruit/vegetable intake	Once/day or more	849 (39.2)	310 (14.6)	
	Once or more/week	727 (33.5)	752 (35.4)	
	<Once/week	589 (27.2)	1061 (50.0)	
<i>Less fruit/vegetable</i>				1,106 (33.7)
Wholegrain bread intake	Once/day or more	645 (30.4)	667 (31.5)	
	Once or more/week	956 (45.0)	798 (37.6)	
	<Once/week	523 (24.6)	653 (30.9)	
<i>Less full grain bread</i>				535 (24.5)

points, corresponding to 1 standard deviation, was used to indicate change. Logistic regression analyses were conducted with the two measures of SES, life style factors, and gender as the independent variables. Results are reported as odds ratios (OR) with 95% confidence intervals (95% CI) for developing poorer self-rated health and more depressive symptoms in the 3-year follow-up period. Baseline levels of the two outcomes and all the life-style factors were included in the models in order to adjust for baseline levels. The Hosmer-Lemeshow Goodness-of-fit test was used for each of the logistic regression models.

3. RESULTS

Assessments of health behaviour at baseline 2004 and at follow up 2007 show changes in negative direction for all included variables (**Table 1**).

Furthermore, mean self-rated health (SRH) deteriorated slightly in adolescents from 15 to 18 years (-0.24 ; 95% CI = -0.28 to -0.19) across all SES groups (**Table 2**) and depressive symptoms increased (0.64 ; 95% CI = 0.52 to 0.75) during the 3 years (**Table 3**).

Parental education level was not associated with a deterioration in SRH or increase in depressive symptoms among adolescents from 15 to 18 years of age, whereas there was a tendency for adolescents from lower income homes to develop poorer SRH: Higher household income was protective against reporting poorer SRH after 3

years (OR = 0.62 ; 95% CI 0.43 - 0.91), but had no effect on the development of depressive symptoms. Female adolescents had a two-fold risk of developing worse SRH and more symptoms of depression in the 3-year period compared to males (**Table 4**).

Changes in several of the life-style factors were associated with poorer SRH in the follow-up period. Adolescents who reduced their sporting activities (OR= 1.97 ; 1.46 - 2.66) or decreased their intake of fruit and vegetables (1.36 ; 1.06 - 1.73) had poorer SRH after 3 years. More than two thirds of the respondents (65.8%) had increased their time with television and computer use, and this was associated with poorer SRH (OR = 1.58 ; 1.23 - 2.02). A reduction in fruit and vegetable intake and of whole-grain bread were each associated with a 48% increased risk of reporting more depressive symptoms after 3 years, whereas the association between eating habits and SRH after 3 years was smaller (**Table 4**). Finally, reducing sports activities was associated with poorer SRH and more symptoms of depression from age 15 to 18. Those who begun to smoke reported poorer SRH (OR = 1.81 ; 1.36 - 2.42) at follow-up (**Table 4**).

4. DISCUSSION

In general, development in self-rated health and depressive symptoms were in a negative direction among

Table 2. Self-Rated Health (SRH) at baseline (2004) and follow-up (2007). N = 2140.

Self-rated health*		Follow-up 2007					
		Excellent	Very good	Good	Not very good	Poor	Total
Baseline 2004	Excellent	261 (12.2%)	262 (12.2%)	99 (4.6%)	14 (0.7%)	2 (0.1%)	638 (29.8%)
	Very good	174 (8.1%)	479 (22.4%)	282 (13.2%)	41 (1.9%)	10 (0.5%)	986 (46.1%)
	Good	34 (1.6%)	145 (6.8%)	191 (8.9%)	61 (2.9%)	5 (0.2%)	436 (20.4%)
	Not very good	4 (0.29%)	18 (0.8%)	29 (1.4%)	20 (0.9%)	4 (0.2%)	75 (3.5%)
	Poor	1 (0.1%)	1 (0.1%)	2 (0.1%)	1 (0.1%)	0	5 (0.2%)
	Total	474 (22.2%)	905 (42.3%)	603 (28.2%)	137 (6.4%)	21 (1.0%)	2140 (100%)

*Mean change estimate; 95% CI, t-test p-value; All: -0.24 ; -0.28 to -0.19 , $p < 0.000$. Scale range 1 - 5, Boys/girls: 0.06 ; -0.03 to 0.14 , $p = 0.09$.

Table 3. Depressive symptoms at baseline (2004) and follow-up (2007). N = 2120.

Depressive symptoms*		Follow-up 2007		
		Scale score 0 to 3	Scale score 4 to 12	Total
Baseline 2004	Scale score 0 to 3	1197 (56.5%)	468 (22.1%)	1,665 (78.5%)
	Scale score 4 to 12	227 (10.7%)	228 (10.8%)	455 (21.5%)
	Total	1424 (67.2%)	696 (32.8%)	2120 (100%)

*Mean change estimate; 95% CI, t-test p-value; All: 0.64 ; 0.52 to 0.75 , $p < 0.000$. Scale range 0 - 12; Boys/girls: 0.30 ; 0.07 to 0.52 , $p = 0.005$.

Table 4. Parental socioeconomic status (SES) and change in life-style factors-effects on the risk of developing poorer general health and more depressive symptoms in a 3-year follow up period amongst Danish adolescents. Logistic regression with odds ratios (OR) with 95% confidence interval (CI). N = 2181.

Variable	Level	N (%)	Poorer self-rated health		More depressive symptoms	
			Partly adjusted* OR; 95% CI	Fully adjusted** OR; 95% CI	Partly adjusted* OR; 95% CI	Fully adjusted** OR; 95% CI
<i>Educational level</i>	Up to 10 yrs	214 (9.9%)	1.00	1.00	1.00	1.00
	10 - 12 yrs	1107 (51.1%)	0.89; 0.63 - 1.26	0.88; 0.59 - 1.31	0.87; 0.59 - 1.28	0.89; 0.58 - 1.37
	13 - 15 yrs	709 (32.7%)	1.04; 0.72 - 1.50	1.07; 0.70 - 1.63	1.02; 0.68 - 1.55	1.13; 0.71 - 1.79
	>15 yrs	138 (6.4%)	1.10; 0.66 - 1.83	1.22; 0.69 - 2.17	1.36; 0.78 - 2.36	1.39; 0.71 - 2.61
<i>Household income, quartiles—EURO</i>	<60,000	473 (21.8%)	1.00	1.00	1.00	1.00
	60,000 - 75,000	533 (24.6%)	0.73; 0.52 - 1.02	0.67; 0.46 - 0.98	1.07; 0.73 - 1.56	1.18; 0.77 - 1.81
	75,000 - 90,000	573 (26.4%)	0.78; 0.56 - 1.09	0.79; 0.54 - 1.14	1.07; 0.73 - 1.56	1.15; 0.75 - 1.76
	>90,000	590 (27.2%)	0.62; 0.44 - 0.88	0.62; 0.43 - 0.91	0.87; 0.59 - 1.28	0.94; 0.61 - 1.46
<i>Gender</i>	Female	1180 (54.1%)	1.66; 1.36 - 2.02	1.76; 1.38 - 2.24	2.03; 1.63 - 2.53	2.37; 1.79 - 3.13
<i>Reduction in sport</i>		338 (15.5%)		1.97; 1.46 - 2.66		1.51; 1.09 - 2.11
<i>Begun to smoke</i>		386 (17.7%)		1.81; 1.36 - 2.42		1.25; 0.93 - 1.69
<i>More TV and PC time</i>		1435 (65.8%)		1.58; 1.23 - 2.02		1.09; 0.96 - 1.24
<i>Less fruit and vegetables</i>		1106 (33.7%)		1.36; 1.06 - 1.73		1.48; 1.12 - 1.94
<i>Less wholegrain bread</i>		535 (24.5%)		1.19; 0.91 - 1.55		1.47; 1.10 - 1.97

*Adjusted for parents' educational level, household income, baseline self-rated health or depressive symptoms and gender, **Adjusted for parents' educational level, household income, baseline self-rated health or depressive symptoms, gender and life-style changes.

Danish adolescents from age 15 to 18 years. The risk of reporting poorer SRH after 3 years was lower in households with higher income, whereas parental educational level was not associated with the development in SRH or depressive symptoms. Adolescents who had adjusted certain life-style factors in a negative direction from the age of 15 to 18 reported poorer SRH and more depressive symptoms. These results are consistent with what has been observed in other longitudinal studies of health related lifestyle among adolescents [20,21].

Despite the relatively high average household income in this region of Denmark adolescents from households within the lowest quartile of incomes had a statistically significant increased risk of reporting poorer SRH after the three-year period. SRH is a measure of perception of general health rather than a measure of "true health", but such a measure seems indeed impossible to pinpoint [22]. Explanations for the effect of household income on health have been hypothesized as the direct effects of

material living conditions (absolute deprivation) as well as to social comparisons and experiences of relative deprivation. The results from a meta-analysis and several other studies among adults suggest a moderate adverse effect of income inequality on health, but the population impact might be large [23,24]. A British study found that low household income was associated with lower SRH and a number of other indicators of poor health among children aged 5 - 15 years [25].

The discrepancy in findings related to the two measure of SES (household income and parents' highest education) emphasize that these are two different indicators of social status emphasizing different aspects—material versus cognitive dimensions of socioeconomic status [18]. From our results it seems that material circumstances better predict developments in SRH compared to parental educational level.

Developing more health-compromising habits from age 15 to 18 years was consistently associated with re-

porting both poorer SRH and, to a lesser extent, more depressive symptoms in this group of adolescents. Even though the study was prospective there could be reverse causation in that, for example, a reduction in sporting activities could be due to developing poorer SRH and more depressive symptoms in the 3-year period. We tested for an association between changes in health-compromising habits as the outcome variables using SRH and depressive symptoms as explanatory variables, and found several significant associations indicating that causation was bidirectional. The protective effect of positive health behaviour is in line with similar findings suggested in previous cross sectional studies [16,26,27]. Health-compromising behaviors and a lack of sporting activity and exercise were also found to be risk factors for deterioration in SRH in the Young-Hunt-Study, which benefits from a 4-year observation period [4]. We conclude that health risk behaviours, such as lack of leisure time sporting activity and smoking may contribute to later poor self-rated health. This has also been found to be true over a follow-up period of 25 years [28]. But in addition, developing more depressive symptoms and experiencing a deterioration in SRH may also result in health-compromising behaviours. This study benefits from using register-based information on parents education and household income. Comparing non-responders at baseline and dropouts in the follow-up period it can be seen that there were more non-responders and dropouts from households with low income and the least parental educational. This selection would tend to bias the results towards the null.

From a public health perspective, this study supports the idea that increasing sporting activities and providing better opportunities for healthy nutrition in schools will improve chances for the successful prevention of the development of poorer health among adolescents. A recent Cochrane review [29] found that there is some evidence of positive effects on lifestyle behaviors and physical health status measures, and that ongoing physical activity promotion in schools is recommended.

The study also points to the importance of giving special attention to adolescents who develop more depressive symptoms or experience a deterioration in SRH: this group may be at greater risk of developing a health compromising lifestyle to put their health at further risk.

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