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Research paper

Employment opportunities for persons with different types of disability

Les opportunités d'emploi pour les personnes atteintes de diverses formes de handicap

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ABSTRACT

The employment status of groups with different disabilities was analysed as were potentially important moderating factors (work ability, structural and individual factors). A secondary analysis was performed on 4359 respondents with disabilities from Statistics Sweden's Labour Market Investigation. The respondents were divided into six disability groups (communicative-hearing, communicative-speech-reading, communicative-vision, psychological disability, medical disability, physical disability). Logistic regression analyses showed that the probability of being employed was highest among respondents with hearing disabilities and respondents with psychological disabilities were least likely to be employed. Being a woman (very young or old) with only primary education and with partially or very impaired work ability, reduced employment opportunities. Higher education did not increase employment opportunities for respondents with impaired work ability. In summary, the type of disability is essential for employment opportunities, and differences between disability groups cannot be explained by differences in other variables.

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The moderating factors studied were found to be of equal importance in all groups.

RÉSUMÉ

Cet article expose les résultats d'une étude statistique sur les difficultés d'accès à l'emploi rencontrées par les personnes en situation de handicap. Des mécanismes d'interaction entre la capacité de travail et d'autres facteurs individuels et structurels sont mis en évidence. Une analyse secondaire des réponses de 4359 personnes handicapées, extraites des archives statistiques suédoises, a été effectuée. Les répondants ont été répartis en six groupes. Des analyses de régression logistique ont montré que la probabilité d'obtenir un emploi était plus élevée chez les personnes ayant un déficit auditif et que les personnes souffrant de handicaps psychologiques étaient les moins susceptibles d'être en emploi. Être une femme, très jeune ou très âgée, avec un niveau d'éducation élémentaire et avec une capacité de travail partiellement ou fortement réduite, diminue les possibilités d'accès à l'emploi. Enfin, un niveau d'éducation supérieur n'augmente pas les possibilités d'accès à l'emploi pour les répondants ayant une capacité de travail réduite. La conclusion principale est que le type de handicap a une importance considérable relativement aux possibilités d'accès à l'emploi et que ces différences ne sont pas expliquées par des différences dans d'autre variables déterminantes. Les facteurs modérateurs étudiés sont d'importance égale dans tous les groupes.

Mots clés :
Forme de handicap
Emploi
Capacité de travail auto-évaluée

1. Introduction

Being employed means being committed to participation in an activity, fellowship with others and an occupational identity. People want to feel that they are needed by others and that what they do is meaningful, in both their own eyes and in the eyes of others. For people with a disability, such aspects are probably even more important, largely because these individuals have become an increasingly marginalised group in contemporary working life, with its great demands for education, flexibility and productivity (e.g., Baker & Jacobs, 2003; Dag, 2006; Sjöberg, 2002).

We know that the barriers towards entering the labour market for people with disabilities vary depending on the type of disability (e.g., Clausen, Greve Pedersen, Olsen, & Bengtsson, 2004). Some groups face extreme difficulties to overcome (e.g., people with psychiatric disorders), while others are facing fewer difficulties (e.g., people with hearing impairment). In some countries, rehabilitation programmes are tailored according to different disabilities: for instance, persons with neuropsychological disabilities are offered another type of working life support than persons with mobility disabilities. However, in the general discussion about benefit schemes and assessments of rehabilitation programmes, persons with disability are sometimes treated as a homogenous group (e.g., OECD, 2009a,b), although it is important that differences in work opportunities are considered, such as in cost–utility analysis of rehabilitation programmes.

In surveys on living conditions, data are often classified into groups of disability, and the results mainly concern how demographic variables (e.g., gender, age and residential region) as well as other variables (e.g., work ability and level of education) differ between the types of disability. Further, comparisons are often made between people with and without disabilities. Several studies have focused

on the problems that specific groups with disabilities have on the labour market without comparing the situation for groups with different disabilities (e.g., Dag, 2006; Klein & Hood, 2004; Louvet, 2007; Rydberg, Coniavitis Gellerstedt, & Danermark, 2010; SCB 2005b, 2009). In a literature review, Nolén (2005) noted that there are numerous publications concerning work and disability, but that studies integrating these two issues are rare. Moreover, the review showed that research in this area often treats people with disabilities as a homogeneous group.

Of the few studies that did compare working life situations among different types of disability (e.g., Boman, Kjellberg, Danermark, & Boman, 2013; Clausen et al., 2004; Crisp, 2005), employment opportunities were found to differ between types of disability. Crisp (2005) identified variables related to vocational outcome for six groups with disabilities (five with medical disabilities and one with psychological disability). The author found that severity of disability as well as socio-demographic, psychological and psychosocial factors were key predictors for returning to work or employment status after onset of disability. Furthermore, the author reported that the key predictors differed both between and within the disability groups. Clausen et al. (2004) studied the labour market in Denmark for groups with communicative, physical, medical and psychological disabilities. In brief, the group with communicative disabilities, including the hearing and vision impaired, had the best opportunities on the labour market. Most problems entering the labour market were found in the group with a psychological disability. The authors hypothesized that this finding might be due to the lower education level in the group with psychological disabilities.

In disability research, there has been a tendency to focus on societal barriers. A social model of disability has dominated in the past decades in some European countries (e.g., Great Britain) but not in Scandinavia, where a relational model has been more influential (Grönvik, 2009). In short, a relational model emphasises that disability is the result of an interaction between a person and his or her environment. This model is consistent with the International Classification of Functioning, Disability and Health (Escorpizo et al., 2010) and is the approach that underpins the present analysis.

2. Aim and study questions

A number of factors influence employment opportunities for people with disabilities. Structural factors include labour market structure and legislation. There are also many individual factors that impact opportunities for individuals with disabilities. Our knowledge of how these individual factors interact with the type of disability is limited. Hence, the overall aim of the present study was to contribute to knowledge in this area by examining factors of importance for employment opportunities of people with disabilities in the Swedish labour market. To do so, the following research questions were formulated:

- how do different types of disability affect employment opportunities?
- what is the importance of gender, age, ethnicity, residential region, education and work ability for employment opportunities among people with disabilities?
- are differences between groups with disabilities moderated by these variables?
- does education level influence the relationship between self-estimated work ability and employment opportunities?

3. Method

3.1. Rationale for choosing the mediating factors

In this study, we included six potential moderating factors (gender, age, ethnicity, residential region, education and work ability) in the analysis of the relationship between types of disability and work. Of the available factors, we selected those that research has indicated might influence work opportunities in general.

3.1.1. Gender and age

Several studies have shown that the structure of working life often favours men, and that this factor has not been adequately addressed in disability research (Andrén, 2001; Coniavitis Gellerstedt & Danermark, 2004; Einerhand & van der Stelt, 2005; Randolph and Andersen, 2004; Rissén, 2006; Tideman, 2000). The present study also treats the question of whether type of disability, education level, age, ethnic background and residential region differ in men and women in relation to employment opportunities.

People with disabilities have a high mean age, and this in itself may explain their lower rates of employment compared with people without disabilities (Göransson, 2002). The largest proportion of people with disabilities is in the age group over 50 years, and it is known that employment in this group decreases sharply after age 40, especially for people with only a secondary education (Mitchell, Adkins & Kemp, 2006; Statistics Sweden, 2005a, 2009). Further, studies show that, whether or not a person has a disability, people in middle age have the best opportunities on the labour market (Edin & Lagerström, 2006). The lower employment rate among people with disabilities within the age group that is most attractive on the labour market is a fact that requires further attention.

3.1.2. Ethnic background and residential region

Research on ethnicity and disability (e.g., Edwards, Praat & Barker, 2005; Statistics Sweden, 2005b, 2009) shows that people with an ethnic background other than Swedish are employed considerably less often than ethnic Swedes. Bohlin (2001) concluded that being an immigrant with disabilities entails double vulnerability and poorer health status than being a Swede with disabilities. Moreover, the authors of these studies stated that people with disabilities are more likely than people without disabilities to be engaged in work that does not correspond to their education level.

In general, the northern regions of Sweden and the island of Gotland have a higher rate of unemployment than other regions. In addition, northern Sweden has the highest proportion of individuals with disabilities (Statistics Sweden, 2005b, 2009). The present study analyses the significance of ethnicity and region of residence for employment opportunities.

3.1.3. Education

Several studies have shown that education improves the opportunities of getting a job (e.g., Boman & Nilsson, 1998; Göransson, 2002; Lindqvist, 2007; Sjödahl Holmlid, 1996; Statistics Sweden, 2005b, 2009). These studies also show that, on average, people with disabilities have a lower education level compared with the general population and that students with disabilities face more obstacles than do students without disabilities. Moreover, in analysing the pathways into working life for people with mobility disabilities, Solstad Vedeler and Mossige (2010) found that respondents emphasised higher education as key factor for a smooth transition into the labour market. Thus, an important question is whether the benefits of continued education are as great for individuals with disabilities as they are for individuals without disabilities.

3.1.4. Work ability

People with disabilities affecting their work capacity have difficulties on the labour market because they often have a lower education, higher unemployment and generally lower incomes, compared to people who have a disability that does not affect their work ability (Statistics Sweden, 2005b, 2009; Swedish Government Official Report, 2001; Swedish National Labour Market Board, 2006). It is therefore important to gain knowledge about people with disabilities who have an impaired work capacity. Some of the questions asked here are whether these people can compensate for their difficulties on the labour market by obtaining a higher education, what it means to be a woman with impaired work capacity and whether the difficulties differ across age groups.

In sum, people with disabilities are disadvantaged in relation to the labour market for reasons beyond their disability as well. To control for other important variables, we include six factors of importance for employment opportunities, grouping them into four categories: those individual characteristics that are "given" (age, gender and ethnic background), one that is possible to influence (education), structural condition (residential region) and a factor related to disability (work ability).

3.2. Operationalising disabilities

A basic question concerns how to operationalise disabilities. Grönvik (2009) identified three definitions used in surveys of living conditions: functional, administrative and subjective definitions. The functional definition is based on a medical understanding of disability; the administrative definition is based on the distribution of welfare benefits; and the subjective definition is based on to what extent the person conceives himself/herself as disabled. The results of the surveys depend on the type of definition used. For example, Grönvik (2009) showed that when using the subjective model, women were overrepresented, whereas the reverse was true for the other two models. Further, Hugaas Molden and Tøssebro (2010) demonstrated that estimates of the disability rate varied according to the definition that was applied in the survey. Because we wanted to focus on the individual's own experienced disability, the present study used a subjective definition of disability.

3.3. Participants

In 1996, the Swedish government commissioned the Swedish National Labour Market Board to conduct continuous investigations of the situation on the labour market for people with disabilities. The present study is based on an "extra" investigation added to the regular labour investigation (AKU) carried out in the fourth quarter of 2004. The extra investigation is based on interviews with 29,816 people between the ages of 16 and 64 years. Of these, 17% reported that they had some type of disability. The questions addressed in this study required exclusion of some participants. Consequently, all respondents (333) aged 16 to 19 years of age were excluded. Most people in this age group were still in secondary school and were not yet available for the labour market. All people reporting an intellectual disability were also excluded in that this group was small (12 persons) and has a legal right to activity according to the Swedish Act concerning Support and Service for persons with certain functional impairments. A further reduction of the data was done by excluding an additional 253 respondents who only reported a disability not found among the response alternatives, or reported this disability as their primary one (34 respondents). Furthermore, the 169 respondents who reported several disabilities without indicating which one was primary were also excluded. These reductions of the data gave a final sample of 4359 respondents.

3.4. Dependent variable

3.4.1. Employment

The central variable in the study was employment and thus the respondents were categorised as working or not working. The working group included respondents who had been categorised as having worked 1–19 hours (172 people) or more (3232 people) during the week of the investigation. The working category (3404 people) also included people with sheltered employment, relief work and a subsidy for starting their own company. The working group also included people employed by the state-owned company that provides work for people with disabilities employed with a subsidised wage or recruitment support/individual employment support. The "not working" category (955 people) comprised people who were not in the workforce and covered both those who reported seeking employment and those who did not wish to be employed.

3.5. Independent variables

Analyses were conducted on how work activities varied as a function of the type of disability, gender, age, ethnic background, residential region, education level and self-estimated ability to work.

3.5.1. Type of disability

In Statistic Sweden's additional investigation, disabilities are categorised as deafness, hearing impairment, dyslexia, blindness/vision impairment, stuttering, language/speech or voice disorder, psychological impairment, asthma/allergy, diabetes, heart-lung condition, gastrointestinal disease, psoriasis, epilepsy, physical impairment and intellectual disability. Thus, the disabilities reported in

Statistic Sweden's (2005b) report were divided into 16 sub-groups. People who had several disabilities were asked to indicate their primary disability. Here, a division was made into broader categories. The categorisation was partially based on earlier studies (Clausén et al., 2004) on disabilities and welfare that divided disabilities into four groups: communicative, psychological, medical and physical. The same groups were used in the present study, except that the communicative group was divided into three sub-groups: "communicative-hearing" including respondents with deafness or hearing impairments; "communicative-speech-reading" including respondents with dyslexia, stuttering or a language/speech or voice disorder and "communicative-vision", including respondents with blindness and vision impairment (Table 1). The reason for this division of the group with a communicative disability was that it is likely that the group with a hearing impairment differs in many important respects from others with a communicative disorder. Analyses were also made in which the "Communicative-Hearing" group was divided into a deaf group and a group with a less severe hearing impairment.

Table 1
Categorisation of disabilities in groups.

Group of disability	Number	Percent
Communicative-hearing	492	11.3
Communicative-speech-reading	192	4.4
Communicative-vision	215	4.9
Psychological	253	5.8
Medical	1893	43.4
Physical	1314	30.2
Total	4359	

3.5.2. Gender and age

In total, 2251 women (51.6%) and 2108 men (48.4%) participated in the study. Respondents between 20 and 64 years of age were divided into five age groups, and boundaries were set so that a relatively even distribution was obtained between the age groups: 20–29, 30–39, 40–49, 50–59 and 60–64 years.

3.5.3. Ethnic background

In the interviews, the respondents stated more than 70 countries as their places of birth. In the analyses, the data on ethnicity were divided into six categories: "Sweden", "Scandinavia", "EU 15", "Other Europe", "Asia and America", and "Other". In the "Other" group, a number of nationalities that consisted of very few people were merged.

3.5.4. Residential region

The respondents also reported the county where they were living. They were then divided into six groups according to residence: "Municipality of Stockholm", "Central Sweden", "Southern Sweden", "Western Sweden", "Northern urban" and "Northern rural".

3.5.5. Educational level

The respondents' highest completed level of education was classified into three groups according to Swedish education nomenclature (SUN): "Primary school", "Secondary school" and "Higher education".

3.5.6. Self-estimated work ability

The respondents estimated how impaired their work ability was as a result of their disability using three categories: "Very impaired", "Partially impaired" and "Not at all impaired".

3.6. Statistical analysis

Logistic regression analyses were performed with employment as the dependent variable. First, analyses were conducted on the influence of the type of disability, gender, age, ethnic background, residential region, education level and self-estimated work ability. In the first block of these analyses, one of these variables (in most analyses type of disability) was entered. In the second block, the independent variables not included in the first block (except self-estimated work ability) were entered. In this way, the effect of possible differences between disability groups in these variables were controlled. Self-estimated work ability was included in the third block. In the fourth block, interactions were entered between the type of disability, on the one hand, and gender, age, ethnic background, residential region, education level and self-estimated work ability, on the other, i.e. differences between disability groups on the effects of these variables were tested. The main analyses were done to test differences in employment opportunities between the disability groups and whether these differences were affected by the other variables. In one analysis, the interaction term education × self-estimated work ability was also included. For each independent variable, a reference category was determined. The odds ratio (OR) was used as a measure of the probability of having a job. The analysed groups were rather large, indicating that even very small differences would be considered significant with the traditional significance level of $P < 0.05$. To avoid this possibility, a probability of < 0.01 was chosen as the significance level.

4. Results

4.1. Influence of the type of disability for employment

The results of the analysis highlight whether the respondents' opportunities of finding work were dependent on their type of disability, as well as the extent to which education level, self-rated work ability, gender, ethnic background, age and residential region affected this relationship. The probability of being employed was highest for respondents with impaired hearing, even after control for the effect of differences in the other independent variables. This category was therefore determined to be the reference category. Note also that the result remained virtually unaffected when the influence of self-estimated work ability was controlled. Least likely to be employed was the group with a psychological disability. Other groups did not differ in employment (Table 2). Moreover, none of the interactions between age, gender, residential region, ethnic background, self-estimated work ability and education, on one hand, and group of disability, on the other, even approached statistical significance ($P > 0.19$ in all cases). Put differently, the moderating variables did not have a different effect on the employment frequency in the different disability groups.

In the hearing impairment group, it was possible to analyse the importance of impairment severity by comparing the deaf respondents with those having a less severe hearing impairment. The logistic

Table 2
Proportion of persons employed by type of disability. Logistic regression was used to calculate odds ratios (ORs) and 95% confidence intervals (CIs) for being employed with and without control for differences in gender, age, ethnic background, residential region and education level. Values given in the parentheses in the last column are those after control for self-estimated work ability.

Type of disability	Percent employed	OR	99% CI	OR after control	
Communicative-hearing ($n = 439$)	89.2	1			
Communicative-speech-reading ($n = 154$)	80.2	0.49*	0.27–0.89	0.65	(0.68)
Communicative-vision ($n = 168$)	78.1	0.43**	0.25–0.76	0.49*	(0.54*)
Psychological ($n = 134$)	53	0.14**	0.08–0.22	0.13**	(0.31**)
Medical ($n = 1565$)	82.7	0.58**	0.38–0.86	0.59**	(0.63*)
Physical ($n = 944$)	71.8	0.31**	0.21–0.46	0.28**	(0.55*)

* $P = <.01$.
** $P < .001$.

regression analysis showed no significant difference between the two groups, nor did the effect of the moderating variables differ between the groups ($P > 0.25$ in all cases).

4.2. Influence of "given" personal factors for employment

Table 3 shows the relationship between the three "given" personal factors: gender, age and ethnic background and the dependent measure employment. Women were less likely to have a job than men. This difference was only marginally affected when controlling for differences in the other variables. Furthermore, fewer respondents in the age group 20–29 years were employed compared with the other age groups. However, the difference between the oldest and the youngest age groups was not significant. The highest proportion of employed respondents was found in the group aged 40–49 years. The differences between the youngest and the other groups increased after controlling for differences in the other variables. Ethnic background had some influence on respondents' employment opportunities. People with a Swedish background had greater employment opportunities than did respondents from the "Scandinavia" and "Asia and America". The highest level of employment (87.8%) was found in

Table 3
Proportion of persons employed by gender, age groups, ethnic background, residential region, education level and self-estimated work ability. Logistic regression was used to calculate odds ratios (ORs) and 99% confidence intervals (CIs) for being employed with and without control for other independent variables (except self-estimated work ability) and type of disability. Values given in parentheses in the last column are those after control for self-estimated work ability.

Independent variables	Percent employed	OR	99% CI	OR after control	
Gender					
Men ($n = 2108$)	80.5	1			
Women ($n = 2251$)	75.8	0.76**	0.63–0.92	0.78*	(0.79*)
Age group					
20–29 years ($n = 656$)	61.3	1			
30–39 years ($n = 921$)	81.2	2.73**	2.02–3.69	3.17**	(3.54**)
40–49 years ($n = 965$)	85.6	3.76**	2.70–5.14	5.15**	(5.96**)
50–59 years ($n = 1216$)	83.8	3.27**	2.50–4.36	4.57**	(6.15**)
60–64 years ($n = 601$)	68.1	1.35	1.00–1.83	1.76**	(2.51**)
Ethnic background					
Sweden ($n = 3921$)	79	1			
Scandinavia ($n = 163$)	68.1	0.57*	0.37–0.89	0.56**	(0.58*)
EU 15 ($n = 41$)	87.8	1.92	0.56–6.59	2.06	(2.11)
Other Europe ($n = 88$)	68.2	0.57	0.31–1.04	0.50*	(0.62)
Asia and America ($n = 120$)	68.3	0.58*	0.34–0.96	0.58	(0.73)
Other ($n = 26$)	73.1	0.72	0.23–2.27	0.71	(1.12)
Residential region					
Municipality Stockholm ($n = 556$)	81.8	1			
Central Sweden ($n = 545$)	77.4	0.76	0.52–1.12	0.73	(0.71)
Southern Sweden ($n = 1701$)	78.3	0.8	0.58–1.10	0.74	(0.71)
Western Sweden ($n = 818$)	76.5	0.72	0.51–1.03	0.68*	(0.65*)
Northern urban ($n = 371$)	76.8	0.74	0.48–1.12	0.58*	(0.60*)
Northern rural ($n = 368$)	77.2	0.75	0.49–1.15	0.67	(0.68)
Education level[a]					
Primary school ($n = 876$)	70.9	1			
Secondary school ($n = 2363$)	79.2	1.57**	1.24–1.97	1.54**	(1.42*)
Higher education ($n = 1105$)	81.7	1.84**	1.39–2.42	1.68**	(1.41*)
Self-estimated work ability[a]					
Very impaired ($n = 850$)	54.8	1			
Partially impaired ($n = 1418$)	79	3.10**	2.43–3.95	3.29**	
Not at all impaired ($n = 2053$)	87.5	5.78**	4.52–7.41	5.87**	

[a] Fifteen persons were excluded that did not report their educational level as well as 38 persons that reported "do not know" to the question self-estimated work ability.

* $P < .01$.

** $P < .001$.

the "EU15" group, but the difference between this group and the Swedish group was not statistically significant. The differences were no longer significant after controlling for the other variables.

4.3. Influence of a structural factor for employment

The results of the analyses of employment rate for groups from different parts of Sweden indicated that this variable was not important for employment opportunities (Table 3). The highest rate of employment was seen in the Municipality of Stockholm (81.8%). There was little difference between the other regions.

4.4. Influence of an individual personal factor on employment

The significance of education level for employment is shown in Table 3. Respondents with only a primary level of education were less likely to be employed than those with a secondary or higher education; the latter two groups did not differ from one another. The difference was reduced, but remained significant, when other differences among the groups were held constant.

4.5. Influence of self-estimated work ability on employment

A relationship between employment and self-estimated work ability was found (Table 3). The respondents who reported having no impairment in work ability were significantly more likely to be working than were those reporting very impaired work ability. It was also considerably easier for people with only a partially impaired work ability to become employed compared with those with very impaired work ability.

4.6. Self-estimated work ability and education level

A further question was whether education level affects the relationship between self-estimated work ability and employment opportunities. The results revealed a tendency for impaired work ability to be of less importance with increased education level. The proportion of persons employed in the group reporting very impaired work ability was 50.2% in the primary school group, 55.0% in the secondary school group and 63.6% in the higher education group. Table 4 indicates that the more work ability is reduced, the more important education becomes. The logistic regression analysis, however, showed that this interaction did not reach statistical significance ($P = 0.031$).

Table 4
Employment rate in education groups with different self-rated work ability.

	Percent employed
Not at all impaired work ability	
Primary school education ($n = 313$)	85
Secondary school education ($n = 1110$)	89.4
Higher education ($n = 621$)	85.7
Partially impaired work ability	
Primary school education ($n = 298$)	75.2
Secondary school education ($n = 776$)	79.3
Higher education ($n = 340$)	82.4
Very impaired work ability	
Primary school education ($n = 255$)	50.2
Secondary school education ($n = 464$)	55
Higher education ($n = 129$)	63.6

Fifteen persons were excluded that did not report their educational level as well as 38 persons that reported "do not know" to the question self-estimated work ability.

5. Discussion

The first issue to discuss is to determine whether the type of disability for respondents' employment opportunities is important. Clausen et al. (2004) pooled people with hearing and vision impairments and examined the labour market situation for this group as a whole. The present study shows that it is important to distinguish people with hearing disabilities from other groups with communicative disabilities, largely because their prerequisites are so different. The group with the highest rate of employment was the one with a communicative hearing disability. This difference between groups remained after controlling for differences in gender, age, ethnic background, residential region, education level and self-estimated work ability. Unexpectedly, no difference was observed between the deaf persons and those with a less severe hearing ability. One possible explanation for the high degree of employment in the hearing disability group is that hearing loss often progresses with age. Thus, this impairment does not necessarily hinder a person from entering the labour market earlier in life. This probably also explains why respondents with hearing and vision disabilities, together with those in the group of medical disabilities, were more likely to have a higher education than the other three groups. However, as the analysis showed, the higher employment rate in the group with a hearing disability was not explained by the difference in education level.

The lowest proportion of employment was found in the group with psychological disabilities. This finding is in line with the results of Zizzi, Rontos, Papageorgiou, Pierrakou and Chtouris (2007) showing that employers' attitudes to different types of disability differed, i.e. they perceived it as easier to employ people with a physical disability than those with a psychological disability. Moreover, looking at the Danish labour market, Clausen et al. (2004) also showed that persons with a psychological disability had the worst situation. They suggested that this finding could be best explained by the group's lower education level. The present study does not support this hypothesis, however. The probability of being employed remained lowest in this group even after differences in education level were considered.

Another issue was to examine how important gender, age, ethnic background, residential region, education level and self-estimated work ability were for the employment of people with disabilities. The results indicated that the most important variables were gender, age, education level and self-estimated work ability.

Women (75.8%) were less likely to be employed than men (80.5%). Several studies have shown that women with disabilities enter unemployment and receive early retirement benefits more often than men (Andrén, 2001; Randolph and Andersen, 2004). There were some differences in the gender distribution within the groups of disability. Women were overrepresented in the groups with a psychological, physical and vision disability, whereas men were overrepresented in the group with a hearing, speech-reading and medical disability. However, these gender differences in the type of disability did not explain the differences in employment. Looking at education level, women would be expected to have a higher employment rate as they were more likely to have a higher education than men (28.7% in women vs 21.7%, in men). A similar pattern of gender differences is also seen among people with no disability. Society treats men and women differently (e.g., division of labour, decision-making power, fewer career opportunities and access to credit). Moreover, men receive better support from society in rehabilitation (Barron, 1999, 2004; Jansson, 2003; Michailakis, 2000), whereas women more often have monotonous work (Rissén, 2006) and have greater primary responsibility for the home (cf. Coniavitis Gellerstedt & Danermark, 2004; Einerhand & van der Stelt, 2005). Consequently, having a disability and being a woman results in double vulnerability.

It is not a surprising finding that age was an important factor for employment opportunities. Note also that the difference between the oldest group (those 60–64 years of age) and the youngest group (those 20–29) was not significant, suggesting that with increasing age, the employment rate begins to approach that of younger people. However, after differences in other variables were controlled, the difference between the youngest and the other age groups was considerably stronger, i.e. 20- to 29-year-olds seem to be a risk group. There are many conceivable explanations for young people's employment problems. One is that the earlier the disability is acquired, the more serious difficulties a person will face on the labour market. A related cause could be that people in this age group have not yet acquired sufficient competence through education and work experience. Our results support this

view in that the lowest proportions of people with a higher education were in the youngest (16.1%) and the oldest (10.1%) age groups. Among the other age groups, between 24 and 28% had a higher education. The two age groups with the best situation on the labour market were those 40–49 and 50–59 years of age. These age groups often have competence in areas that are attractive to employers and have acquired years of work experience. The present results do not support Mitchell, Adkins & Kemp's (2006) finding that the employment rate among persons with disabilities declined greatly after the age of 40 years, especially for people who only had primary and secondary school competence.

The present results showed that it was more difficult for respondents with only a primary school education to obtain employment than for those with a secondary or higher education. This significant difference was reduced, but remained, after controlling for other differences between the groups. It is worth noting that people with a higher education did not differ significantly from those with a secondary education, i.e. it is not possible to conclude that those with the highest education level had the best employment opportunities. Lindqvist (2007) discussed the role of the education system in preparing young people with disabilities for working life after higher education, stating that support efforts (e.g., special instruction and different labour market policy programmes) have not been successful in preparing them for a future work life. That is, acquiring a good education does not necessarily prevent people with disabilities to end up in monotonous work with little opportunity for competence development. There is an obvious need for a change in support efforts directed at young people so they do not become trapped in occupations with little or no opportunity for development. Moreover, research on young people's possibilities to continue to post-secondary school studies shows that students with a disability encounter more obstacles (e.g., lack of availability at premises that are not adapted to their needs and poor support from people who organize education efforts) to higher education than do those without a disability, making it particularly difficult for them to continue their studies (Boman & Nilsson, 1998; Sjödahl Holmlid, 1996). It is important to make changes in these aspects if society is to successfully deal with the difficulties students with disabilities face in continuing their education.

Not surprisingly, a relationship between employment and self-estimated work ability was found. Respondents with only partially reduced work ability had entered the labour market more often than respondents with a severely impaired work ability. These results confirm research showing that people with impaired work ability were more often unemployed and more often had monotonous, physical and unsuitable work (Statistics Sweden, 2005a,b; Swedish Government Official Report, 2001). When the factor work ability was analysed demographically, it was found that respondents with physical (40%) and psychological (48%) disabilities often reported very impaired work ability, whereas less than 10% in the other four groups reported equally impaired ability. Because this group included many older people and it can be difficult to adapt workplaces to accommodate this group, it is not surprising that respondents with a physical disability often estimated their work ability to be very impaired. However, the question remains as to why respondents with a psychological disability estimated their work ability to be very impaired. Explanations may lie in the difference between disabilities that are visible and those that are invisible, or they may lie in the attitudes, stereotypical ideas and fear of the unknown. Such reasoning is supported by research in the area: for example, Michailakis and Reich (2005) reported that people with a psychological disability arouse feelings of vulnerability and anxiety, and that the values of people around them play a decisive role in how they are treated. Further, a psychological disability can be viewed as an "invisible disability", which may add to the difficulty of clarifying these individuals' needs for an employer.

Region of residence had a small impact on employment rate. The highest employment rates were found in the municipality of Stockholm, whereas the remaining regions differed very little from each other. Some researches have shown that unemployment is greatest in the northern parts of the country, which was also found to apply to people with disabilities (Persson & Ingelskog, 2005). One reason for this may be that being considered employed required a greater labour market involvement in Person and Ingelskog's study than in the present study. Thus, the present results show similar employment rates in all regions, with the exception of Stockholm.

Country of origin was of limited importance. Respondents with a Swedish background had greater employment opportunities than did people from the rest of Scandinavia and Asia and America. Furthermore, people from EU 15 had the highest employment rates. However, the sparse significant

differences between ethnic groups may partly be explained by the fact that some of the groups were very small.

To summarise, being a woman, having a low education level, being either very young or old and having partially or very impaired work ability, all lowered the probability of being employed. In this sense, the persons with disabilities encounter a multitude of barriers on the labour market. However, the importance of these factors did not differ significantly between the most (communicative-hearing) and least favoured group (psychological) as is shown by the absence of significant interactions.

The final research question concerned the relationship between self-rated work ability and education level. In the group with very impaired work ability, the results indicated that education was related to employment: a larger proportion of those with a higher education were employed as compared with the group with only a primary or secondary level education. The differences, however, were not statistically significant.

5.1. Method discussion

The results concerning self-rated work ability lead us into a discussion on the methodological limitations of the present study. Concerning validity, one limitation is that too few questions were asked that were intended to measure the phenomena of interest. This becomes particularly apparent in the question on impaired work ability. The respondents were asked to report the degree to which their work ability was impaired and to choose between three response alternatives. It is obvious that this question has a highly questionable validity as an indicator of the complexity of the phenomenon, i.e. it is not possible to address the concept of impaired work ability using one simple question. Furthermore, the respondents' estimation of their impaired work ability was probably related to whether they had a job. If respondents have a job, it is most likely because their disability does not pose a serious obstacle to managing this job, which would make it unlikely that they would rate work ability as very impaired. Unemployed respondents probably had other grounds for their estimation of their work ability; for instance, it may have been based more on their experience of jobs that they would not be able to manage owing to their impairment. This may be one reason for a poorer estimation of work ability. However, control for work ability had a small effect on the results of the regression analyses, indicating that it was not completely confounded with employment.

Within each of the six groups of disability, the level of disability may vary widely. Thus, the categories can be seen as heterogeneous and their summarised descriptions are definitely not valid for all sub-groups in the category and do not necessarily give a true picture of any sub-group. However, no effect of the severity of the disability was found in the group with hearing disabilities. Still, such a difference may exist in the other groups. As discussed above, self-estimated work ability is not a satisfactory indicator of the seriousness of the disability and therefore cannot be used for a test of such differences.

Another aspect to consider is that the respondents were counted as being employed if they reported they had worked at least one hour during the investigation week. This is the standard Eurostat definition when investigating the employment rate among persons with disabilities. However, as regards validity, it would have been better if the respondents had reported how many hours they had worked that week. A large majority (95%) of those who were employed reported a weekly working time of more than 19 hours. There is reason to suppose that most of the 5% belonging to the group with the shortest working time (1–19 hours) worked considerably more than one hour. Consequently, the few people who only worked a few hours each week had minor influence on the results. Another aspect to consider in the classification of "not working" is that the group could include both persons looking for employment and persons not seeking an employment. The latter group is probably largest in the oldest age group (60–64 years) and could have influenced the result.

Finally, this study is based on the results from the survey "Labour market situation for people with disabilities – 4th quarter 2004" (Statistics Sweden, 2005a, 2005b). It is plausible that there have occurred structural changes in the labour market over the past 10 years such that the results do not mirror the present situation. From more recent studies by Statistics Sweden (2007, 2009), only slight changes have occurred in this pattern of results. Furthermore, more recent analysis indicates that the

structural situation has not changed in any significant way for persons with disabilities in Sweden (Gustavsson, 2014).

6. Conclusion

The main conclusion is that the type of disability is crucial for employability. This relationship is to some extent influenced by other factors but their role is limited. The moderating factors evaluated in this study seem to have had the same impact for all groups of disability. Work ability is closely related to the type of disability and it is not surprising that it had an impact on employment opportunities. However, higher education did not contribute to increased employment opportunities for respondents with impaired work ability. As expected, employment opportunities were poorer for the youngest and the oldest age groups as well as for women. Important is that education above the primary level seems to increase employment opportunities. To summarise, the type of disability plays a role per se and the best way to counteract this is to have higher education. This conclusion raises a number of policy- and practice-related issues. For instance, there is a need for a disability work-oriented policy that is differentiated and less generic in relation to the type of disability. Moreover, further development of individually tailored working life rehabilitation is needed, especially one that considers the type of disability.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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