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Factors associated with participation on the competitive labour market of people with visual impairments in The Netherlands

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Abstract.

BACKGROUND: Worldwide, the employment rate of people with visual impairments (PVI) is lower than that of the general working-age population. To improve the employment rate of this group, there is a need for knowledge about differences in modifiable factors between working and non-working PVIs.

OBJECTIVE: To identify modifiable factors associated with participation on the competitive labour market of PVIs. Based on the findings, we aim to develop an individual assessment instrument for determining the odds of labour market success of PVIs.

METHODS: Data were collected among 299 PVIs by means of a cross-sectional telephone survey based on existing (validated) and self-developed scales and items. Logistic regression analysis was used to find the strongest predictors of the dichotomous outcome of 'having paid work on the competitive labour market' (yes/no).

RESULTS: We found three personal non-modifiable factors (level of education, comorbidity, level of visual impairment) and three modifiable factors (mobility, acceptance and optimism) to be significantly ($p < 0.05$) associated with having paid work.

CONCLUSIONS: The factors of optimism, acceptance and mobility should be included in an individual assessment instrument which can provide PVIs and their job coaches with good starting points for improving the labour market situation of the PVIs.

Keywords: Disabilities, work, mobility, optimism, acceptance

1. Introduction

Worldwide, employment rates of people with disabilities are consistently lower than those of

people without disabilities. People with disabilities are confronted with many barriers on their way to finding and keeping jobs (e.g., stigmatization, lack of information among employers) [1]. People with visual impairments in particular appear to be highly stigmatized by employers and face many difficulties on the labour market [1, 2]. In the Netherlands, the employment rate of people with visual impairments is 36.8% [Goertz, Houkes & Nijhuis, unpublished data] as compared to a rate of 67.1% among the general working-age population [3]. Improving the

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employment rate of people with visual impairments is of crucial importance, particularly since January 2015, when the Participation Law was introduced in the Netherlands [4]. Even though there are indications that sheltered employment provides workers with disabilities with a more stable career path [5], it is the purpose of this law to enhance participation on the competitive labour market of people with impairments and discourage working in sheltered jobs or living on social benefits. This legislation fits in with the current Dutch and European development towards a so-called “participatory society” in which citizens are expected to become less dependent on the welfare state and public services and are expected to support themselves, and to provide and receive (informal) care for or from others [4, 6, 7].

Earlier research has shown that a considerable group of people with visual impairments in the Netherlands (42.1%) are not actively looking for paid work, but would accept a job if offered. This group could be a relevant starting point for increasing the labour participation among people with visual impairments [Goertz, Houkes & Nijhuis, unpublished data]. For this to happen, there is a need for knowledge about modifiable factors that differ between people with visual impairments who are in paid work and those who are not. What are the most important differences between working and non-working people with visual impairments? Which personal factors determine the success of people with visual impairments on the labour market?

The widely known and acknowledged International Classification of Functioning, Disability and Health (ICF) was used as the conceptual starting point for this study. The ICF is a classification system that can be used to identify factors that may influence participation, including participation in work, and is used to tailor interventions and treatments based on these factors [8, 9]. The ICF shows that factors associated with labour participation include environmental and personal factors. As regards people with visual impairments, this classification system has been used to investigate the rehabilitation needs of these people and it can help professionals such as job coaches to recognize important environmental factors (including the willingness of employers to hire persons with visual impairments), and important personal factors (such as coping skills) which may influence the functioning of employees [10].

In this study, we focused on the association between several modifiable personal (individual)

factors and labour, namely three skills (mobility, computer skills, and social skills) and six psychological factors (acceptance of the visual impairment, active coping, optimism, meaning in life, mental health, and psycho-somatic problems). This selection was based on a systematic literature review of factors affecting the employment of people with visual impairments [2] and on expert advice by members of the advisory board of this research project (including practitioners, professionals, people with visual impairments, researchers and policy advisors). Wolffe and colleagues [11] found that having confidence in the future (i.e. optimism) was positively associated with paid work among people with visual impairments. Other studies reported an independent attitude, social skills, proactive behaviour, a positive attitude towards life, spirituality, choosing employment with personal relevance, and taking responsibility for what happens in your own life as success factors for employment [2, 12–17].

The aim of this study was to identify modifiable personal factors associated with participation on the competitive labour market of people with visual impairments. Based on the findings, we aim to develop an individual assessment instrument which can be used to improve the chances of labour market success for persons with visual impairments. This instrument is expected to be used by job coaches when planning strategies for job integration or reintegration pathways and during intake interviews with clients taking part in these pathways.

The research question in this study was:

Which modifiable personal factors are associated with participation on the competitive labour market of people with visual impairments in the Netherlands?

2. Methods

2.1. Design

This study had a cross-sectional design. Data were collected by means of telephone interviews (structured questionnaire) which lasted one hour on average. These interviews were conducted in 2010.

2.2. Procedure and participants

As there is no database of people with visual impairments in the Netherlands, we recruited par-

ticipants through two companies (Optelec and Ergra Low Vision) which provide equipment for persons with various types and levels of visual impairment throughout the Netherlands [Goertz, Houkes & Nijhuis, unpublished data]. After removal of duplicates, random samples (total $n=3500$) were taken from the customer databases. Optelec and Ergra sent this group a written/audio invitation asking them to participate in the study (using a large font size letter and audio CD). They were then phoned to find out whether they met the inclusion criteria. If so, they were asked whether they were willing to participate in the study. There were 1064 people who met the inclusion criteria, which were:

- age 15–64 (i.e. working-age population, according to Statistics Netherlands [18];
- having a visual impairment (which means not being able to correct vision with a normal pair of glasses/lenses; this criterion was left to the interpretation of the participants);
- if working, working in the Netherlands;
- being able to participate in a telephone interview in Dutch (no severe hearing impairment/no mental retardation, as communicated by relatives or caretakers).

Of these 1064 persons, 564 chose not to participate (e.g. due to lack of interest or time, or being ill). These non-respondents were asked to answer four non-response questions (age, sex, educational level, and whether they were in paid work). Participants appeared somewhat more highly educated than non-respondents. For more information regarding the non-response analyses, please see Goertz, Houkes & Nijhuis [unpublished data] on request from the authors.

Of the 1064 eligible persons, 500 were thus willing to participate (response rate 47%). All participants gave verbal informed consent prior to entering the telephone survey [Goertz, Houkes & Nijhuis, unpublished data]. Persons working in sheltered employment, as well as those who would not accept paid work if offered it, were excluded from the analyses. The latter group (consisting of 201 persons) was considered to be unavailable for the labour market [Goertz, Houkes & Nijhuis, unpublished data]. This means that the final study sample consisted of 299 persons. In this sample, 161 persons had paid work on the competitive labour market, and 138 persons did not, but were looking for paid work or would accept a suitable job offer.

2.3. Measurement instruments

2.3.1. Outcome measure

The outcome measure was having paid work (yes/no).

2.3.2. Modifiable factors

2.3.2.1. *Skills* All skills questions were self-developed based on expert advice of members of the advisory board of our study.

Mobility was measured by means of a single item: ‘How do you rate your own mobility? This means being able to travel distances by yourself.’ The response scale ranged from 1 (very poor) to 5 (very good). Responses were categorized into 1 (very poor/poor) and 2 (reasonable/good/very good).

Computer skills were measured by means of a single item: ‘Are you able to use a computer?’. The response scale ranged from 1 (yes) to 3 (no). Responses were categorized into 1 (yes/to some extent) and 2 (no).

Social skills were measured by means of a single item: ‘I have a network of people, with whom I can engage in social activities if I would want to.’ The response scale ranged from 1 (no) to 4 (yes). Responses were categorized into 1 (no/hardly) and 2 (somewhat/yes).

2.3.3. Psychological factors

Acceptance of the visual impairment can be defined as being in agreement with yourself, and to appreciate, value, accept, and support who you are at this moment. Acceptance is considered an important factor in someone’s adjustment to and daily functioning with a disability. Adjustment is a multi-dimensional construct, referring to the process of behavioural, cognitive, emotional and social adaptation to positive and negative life changes, as well as to the outcome of this process [19]. Acceptance was measured by means of a subscale of the Nottingham Adjustment Scale [20], which consists of 9 items (Cronbach’s $\alpha=0.88$). The response scale ranged from 1 (totally disagree) to 5 (totally agree) and an example item is: ‘Because of my eye problem, I have little to offer other people.’

Coping strategies represent behavioural, cognitive and emotional efforts to deal with stressful encounters. We measured active coping, which involves awareness of a stressor, followed by attempts to reduce the negative outcome. Active coping is often considered to be the most suitable coping strategy [21]. Active coping was measured by means of a

subscale of the Utrechtse Copinglijst (Utrecht Coping List, [22]), which consists of 7 items (Cronbach's $\alpha = 0.78$). The response scale ranges from 1 (seldom or never) to 4 (very often) and an example item is: 'When a problem occurs, I can think of multiple ways to solve it.'

Dispositional optimism is defined as the generalized expectation that good outcomes will ensue when one confronts major problems [23]. Optimism was measured by means of the Life Orientation Test Revised [24], which consists of 6 items (Cronbach's $\alpha = 0.63$). The response scale ranges from 1 (totally disagree) to 5 (totally agree) and an example item is: 'I hardly ever expect things to go my way.'

Meaning in life refers to the degree to which individuals can envision their lives within some meaningful perspective or have a set of life goals or a philosophy of life. Meaning in life was measured by means of a subscale of the Life Regard Index, namely the Framework of Meaning in Life [25, 26], which consists of 5 items (Cronbach's $\alpha = 0.83$). The response scale ranges from 1 (totally disagree) to 5 (totally agree) and an example item is: 'I have a clear idea of what I'd like to do with my life.'

Mental health can be defined as a state of well-being in which each individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community [9]. Mental health is considered to be an important predictor of labour participation in the ICF model [8] and was measured by means of the Mental Health Inventory [27], which consists of 5 items (Cronbach's $\alpha = 0.84$). The response scale ranges from 1 (never) to 6 (always) and an example item is: 'How often during the past four weeks did you feel calm and satisfied?'

Psychosomatic problems relate to physical symptoms but are thought to be caused by emotional or psychological factors [28]. Psycho-somatic problems were measured by means of the short version of the Vragenlijst Onderzoek Ervaren Gezondheid (Questionnaire for subjective health study) [28, 29], which consists of 13 items (Cronbach's $\alpha = 0.82$). The response scale ranges from 1 (yes) to 2 (no) and an example item is: 'Do you frequently experience shortness of breath?'

2.3.3. Non-modifiable factors (covariates)

Age was assessed by birth date.

Sex was assessed in two categories (male/female).

Level of education (= highest level completed) was measured in five categories (no education/primary

education/secondary education/professional education for 16–18 year olds and adults/higher professional education or university; cf. Statistics Netherlands, 2008). These responses were categorized into low education (no education/primary education), average education (secondary education/professional education for 16–18 year olds and adults), and high education (higher professional education or university).

Living situation was assessed in eight categories (living alone/living together with partner and children/living together with partner/living together with children/living together with parents or other relatives (children not included)/living together with friends or acquaintances/sheltered housing/other). These responses were categorized into living alone and living together (all seven types of living together with others).

Comorbidity (having another chronic disease or impairment besides the visual impairment) was assessed by 13 questions, asking whether the respondent had diabetes/mental disorder (e.g. depression)/cancer/heart disease/lung disease/asthma/neurological disease/problems of the musculoskeletal system/hearing loss or deafness/autism or autism-related disorders/non-congenital brain injury caused for example by a tumour/chronic fatigue syndrome/kidney disease/other chronic disease or impairment (based on expert advice by members of the advisory board of our study). These responses were categorized into yes (at least one chronic disease or impairment) and no (no comorbidity).

Level of visual impairment was measured by two questions: 'Are you able to see the difference between light and dark? (yes/no), and 'Are you able to read headlines in a newspaper without special equipment? (yes/no) [30, Goertz, Houkes & Nijhuis, unpublished data]. Respondents who were unable to see the difference between light and dark were classified as blind, those who were able to see the difference between light and dark but were not able to read headlines in a paper were classified as very low vision, and those who were able to see the difference between light and dark and were able to read headlines in a paper were classified as low vision. This classification was based on the advice of an ophthalmologist and appeared to be in line with the way the respondents classified themselves in the answers to a more subjective question (Would you classify yourself as blind/very low vision/low vision) [Goertz, Houkes & Nijhuis, unpublished data].

Table 1
Descriptives and *t*-/Chi²-tests (*n* = 299)

Variables	M(SD)/%	M(SD)/% working (<i>n</i> = 161)	M (SD)/% non-working (<i>n</i> = 138)	<i>t</i> -/Chi ²
<i>Non-modifiables</i>				
Age	45.65 (12.04)	45.84 (11.64)	45.43 (12.52)	-0.29
Sex				0.65
- men	48.2%	50.3%	45.7%	
- women	51.8%	49.7%	54.3%	
Level of education				21.67*
- low	8.0%	3.1%	13.8%	
- average	56.5%	51.6%	62.3%	
- high	35.5%	45.3%	23.9%	
Living situation				2.62
-living alone	25.4%	29.2%	21.0%	
-living together	74.6%	70.8%	79.0%	
Comorbidity				11.27*
-comorbidity	61.5%	52.8%	71.7%	
-no comorbidity	38.5%	47.2%	28.3%	
Level of visual impairment				7.09*
- low vision	53.2%	60.2%	44.9%	
- very low vision	39.8%	34.2%	46.4%	
- blind	7.0%	5.6%	8.7%	
Age of onset				0.61
- from birth	25.4%	23.6%	27.5%	
- later in life	74.6%	76.4%	72.5%	
<i>Modifiables</i>				
Skills				
Mobility skills				
- (very) poor	17.7%	11.8%	24.6%	8.40*
- reasonable to very good	82.3%	88.2%	75.4%	
Computer skills				
- to some extent/yes	91.3%	93.2%	89.1%	1.53
- no	8.7%	6.8%	10.9%	
Social skills				
- no/hardly	16.7%	14.3%	19.6%	1.49
- somewhat/yes	83.3%	85.7%	80.4%	
Psychological factors				
Acceptance of the visual impairment	35.54 (6.76)	37.15 (5.81)	33.66 (7.31)	-4.52*
Active coping	19.50 (3.27)	20.00 (3.17)	18.91 (3.30)	-2.90*
Optimism	21.71 (3.36)	22.45 (3.17)	20.84 (3.38)	-4.24*
Meaning in life	18.57 (3.55)	18.92 (3.38)	18.16 (3.71)	-1.85
Mental health	24.19 (4.04)	24.71 (3.45)	23.59 (4.57)	-2.37*
Psychosomatic problems	3.68 (3.13)	3.07 (2.80)	4.38 (3.34)	3.63*

**p* < 0.05.

Age of onset of the visual impairment was classified into two categories (congenital/acquired later in life).

2.4. Analyses

All analyses were performed using the SPSS 22 computer program. We first performed descriptive analyses (*M*, *SD*, Pearson correlations). In order to answer the research questions, participants who were or were not in paid work were compared regarding both their non-modifiable and modifiable factors. Depending upon whether the characteristic was categorical or continuous, cross-tabulations (Chi²-test)

or *t*-tests were used to check the statistical significance of the differences. In a subsequent step, logistic regression analyses were used to estimate odds ratios of having paid work (yes/no) for the different factors. The non-modifiable factors were included in all models. We examined whether the individual modifiable factors and the combined set of significant modifiable factors correlated with having paid work. A stepwise approach was considered when there were signs of multicollinearity. Both a forward and a backward procedure were used to check for consistency in the findings. Only variables with *p*-values < 0.05 were considered in the final models.

Table 2
Pearson's correlations of the modifiable factors ($n = 299$)

Modifiable factors	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Mobility skills	1								
2. Computer skills	-0.24*	1							
3. Social skills	0.11*	-0.19*	1						
4. Acceptance of the visual impairment	0.39*	-0.26*	0.31*	1					
5. Active coping	0.09	-0.17*	0.15*	0.30*	1				
6. Optimism	0.18*	-0.12*	0.21*	0.46*	0.45*	1			
7. Meaning in life	0.14*	-0.10	0.28*	0.41*	0.38*	0.45*	1		
8. Mental health	0.21*	0.02	0.25*	0.46*	0.18*	0.38*	0.38*	1	
9. Psychosomatic problems	-0.23*	0.16*	-0.14*	-0.35*	-0.08	-0.27*	-0.17*	-0.41*	1

* $p < 0.05$.

Table 3

Odds ratios (95% confidence intervals) of having paid work, for the individual modifiable factors, adjusted for the non-modifiable factors^a

Variables	OR	95% C.I.
Skills		
Mobility skills	2.65*	1.34–5.23
Computer skills	1.26	.49–3.23
Social skills	.92	.46–1.83
Psychological factors		
Acceptance of the visual impairment	1.07*	1.02–1.11
Active coping	1.08*	1.00–1.17
Optimism	1.14*	1.05–1.24
Meaning in life	1.04	0.97–1.12
Mental health	1.07	1.00–1.14
Psychosomatic problems	0.89*	0.81–0.97

* $p < 0.05$. ^aAdjusted for all non-modifiable factors: age, sex, level of education, living situation, comorbidity, level of visual impairment, age of onset.

3. Results

Table 1 shows that the working and non-working respondents differed significantly from each other regarding level of education, comorbidity, level of visual impairment, mobility, acceptance of the visual impairment, active coping, optimism, mental health, and psychosomatic problems. Table 2 shows that most of the correlations between the modifiable factors were statistically significant.

Table 3 shows that the modifiable factors of mobility (OR 2.65, 95% CI 1.34–5.23), acceptance of the visual impairment (OR 1.07, 95% CI 1.02–1.11), active coping (OR 1.08, 95% CI 1.00–1.17), optimism (OR 1.14, 95% CI 1.05–1.24), and psycho-somatic problems (OR 0.89, 95% CI 0.81–0.97) were significantly associated with having paid work, when individually tested (with adjustment for the non-modifiable factors).

None of the associations between the modifiable characteristics and having paid work remained

statistically significant when they were simultaneously introduced into the same model (not tabulated). Closer inspection of the Pearson correlations indicated a pattern of strong associations between optimism and all other psychological factors, the highest correlation being 0.46 for optimism and acceptance ($p < 0.01$, see Table 2). A stepwise procedure allowed the identification of the modifiable characteristics with the strongest associations.

Table 4 shows the model that resulted from both a forward and a backward stepwise procedure. Five factors were significantly associated with having paid work: level of education (OR 4.59, 95% CI 1.51–14.01 and 8.41, 95% CI 2.63–26.91), comorbidity (OR 2.18, 95% CI 1.23–3.86), level of visual impairment (OR 0.54, 95% CI 0.31–0.92), mobility (OR 2.23, 95% CI 1.10–4.51) and optimism (OR 1.12, 95% CI 1.03–1.22). The probability of having paid work was higher for respondents with an average or higher level of education, for respondents without comorbidity, for respondents who have low vision, for respondents who have no problems of mobility (i.e., whose mobility is fair to very good), and for more optimistic respondents.

Because of the high correlation between optimism and the other psychological factors (see Table 2), the stepwise analysis was repeated, but now excluding optimism. This resulted in a final model including mobility and acceptance (Table 5). Similar odds ratios were found as in Table 4, except that acceptance (OR 1.05, 95% CI 1.01–1.10) was now included and optimism excluded. The probability of having paid work was higher for respondents with a greater acceptance of their visual impairment.

4. Discussion

The aim of this study was to identify modifiable factors associated with participation on the labour

Table 4

Odds ratios (95% confidence intervals) of having paid work for mobility and optimism, adjusted for the non-modifiable factors^a

Variables	OR	95% C.I
Non-modifiable factors		
Age	1.02	1.00–1.04
Sex	0.66	0.40–1.11
Level of education		
– low (reference group)		
– average	4.59*	1.51–14.01
– high	8.41*	2.63–26.91
Living situation	0.69	0.37–1.28
Comorbidity	2.18*	1.23–3.86
Level of visual impairment		
– low vision (reference group)		
– very low vision	0.54*	0.31–0.92
– blind	0.53	0.19–1.46
Age of onset	1.37	0.74–2.54
Modifiable factors		
Mobility skills	2.23*	1.10–4.51
Optimism	1.12*	1.03–1.22

* $p < 0.05$. ^aModel is resultant of stepwise logistic regression including all individually significant modifiable factors with the non-modifiable factors forced into the model.

Table 5

Odds ratios (95% confidence intervals) of having paid work for mobility and acceptance, adjusted for the non-modifiable factors^a

Variables	OR	95% C.I
Non-modifiable factors		
Age	1.02	1.00–1.05
Sex	0.64	0.38–1.08
Level of education		
– low (reference group)		
– average	4.42*	1.45–13.5
– high	8.33*	2.59–26.8
Living situation	0.77	0.42–1.42
Comorbidity	2.08*	1.18–3.69
Level of visual impairment		
– low vision (reference group)		
– very low vision	0.58*	0.34–0.99
– blind	0.54	0.20–1.50
Age of onset	1.42	0.77–2.62
Modifiable factors		
Mobility skills	2.12*	1.04–4.34
Acceptance of the visual impairment	1.05*	1.01–1.10

* $p < 0.05$. ^aModel is resultant of stepwise logistic regression including the individually significant modifiable factors without optimism with the non-modifiable factors forced into the model.

market of people with visual impairments in the Netherlands. The findings might be useful to improve the labour situation of this group. Informed consent was obtained for a structured telephone survey among 299 people with visual impairments, which found that 161 people had paid work and 138 people were looking for paid work or would accept a suitable job offer. These people were included in the logistic regression analyses to find the significant modifiable factors

(including several skills and psychological factors) that were associated with having paid work.

4.1. Personal factors associated with labour participation of people with visual impairments

People with visual impairments with better mobility (being able to travel independently), a higher level of optimism and a higher acceptance of their visual impairment have better chances on the labour market. These factors should be included in an individual assessment instrument which can provide people with visual impairments and their job coaches with good starting points for improving their labour market situation. Mobility is a skill which can be acquired and supported, even though it may be difficult. Earlier research has also shown that mobility is a very important factor in the lives of (young) people with visual impairments which contributes to their well-being and sense of independence [31]. Acceptance and optimism are psychological factors which may also considerably improve the labour market chances of people with visual impairments. According to Sampson [19], for instance, acceptance is a very important factor in the process of adjusting to a disability. And adjustment is linked to greater self-efficacy, higher self-esteem, lower levels of depression and a more internal locus of control, and is likely to be a necessary factor for adequate functioning in various areas of life, including work. It is paramount for job coaches and work psychologists to facilitate the acceptance of being blind or visually impaired. Like acceptance, optimism appeared to be an important factor in labour market success. Optimism might be linked to the motivation of people with visual impairments to cope adaptively with their vision loss and job rehabilitation, and may also be associated with psychological and physical well-being [32, 33]. These processes appear to be important for labour market success as well. We strongly believe that both acceptance and optimism are important factors in explaining the labour market success of people with visual impairments. In our regression models, both concepts appeared to be interchangeable; independently, they contribute to labour market success, but not when combined in a regression model. This could well be explained by the assumption that both concepts are strongly interrelated (see also the high and significant correlation between the two factors in Table 2). Optimism could be the underlying factor leading to higher levels of acceptance. In

previous studies optimism was found to relate to many positive outcomes (e.g., positive mood, high self-esteem, psychological well-being, resilience, self-mastery, active coping, and recovery) [32–34].

It appeared that some of the non-modifiable factors were significantly associated with having paid work as well. Even though it is difficult for job coaches to influence or change these factors, it is relevant to know which impact they have on having paid work, because they may combine in a positive or negative way with the modifiable factors. First of all, a high educational level was, as might be expected [35, 36], associated with a higher chance of having paid work (as compared to low education), while comorbidity was associated with lower chances on the labour market. The odds ratio for the level of visual impairment was partly significant (people with low vision having a higher chance of paid work than people with very low vision but not higher than blind people). Our systematic literature review [2] also yielded ambiguous findings regarding the association between level of visual impairment and paid work. In our study, sex was not significantly associated with labour participation, although our systematic review also showed that men generally had higher chances of obtaining paid work than women. The odds ratio we found shows a similar direction, but was not statistically significant. Like sex, the age of onset of the visual impairment was not significantly associated with labour participation. One might argue that people with congenital vision loss are much better adapted than people with acquired vision loss, and therefore may more easily participate in labour. Others argue however, that children with congenital vision loss are often sent to special schools and are raised in rather protective environments. This means that they are not empowered and not used to functioning in the world of people with normal vision. This may decrease their chances of participation on the competitive labour market. So, age of onset might work both ways. Meaning in life finally, was not significantly associated with having paid work either. A possible explanation could be that people who are more conscious about giving meaning to their life might find this more often in hobbies or voluntary work than in paid work (personal communication Kabel, 2014).

4.2. Other influences on labour participation of people with visual impairments

This study found that several – modifiable and non-modifiable – personal factors play an important role

in the labour market success of people with visual impairments. As indicated in the ICF model however, environmental factors influence labour participation as well. These factors are not easily modified, but job coaches who aim to improve the labour market situation of people with visual impairments should be aware of these factors. Employers' willingness to hire persons with impairments, for instance, has a substantial impact on the labour market position of this vulnerable group. Klabbers and colleagues [37] have shown that a positive attitude of employers, in combination with a willingness to adjust work, are important prerequisites for the employability of people with disabilities and/or chronic diseases. Employers who have positive experiences with visually impaired employees could help to stimulate other employers to recruit such employees. Conversely, Goertz and colleagues [2] and Gewurtz and colleagues [1] reported that discrimination by employers and lower expectations on the part of employers regarding the productivity of people with visual impairments is detrimental to their labour participation. The latter is confirmed by Van Wijk and colleagues [38] who claim that the attitude of employers towards people with chronic diseases and disabilities determines their willingness to hire this group. Unfortunately, these attitudes are often based on very few experiences with this group and/or may be dictated by stigmatization [1]. In line with this, the systematic review mentioned above [2] showed that with regard to environmental factors, it is particularly social support [39] and attitudes of parents, school teachers and employers [11] which play a role in labour participation.

Another factor associated with the occupational and rehabilitation process of people with visual impairments has been pointed out by Van Hal [6]. She showed that being in work and reintegration into work of people with disabilities is not all about improving work-related or social skills, but also implies 'identity work'. After acquiring a disability, people have to relate differently to their bodies, to their ideas of self, and to the society in which they are expected to participate (including work). From the perspective of a person with a visual impairment, even though having paid work is an important way to participate in society, other forms of participation like voluntary work or raising children, can be valuable as well, both for society as a whole and for individual people with visual impairments. Professionals (e.g. job coaches) involved in the rehabilitation of people with visual impairments who ignore this identity work may cause

people with visual impairments to feel more detached from the labour market than they felt to begin with [6].

Finally, two macro-level factors related to the Dutch social security system may influence the labour participation of Dutch people with visual impairments. First, when introducing the new Dutch Participation Act [4], the government imposed quota on employers for hiring vulnerable (i.e., impaired or low educated) people. It is questionable whether the obligatory character of this quota is actually helping persons with impairments in the long run (they may feel unwelcome). Furthermore, the quota could also make it more difficult for persons with less serious impairments to find paid work, because they are not covered by this quota. Second, we cannot exclude the possibility that the Dutch social security system has a paralyzing effect on people with visual impairments who are dependent on disability benefits. Distrust of the social security system and public institutions may disempower people with disabilities [40]. When people on disability benefits start to work, the social security safety net disappears gradually and cannot always be restored easily (in case the job does not work out well after a longer period). This situation might make people with visual impairments very hesitant to seek employment.

4.3. Strengths and limitations of the study

This study had both strengths and limitations. The recruitment of participants through companies which provide equipment for people with visual impairments was a methodological strength. Since these two enterprises are in contact with the vast majority of people with visual impairments in the Netherlands, this contributed greatly to the representativeness of our sample, more so than recruiting through other channels such as patient or care organizations would have done. The latter procedure would probably have caused selection bias, as we would have reached specific groups: people who are more actively involved in their impairment or in dealing with it, or people who are already looking for help in acquiring paid work. Limitations of this study were the relatively low response rate, the fact that our sample was more highly educated than the population in general, the cross-sectional study design, and the determination of the level of visual impairment. The response rate in our study was 47%, which is not high. Considering our difficult-to-reach target group and the method of data collection however, we were

nevertheless rather satisfied with this number [cf. Goertz, Houkes & Nijhuis, unpublished data]. Second, our sample appeared to be somewhat more highly educated than the general population. This may have led to a possible underestimation of the associations with education. Another weakness of our study is its cross-sectional design, implying that no causal relationships can be inferred between the variables. We thus cannot fully exclude the possibility that having paid work caused people with visual impairments to have a more favourable outlook on life. Finally, it appeared that the level of visual impairment was hard to determine without medical information from ophthalmologists. Professionals working with people with visual impairments recommended not to ask people with visual impairments themselves about their medical data because of the unreliability of these data [personal communication, Verstraten, 2010]. Our alternative strategy may not have provided objective data on the level of visual impairment among the participants, but we thought it was nevertheless the optimal strategy given the context and purpose of this study.

4.4. Implications for future research and practice

This study has provided further information about factors associated with the labour market success of people with visual impairments. However, finding causal relationships between success factors and paid work will require further longitudinal research. Furthermore, it is relevant to include not only personal factors in future research into labour participation of people with visual impairments, but also environmental factors. As regards practical implications, it is important for job coaches to be aware of the importance of mobility, optimism and acceptance of the visual impairment when supporting people with visual impairments in finding employment. We aim to include these factors in an individual assessment instrument (consisting of an online tool and a manual) that we will develop. People with visual impairments (supported by professionals assisting in the process of returning to work) can use this tool to determine which factors are most important for them to improve in order to increase their chances on the labour market. The tool will be based on the findings of this study, with additional information from subsequent sensitivity and specificity analyses.

Depending on the results of this individual assessment, several interventions or actions are available.

The mobility of persons with visual impairments could be improved by mobility training courses organized by institutes providing specialized care for people with visual impairments. Many mobility aids, facilities, services and orientation and mobility courses (e.g., using echolocation) are available in the Netherlands for people with low vision [41]. Persons who need support in accepting their visual impairment could be advised, for example, to have consultations with a psychologist and participate in things like cognitive behavioural therapy or acceptance and commitment therapy. Studies regarding optimism show that this is definitely a modifiable factor, even though interventions, such as the Best Possible Self, are still under development [33, 34, personal communication Peters, 2015].

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Conflict of interest

None to report.

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