European Journal of Adapted Physical Activity,5(2), 65-81

PARTICIPATION IN PHYSICAL ACTIVITIES AND EVERYDAY LIFE OF PEOPLE WITH DISABILITIES

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The purpose of this study was to investigate the correlation between participating in physical activity on a regular basis and civic activities for people with disabilities. Data were collected using telephone interviews with 1,321 people, who reported having some impairment related to legs, arms, hands, vision, behaviour or intellect. The sample was randomly selected by The Danish National Centre for Social Research, which also conducted the interviews. The data material is representative of all persons in Denmark aged 16 – 64 years according to gender, age, income, employment and education, and analyses were conducted using STATA 11.2. The study observed a significant correlation between a participation in physical activities and employment, educational status, volunteerism, leisure time schooling and membership in a disability organization. Among the participants in physical activities, women were in the majority, and a correspondence analysis revealed complex relations between participation in physical activities and civic activities, which might be elaborated on through further research. The results of this study give supporting arguments and provide the impetus for including physical activity and sport as a consistent means in the rehabilitation process, while improving the opportunities for people with disabilities to help gain access to appropriate physical activities in their local community.

Keywords: Physical activities, civic activities, correspondence analysis

INTRODUCTION

Persons with disabilities participate to a lesser extent in society than do the general population. They often find their social interactions and social network limited (Isaksson et al., 2005), as isolation may affect the range of life experience and influence effectiveness in social situations (Blinde & Taub, 1999). Barriers within society seem to prevent people with physical disabilities from participating in social communities, and most types of disabilities have a reducing effect on all types of participation in society, which concerns social life in relation to family and friends as well as participation in societal areas such as education, employment and leisure time activities (Lutz & Bowers, 2005; Alaszebski et al., 2006; Sandø et al., 2004; Bengtsson, 2008).

According to the theory of social practice, participation is a fundamental theme in human existence, and human subjectivity is based on the possibilities of making use of the options at hand (Dreier, 2008). According to the WHO (2001), participation is a core term in independent living for people with disabilities, with the United Nations (2006) stating that the fundamental rights of people with disabilities emphasizes the right to accessibility to and participation in all social and societal communities. However, no gold standard for an ideal, optimal or "full" participation for people with disabilities is available, although in qualitative focus group interviews with 63 people with diverse disabilities, Hammel et al. (2008) found an articulated need for freedom to define and pursue participation on their own terms, rather than meeting predetermined social norms. Participation was viewed as both a right and responsibility influenced and ascribed to the person and to society.

One important issue would be to make participation possible for people with disabilities in all fields to the degree that the individual may want to participate.

People with disabilities are able to participate in physical activities when made accessible and adapted to their preconditions. For the individual, the significance of participation in adapted physical activities in itself should not be underrated, and as health conditions in general seem to be poorer for people with disabilities than for the average population (Arnhof, 2008), physical activity should be a special concern in this respect. Moreover, it is assumed that participation in physical activities could imply psychological benefits such as empowerment (Hutzler, 1990; Hutzler & Bar-Eli, 1993), meaning (Ashton-Shaeffer et al., 2001; Gaskin et al., 2009), self-perception (Blinde & McClung, 1997; Huang & Brittain, 2006), well-being (Campbell & Jones, 1994), increased positive affect (Giacobbe et al., 2006), quality of life (Giacobbe et al., 2008), social competence (Goodwin et al., 2009) and perception of bodily competence (Kasser, 2009; Page, 2001). In addition, physiological benefits are rendered probable in relation to physical work capacity, muscle strength and the aerobic fitness of wheelchair users, all of which is linked with an improvement in the quality of life (Noreau et al., 1993; Fernhall, 2008; Muraki et al., 2000; Røe et al., 2008).

In light of a restricted participation in civic activities observed among people with disabilities, it would be of interest to investigate whether any correlation might be found between a participation in physical activities and participation in other settings of everyday life. One could assume that people with disabilities would achieve competencies and efficacy through physical activity participation, which might encourage them to participate in others contexts as well.

If and how a participation in physical activities may be related to an enhanced participation in other contexts of everyday life and other fields of society is the subject of the present study. Research in this area is limited, and the results are not clear-cut. Indications are seen that people with disabilities who participate in physical activities experience greater success in relation to employment, and are more likely to manage a job, than people who are not physically active (Shephard, 1991; Noreau et al., 1992; Tasiemski et al., 2004; Fernhall, 2008). A study that compared community integration for both athletes (30) and non-athletes (18) with spinal cord injuries revealed a positive correlation between physical activity and being employed or enrolled in an educational programme (Hanson, Nabavi & Yuen, 2000). A correlation was seen between physical activity and physical independence, mobility and occupation in quadriplegic persons (Manns & Chad, 1999), though a pilot -study among 45 adults with spinal cord injuries showed no significant correlation between a participation in physical activities and educational or occupational status (Tasiemski et al., 2000). The studies were primarily conducted in fairly small populations picked from among wheelchair users, but the definition of sport and physical activity is not clear-cut in the studies, thus making it difficult to compare the results from a crosswise perspective.

The aim of the present study was to investigate the correlation between a participation in physical activity and participation in other fields of social and societal settings in the everyday life of people with disabilities, with a special focus placed on employment, educational status, leisure time schooling, membership in a disability organization and volunteerism.

The results of the study are assumed to provide insight that may be used in the discussion and development of working methods in rehabilitation and health promotion, in addition to debating physical activity as a means for an enhanced participation in society in general for people with disabilities and a more active lifestyle.

METHOD

Sample

A population-based national representative survey, including 16,176 individuals between the ages of 16 to 64 years, was conducted in

2006 by The Danish National Centre for Social Research (Bengtsson, 2008). Individuals were selected at random using the Central Personal Registry (CPR), containing identification numbers that uniquely identified each person living in Denmark, with the data collected by use of a computer-assisted telephone interview (CATI).

Out of the 16,176 individuals, 2,164 were not eligible (due to death, emigration and a refusal to participate), and telephone numbers were not available for 3,301 persons. Hence, the remaining sample consisted of 10,711 individuals who were invited to take part in the survey.

In addition to the main sample, 700 men and women aged 16 – 64 years who were in a flexible job were selected at random using the personal identification number linked to the national registry of The National Labour Market Authority. Of these, 82 were not eligible and telephone numbers were not available for 85 persons, while the remaining 533 individuals were invited to participate in the survey.

Consequently, the net sample consisted of 11,244 individuals who received a postal invitation to participate in the survey three weeks prior to the telephone interview. Once contacted, 2,042 refused to participate, and the remaining 9,202 individuals were interviewed for 10 minutes about their living conditions, educational status, health and employment. The interviews were conducted from September to November of 2006.

After the 10-minute interview, 2,505 individuals were selected for an expanded interview based on the following criteria: "employed in a flexible job", "having a disability", "having a long-term health problem (more than six months)" or having a "work-related problem".

The expanded interview lasted for 45 minutes, was designed to reveal information about the impact of disability on participating in society and was conducted by telephone or in the person's homes at the choice of the participant. A total of 2,235 individuals completed the expanded interview, of which 1,321 individuals told of having some type disability related to their legs, arms, hands, vision, behaviour or intellect.

Approximately 18 month later, the 1,321 were contacted again and invited to participate in a telephone interview about participation in some type of physical activity. Of these, 399 were not eligible; therefore, the sample included in the present study consisted of the remaining 922 individuals who agreed to participate (70%).

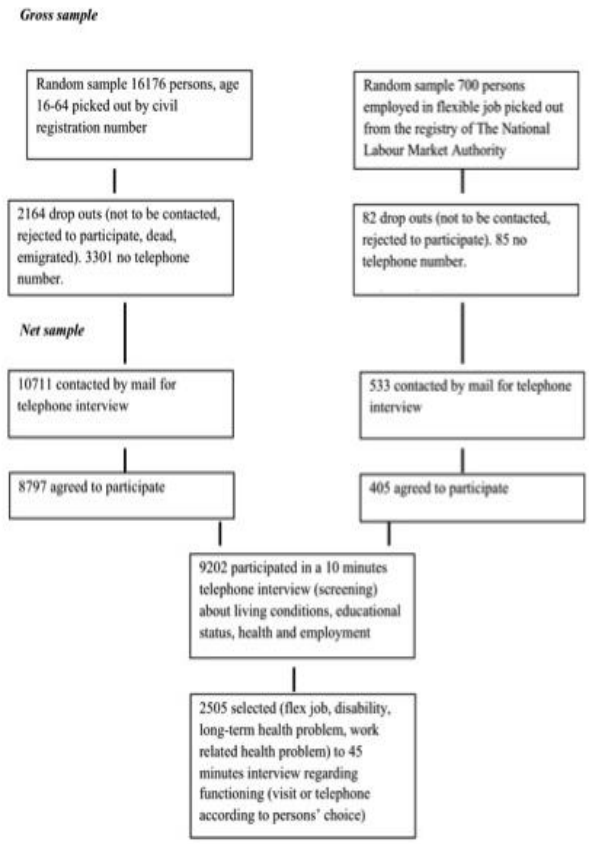

Figure 1 *Sample selection 1.*

The data material is representative for all persons in Denmark aged 16 – 64 years, according to gender, age and education for persons in a flexible job, and gender, age income and employment for persons not employed in a flexible job.

Ethics

The Danish Data Protection Agency approved this study.

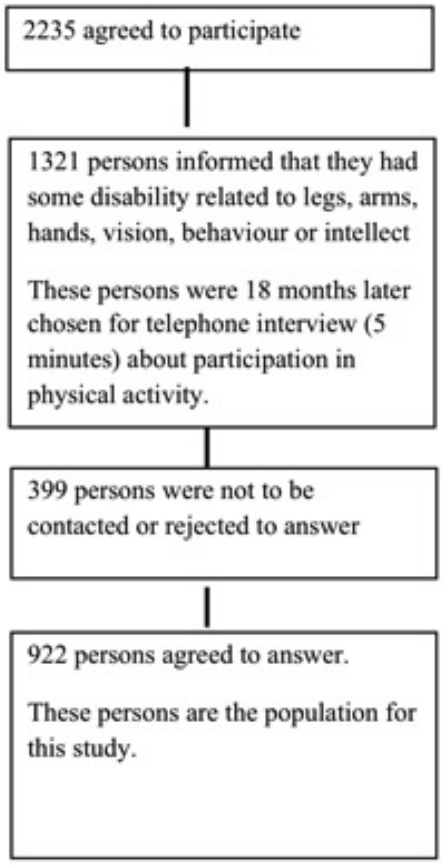

Figure 2 *Sample selection 2.*

Measures

Participation in physical activity was measured by a single item: *"Do you participate in sports and/or physical activity on a regular basis outside your own home?"* The response options were "yes" (coded 1) or "no" (coded zero), and the variable was named ""Sport participation".

Respondents were asked to specify the most important type of disability, and the response options were: "Problems with torso or extremities (hands, arms, feet, legs, back, neck)", "Sensory problems (partial or full blindness or deafness)", "Skin/organs (skin diseases, allergy, impaired breathing, heart problems, problems with blood pressure or vascular problems, problems with the liver, kidneys or digestion, diabetes and progressive diseases (e.g. cancer, multiple sclerosis, HIV or Parkinson's disease)", "Brain diseases, e.g. epilepsy, mental disease, retardation, brain damage, dyslexia". For the correspondence analysis, the responses were collapsed into a new variable entitled, Disability.

The respondents were asked about their current level of employment, with the response options being: "employed", "temporarily unemployed" or "unemployed". For the current analysis, employment was coded "1" and the last two options were coded "0".

Membership of a disability organization was coded "1" if the respondent answered "yes" and "0" otherwise.

Leisure time schooling was measured by the question: "Do you attend informal educational activities (e.g. leisure time schooling, public lectures etc.)?" The response options were "yes" and "no", and were coded "1" and "0", respectively.

The distribution of respondents working as volunteers was assessed by response to the question: "Are you currently occupied as a volunteer (working without a salary), e.g. as a board member or in a club, etc.?" The response options were "yes" and "no", and were coded "1" and "0", respectively.

Education was coded "None" if the respondent had no formal education, "Basic" for basic but non-credible education, "Manual" for a manual and non-professional level of education, "Diploma" for the lowest professional level, "Bachelor" for three to four years of professional education and "Master" for five to six years or more of a professional level of education.

Data were collected on gender and age. Gender was coded "0" for men and "1" for women, whereas age was coded into 10-year intervals: "16 – 34 years", "35 – 44 years", "45 – 54 years" and "55 – 66 years". For the correspondence analysis, the responses regarding participation in civic activities, gender, age employment and educational level were collapsed into a new variable entitled, Activities.

Statistical analysis

Proportional differences, including a 95% confidence interval, were calculated for categorical variables by sport participation, and an independent t-test was calculated for mean differences. An important objective of the present paper was to retain all the available information and investigate subtle associations between categories of disability on the one side and categories of civil participation on the other. As an example of a combination of descriptive tables and graphical illustrations, a correspondence analysis, which is a special case of canonical correlation (Greenacre, 1993; Hoffman, 1986) and bears similarities with principal component analysis (Greenacre, 1993), was used to investigate the viability of the research hypothesis. Furthermore, a correspondence analysis is a graphical representation that plots the row and column profile vectors of two variables in a chi-square metric, such that profile vectors close to the average profile are plotted at or near the centre of the map, while differing profiles are plotted further away. Hence, a correspondence analysis is used to display the degree of differentiation of row and column profiles. The analytical output of a correspondence analysis includes an estimation of the overall heterogeneity between the variables expressed as inertia (Λ^2), which can be further decomposed into a contribution to the overall inertia by each cell in the contingency table. Inertia is directly related to the Pearson chi-square statistic (χ^2):

$\Lambda^2 = \chi^2/N$

where N is the total sample size. The key to the interpretation of the graphical plot of the correspondence analysis is an assessment of the quality of the representation of each point to the dimensions. This is done by calculation of the squared cosines, which is equivalent to communalities in a Principal Component Analysis (Greenacre, 1993). Thus, a correspondence analysis provides information on subtle relationships between the categories of one variable with the categories of another (Higgs, 1990; Sourial et al., 2010).

All of the analyses were conducted using STATA 11.2 (Stata Corp, 2009).

RESULTS

Information on 922 individuals was available for the present analyses, and no difference between the study sample and the background population concerning the distribution of gender, age and education was assumed.

The sample characteristics displayed some diversity in a number of domains. For example, the proportional difference between women and men included in the final sample for analysis was .20 (95% CI_{diff} = .14 - .27, p < .00) and .29 more in the age group 55-66 years, compared to participants aged 16-34 years (95% CI_{diff} = .21 - .37, p < .00). The participants also differed with regard to membership in an organization for the disabled (.15), leisure time schooling (.12), working as a volunteer (.05) and being employed (.53). Additionally, a majority of the participants reported that they participated in sport and physical activities on a regular basis outside their own home (.57).

Respondents participating in physical activities (Active) were more often engaged in civic activities than respondents who did not participate in physical activities (Non-active) (Table 1). For example, active respondents were more often employed (Proportional difference (Δ) = .19, 95% CI_{diff} = .10 - .28, p < .00), a member of a disability organization (Δ = .26, 95% CI_{diff} =.09 - .43, p < .05), engaged in leisure time schooling (Δ = .52, 95% CI_{diff} =.34 – .70, p < .05) and voluntary work (Δ =.33, 95% CI_{diff} = .03 - .64, p < .05). Nevertheless, the proportional distribution of sport participation was similar across different types of disability reported, except for illness from Column A (Δ = .17, 95% CI_{diff} =.05 - .29, p < .00), blindness/deafness (Δ = .42, 95% CI_{diff} =.15 - .71, p < .05) and mental illness (Δ = .28, 95% CI_{diff} =.04 - .53, p < .05), in which the proportion of respondents who were active in physical activities was higher. Similarly, the proportion of active respondents was slightly higher in all age groups, and the mean age did not differ by sport participation (t = -0.12; df (920), 95% CI =-1.48 – 1.31, p = ns). With regard to the level of education, active respondents held a

higher level at the bachelor- and master level, than did non-active respondents.

Table 1 *Distribution of Respondents by Sport Participation Status.* Numbers (%) and 95 % Confidence Interval (n = 868)

	Participate in sport		Non-participates in sport	
Variable	Number (%)	95 % CI	Number (%)	95 % CI
Activities[a]				
Employed	292 (59.59)	0.55 - 0.63	198 (40.40)	0.36 – 0.45***
Unemployed	236 (54.63)	0.48 – 0.61	196 (45.37)	0.38 – 0.52
Member of a disability organization	88 (63.30)	0.55 - 0.71	51 (36.69)	0.29 - 0.45**
Leisure time schooling	89 (76.07)	0.68 - 0.83	28 (23.93)	0.16 - 0.32***
Volunteer	28 (66.67)	0.52 - 0.81	14 (33.33)	0.19 - 0.48*
Disability[b]				
Upper extremities	83 (55.33)	0.47 - 0.63	67 (44.67)	0.37 - 0.53
Lower extremities	74 (49.33)	0.40 – 0.61	76 (50.67)	0.39 – 0.62
Columna	153 (58.85)	0.51 - 0.67	107 (41.15)	0.32 – 0.50*
Blind / deaf	35 (71.43)	0.56 - 0.86	14(28.57)	0.05 - 0.52*
Skin / organs	21 (60.00)	0.39 – 0.81	14 (40.00)	0.14 – 0.66
Asthma / allergy	16 (53.33)	0.29 – 0.78	14 (46.67)	0.21 – 0.73
Cardiovascular	31 (54.39)	0.37 - 0.72	26 (45.61)	0.26 – 0.65
Diabetes	14 (50.00)	0.24 – 0.76	14 (50.00)	0.24 – 0.76
Progressive neuromuscular diseases	16 (64.00)	0.40 – 0.88	9 (36.00)	0.05 – 0.67
Cerebral	13 (65.00)	0.39 – 0.90	7 (35.00)	0.00 – 0.70
Mental illness	41 (64.06)	0.49 – 0.78	23 (35.94)	0.16 – 0.56*
Gender				
Women	348 (62.82)	0.58 – 0.68	206 (37.18)	0.31 – 0.44***
Men	180 (48.91)	0.42 – 0.56	188 (51.09)	0.44 – 0.58
Age groups				
16 – 34 years	55 (56.70)	0.43 – 0.70	42 (43.30)	0.28 – 0.58
35 – 44 years	101 (58.38)	0.49 – 0.68	72 (41.62)	0.30 – 0.53*
45 – 54 years	150 (54.74)	0.47 – 0.63	124 (45.26)	0.36 – 0.54
55 – 66 years	222 (58.73)	0.52 – 0.65	156 (41.27)	0.34 – 0.49**
Education				
None	120 (53.57)	0.45 – 0.62	104 (46.43)	0.37 – 0.56
Basic	26 (53.06)	0.34 – 0.72	23 (46.94)	0.27 – 0.67
Manual	163 (52.75)	0.45 – 0.60	146 (47.25)	0.39 – 0.55
Diploma	38 (52.05)	0.36 – 0.68	35 (47.95)	0.31 – 0.65
Bachelor	148 (67.27)	0.60 – 0.75	72 (32.73)	0.22 – 0.44***
Master	32 (69.57)	0.54 – 0.86	14 (30.43)	0.06 – 0.56*

a) Respondents could report more than one activity. b) Respondents could report more than one disability. Proportion among participants in sports are statistically significantly different from non-participants in sport *) $p < .05$, **) $p < .001$, ***) $p < .00001$

Table 2 *- Squared Cosines of Categories of Activity to Dimensions in the Analysis*

Variables	Dimension 1	Dimension 2	Dimension 3
A_Employed	**0.363**	0.010	0.106
A_Unemployed	0.012	**0.245**	0.005
A_DO	0.003	0.241	**0.329**
A_Leisure	**0.350**	0.078	0.040
A_Volunteer	**0.239**	0.025	0.007
A_Women	**0.580**	0.011	0.117
A_Men	0.018	0.124	**0.528**
A_16-34 yrs	0.004	**0.294**	0.005
A_35-44 yrs	**0.445**	0.000	0.238
A_45-54 yrs	**0.435**	0.144	0.145
A_55-66 yrs	**0.357**	0.059	0.022
A_None	0.052	0.019	**0.450**
A_Basic	0.002	**0.150**	0.093
A_Manual	0.004	**0.224**	0.181
A_Diploma	0.113	0.003	**0.183**
A_Bachelor	**0.351**	0.207	0.187
A_Master	0.199	**0.405**	0.000
Na_Employed	**0.406**	0.008	0.022
Na_Unemployed	0.029	**0.268**	0.099
Na_DO	0.138	0.212	**0.264**
Na_Leisure	**0.255**	0.077	0.028
Na_Volunteer	**0.275**	0.079	0.012
Na_Women	0.002	**0.528**	0.399
Na_Men	**0.433**	0.087	0.200
Na_16-34 yrs	**0.418**	0.090	0.002
Na_35-44 yrs	0.038	**0.449**	0.001
Na_45-54 yrs	**0.412**	0.226	0.044
Na_55-66 yrs	**0.715**	0.004	0.001
Na_None	0.087	**0.179**	0.131
Na_Basic	**0.092**	0.001	0.048
Na_Manual	**0.275**	0.018	0.160
Na_Diploma	0.128	0.009	**0.372**
Na_Bachelor	0.132	**0.346**	0.004
Na_Master	0.163	**0.521**	0.004

a) A_ active in sport. NA_ non-active in sport. b) Categories are omitted from the biplot but estimates are contained in the analysis.

Table 3 *Squared Cosines of Categories of Disability to Dimensions in the Analysis*

Variables	Dimension 1	Dimension 2	Dimension 3
UE	0.002	0.175	**0.655**
LE	**0.349**	0.011	0.031
Columna	0.144	0.257	**0.414**
B/D	0.117	**0.362**	0.107
Organs	0.050	**0.546**	0.077
Asthma	**0.229**	0.112	0.067
CVD	**0.422**	0.001	0.035
Diabetes	**0.468**	0.000	0.001
Progressive	0.008	**0.248**	0.093
Cerebral	0.072	0.014	**0.159**
Mental	**0.693**	0.011	0.021

Correspondence analysis

The correspondence analysis revealed 10 dimensions, though only the three first dimensions are reported here. The variables Activities and Disability were statistically significantly associated (χ^2; df (330) = 424.85, p < .001), and some heterogeneity between the categories of the included variables was observed (Λ^2 = 11., 3%).

Figures 2 and 3 aid in the interpretation of the graphical display of the row (Activity) and column (Disability) variables. Dimension 1 (the horizontal axis in Figure 2 and Figure 3) separates younger- from older respondents regardless of their level of activity in sport, showing non-active participants aged 16-34 years and active participants aged 35-44 years to the left, and non-active participants aged 55-66 years to the right. Dimension 1 also separates respondents with Mental illness on the left from Diabetes, CVD and Asthma on the right, showing for example that respondents with Mental illness are more often characterized by younger respondents regardless of the level of activity in sport, and engaged in leisure time activities. In contrast, respondents with Diabetes, CVD and Asthma aged 55-66 years old who were active in sport, engaged in voluntarily work and had a diploma level in education are located to the right of Dimension 1 (Table 2 and Table 3).

The first dimension accounts for 22.45% of the total inertia.

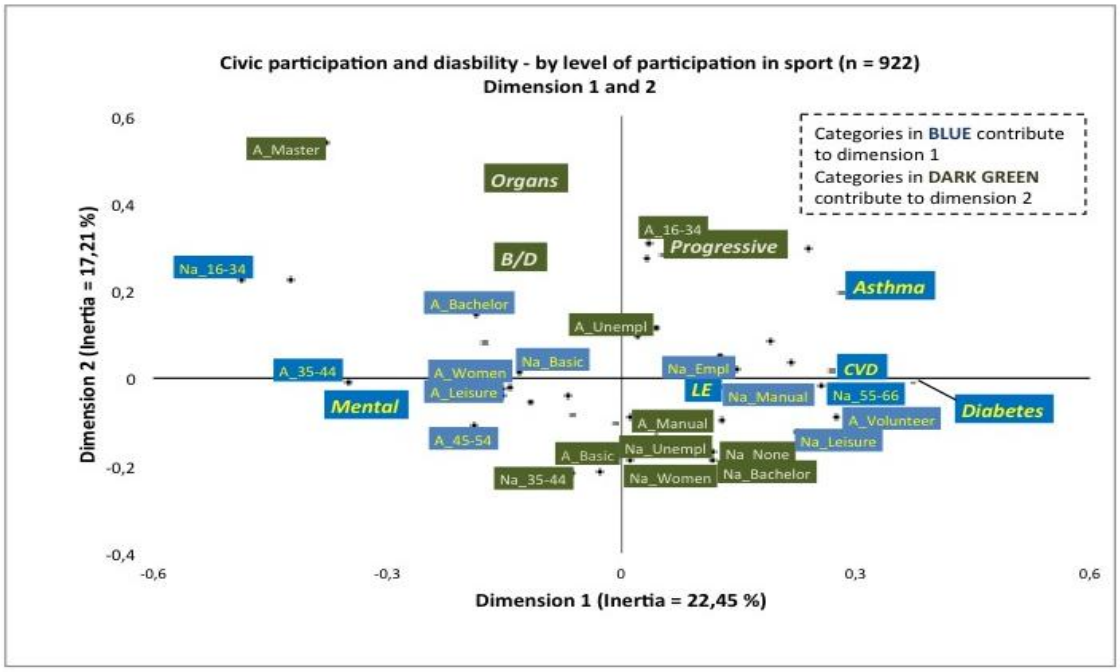

Figure 3 *Dimension 1.*

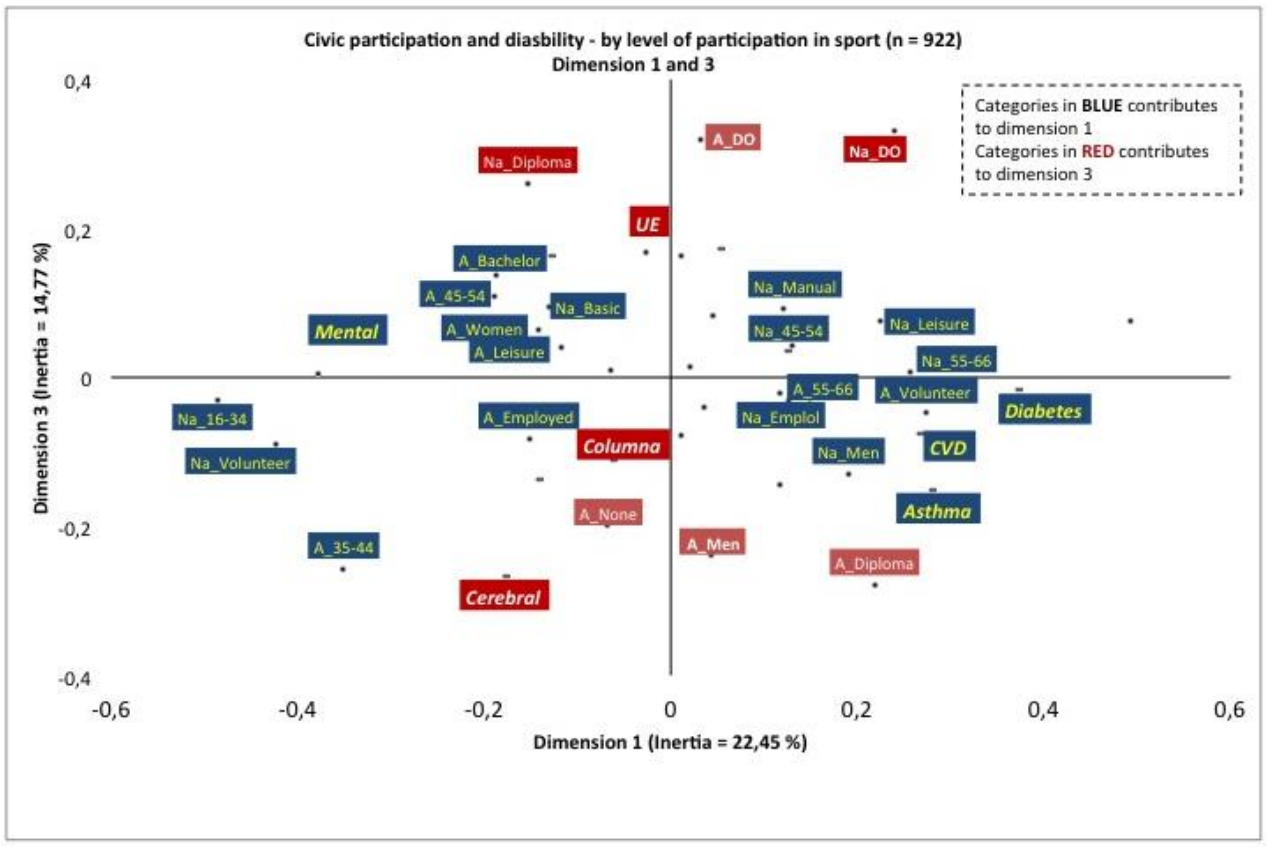

Figure 4 *Dimension 2.*

Dimension 2 (the vertical axis in Figure 2) separates respondents with a master level in education in the upper left quadrant from respondents with a basic level in education in the lower quadrants of the plot, showing for example that respondents active in sports with a master level of education are reporting disability from Skin/organs or Blindness /deafness, in contrast to predominantly non-

active women who report a disability from the Upper extremities and Column A, and with a relatively low level of education (Table 2 and Table 3). The second dimension accounts for 17.20% of the total inertia.

The third dimension (the vertical axis in Figure 3) separates respondents with disabilities in the Upper extremities from respondents with a Cerebral disability or disabilities from Column A. For example, respondents with a disability from the Upper extremities are affiliated with disability organizations, regardless of their level of activity in sport. In contrast, respondents with Cerebral disabilities or disabilities from Column A are mostly men who are active in

sports. The distinction between different types of disabilities is not related to level of education (Table 2 and Table 3). Dimension 3 accounts for 14.77% of the inertia, thus the three dimensions included here account for 54.43% of the total inertia.

Due to space limitations, the point "*Actively employed*" (principal components: Dimension 1 = -0.152; Dimension 3 = -0.085) is not displayed in Figure 2, while the point "*Non-active master*" (principal coordinates: Dimension 1 = 0.493; Dimension 2 = 0.881) is considered an outlier and is not displayed in either Figure 2 or 3. However, both points are included in the analysis and contribute to the overall inertia (Table 2 and Table 3).

DISCUSSION

The aim of the present study was to explore the characteristics of respondents participating in physical activities. An analysis revealed that respondents participating in physical activities were female, employed and had a higher level of education compared to participants who were not participating in sports. Furthermore, differences in other activities such as volunteering, leisure time schooling and membership in a disability organization were also observed. A correspondence analysis expanded the inspection of subtle differences between participants, and revealed complex relations between sports participation, disability, education and civic activities. For example, age and participation in physical activities were distinguished by diagnosis (Mental illness versus CVD, Asthma, Diabetes), as were differences in the level of education by diagnosis. Therefore, the results permitted the identification of subgroups characterized by a combination of various domains, and offer new insight into the relation between disability, activities and social and demographic factors.

A precise comparison of the present study with other studies in the field is not straightforward given the dissimilarity of the populations investigated and the methods applied, and no studies were found that investigated a wide population of people with various disabilities.

However, several studies have investigated the correlation between physical activity participation and the civic participation of people with spinal cord injuries. The studies were conducted on rather small populations, but the results still have some clues to be discussed. Higher education has been associated with an engagement in sport (Valliant et al., 1985), but recent studies found no significant correlation between a participation in physical activities and educational status (Taisemski et al., 2000).

Most studies found no relation between the likelihood of employment and the habitual patterns of physical activity (Tasiemski et al., 2000; Noreau et al., 1992), whereas Manns et al. (1999) found a correlation between participation in physical activity and occupation in persons with SCI, although it was not significant. However, one study (Hanson et al., 2000) found that athletes with SCI demonstrated a significantly higher degree of community integration for physical independence, mobility, occupation and social integration than non-athletes with SCI. Moreover, personal characteristics such as supporting a family, maintaining a job and going to school were observed more frequently among athletes.

No former Danish studies have investigated to what extent people with mental illnesses

participate in physical activities, though in recent years, many initiatives have been made to create leisure time physical activities for persons with mental illnesses, which may be further expected to enhance their options for participation. People with visual and hearing impairments are well represented in Danish sports societies, which may help explain why these groups were shown to be more physically active than other subgroups in the current study. However, no evidence for these assumptions is available, and more research needs to be carried out to investigate whether some subgroups of disabilities participate more than others in physical activities, as well as in other civic activities.

The differential findings may be due to differences in research designs, sampling methods and statistical methods applied, but most of the studies suggest that there may be a relation between participation in physical activity and civic participation. Even so, the present study reveals a significant correlation between a participation in physical activity and the civic activities of employment, educational status, leisure time schooling, voluntary work and a participation in disability organizations. This indicates that people with disabilities participate across a variety of contexts - that being active in one area of society is also correlated with a participation in other contexts as well. Participation in physical activity has been proven to be part of this "cluster of contexts", and though it is not possible to uncover causal relations between the factors, it might be assumed that a participation in physical activity may be one way to get started with an active lifestyle across different contexts for people with disabilities.

The study provides no explanation for why people with disabilities who are not physically active participate less in other civic activities, which could be due to personal or societal barriers not revealed in this study (e.g. medical complications or a lack of transport).

The analytical technique used in this study does not permit an investigation of the predictive value of various measures on a participation in physical activities, as this issue is beyond the scope of the study. Our aim was restricted to exploring subtle relations between various domains of civic activities, sports participation and disability among a representative sample of disabled persons. Statistical techniques that serve as an alternative to multiple linear and logistic regressions are rare in research on disability and participation in civil society (Hutzler, 2003), although the advantages of using different methods to illuminate a phenomenon may be substantial. One such advantage is the avoidance of "controlling away" important information vital to understanding the link between disability and participation in civil society, which is a practice that may otherwise obstruct the revelation of new insight into the relation between disability and various life domains.

The present study offers a general picture of a larger and more diverse population than any other study on sports participation and disability found in the review process, thereby allowing us to identify subgroups of people with disabilities. The study includes a broad spectrum of disabilities with the exception of intellectually disabled or severely mentally disabled persons, as these persons are not likely to be reached by telephone.

Limitations

The population interviewed (922) about their participation in physical activity may have a slightly different profile according to gender, age and education than the total population contacted (1,321), thus rendering the possibility of a selection bias which may affect the generalizability of the results. Since we were unable to obtain auxiliary information on the participants included in the present study or other representations from the gross sample, the further investigation of possible differences is precluded. Furthermore, the gross sample was contacted 18 month after the first interview, and may have lost interest or their conditions may have changed.

In the interviews, it was up to the informants to define how they understood the term

"physical activity", and they were not asked what type of activity they practised and at which level. In Danish culture, the term "physical activity" is normally associated with both competitive sports activities and recreational physical activities. The informants were therefore expected to associate with this conception of the term in their answers, although this may have been connected with some uncertainty. Hence, the results neither differentiate between individually performed physical activity and team activities nor between elitist- and recreational sport, though some differences might be expected in the experience that the participants got from the various types of activities.

The uncertainty of terms is characteristic for research about the outcomes of participation in physical activities, and the question is whether models are available to overcome this problem. Some researchers have pointed at ICF as a framework for research in Adapted Physical Activity (Hanson et al., 2000; Rimmer, 2006), which could be an issue for further investigation. A further analysis of the specific correlation between a participation in physical activity and, e.g. employment using more specific questions, would be desirable.

Perspective

The significant correlation found in this study between a participation in physical activity and employment, educational status and other civic activities indicates that physical activities may positively impact the rehabilitation process for people with disabilities in general. The results of this study provide arguments and the impetus for including physical activities and sports as a consistent means in the rehabilitation process, thereby improving the opportunities for people with disabilities to gain access to appropriate physical activities in their local community.

The present study has identified groups of people with disabilities who are more physically active than others. On this basis, more specific proposals can be given to enhance the participation in physical activity for special disability groups.

Acknowledgements

The Danish Disability Sport Information Centre, The Danish National Centre for Social Research, The University of Roskilde, Denmark and The Centre of Adapted Physical Activity Participation Studies (CAPAPS), Odense, Denmark all contributed to the accomplishment of this study.

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(Abstract)

TEILNAHME AN BEWEGUNDAKTIITÄTEN UND ALLTAG VON MENSCHEN MIT BEHINDERUNG

Die Absicht dieser Studie war es den Zusammenhang zwischen der regelmäßigen Teilnahme an Bewegungsaktivitäten und den gewöhnlichen alltäglichen Aktivitäten für Menschen mit Behinderung zu untersuchen. Die Daten würden mittels Telefoninterviews mit 1.321 Personen erhoben, welche über irgendwelche Behinderungen, Beine, Arme, Hände, das Sehvermögen, das Verhalten oder die Intelligenz betreffend, berichteten. Die Probanden wurden zufällig ausgesucht vom Danish National Centre for Social Research, welches auch die Interviews durchführte. Das Datenmaterial ist repräsentative für alle Personen in Dänemark zwischen 16 und 64 Jahren, bezüglich Geschlecht, Alter, Einkommen, Beschäftigung und Bildungsniveau, und die Analysen wurden mithilfe STATA 11.2 ausgeführt. Die Studie beobachtete eine signifikante Korrelation zwischen einer Teilnahme an Bewegungsaktivitäten und Beschäftigung, Bildungsniveau, Freiwilligkeit, Schulfreizeit und einer Mitgliedschaft in einer Behindertenorganisation. Frauen stellten die Majorität unter den Teilnehmenden an Bewegungsaktivitäten und eine briefliche Befragung zeigte komplexe Beziehungen zwischen Teilnahme an Bewegungsaktivitäten und zivilen Aktivitäten, welche weitere ausgeführt werden sollte durch weitere Untersuchungen. Die Resultate dieser Studie liefern unterstützende Argumente und geben den Anstoß dazu, Bewegung und Sport

als konsistentes Mittel in den Rehabilitationsprozess einzubeziehen, wobei es gleichzeitig notwendig erscheint die Möglichkeiten für Menschen mit Behinderung zu verbessern, um ihnen zum Zugang zu geeigneten Aktivitäten in ihrer lokalen Gemeinde zu verhelfen.

Schlüsselwörter: Bewegungsaktivitäten, zivile Aktivitäten, briefliche Befragung

(Résumé)

PARTICIPATION À DES ACTIVITÉS PHYSIQUES ET DE LA VIE QUOTIDIENNE DES PERSONNES HANDICAPÉES

Le but de cette étude était d'étudier la corrélation entre la participation à des activités physiques régulières et les activités communautaires pour les personnes handicapées. Les données ont été recueillies au moyen d'interviews téléphoniques auprès de 1321 personnes, qui ont déclaré avoir une déficience liée aux jambes, aux bras, aux mains, de vision, de comportement ou de l'intellect. L'échantillon a été choisi au hasard par le Centre national danois de recherche sociale, qui a également mené certains interviews. L'ensemble des données est représentatif de l'ensemble des personnes vivant au Danemark âgés de 16 à 64 ans selon le sexe, l'âge, le revenu, l'emploi et l'éducation ; ces analyses ont été effectuées à l'aide du logiciel STATA 11.2. L'étude a observé une corrélation significative entre la participation à des activités physiques et l'emploi, le niveau de scolarité, le bénévolat, les activités de loisirs extra-scolaires et de l'appartenance à un organisme de personnes handicapées. Parmi les participants à des activités physiques, les femmes étaient majoritaires, et une analyse des correspondances a révélé les relations complexes entre la participation à des activités physiques et des activités civiques, qui pourraient être précisées à l'aide de recherches plus poussées. Les résultats de cette étude donnent des arguments probants et une impulsion nécessaire à l'introduction de l'activité physique et du sport comme un moyen cohérent dans le processus de réadaptation, tout en améliorant les possibilités offertes aux personnes handicapées pour les aider à accéder aux activités physiques appropriées dans leur communauté locale.

Mots clés : Activités physiques, activités communautaires, analyses de correspondances

(Аннотацця)

УЧАСТИЕ В ФИЗИЧЕСКОЙ ДЕЯТЕЛЬНОСТИ И ПОВСЕДНЕВНОЙ ЖИЗНИ ЛЮДЕЙ С ОГРАНИЧЕННЫМИ ВОЗМОЖНОСТЯМИ

Целью данного исследования было изучение взаимосвязи между участвующими на регулярной основе в физической деятельности и общественной деятельности людей с ограниченными возможностями. Данные были собраны с помощью телефонных интервью у 1321 человека, имеющих различные нарушения деятельности ног, рук, зрения, поведения или интеллекта. Его образец был случайно выбран датским национальным центром социальных исследований, который проводил интервью. Данные материала получены на лицах, проживающих в Дании, в возрасте 16 - 64 лет, разделенных по признаку пола, возраста, дохода, занятости и образования, на основе анализа с использованием STATA 11.2. Исследование показало значительную корреляцию между участием в физической активности и занятостью, образовательным статусом, добровольчеством, обучением, досугом и членством в организации инвалидности. Среди участников физической активности, женщины были в большинстве. Анализ показал сложные отношения между участием в физической деятельности и общественной деятельности, которая может быть основанием для разработки дальнейших исследований. Результаты этого исследования дают толчок к процессу реабилитации, для того чтобы помочь получить доступ людям с ограниченными возможностями к физической деятельности в местном сообществе.

Ключевые слова: физическая деятельность, общественная деятельность, анализ соответствий

(Resumen)

PARTICIPACIÓN EN ACTIVIDADES FÍSICAS Y VIDA COTIDIANA DE LAS PERSONAS CON DISCAPACIDAD

El propósito de este estudio fue investigar la correlación entre la participación en la actividad física de manera regular y las actividades cívicas de las personas con discapacidad. Los datos fueron recolectados a través de entrevistas telefónicas a 1.321 personas, quienes reportaron tener alguna discapacidad relacionada con las piernas, los brazos, las manos, la visión, el comportamiento o el intelecto. La muestra fue seleccionada al azar por el Centro Nacional Danés de Investigación Social, que también llevó a cabo las entrevistas. El material de datos es representativo de todas las personas en Dinamarca entre 16 - 64 años según el sexo, la edad, ingresos, el empleo y la educación, y los análisis se realizaron utilizando STATA 11.2. El estudio observó una correlación significativa entre la participación en actividades físicas y el empleo, nivel de educación, el estatus educativo, el voluntariado, el tiempo libre en la escuela y la afiliación a una organización de discapacitados. Entre los participantes en las actividades físicas, las mujeres eran mayoría, y un análisis de correspondencia revela las complejas relaciones entre la participación en actividades físicas y actividades cívicas, que podrían ser abordados a través de nuevas investigaciones. Los resultados de

este estudio dan argumentos que apoyan y proporcionan el impulso necesario para la inclusión de la actividad física y el deporte como un medio constante en el proceso de rehabilitación, mejorando al mismo tiempo las oportunidades de las personas con discapacidad para ayudarles a tener acceso a actividades físicas adecuadas en su comunidad local.

Palabras clave: actividades físicas, actividades cívicas, análisis de correspondencia

(Resumo)

PARTICIPAÇÃO DE PESSOAS COM DEFICIÊNCIA EM ACTIVIDADES FÍSICAS E EM ACTIVIDADES DA VIDA DIÁRIA

O objectivo deste estudo foi investigar a correlação entre a participação em actividade física regular e as actividades cívicas direccionadas para pessoas com deficiência. Os dados foram recolhidos utilizando entrevista telefónica em 1312 pessoas, que afirmaram ter algum tipo de deficiência ao nível dos membros inferiores, dos membros superiores, das mãos, da visão, a nível comportamental ou intelectual. A amostra foi seleccionada de forma aleatória pelo Centro Nacional para a Pesquisa Social da Dinamarca, o qual realizou igualmente as entrevistas. Os dados são representativos de todas as pessoas, na Dinamarca, com idades entre os 16 – 64 anos, de acordo com o género, idade, rendimento, emprego e educação e as análises foram realizadas utilizando o STATA 11.2. O estudo observou uma correlação significativa entre a participação em actividades físicas, o emprego, o estatuto educacional, o voluntarismo, o tempo de lazer na escola e a filiação numa organização associada à deficiência. Entre os participantes em actividades físicas, as mulheres estavam em maioria, e uma análise de correspondência revelou relações complexas entre participação em actividades físicas e em actividades cívicas, a qual poderá ser mais elaborada em pesquisas futuras. Os resultados deste estudo dão argumentos de suporte e fornecem o ímpeto para incluir actividades físicas e desportivas como um meio consistente no processo de reabilitação, melhorando as oportunidades para as pessoas com deficiência obterem acesso a actividades físicas apropriadas, na sua comunidade local.

Palavras-Chave: Actividades físicas, actividades cívicas, análise de correspondência