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Higher risk of violence exposure in men and women with physical or sensory disabilities – Results from a public health survey

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Abstract

The WHO has declared that violence is a global public health problem. The prevalence of violence exposure among adults with intellectual and unspecific disabilities has been demonstrated in several studies, while only a few articles on people with sensory disabilities have been published. The aim of this study was to investigate the prevalence and risk for exposure to physical violence, psychological offence, or threats of violence in men and women with physical and/or sensory disabilities, compared to men and women with no such disabilities.

Data from a nationwide public health survey conducted by the Swedish National Institute of Public Health in 2010 were analyzed. A nationally representative sample of nearly 100,000 women and men aged 16-84 had been asked to reply to a questionnaire, called *Equal Health?*, sent to them by mail. The response rate was 54%. In this present study, the whole sample, comprised of 25,461 women and 21,545 men, was used.

Women with auditory disabilities were generally more often violence-exposed than non-disabled women, while men with physical disabilities were more often violence exposed than non-impaired men. Some age groups among both women and men with visual disabilities had higher prevalence rates than women and men without disabilities. The adjusted odds ratios were significantly higher among the auditory impairment group for exposure to both physical (1.4 [1.1-1.9]) and psychological (1.4 [1.1-1.8]) violence among the women. The men with physical disabilities had raised odds ratios for physical violence (1.7 [1.2-2.4]) and psychological violence (1.4 [1.0-2.0]) compared to the non-disabled group.

Both men and women with a physical or sensory disability showed higher odds of being exposed to violence than men and women without a disability. The results also indicated that socioeconomic situation, smoking, and possible hazardous drinking strengthened and in few cases lessened the association between impairment and violence.

Keywords: Disability, sensory impairments, violence, men, women

Introduction

In the World report on disability from 2011 it was reported that around 15% of adults live with some sort of disability. Women and older people have a higher prevalence of disability, and people with disability have poorer general health outcomes, lower education, and higher rates of poverty (WHO, 2011). Another great challenge is that both men and women with various forms of disabilities also seem to be at higher risks to be exposed to violence (WHO, 2011). In the WHO report, Professor Stephen Hawking states that the barriers that people with disabilities face are attitudinal, physical, and financial, but also that addressing these barriers is within reach (WHO, 2011).

The WHO has declared that violence is a global public health problem, including physical, sexual, and psychological violence (E. G. Krug, Mercy, Dahlberg, & Zwi, 2002; WHO, 2002). The magnitude of violence is immense for both men and women, and many thousands of people all around the world suffer from both fatal and non-fatal health consequences every day (E. G. Krug et al., 2002). It is well known that exposure to violence has substantial effects on health, even for those who do not receive physical injuries (Campbell, 2002; Ellsberg, Jansen, Heise, Watts, & Garcia-Moreno, 2008; E. G. Krug et al., 2002; Olofsson, Lindqvist, Gadin, & Danielsson, 2009; Olofsson, Lindqvist, Shaw, & Danielsson, 2012).

A systematic review of prevalence and risk of violence among adults with disabilities was published by Hughes et al. in *The Lancet* in 2012 (Hughes et al., 2012), with the conclusion that violence is a major problem in adults with disabilities. The prevalence of violence exposure among adults with mental and/or intellectual disabilities and/or unspecific disabilities has been demonstrated in several studies while only a few articles on people with sensory disabilities have been published (Casteel, Martin, Smith, Gurka, & Kupper, 2008; Hilden et al., 2004; Hughes et al., 2012; E.G. Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002; Silver, Arseneault, Langley, Caspi, & Moffitt, 2005; Teplin, McClelland, Abram, & Weiner,

2005). Most studies come from English-speaking countries and are thus still lacking from most non-English speaking countries, and few are controlled for confounding factors (Hughes et al., 2012). Furthermore, there is a need of high-quality studies on violence exposure in people with a physical, sensory, or intellectual disability (Hughes et al., 2012).

The aim of this study was to investigate the prevalence and risk for exposure to physical violence, psychological offence, or threats of violence in men and women with physical and/or sensory disabilities, compared to men and women with no such impairments, using data emanating from the Swedish National Survey of Public Health from year 2010.

Method

Data from a nationwide public health survey conducted by the Swedish National Institute of Public Health in 2010 were analyzed. A nationally representative sample of nearly 100,000 women and men aged 16-84 had been asked to reply to a questionnaire, called *Equal Health?*, sent to them by mail. In this present study, the whole sample, comprised of 25,461 women and 21,545 men, was used. The response rate was 54%.

The problem of non-response is general in all population-based surveys. The major problem is whether the non-responding individuals would have answered similarly to the ones who did answer. A Swedish study, using data from the Swedish National Survey of Public Health as the basis for its analyses, has put forward that the non-responders would have answered fairly similarly to those who did answer, and by using calibration weightings, possible differences can be reduced, allowing for the use of health surveys with low response rates (Lindén-Boström & Persson, 2013). Using an American large-scale population-based survey, researchers found that non-response did not affect the representativeness or usefulness of the results (Lee, Brown, Grant, Belin, & Brick, 2009). Calibration means that register data is used

as auxiliary information to adjust for non-response bias in various groups (Särndal & Lundström, 2005). Calibration has been used in this study when producing various percentages.

The questionnaire contained 77 questions, 42 of which were about physical and mental health and use of the health care system, 30 pertained to socioeconomic factors, form of housing, and work environment, and five dealt with cigarette smoking and use of alcohol (Boström & Nyström, 2010). Seven questions were used to define persons with sensory or mobility impairments: The questions for visual and hearing impairments, respectively, were worded as follows: “Can you see and pick out normal text in a daily newspaper without difficulty?” and “Can you hear what is being said in a conversation between several people without difficulty?”. To measure mobility impairment the following questions were used: “Can you run a fairly short distance?,” “Can you climb stairs without difficulty?,” “Can you take a fairly short walk?,” and “Do you need aids or someone’s help to move about outdoors?” Based on the questions about vision, hearing, and mobility, three impairments groups were defined as follows:

- Visual impairment: Cannot read normal text without difficulty, not even with glasses
- Hearing impairment: Cannot hear conversation between several people without difficulty, not even with hearing aid
- Physical impairment: Cannot climb stairs/take a short walk without difficulty and/or need aids or help of another person to move about outdoors

Another prerequisite for classification as having impairment in this study was to have answered “Yes, to a great extent” to the question: “Do these problems mean that your work capacity is diminished or hinder you in your other daily activities?”

The area of violence was covered using three questions. Two that involved psychological abuse were used: “Have you been verbally offended during the past 12 months?” (with

response alternatives dichotomized into yes and no) and “Have you been exposed to any threats of violence or other threats that scared you during the past 12 months?” (with binary answer alternatives). The question regarding physical abuse was worded as follows: (1) “Have you been exposed to physical violence during the past 12 months?” and had binary answers. Hazardous alcohol use was assessed using the Alcohol Use Disorders Identification Test (AUDIT), constructed by the WHO in 1992 and widely used for adults (Babor, Ramon de la Fuente, Saunders, & Grant, 1992). The first three questions (AUDIT C) regarding consumption were used, and different cut-off values for women and men were chosen to discriminate for hazardous drinking (Dawson, Grant, Stinson, & Zhou, 2005). For smoking, one question was chosen, namely, “Are you a daily smoker?” Hazardous gambling was measured using a summation index built on three sub-questions originating from DSM-IV (Diagnostic and Statistical Manual of Mental Disorders) (0-6 points, where 0 indicates no problem and 1-6 indicate hazardous gambling problems) (American Psychiatric Association, 1994).

Questions that were relevant regarding socioeconomic factors were chosen for the analyses of this study. Immigrant status was dichotomized into 1) born in Sweden (2) born outside Sweden, while civil status was dichotomized into (1) married or cohabiting and (2) single. Regarding education, the answers were trichotomized into: (1) short: all levels of education less than a total of 11 years, (2) medium: education of 12 to 14 years, and (3) long: 15 years of education or more. Present occupation was dichotomized into (1) manual and (2) non-manual. Working status was dichotomized and measured as having or not having an occupation, as follows: (0) Gainfully employed, (0) Self-employed, (0) Leave of absence or parental leave, (0) Studying or training, (0) Involved in a labor-market measure, (0) Retiree, (1) Unemployed, (1) On sick leave/activity support (early-retirement pension, sickness pension), and (1) Long-term sick-listed (more than 3 months). Economic margin and

economic crisis were evaluated by use of the questions: “If you suddenly needed 15,000 kronor (approximately 1,500 euro/2,500 dollars), could you manage to get it in one week?” and “Have you had difficulty managing your everyday expenses for food, rent, bills, etc. during the past 12 months?”

Prevalence, with a 95% confidence interval, was used to describe and analyze differences in socioeconomic background, smoking, hazardous alcohol use, and hazardous gambling for those with a physical or sensory impairment exposed to violence compared to those not exposed. Generally, when comparing two parameter estimates, the estimates are statistically significantly different if the confidence intervals do not overlap (Douglas, David, Trevor, & Martin, 2000). Multivariate logistic regression was used to analyze possible associations between different socioeconomic factors and violence. The chi-square test was used to analyze for significant differences in frequency of violence and Student’s t-test was used to analyze average age differences. The significance level was set at <0.05 . The statistical analyses were conducted using the SPSS program 20.

All participants were informed about the study in a cover letter enclosed with the questionnaire. Answering the questionnaire was judged to be consent to join the study. The Ethics Committee at the Swedish National Board of Health and Welfare approved the survey.

Results

In Table 1, age and frequencies of various socioeconomic variables, along with smoking, hazardous alcohol use, and hazardous gambling, are given for disabled and non-disabled women and men exposed to violence. The violence-exposed disabled women and men are older, have a shorter education, are more often unemployed, report being born outside Sweden more frequently, have a more difficult economic situation, and have a higher percentage of daily smokers than the violence-exposed non-disabled women and men (Table 1). The violence-exposed disabled women have more often non-manual work and are more

often born outside Sweden compared to the violence-exposed disabled men, who showed a higher percentage of hazardous drinking and gambling behavior (Table 1).

The prevalence of violence exposure, physical as well as psychological, during the past 12 months is shown in Table 2. Generally, a higher percentage of women with auditory disabilities are exposed to physical and psychological violence than the non-disabled women, except for the oldest age group. The physically disabled men showed a higher percentage of both physical and psychological violence in some age groups compared to the non-disabled men. In the older age groups, both physical and psychological violence exposure was more frequent in several impairments groups.

Adjusted odds ratios for physical and psychological violence outcomes are given for women and men with an auditory, visual, and physical disability compared to non-disabled women and men (Table 3). All the odds ratios have been adjusted for age, country of birth, education, work status, economic stress, economic margin, hazardous alcohol usage, and daily smoking. In the auditory impairment group, significantly higher adjusted odds ratios for exposure to both physical (1.4 [1.1-1.9]) and psychological (1.4 [1.1-1.8]) violence were found among the impaired women. The visual impairment groups also showed an adjusted higher odds ratio for physical (1.6 [1.1-2.4]) violence in women compared to the non-impaired group.

The men with physical disabilities had raised odds ratios for physical violence (1.7 [1.2-2.4]) and psychological violence (1.4 [1.0-2.0]) compared to non-disabled group. Regarding auditory and visual impairment, the odd ratios for psychological violence outcomes were also significantly raised.

Age produces odds ratios that are all significantly decreased in the impaired groups compared to the non-impaired groups, which indicates that older age is related to less exposure to violence. Significantly higher odds ratios among the adjustment factors are economic stress,

daily smoking, and hazardous drinking in both women and men when comparing impaired with non-impaired (Table 4).

Discussion

The most essential findings of this study are that women with auditory or visual disabilities have higher risks of being exposed to physical and psychological violence than women without such disabilities, while men with a physical disability have higher risk of being exposed to physical and psychological violence than non-disabled men. These results apply while controlling for age, sex, socioeconomic factors, hazardous drinking, and smoking. Increasing age seems to be protective in both women and men while poor economic situation, hazardous drinking, and smoking increase the risk of violence among the disabled.

In this study, socioeconomic factors, smoking, and hazardous drinking most often seemed to strengthen, although in a few cases weaken, the relation between impairment and violence. In general terms, these factors probably work as moderators affecting the direction and/or strength of the relation between the independent self-reported impairment and the dependent self-reported exposure to violence. The strengthening function of these factors acts together with the impairment and increases the relation between impairment and violence as a possible explaining factor for the violence. When the confounding factors weaken the relationship between impairment and exposure to violence, they are the more important explaining factors. It is probable that in socioeconomically vulnerable surroundings, with factors like living with a poor household economic situation, being born outside Sweden, or being poorly educated, different impairments might be accepted differently or adapted more or less easily. In short, having an impairment in different vulnerable situations lessens or strengthens the association to violence depending on the situation.

The study has some shortcomings, the main one being its design. Retrospective studies always present several clear shortcomings, but when it comes to the prevalence of violence and the association between impairment and violence, they are to date essentially the only method that has been used. Another possible limitation is the wording of the questions about abuse, which did not include a specification of the form of exposure to violence. A third problem was that the frequency of violence was not considered in the response alternatives.

However, the strength of this study compared to earlier studies is the large population-representative sample, with both sexes reporting from different stages of life and with a comprehensive list of socioeconomic and individual variables. These variables gave the researchers the possibility to control for several possible confounders and to isolate the potential association between impairment and violence. The men and women answering the questions about different socioeconomic conditions or their individual situation did not do so because they had specifically been exposed to violence or because they had an impairment, but because they were answering a questionnaire about their general living conditions. In studies where specifically violence-exposed individuals with an impairment have been interviewed, the situation may have created a greater bias.

Hughes and colleagues (Hughes et al., 2012) presented a methodologically rigorous meta-analysis that shed light on the increased prevalence of the victimization of women and men with disabilities. Some areas were pointed out as inadequately researched, specifically people with sensory impairments. Even from high income countries, prevalence and ORs for violence exposure for people with disability is lacking. Also, few studies have controlled for confounding factors. This study has filled some of those gaps.

The most important message emerging from this study is that attentiveness should be paid to violence in the group of people with physical or sensory disabilities, since they have a higher risk of being exposed to violence. Simultaneously, undivided attention should also be given to

the socioeconomic situation among these persons, as it usually strengthened and in some cases lessened the association between disability and violence. Our study indicates that patterns of violence-exposure and their association to disability among women and men in different age groups vary, thereby suggesting that different causes, histories, and dynamics are at play for different forms of associations between violence and impairment. The prevalence of violence, as well as the form of violence, varies throughout the age groups. It is a great challenge to all of us working in the social and health sector to be aware of the increased risks of violence exposure in people with impairments and especially to take action against it.

In summary, this study has provided representative results addressing a group of hitherto largely forgotten victims of violence. These patterns of the association between impairment and violence were present even when controlling for age, country of birth, education, work status, economic situation, smoking, and hazardous drinking in both men and women.

Table 1. Descriptives of socioeconomic factors and hazardous behavior, distributed among women and men exposed to violence with or without physical or sensory impairment

	Women		Men	
	Impairment n=315	Non- impairment n=833	Impairment n=260	Non- impairment n=698
Age mean year (SD)	44 (17)***	37 (15)	47 (18)***	36 (17)
Work (%)				
manual	53 (47-59)	57 (54-60)	69 (63-75)#	67 (64-70)
non-manual	48 (42-59)#	43 (40-46)	31 (25-37)	33 (30-36)
unemployed	12 (8-16)	7 (5.3-8.7)	17 (12-22)	9 (6.9-11)
Education (%)				
short	53 (47-59)	40 (37-43)	64 (58-70)	48 (44-52)
medium	35 (30-40)	39 (36-42)	30 (24-36)	43 (39-47)
long	12 (8-16)	21 (18-24)	6 (3-9)	9 (7-11)
Country of birth (%)				
Sweden	79 (75-83)	93 (91-95)	89 (85-93)#	93 (91-95)
Europe/World	21 (17-25)#	7 (5.3-8.7)	11 (7-15)	7 (5-9)
Civil status (%)				
married/cohabiting	55 (50-60)	57 (54-60)	49 (43-55)	47 (43-51)
single	45 (40-50)	43 (40-46)	51 (45-57)	53 (49-57)
Insufficient economic margin (%)	48 (47-54)	37 (34-40)	48 (42-54)	28 (25-31)
Have experienced economic crisis (%)	49 (43-55)	33 (30-36)	40 (34-46)	31 (28-34)
Hazardous gambling (%)	4 (1.8-6.2)	2 (1-3)	13 (9-17)#	8 (6-10)
Daily smoking (%)	24 (19-29)	18 (15-21)	29 (23-35)	12 (10-14)
Hazardous drinking (%)	14 (10-18)	20 (17-23)	27 (24-32)#	44 (40-48)

***=p<.0001

Bold figures=statistically significant higher percentages for impaired vs. non-impaired (95% CI);

#=significantly higher percentages for impaired women vs. impaired men

Table 2. Prevalence of violence exposure during the past year among the auditory, visually, or physically impaired and non-impaired women and men

Violence	Auditory				Visual				Physical			
	Women		Men		Women		Men		Women		Men	
	Non-		Non-		Non-		Non-		Non-		Impaired	Non-
	Impaired	imp	Impaired	imp	Impaired	imp	Impaired	imp	Impaired	imp	n=2218	imp
	n=2649	n=18455	n=2984	n=14954	n=1130	n=19721	n=907	n=16708	n=3219	n=17986		n=15625
Physical												
16-29y	6.9 *	4.3	7.9	8.1	5.3	4.4	5.3	8.1	7.3	4.4	6.7	8.1
30-44	5.0 ***	2.0	3.7	3.2	3.8	2.1	3.1	3.2	3.5	2.1	4.7	3.1
45-64	1.5	1.8	1.4	1.4	3.3	1.7	3.6**	1.3	1.6	1.8	4.2***	1.1
65-84	0.5	0.4	0.7	0.7	1.2 *	0.4	1.4	0.7	0.6	0.4	1.0	0.7
Psychological												
16-29	10.2 **	6.2	7.9	4.9	8.1	6.3	7.7	4.8	10.1	6.3	6.8	4.9
30-44	6.5 *	4.3	4.5	2.8	5.5	4.4	4.6	2.7	4.7	4.4	5.4*	2.7
45-64	5.2**	3.1	3.2**	1.6	4.0	3.3	5.8****	1.6	4.8**	3.1	3.7***	1.6
65-84	0.8	0.6	1.5	1.0	1.4 *	0.6	2.0	1.0	0.9	0.5	1.4	1.0

*=p<=.05; **=p<=.001; ***=p<=.0001

Table 3. Crude and adjusted odds ratio (with 95% CI) for exposure to physical and/or psychological violence in men and women with physical or sensory impairments compared to men and women with no such impairments, adjusted for socioeconomic factors, sex, smoking, and hazardous drinking

Violence	Sex	Impairment	Crude OR	Adjusted OR	Age	Immigrant status	Education	Work status	Economic stress	Economic margin	Daily smoking	Hazardous drinking
Physical violence	W	Auditory imp	1.2(1.0-1.6)	1.4 (1.1-1.9)	0.9(0.9-0.9)	1.3(0.9-1.9)	1.1(0.9-1.3)	1.2(0.9-1.6)	2.0(1.5-2.6)	1.2(0.9-1.6)	1.8(1.2-2.2)	2.1 (1.5-2.7)
	M		0.7(0.5-0.9)	0.9(0.7-1.3)	0.9 (0.9-0.9)	1.1(0.8-1.7)	1.2(1.0-1.5)	1.1(0.8-1.5)	2.4(1.9-3.1)	0.9(0.7-1.2)	1.9(1.4-2.5)	2.6 (2.1-3.2)
Psychological violence	W	Auditory imp	1.3(1.0-1.6)	1.4(1.1-1.8)	0.9(0.9-0.9)	1.2(0.9-1.6)	0.8(0.7-1.0)	1.2(1.0-1.5)	2.3(1.9-2.8)	1.3(1.1-1.6)	1.5(1.2-2.0)	1.6(1.2-2.0)
	M		1.3(1.0-1.6)	1.5(1.1-1.9)	0.9(0.9-0.9)	1.4(1.0-2.1)	0.9(0.8-1.2)	1.2(0.9-1.6)	2.4(1.8-3.1)	1.4(1.0-1.8)	1.6(1.2-2.2)	1.7(1.4-2.2)
Physical violence	W	Visual imp	1.5(1.1-2.2)	1.6(1.1-2.4)	0.9(0.9-0.9)	1.3(0.9-1.9)	1.1(0.9-1.4)	1.1(0.9-1.5)	2.0(1.5-2.6)	1.2(1.0-1.6)	1.6(1.2-2.1)	1.9(1.5-2.6)
	M		1.7(1.2-2.4)	1.2(0.8-1.7)	0.9 (0.9-0.9)	1.1(0.8-1.7)	1.2(1.0-1.5)	1.1(0.9-1.5)	2.4(1.9-3.1)	0.9(0.7-1.2)	1.8(1.3-2.4)	2.6(2.1-3.2)
Psychological violence	W	Visual imp	2.3(1.7-3.2)	1.2(0.9-1.7)	0.9(0.9-0.9)	1.2(0.9-2.0)	1.0(0.8-1.2)	1.1(0.8-1.5)	2.4(1.8-3.1)	1.4(1.0-1.8)	1.7(1.2-2.2)	1.7(1.3-2.2)
	M		1.3(1.0-1.8)	1.9(1.3-2.7)	0.9(0.9-0.9)	1.4(0.9-2.0)	0.9(0.8-1.2)	1.1(0.8-1.5)	2.4(1.8-3.1)	1.4(1.0-1.8)	1.7(1.2-2.2)	1.7(1.3-2.2)
Physical violence	W	Physical imp	0.9(0.7-1.2)	1.2(0.8-1.7)	0.9(0.9-0.9)	1.4(1.0-2.0)	1.1(0.9-1.3)	1.1(0.8-1.4)	2.0(1.6-2.6)	1.3(1.0-1.7)	1.6(1.2-2.1)	2.0(1.5-2.6)
	M		0.5(0.5-0.9)	1.7(1.2-2.4)	0.9 (0.9-0.9)	1.2(0.8-1.7)	1.2(1.0-1.5)	1.0(0.8-1.4)	2.4(1.8-3.1)	0.9(0.7-1.2)	1.8(1.4-2.4)	2.5(2.0-3.1)
Psychological violence	W	Physical imp	1.1(0.8-1.5)	1.2(0.9-1.6)	0.9(0.9-0.9)	1.2(0.9-1.7)	0.8(0.7-1.0)	1.1(0.9-1.4)	2.3(1.9-2.9)	1.3(1.1-1.6)	1.6(1.3-2.0)	1.5(1.2-1.9)
	M		0.8(0.6-1.0)	1.4(1.0-2.0)	0.9(0.9-0.9)	1.5(1.1-2.2)	0.9(0.7-1.2)	1.1(0.8-1.4)	2.5(1.9-3.2)	1.4(1.1-1.9)	1.6(1.2-2.1)	1.8(1.4-2.3)

Bold figures=statistically significant odds ratios

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