

Prevalence of Secondary Conditions and Health-Related Quality of Life among People with Disabilities in Limbe, Southwest Region of Cameroon

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Abstract

People with disabilities are at an increased risk of developing secondary conditions that may worsen their health-related quality of life (HRQOL). The study aimed to determine the prevalence of secondary conditions and health-related quality of life among persons with disabilities aged 18 years and above in Limbe Municipality Southwest Region, Cameroon. This was a cross-sectional study in which quantitative data were collected on people with disabilities. A total of 320 participants were recruited. Participants were obtained consecutively from associations of persons with disabilities, and a snowball sampling method was used in the community. Data on disability were collected using a pretested, structured, interviewer-administered questionnaire. HRQOL was assessed using the Centres for Disease Control (CDC, 2000) Behavioural Risk Factor Surveillance System (BRFSS). Participants presented with the following secondary conditions: pain, depression, pressure ulcers, contractures, hypertension, diabetes and urinary tract infection. Pain (40.6%) and depression (31.6%) were the most prevalent. On the HRQOL, more than half of the participants self-rated their health status fairly (58%) and 15% as poor. A large proportion of participants reported poor physical (89.6%) and mental (90.3%) health in the past 30 days, while 51% reported limitations of daily activities. These findings could inform of intervention study to prevent and manage secondary conditions and to improve the quality of life of people living with a disability.

Keywords: Disabilities, Health-Related Quality of Life, Persons with Disabilities, Secondary Conditions.

Introduction

Increasing evidence suggest that as a group, people with Disabilities(PWD) experience poorer levels of health than in the general population as they may also have additional or complex health needs because of impairment and the consequences of impairment [38] caused by numerous barriers faced by these group of people including; lack of appropriate transport to enable them to seek medical care or rehabilitation services especially for those in

the rural areas, physical inaccessibility to health care facilities, architectural design of healthcare facilities that do not suit PWD, informational barriers preventing access to health literacy and information leaflets or brochures on health promotion, prevention and protection, attitudinal barriers that gives rise to discrimination; this is worse for those with physical disabilities; institutional barriers that includes legislature, practices and processes that prohibit access to health services for people

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with disabilities, lack of medical equipment adapted for PWD, untrained health personnel on the aspect of disability. These barriers worsen the health of people with disabilities and their overall health-related quality of life [15] and engage them in risky health behaviours including smoking, alcoholism and physical inactivity making them more susceptible to developing preventable health conditions termed secondary health conditions that reduce their overall health-related quality of life (HRQOL) [8]. There is a paucity of data on health-related research in Cameroon. Most studies carried out have been on the prevalence of disability, particularly in the Northwest Region [8]. Thus, the purpose of this study was to determine the prevalence of secondary health conditions and to assess the health-related quality of life in people with disabilities in Limbe, Southwest Region, Cameroon.

Generally, PWD have a poorer health-related quality of life (HRQOL), defined as an individual's perceived level of physical, mental and social functioning [6]. Health-related quality of life (HRQOL) is a useful indicator of overall health because it captures information on the physical and mental health status of individuals, and on the impact of health status on quality of life [10,28]. HRQOL is usually assessed via multiple indicators of self-rated health status and physical and emotional functioning [7]. Together, these measures provide a comprehensive assessment of the burden of preventable diseases, injuries, and disabilities [7].

Research has shown that primary disabilities are a possible starting point for impairment, activity limitation, or participation restriction [32, 30]. The environment where people live, work, or play can influence health and disability outcomes [29]. Thus, leading to the development of secondary health conditions [29].

Secondary health conditions are predictable and can be preventable [32]. This is the most existing solution to the development of

secondary health conditions. Therefore, preventing secondary health conditions should involve the following:

1. Identifying risk factors for SHCs in the population affected by long-term disabilities [12].
2. Screening for SHCs during medical check-ups and teaching rehabilitators about the consequences of SHCs [12].
3. Organising health promotion and disease prevention programs [33].
4. Eliminating the existing barriers faced by people with disabilities.
5. Implementation of effective programs for the prevention of SHCs that require changes in professional health education, public health procedures, and structures, as well as in the organisation of clinical practice and research priorities.

Preventing secondary health conditions is not without limitations particularly in low- and middle-income countries like Cameroon because of the constraints in the health system which include available finances to fund health promotion and disease prevention activities, existing barriers to health services utilization including poor health care provider knowledge on disability and attitudinal problems, lack of accessibility to health care facilities are all important limitations to the prevention of secondary health conditions.

Achievements have been made in the prevention of secondary health conditions in persons with long-term disabilities by using Self-management interventions. Self-management interventions have been proven to be successful in the prevention of secondary conditions in persons with disabilities and managing pain and depression especially [11, 13, 40] and have shown the potential to improve health outcomes, quality of life, and self-efficacy, reduce morbidity and, emergency visits and cost of care [31].

Materials and Methods

Study Design and Population

This was a cross-sectional study in which quantitative data were collected on people with disabilities in the Limbe Municipality from June 2024 to September 2024. A cross-sectional study design is a type of observational study design where the investigator measures the exposure and outcome among study participants at the same point in time [35]. The study population were persons with disabilities aged 18 years and above in the Limbe Municipality.

Study Area

This study was carried out in Limbe, in the Fako Division of the Southwest Region of Cameroon. Limbe is the administrative headquarters of Fako Division with an estimated population of about 200,000 inhabitants [25]. Limbe is located at Latitude 4.0167 and Longitude 9.2167 [24]. Limbe Health District has eight health areas, which include Batoke, Bojongo, Bota, Idenau, Mabeta, Moliwe, Seaport and Zone 2. It has a pleasant climate with temperatures ranging from 25 degrees Celsius to 30 degrees Celsius. In addition, Limbe has some disability associations namely, Limbe Association of disabled people, Limbe Association of Disabled People, Limbe II Chapter, and the Association of 'Make-Ourselves Happy'.

Sample Size Calculation

The sample size was calculated using the Cochran Formula

$$n = z^2 p(1-p)/d^2$$

where

n was the minimal sample size

z was the standard normal variant at a 95% confidence level = 1.96

p was the prevalence of people with disability from a study conducted in the North West Region of Cameroon that reported a 10.5% prevalence of disability [9]

The margin of error at a 95% confidence interval = 0.05

With the above,

$$n = \frac{(1.96)^2(0.105)(0.895)}{(0.05)^2} = 145 \text{ participants}$$

Sampling

A consecutive sampling technique was used to recruit people with disabilities from three associations of persons with disabilities in the Limbe municipality and from the community for those who were not registered in associations; a snowball sampling technique was used.

Data Collection and Tools

Data was collected using an interviewer-administered questionnaire. Assessment of health-related quality of life (HRQOL) of life for people with disabilities was done using the 9-item Health-related Quality of Life (HRQOL) module of the Centres for Disease Control (CDC, 2000) Behavioural Risk Factor Surveillance System (BRFSS). This module contains 4 items from the Healthy Days Core Module and 5 items from the Healthy Days' Symptoms module. The Centres for Disease Control and Prevention's Healthy Days Measures" (HRQOL-4) assesses four key domains: physical health, mental health, activity limitations, and self-rated general health as fair, poor, good, or excellent [7]. The unhealthy and healthy days' symptoms were also assessed using the days that mental and physical health was not good, and days that mental and physical health was good, and the days of activity limitations. Questionnaires were written and administered in simple English. Data was collected with the aid of two trained research assistants.

Data Analysis

The data collected was entered into a template created in Kobo Collect, exported and cleaned in Microsoft Excel and analysed in SPSS version 27. Descriptive analysis was done for the categorical and continuous variables

using frequency tables and summary statistics, respectively. The correlation test was used to assess the association between the number of days of poor physical health and the number of days of poor mental health. P-value ≤ 0.05 was considered significant. The self-rated general health was reported as fair, poor, good, very good and excellent. The unhealthy days were estimated as the overall number of days during the previous 30 days when the respondent felt that either his or her physical or mental health was not good. The healthy days were estimated as the number of recent days when a person's physical and mental health was good. It was calculated by subtracting the number of unhealthy days from 30 [5].

Ethical Considerations

Ethical clearance was obtained from the Faculty of Health Sciences, University of Buea Institutional Review Board, Ref. number 2024/2346-01/UB/SG/IRB/FHS.

Administrative authorisation was obtained from the Regional Delegation of Public Health, Southwest Region, Cameroon (With Reference

number

P42/MINSANTE/SWR/RDPH/CBPF/197/689). All study participants signed a written consent before being enrolled in the study. For participants below 21 years, parental or guardian consent was sought before enrolment into the study.

Results

Socio-demographic Characteristics of the Participants

The mean age of the participants was 40 ± 14.09 years. The age group 21-30 years (24.7%) was the most represented, and the age group below 21 years (7.5%) was the least represented. Regarding gender, 50.9% were female, while 49.1% were male. For marital status, 39.1% were single, while 21.3% were cohabiting. Below half (48.8%) were petit business owners, while 0.9% were businesspeople. Eighty (25%) had no academic background, while 1.3% attended other forms of higher education (Table 1).

Table 1. Sociodemographic Characteristics of Study Participants

Variable	Category	Frequency (n)	Percentage (%)
Age group	<21	24	7.5
	21-30	75	23.4
	31-40	79	24.7
	41-50	66	20.6
	>50	76	23.8
	Total	320	100
Sex	Female	163	50.9
	Male	157	49.1
	Total	320	100
Marital status	Cohabiting	68	21.3
	Divorced	13	4.1
	Married	95	29.7
	Single	125	39.1
	Widow(er)	19	5.9
	Total	320	100
Occupation	Businessperson	3	0.9
	Civil servant	11	3.4

	None	105	32.8
	Peasant farmer	47	14.7
	Petit business	154	48.1
	Total	320	100
Academic level	None	80	25
	Other forms of higher education	4	1.3
	Primary	108	33.8
	Secondary	105	32.8
	University	23	7.2
	Total	320	100

Disability Types

Distribution of disability per gender.

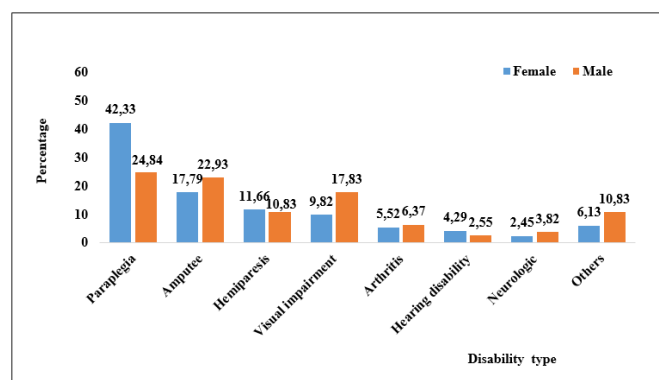


Figure 1. Distribution of Disability per Gender

Figure 1 shows the different types of disabilities seen among the participants. The physically challenged were the most common disabilities present. These included: paraplegia 108; females 69(42.33%), males 39 (24.8%); hemiparesis (hemiplegia) 36; females (17.7%), males (22.93%) and 19 participants were seen with arthritis. Males 10 (6.37%) and females 9(5.52%). The second highest disability seen was visual disability, with a total of 44 participants presenting with visual impairment in one or both eyes. Males 28 (17.83%) and females 16 (9.82%). The other type of disability that was identified among the participants was neurological impairment, in which a total of 10

participants were seen with cerebral palsy, autism and epilepsy. Females 4(2.45%) and males 6 (3.82%)

Prevalence of Secondary Conditions in Persons with Disabilities

Table 2 presents the secondary health conditions reported by people with disabilities. Out of the 320 people with disabilities, 270 (84.38%) reported having secondary conditions. Pain was the most reported secondary health condition, 226 (40.6%), followed by stress and depressive symptoms, 176 (31.6%) and next by hypertension, 47 (8.4%).

Table 2. Presence of Secondary Condition in Study Participants

Variables	Category	Frequency (n)	Percentage (%)
The condition started after disability.	No	50	15.62
	Yes	270	84.38

	Total	320	100
Condition after the disability	Diabetes	19	3.4
	Hypertension	47	8.4
	Pain	226	40.6
	Pressure sores	41	7.4
	Stress and depressive symptoms	176	31.6
	Urinary tract infection	14	2.5
	Contractures	34	6.1
	Total	557	100

Distribution of Secondary Conditions per Disability

Table 3 shows that paraplegics reported the highest number of secondary conditions as follows: pain 99 (34.9%), stress 52 (18.3%),

pressure ulcer 22 (7.7%), HTN 19 (6.7%), contractures 14 (4.9%), DM 10 (3.5%) and UTI 8 (2.8%). This was followed by amputees who had: pain 57 (20.1%), stress 32 (11.3%), HTN 13 (4.6%), contractures 5 (1.8%), DM 3 (1.1%)

Table 3. Distribution of Secondary Conditions per Disability

Disability type	Secondary conditions														
	Total	DM		HTN		Pain		Pressure sores		Stress & depression		UTI		Contractures	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
Amputee	60	3	1.1	13	4.6	57	20.1	9	3.2	32	11.3	0	0.0	5	1.8
Arthritis	19	3	1.1	5	1.8	17	6.0	1	0.4	9	3.2	1	0.4	2	0.7
Hearing disability	5	0	0.0	0	0.0	1	0.4	0	0.0	5	1.8	0	0.0	0	0.0
Hemiparesis	36	3	1.1	0	0.0	33	11.6	4	1.5	28	9.8	3	1.1	4	1.5
Neurologic	6	0	0.0	0	0.0	0	0.0	0	0.0	6	2.1	0	0.0	0	0.0
Others	20	0	0.0	2	0.7	12	4.2	5	1.8	14	4.9	2	0.7	7	2.5
Paraplegia	105	10	3.5	19	6.7	99	34.9	22	7.7	52	18.3	8	2.8	14	4.9
Visual impairment	33	0	0.0	8	2.8	7	2.5	0	0.0	30	10.6	0	0.0	2	0.7
Total	284	19	6.7	47	16.5	226	79.6	41	14.4	176	62.0	14	4.9	34	12.0

HTN= Hypertension, DM=Diabetes Mellitus, UTI=Urinary Tract Infection

Risk Factors for Secondary Conditions in Persons with Disabilities

Table 4 presents the risk factors for secondary conditions among people with disabilities. A smaller proportion, 77 (24.5%) of

them were smoking, 127(40.2%) consumed alcohol, 17 (5.4%) were involved in any form of physical activity, 14 (4.5%) used drugs (Tramadol). Above half, 200 (63%) were aware that a poor lifestyle leads to other health conditions.

Table 4. Risk Factors for Secondary Conditions in Study Participants

Variables	Category	Frequency(n)	Percentage (%)
Smoking	No	238	75.5
	Yes	77	24.5

	Total	315	100
Alcohol consumption	No	189	59.8
	Yes	127	40.2
	Total	316	100
Physical activities	No	298	94.6
	Yes	17	5.4
	Total	315	100
Take drugs	No	298	95.5
	Yes	14	4.5
	Total	312	100
Aware that a poor lifestyle leads to other health conditions	No	200	63.0
	Yes	117	37.0
	Total	317	100

Health-Related Quality of Life for People with Disabilities

Self-rated health status of study participants

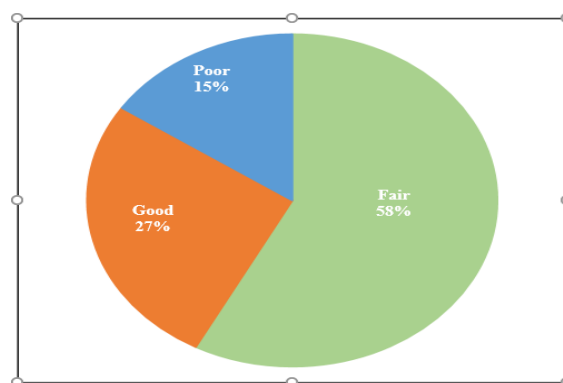


Figure 2. Self-rated Health Status of Study Participants

Figure 2 above presents the self-rated health status of the participants. Above half, 185 (58%) of the participants self-rated their health status as fair, while 85 (27%) rated it as good.

Unhealthy Days Symptoms among the Participants

Table 5 presents the unhealthy days among the participants. The mean number of days that the physical health and mental health of study participants were not good was 5.82 ± 5.41 days

and 5.11 ± 5.95 days, respectively. For their unhealthy days' status, 289 (90.3 %) of the participants reported that their physical health was not good, 287 (89.6%) reported that their mental health was not good and 140 (51.5%) had activity limitations with a mean number of days of 5 ± 5.82 (Table 6). There was a positive correlation ($r=0.70$, $p < 0.001$) between the number of days of poor physical health and the number of days of poor mental health.

Table 5. Unhealthy Days Symptoms among People Living with Disability in the Limbe Municipality

Variable	n	Percentage	The mean number of unhealthy days
Number of participants with Physical health not good	289	90.3	5.11 ± 5.95
Number of participants with mental health not good	287	89.6	5.82 ± 5.41

Activity limitation	140	51.5	5.00 ± 5.82
Number of unhealthy days	194	100	9.53 ± 9.80

Healthy Days Symptoms

Table 6 below presents the healthy days symptoms, in which 301 (94.1%) of the participants reported that pain made it worse for them to carry out their usual activities, with a mean number of days of 5.81 ± 5.21 . In addition, 256 (80%) of the participants reported they felt sad and depressed, with a mean

number of days of 5.77 ± 4.95 ; and 236 (73.8%) reported they were worried, tense or anxious, with a mean number of days of 5.8 ± 5.09 . More so, 154 (48.1%) reported that they did not have enough sleep, with a mean number of days of 13.58 ± 5.21 , and 164 (51.3%) reported that they felt very healthy and full of energy (Table 6).

Table 6. Healthy Days Symptoms

Variable	n	Percentage	Min	Max	Mean ± SD
Days of pain make it hard for you to do your usual activities	301	94.1	0	20	5.81 ± 5.21
Number of days you felt sad or depressed	256	80	0	25	5.77 ± 4.95
Number of days you felt worried, tense, or anxious	236	73.8	0	21	5.80 ± 5.09
Number of days you felt you did not get enough rest or sleep	154	48.1	0	20	3.55 ± 4.81
Days when you felt very healthy and full of energy	164	51.3	0	25	13.58 ± 5.21

Discussion

The purpose of the study was to determine the prevalence of secondary health conditions and to find out the health-related quality of life among persons with disabilities aged 18 years and above in the Limbe municipality of the Southwest Region of Cameroon. The exposure variable of this study was disability, while the outcome variables were secondary health conditions and health-related quality of life.

The study participants presented diverse types of disabilities, including paraplegia, amputations, visual impairment, hemiparesis, arthritis, hearing disabilities, and neurologic disabilities. On the prevalence of secondary health conditions, the current study revealed that participants presented with the following conditions: pain, depression, pressure ulcers, contractures, hypertension, diabetes and

urinary infection. These findings showed that physically challenged people were the most affected and are consistent with other studies on the prevalence of secondary health conditions [3, 12, 19, 36]. The high prevalence of secondary health conditions in this group of people with disabilities could be attributed to mobility impairment and limitation to participation, which are common characteristics of these types of disabilities. These findings also suggest the co-occurrence of SHCs in this group of PWD. The co-occurrence could be attributed to the fact that people with physical disabilities or mobility impairment are commonly faced with muscle overuse and disuse syndrome [32], as in wheelchair users, bedridden people and those who sit for long periods (Spinal cord injuries, paraplegics and hemiplegics). A study of health

conditions in persons with spinal cord injuries found people with clustering of SHCs, including spasticity, pain, bladder, bowel dysfunction and urinary tract infection [4].

Participants suffered diverse secondary conditions. Pain (40.6%) and depressive symptoms (31.6%) were the most prevalent secondary health conditions. They were seen mostly in the physically challenged or persons with mobility impairment (Paraplegics, amputees, hemiplegics and arthritis). Landmark *et al.*, in their study of the association between pain and disabilities, found some correlations between pain and disabilities. However, they presumed that there are additional factors that play a role in pain-related disability, and this needs further investigation [2]. Their findings also revealed that pain-related disability was about equally correlated with psychological distress as with pain intensity.

Apart from the physically challenged, who were highly associated with depression, the visually impaired (10.6%) were also highly affected. Depression is one of the most common secondary conditions, when left untreated, causes untold personal problems and worsens disability with increased additional health problems [21]. These findings are consistent with evidence in the literature on the prevalence of depression in people with disabilities. Both one's physical and mental health can be affected by visual impairment and have been associated with social isolation and feelings of worry, anxiety and fear [5]. In a study of depressive symptoms and disabilities, findings showed that there is an association between depressive symptoms and disabilities and the following factors were implicated in this association: low socioeconomic status, unemployment, inactivity (disabled people are inactive), women and the ageing population [34]. Persons with disabilities are often exempted from mental health research [2].

The presence of hypertension (8.4%) and diabetes (3.4%) as secondary health conditions buttresses the fact that there is a strong link

between non-communicable diseases (NCDs) and disability and vice versa, with the development of further disabling conditions [30]. The mechanisms through which NCDs lead to disability include impacts on physical, cognitive and psychological trauma. NCDs can lead directly to impairments, which can reduce activity participation [30]. In other words, people with disabilities, particularly those with mobility impairment, exhibit sedentary lifestyles, which can lead to NCDs [30]. A study conducted by Marmamula *et al.* found that people with disabilities reported at least one NCD. Hypertension was the most prevalent, followed by diabetes [27]. This is consistent with the findings in this study.

The risk factors of secondary health conditions of disability reported by the participants were smoking (24.5%), alcohol consumption (40.2%) and physical inactivity (94.6%). These risk factors could play a major role in the development of SHCs. The presence of these risk factors could be because persons with disabilities face several barriers to quality health care and are more likely to develop poor overall health-related quality of life (HRQOL) and may engage in risky health behaviours including smoking, alcoholism and physical inactivity making them more susceptible to developing preventable health conditions that reduce their overall HRQOL [8]. A key reason for this could be that they are often left out of public health interventions [16].

Regarding the health-related quality of life, above half of the participants self-rated their health status as fair (58%) while a few rated it as poor (15%). These findings are consistent with available evidence in research, which suggests that PWD have an increased risk of chronic diseases and poor health-related quality of life, mainly attributable to their sedentary lifestyle, particularly in people with physical disability [30]. Additionally, people with disabilities are more likely to describe their HRQOL as poor or fair [20].

On the unhealthy days' measures, findings showed that most of the participants reported more days of poor physical health (90.3%), not good and poor mental health (89.6%) not good. Participants had fewer healthy days, and the usual daily activities of the participants were affected by pain (301), sadness and depression (256). Most participants (236) were worried, tense and anxious. Less than half reported they did not get enough sleep (154). These findings, which are all related to mental health symptoms, are consistent with the high prevalence of depression as a secondary condition among the participants. There was a strong correlation between days of poor physical health not good and mental health not good. Evidence in the literature confirms this positive correlation, in which multiple linkages have been found. For example, Vasquez *et al.*, study showed that positive psychological well-being can help reduce the risk of serious physical problems, including heart attacks and strokes [39]. On the other hand, poor mental health can lead to damaging behaviours (substance abuse, physical inactivity, etc.), leading to poor physical health. For example, people with mental illness are much more likely to smoke than people without mental illness and suffer from sleeping disorders [23].

Above half of the participants reported limitations of daily activities (LDA). The reasons for activity limitation could be explained by the fact that most of the participants in the study were physically challenged, presenting with mobility impairment, with pain and depression being the most prevalent secondary health conditions, which are very important factors in the limitation of activity. Limiting the daily activities of people with disabilities limits their socialization [1]. The physical, psychological and economic levels of people with disabilities affect their quality of life, and there is a relationship in which the degree of socialisation of a person with a disability is inversely proportional to the quality of life [1].

This study looked at the prevalence of secondary health conditions and the health-related quality of life among people with disabilities. Further research could be conducted to assess the knowledge of SHCs and to find other factors that could contribute to the development of secondary health conditions, particularly pain and depression. Also, further studies could be conducted to assess the lived experiences of people with disabilities. The use of the CDC HRQOL tool in the assessment of health-related quality of life measures subjective health only. Thus, further studies could be carried out to determine objectively the factors that affect the HRQOL of people with disabilities.

Conclusion

Findings showed that there was a high prevalence of SHCs, particularly in the aspect of pain and depression and that HRQOL ranges from fair to poor, and most of the participants suffer from activity limitations, mostly inflicted by pain and depression. The findings suggest the implementation of health promotion interventions in the prevention and self-management of intervention of secondary conditions.

Recommendations

Healthcare providers should be encouraged to engage in the effective screening of disabilities and secondary health conditions. More research is needed on the prevalence and prevention of secondary health conditions and health-related quality of life in people with disabilities.

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Conflict of Interest

The authors declare no conflict of interest.

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