Field report

Difference of sociodemographic characteristics among the disabled population in Cambodia: a cross-sectional study of the demographic and health survey data

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Abstract

Objective: There is an urgent need to raise awareness of the significance of the social security system for vulnerable populations in developing countries and identify the widening disparities among people with disabilities. This study determined the sociodemographic characteristics of people with disabilities in Cambodia.

Materials and Methods: This was a cross-sectional study. Data from the Cambodia Demographic and Health Survey were used to determine the association between disability and sociodemographic characteristics such as age, gender, number of family members, residence (rural/urban), and economic status.

Results: The results showed that the proportion of people with disabilities greatly increased with age. The rural-urban residence difference affected the disability proportion in univariate analysis; however, the effect was not significant after adjusting for covariables in multivariate analysis. The odds of having a disability were 0.85 times lower for the high economic status group than for the low economic status group.

Conclusion: Raising awareness to expand the capacity of social support for older adults with disabilities, especially those who do not receive care from their families, may be an urgent issue in Cambodia. Therefore, a well-designed and disease-specific study is required. This study was the first to determine the sociodemographic disparities among people with disabilities in Cambodia.

Key words: health disparity, sociodemographic characteristics, disabled population, Cambodia

Introduction

Health disparity is thought to emerge from the health system's shortcomings and individual characteristics where race, gender, sexual identity, age, disability, socioeconomic status, geographic location, environmental barriers, and stigmatization are concerned[1, 2]. In particular, people with disabilities and the vulnerable aging population are considered unrecognized health disparity populations[3]. These groups frequently require long-term care, which translates to a substantial economic burden and the need for human medical resources. This long-term care is sometimes neglected in developing countries because the limited resources are distributed to other medical services, including child health, maternal health, emergency medicine, and communicable diseases. Therefore, the disabled population requiring long-term care in developing countries needs special consideration to reduce health disparities.

Various efforts have been made to protect the health of people with disabilities—in particular, a social security system that strongly supports such people in developed coun-

tries. In countries lacking this system, families and relatives provide support to bridge the gap between the demand for long-term care and fewer human and medical resources[4]. In Asia, the number of people with disabilities is continuously increasing[5]. Therefore, there is an urgent need to raise awareness of the importance of the social security system for vulnerable populations in developing countries and identify the widening disparities among people with disabilities[6, 7]. However, few studies have been conducted on this topic.

Cambodia is a low-middle-income country in Southeast Asia, where rural disparity has emerged as a problem[8]. According to a previous study in the main teaching eye-hospitals in Takeo province, 2.7% of patients reported that they had disabilities related to hearing, movement, or communication in addition to ophthalmic diseases[9]. However, the number of patients receiving rehabilitation care was low[10]—0.36% in the Takeo province study[9]. In addition, women with disabilities are often targets of abuse. Previous studies have reported that care for such people is mainly provided by their families[4]. Cambodia is a country with a high proportion of people with disabilities who face many social problems, where few laws or policies exist to protect their human rights[10]. Studying sociodemographic disparities among disabled people might help identify the populations requiring intervention. There have been no studies on disability status and sociodemographic disparities across Cambodia, indicating the necessity of such studies.

The purpose of this study was to determine the sociodemographic disparities among people with disabilities in Cambodia as the first step in protecting the health of vulnerable populations requiring long-term care. The sociodemographic characteristics examined were age, gender, number of family members, residence (rural/urban), and economic status.

Method

Dataset

This was a cross-sectional study. Data from the countrywide Cambodia Demographic and Health Survey (CDHS) were used to determine the association between disability and sociodemographic characteristics[11]. The primary purpose of the CDHS is to provide policymakers and planners with detailed health information[11]. The 2014 CDHS performed a stratified sample that was selected in two stages. First, from the 611 clusters, 16,356 households were selected; among these, 15,825 households completed the household questionnaire. Of these, 69,471 individuals were included in the household questionnaire survey[11]. During the 2014 CDHS, four questionnaires were administered: the household questionnaire, woman's questionnaire, man's questionnaire, and micronutrient questionnaire. The household questionnaire was used to list all family mem-

bers in the selected households and obtain basic information on each participant's characteristics, including age, gender, dwelling, and disability status[11]. This was the only questionnaire that included data on residents aged over 50. The 2014 CDHS defined the difference between urban and rural areas in terms of living space, with the degree of population concentration or density[12]. The present study extracted data on age, gender, economic status, residence, and disability status from the household questionnaire.

Data definition

Data were collected from June 2 to December 12, 2014. Participants over 19 years were included in the analysis, and those with missing disability status data were excluded. In the 2014 CDHS, the wealth quantile was divided into five states: lowest, second, middle, fourth, and highest. In the present study, economic status was reclassified into three groups to have sufficient participants in each grouping for statistical analysis. "Lowest" and "second" were grouped under "low". "Middle" was grouped under "middle". "Fourth" and "highest" were grouped under "high". We used strata for urban and rural areas for residences.

Primary outcome

The primary outcome was the presence of disability related to each type (vision, hearing, walking, concentrating, self-care, and communication) to determine the association between disability and sociodemographic characteristics. In this study, disability refers to impairment, a problem in body function, and activity limitations, which is a difficulty encountered by an individual when executing a task. This is different from the aging process. The presence of disability has been used as an outcome in previous studies; the relationship between disabilities and sociodemographic characteristics has also been reported. We defined the presence of disability as a disability with at least some difficulty.

Analysis

Frequencies and proportions were used to describe the participants' sociodemographic characteristics. Next, the proportion of participants with at least one disability was determined by age group, economic status, or residence. Chi-square tests were performed for each age group. Univariate logistic regression analysis was performed for age, sex, number of family members, economic status, and residence to determine the association between each characteristic and the presence of a disability. Then, multivariate logistic regression was conducted with age, gender, number of family members, economic status, and residence as independent variables, and disability status as the dependent variable. The association between disability proportion and sociodemographic characteristics was statistically analyzed, and a P-value of 0.05 was considered statistically

significant. Data analyses were performed using Stata/IC 15 (Lightstone, version 15, TX, USA). The study obtained ethics approval from the CDHS Review Committee. Only individuals who provided informed consent were included in the survey. The informed consent statement highlighted that participation was voluntary. Interviewers were prohibited from divulging participant information by the members of the DHS program team. Data processing began on 25 personal computers on July 6, 2014. Field check tables were created regularly to check data quality, and double data entry and data cleaning was performed[11]. All participants' information was anonymized as a series of numbers.

Results

Table 1 shows the sociodemographic characteristics of 38,312 participants. The median age was 38 years [range, 28–52 years], and 32.73% of the participants were classified in the low economic status group. Disability related to vision was the most common among the five disability types examined.

The proportion of people with disabilities greatly increased with age, as observed in other countries. The majority of participants over 70 years had at least one disability in the current study. In all age groups, the number of rural participants with disabilities was higher than that of their urban counterparts; however, analysis using the chi-square test was not significant in any age group except the 20s. In addition, for all age groups, a higher proportion of those in the low economic status group had disabilities than in the other groups; however, analysis using the chi-square test was not significant in any age group except for those in their 20s, 30s, and 70s (Figure 1).

Table 2 shows the results of the multivariate logistic regression analysis to determine the association between the presence of disability and sociodemographic characteristics. The rural-urban residence difference affected the disability proportion in univariate analysis; however, after adjusting for gender, age, number of families, and economic status in the multivariate regression model, the effect was not significant. The multivariate analyses showed that the odds of having a disability were 0.85 times lower for the high economic status group than for the low economic status group. The proportion of those with disabilities significantly decreased in the middle and high economic status groups.

The multivariate analyses using the aforementioned regression model for each disability type are presented in Table 3. A significant decrease in the number of participants with disabilities related to vision, hearing, self-care, and communication was observed in the high economic status group; however, the number of participants with disabilities associated with walking and concentrating was not high in this group. Moreover, female participants were significantly higher among those with disabilities related to vision and concentration.

Discussion

There is an urgent need to raise awareness of the importance of the social security system for vulnerable popula-

Table 1 Participant characteristics (N=38,312)

|	n (%)
Gender	
Male	17,867 (46.64)
Female	20,445 (53.36)
Age (median [25th, 75th centiles])	38 [28–52]
Number of family members (median [25th, 75th centiles])	5 [4–7]
Economic status	
Low	12,535 (32.72)
Middle	6,681 (17.44)
High	19,096 (49.84)
Residence	
Rural	26,224 (68.45)
Urban	12,088 (31.55)
Disability	
Vision	2,570 (6.71)
Hearing	1,350 (3.52)
Walking	1,888 (4.47)
Concentrating	1,941 (5.07)
Self-care	562 (1.47)
Communication	719 (1.88)
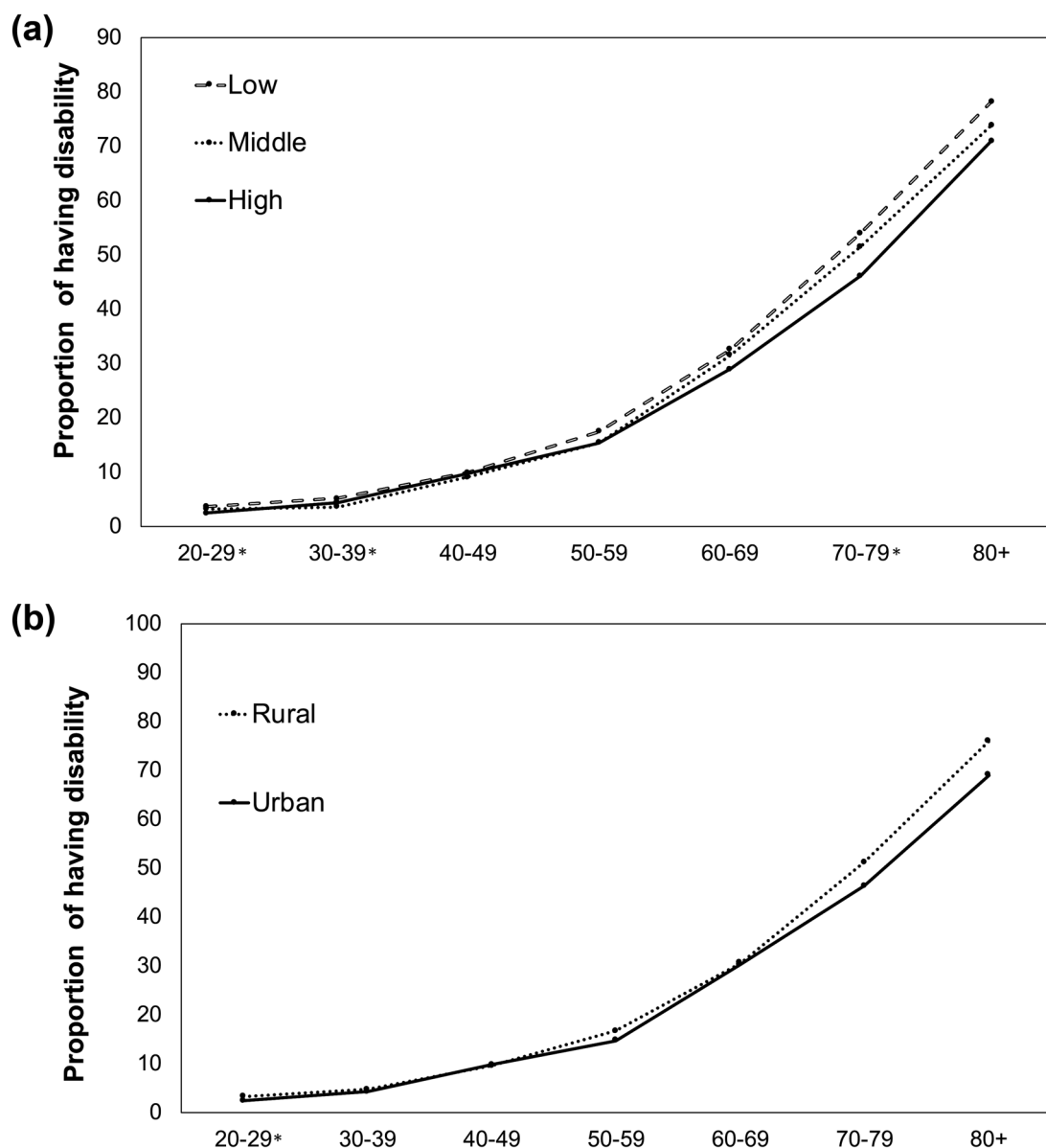
Figure 1 Proportion of residents with disabilities
*P<0.05, with χ² test. (a) Disability proportion according to economic status. (b) Disability proportion by residence.

tions in developing countries and identify the widening disparities among people with disabilities. This study aimed to determine the sociodemographic disparities among people with disabilities in Cambodia.

It showed that the proportion of people with disabilities significantly increased with age; most residents over 70 years old had at least one disability. A previous study reported that families of people with disabilities were providing the required long-term care due to the shortage of caregivers in Cambodia[4]. The present study results show that there are already many aging people with disabilities compared to the youth; therefore, providing care and social support, especially to those who do not receive care from their families,

should be considered.

This study, based on previous evidence, found that the proportion of people with disabilities was higher in the low economic status group; the odds of having a disability were 0.85 times lower for the high economic status group than for the low economic status group. It has been reported that a higher proportion of people with disabilities live below the poverty line[13]. Another study reported that disparities among people with disabilities are not limited to economic status[14]. Information on people with disabilities in Cambodia is limited; thus, details on the problems faced by such people should be gathered alongside other information.

The participants' sociodemographic characteristics

Table 2 Multivariate logistic regression analysis to determine the association between the presence of disability and sociodemographic characteristics

	Univariate analysis Unadjusted OR (95% CI)	Multivariate analysis (N=38,312) Adjusted OR (95% CI)
Gender		
Male	Ref.	Ref.
Female	1.21 (1.14–1.29)**	1.03 (0.96–1.10)
Age	1.08 (1.07–1.08)**	1.08 (1.07–1.08)**
Number of family	0.94 (0.92–0.95)**	1.00 (0.98–1.01)
Residence		
Rural	Ref.	Ref.
Urban	0.87 (0.81–0.93)**	0.97 (0.89–1.06)
Economic status		
Low	Ref.	Ref.
Middle	0.93 (0.85–1.02)	0.88 (0.79–0.97)**
High	0.85 (0.79–0.91)**	0.85 (0.78–0.93)**

**P<0.01. OR: Odds ratio; CI: Confidence interval.

Table 3 Multivariate logistic regression analysis by disability type to determine the association between the presence of disability and sociodemographic characteristics

	Multivariate analysis (N=38,312), Adjusted OR (95% CI)					
	Vision	Hearing	Walking	Concentrating	Self-care	Communication
Gender						
Male	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Female	1.16 (1.06–1.27)	1.04 (0.92–1.17)	1.02 (0.92–1.13)	1.26 (1.14–1.39)*	0.94 (0.79–1.12)	1.04 (0.89–1.21)
Age	1.09 (1.09–1.09)**	1.08 (1.08–1.09)**	1.09 (1.10–1.10)**	1.07 (1.07–1.08)**	1.10 (1.09–1.11)**	1.07 (1.07–1.08)**
Number of family	0.99 (0.97–1.01)	1.03 (1.00–1.05)*	1.00 (0.98–1.02)	1.00 (0.98–1.02)	1.04 (1.00–1.07)	1.04 (1.01–1.07)*
Residence						
Rural	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Urban	1.01 (0.90–1.13)	1.02 (0.88–1.19)	0.90 (0.79–1.03)	1.01 (0.89–1.14)	1.13 (0.90–1.43)	0.97 (0.78–1.19)
Economic status						
Low	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Middle	0.85 (0.75–0.97)*	0.76 (0.65–0.89)**	1.05 (0.91–1.21)	0.89 (0.77–1.03)	0.73 (0.57–0.94)*	0.84 (0.68–1.03)
High	0.85 (0.76–0.95)**	0.61 (0.52–0.71)**	0.98 (0.86–1.11)	0.89 (0.79–1.01)	0.64 (0.51–0.80)*	0.57 (0.47–0.69)*

*P<0.05, **P<0.01. OR: Odds ratio; CI: Confidence interval.

differed for each disability type in the present study. The number of women was higher among those with vision and concentration-related disabilities. On the other hand, there was no significant association between economic status and the number of people with walking and concentration-related disabilities. Residents in lower economic status groups might need to engage in manual labor even after they research retirement age. This might affect the results—for instance, those related to the number of people with disabilities related to walking. The increase in noncommunicable diseases is a major problem in Southeast Asia, including Cambodia[15–17]. The increase in obesity and the lack of exercise among wealthy older adults might impact the disability proportion vis-à-vis disability related to walking. A well-designed, disease-specific study for each residence is

required to understand the causes and background of disparities in the disabled population.

The limitations of this study should be considered when interpreting these findings. First, detailed information on social demographics could not be obtained from the CDHS. Second, the information obtained was limited to household questionnaires. Third, only six disability types were examined. Fourth, the survey was performed using a questionnaire survey; thus, the disability status was reported subjectively. Fifth, economic status was classified into only three groups. Finally, as the survey was conducted in 2014, the data might not reflect the current situation in Cambodia. Despite these limitations, this is the first study to determine sociodemographic disparities among people with disabilities in Cambodia.

Conclusion

The proportion of people with disabilities was significantly higher among the elderly in Cambodia, similar to other countries. The proportion of those with at least one disability was higher in the low economic status group, irrespective of residence. A well-designed, disease-specific study is required to identify issues among aging disabled residents.

Acknowledgements

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