Does Loneliness Increase the Risk of Getting Health Problems Among Disabled Person?

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ABSTRACT
People with a disability commonly experienced the loneliness that considered as a risk factor for chronic diseases. This study conducted to examine the association between loneliness and health status of disabled people. A cross-sectional study included 2925 people with a disability who participated in the Indonesian Family Life Survey (IFLS) 2014 - 2015 and had completed data. Loneliness and health status obtained from book 3B and US in IFLS wave 5 dataset. Multiple logistic regression performed to analyze the data. This study found that 11.1% of respondents felt lonely (moderate to most of the time). Having vision problem had the highest proportion of being lonely. Feeling lonely most of the time had a higher risk for getting unhealthy condition (aOR 2.68; 95% CI 1.76 – 4.08) after controlled by age, sex, marital status, body mass index, and smoking behavior. Loneliness was associated with poorer health status. Social support needed to make the disabled person satisfy with their life and encourage them to keep healthy.

Keywords: *Disability, Health, IFLS, Loneliness, Quality of life.*

1. INTRODUCTION

Disability is known as a minority group that experienced many public health problems caused by the unmet needs of health care. The proportion of disabled persons in the world's population reaches over one billion people (15% of the population) and most of them live in developing countries [1]. According to the latest census, the proportion of Indonesian who categorized as disabled is 4.3% of the population [2]. The number grows up than in the previous study.

Having functional difficulty could inhibit persons to do activities normally. They have limited access to get a good social relationship. Discrimination which still experienced by the disabled person scaling up the isolated or lonely feeling. A study conducted in Turkey found that the average score of loneliness among people with disabilities was 60.26 (SD 10.70) [3]. This score indicated that they experienced loneliness. The average loneliness prevalence was up to half of them among people with intellectual developmental disabilities (IDD) [4], [5]. People who had disability or impairment were most likely to report severe loneliness [6], [7].

Loneliness has been recognized as a predictor of health problems [8]. Several studies found that being lonely had adverse impacts on physical health problems. Loneliness related to having poorer health status (aOR 1.70; 95% CI 1.57 – 1.84). People who felt lonely most of the time were more likely to have a chronic disease or more (aOR 1.25; 95% CI 1.16 - 1.35). The risk of getting a stroke was 58% greater than non-lonely (95% CI 1.08 – 2.29) [9]. People having perceived deficit quantity or quality in their relationship had elevated the risk for experiencing cardiovascular disease, hypertension, cancer, autoimmune disorders, and infectious disease [8], [10]–[13]. Loneliness had a positive association with mortality risk also [14]. The cohort study conducted in Sweden which follow-up the community over 14 years found that the incidence rate of death among lonely persons was 2.63 per 100 person-years. Loneliness increased by 27% of the risk of dying. The effect of loneliness differed on gender. It had a great impact on females than males [15]. As well as physical health problems, the unmet need for a social relationship could lead to various mental health problems, such as anxiety, stress, depression, Alzheimer's disease, schizophrenia, and other psychiatric disorders [9], [16]. Those adverse health

problems occurred by peripheral resistance, neurobiological mechanisms, worsen health behaviors, or impaired cellular immunity [9], [16], [17].

The increased rate of disability population could be a major concern. Most of the previous research focused on the elderly or aging population. There has been limited research using national data on disabilities. The impact of loneliness on health problems among disabilities has not been sufficient. Furthermore, it needs comprehensive research to assess the association of those variables. The captured information is beneficial for designing the strategic program in preventing ill-health outcomes among persons with disabilities.

2. METHOD

A cross-sectional study design applied in this study. Data of all variables obtained from the Indonesian Family Life Survey (IFLS) 5. The IFLS 5 was a continuation of the IFLS survey series conducted in October 2014 to April 2015. All disabled people who participated in IFLS 5 and had completed data recruited as research subjects (n=2925).

Loneliness extracted from the section KP09 Book 3B. It was a self-rated item. Participants told how often they felt lonely in the past week by choosing the response option on a Likert scale. The responses were rarely or none, some or a little of the time, occasionally or moderate, and most of the time [18].

The health condition of disabled people assessed using self-reported and health measurements. Subjects assessed their health status by giving ranks on their health levels. The responses were very healthy, somewhat healthy, somewhat unhealthy, and unhealthy. Health measurements included blood pressure and body mass index assessed by the trained interviewers. The blood pressure examined by an Omron meter HEM-7203. The respondents classified having hypertension if the systolic ≥ 140mmHg and or the diastolic ≥ 90mmHg or took hypertension medication when the survey conducted. The position of respondents was standing upright when their height measured using a Seca plastic height board model 213. A Camry model EB1003 scale used to measure the weights [18]. The result of measurement was one digit behind the comma. Body mass index calculated by dividing the weight (kg) with the square of height (m^2).

The type of disability obtained from section CD01 Book 3B. The interviewers asked the respondents, do they ever diagnosed with a health impairment or disability by the doctor. The smoking behavior assessed by asking do respondents ever smoke, still have the smoking habit or already quit. This data obtained from section KM Book 3B. Sociodemographic variables (sex, age, and marital status) extracted from section COV Book 3B [18].

The frequency distribution of all variables performed using descriptive statistics. Multiple logistic regression examined the risk of getting health problems associated with loneliness among disabled persons controlled by other variables. The association identified when the p-value < 0.05. The adjusted Odds Ratio presented in point estimate and 95% Confidence Interval.

All procedures of IFLS wave 5 has been reviewed and approved by RAND's International Review Boards (United States) and Universitas Gajah Mada (Indonesia). The protocol approval number was s0064-06-01-CR01.

3. RESULTS

The results of the descriptive analysis showed that most of the participants were 26-45 years old (42.4%), female (58.5%), and married/cohabited (70.5%). The impaired vision was the type of disability suffered by most of the subjects (80.0%). According to weight and height measurements, more than half of the total participants (52.5%) had normal body mass index (BMI), but the proportion of obesity was also relatively high (37.8%). Disabled persons had a good habit. Most of them stated that they never smoked (67.8%) and 7.2% had quit. This study also found that disabled persons experienced loneliness. The number of participants who classified felt lonely most of the time and occasionally were 11.1%. The health condition of the subjects was not good enough. More than one-third of the total subjects had hypertension (36.8%). Participants who identified had an unhealthy condition were 29.8% (Table 1).

People who had a vision problem had a highest proportion of feeling lonely (71.6%), whether at a moderate level (occasionally) or most of the time, than other types of disabilities. The next group who most experienced loneliness was physically disabled people (9.6%). The proportion of loneliness among people having two or more disabilities was 8.6%. The distribution of loneliness among disability types showed in Table 2.

Table 1. Descriptive analysis of dependent and independent variables

Variable	Frequency (n)	Percentage (%)
Age		
≤ 25 years old	564	19.3
26 – 45 years old	1239	42.4
46 - 65 years old	902	30.8
> 65 years old	220	7.5

Variable	Frequency (n)	Percentage (%)
Sex		
Male	1214	41.5
Female	1711	58.5
Marital status		
Unmarried	548	18.7
Married/cohabited	2062	70.5
Separated/divorced/ widowed	315	10.8
Type of disability		
Physical disabilities	194	6.6
Brain damage	44	1.5
Vision problem	2340	80.0
Hearing problem	176	6.0
Speech impediment	15	0.5
Mental retardation	4	0.1
Autism	1	0.0
≥ 2 disabilities	151	5.2
Body mass index		
< 18.5 kg/m2	292	10.0
18.5 – 25.0 kg/m2	1527	52.2
> 25.0 kg/m2	1106	37.8
Smoking habit		
Never	1984	67.8
Yes, already quit	212	7.2
Yes, still smoking	729	24.9
Loneliness		
Rarely or none	2360	80.7
Some days	241	8.2
Moderate or occasionally	226	7.7
Most of the time	98	3.4
Hypertension		
No	1849	63.2
Yes	1076	36.8
Self-rated health		
Healthy	2053	70.2
Unhealthy	872	29.8

Table 2. Distribution of loneliness (occasionally and most of the time) based on the type of disability

Type of disability	Loneliness (Occasionally and most of the time)	
	n	%
Physical disabilities	31	9.6
Brain damage	7	2.2
Vision problem	232	71.6
Hearing problem	23	7.1
Speech impediment	2	0.6
Mental retardation	1	0.3
Autism	0	0.0
≥ 2 disabilities	28	8.6
Total	324	100.0

Table 3 pointed out that loneliness had a significant association with self-rated health and hypertension (p-value < 0.05) in bivariate analysis. Feeling lonely most A half of total subjects who felt lonely most of the time felt unhealthy (50%).

Table 3. Association loneliness and health problems (bivariate analysis)

Loneliness	Self-rated health			
	Unhealthy		Healthy	
	n	%	n	%
Rarely/none	638	27.0	1722	73.0
Some days	92	38.2	149	61.8
Moderate	93	41.2	133	58.8
Most	49	50.0	49	50.0
Sig.	0.000**			

** sig. (p value < 0.01)

After controlled by other variables (age, sex, marital status, BMI, smoking habit), the final model of multiple logistic regression found that loneliness was associated with the health condition of disabled people. People who always felt alienated (aOR=2.68; 95% CI 1.76-4.08), occasionally (aOR=1.97; 95% CU 1.48-2.62), and some days (aOR=1.92; 95% CI 1.44-2.55) were more likely to get health problems than people who never or rarely felt lonely (Table 4).

Table 4. Final model from multiple logistic regression analysis

Variable	Sig.	aOR	95%CI
Loneliness			
Rarely or none	0.000**	Ref	
Some days	0.000**	1.92	1.44 – 2.55
Occasionally	0.000**	1.97	1.48 – 2.62
Most of the time	0.000**	2.68	1.76 – 4.08
Age			
≤ 25	0.000**	Ref	
26 – 45	0.490	0.89	0.65 – 1.23
46 - 65	0.000**	1.83	1.30 – 2.57
> 65	0.001**	2.09	1.36 – 3.22
Sex	0.000**	1.52	1.28 – 1.81
Marital status			
Unmarried	0.052	Ref	
Married	0.016*	1.49	1.08 – 2.07
Divorced	0.113	1.40	0.92 – 2.12
Constant	0.000	0.11	

* sig. (p value < 0.05)
** sig. (p value < 0.01)

4. DISCUSSION

The prevalence of loneliness among disabled persons in Indonesia was not much different from the finding in the general population [9]. Compared with another study, this finding was lower than the UK study [19], [20]. A survey conducted by Jo Cox Commission found shocking results. Over half of disabled persons reported having chronically lonely. The prevalence of loneliness getting rising among young disabled adults [20].

These various findings caused by the differences in concept and instrument used to assess the loneliness. This study measured loneliness by a single-item that was part of CES-D 10, while other studies defined loneliness by using three items of the Loneliness Scale, revision version of the UCLA Loneliness Scale (R-UCLA), single-item of Swiss Health Survey, or the De Jong Gierveld loneliness scale [6], [7], [21]–[23]. It also existed by the different study subjects such as concern only on older people (> 65 years old) [19]. Cultural norms, personal circumstances, and social support that were diverse in over the places contributed to the study results.

Based on the type of disability, people with vision impairment was the most experienced loneliness group. Research at the Norwegian population also reported a high prevalence of loneliness on people with visual impairment. Nearly half of them classified as moderate and severe loneliness [24]. This result was similar to the findings of the UK and Scotland studies [25], [26]. Vision impairment was the highest proportion of sample study so that loneliness detected the most in this group. People having a limitation on their visual function commonly exposed to abuse or bullying, have low self-esteem, have difficulty making social relationships [25], [26]. This condition led them to get social isolation and suffer persistent loneliness.

The main finding of this study showed a significant association between loneliness and health status of disabled persons. This finding was consistent with the study conducted in the general population and aging population [9], [27], [28]. Feeling lonely related to poor health status. The Chicago Health, Aging, and Social Relations Study and a population-based study reported that loneliness increased systolic blood pressure [29], [30]. The same results also found among Malaysians. The study showed that the increased risk of getting hypertension related to a higher loneliness level [12]. The potential mechanism of how loneliness could affect the health status of disabled people related to reduced immune function. This condition caused by sleep disruption [16]. Loneliness could affect the sympathetic nervous system, peripheral resistance, and lead disabled people having unhealthy behavior [8], [9], [16], [17].

The cross-sectional design implemented in this study could not explain the causality of loneliness and health problems. The independent variable (loneliness) measured at a specific period time (in the past week), but the onset time of health problems could not be assured definitely. It occurred after they experienced loneliness or not. Another limitation related to the measurement of variables. Some variables derived from self-report, such as loneliness and health status. The possibility of responses bias existed. Loneliness also measured using a single-item, the part of CES-D items. This response might underreport or had less sensitivity and specificity. Although it could not measure the loneliness deeply, this item had a high correlation with multi-items UCLA and other loneliness measurements. The validity was proven and it was reliable for measuring the loneliness [9], [22], [31]–[34].

Using big data from a longitudinal survey, such as The Indonesian Family Life Survey (IFLS), had many advantages. The large sample size was more generalizable and could represent the real things that happened in the target population. The study could find a high-impact result and estimate the trends precisely [35], [36].

Loneliness had a negative correlation with the health status of disabled persons. It had to be a concern to develop some strategies for tackling loneliness. A social

campaign about keeping intense contact with other family members could increase awareness regarding the loneliness issue. Building social support and providing more chances in a social relationship was a valuable investment.

5. CONCLUSION

The disabled people in Indonesia experienced loneliness at various levels. The proportion of them who occasionally or always felt lonely was quite a lot. Loneliness confirmed had an association with the health outcome. Feeling lonely most of the time increase the risk of getting worse health condition among the disabled. Giving social support could create a conducive environment for building up their self-esteem. Furthermore, they motivated to stay healthy.

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