MENTAL HEALTH AND ASSOCIATED FACTORS AMONG PEOPLE WITH MOBILITY DISABILITIES IN CENTRAL PROVINCES OF VIETNAM

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ABSTRACT:

Vietnam has made strong commitments to support people with disability (PWD) by issuing the Law for PWD in 2010, and ratifying the United National Convention on the Rights of Persons with Disabilities in 2014. Mobility impairment accounts for around 50 percent of total number of PWD. The health and well-being outcomes for PWD cannot be achieved without mental health care support. Thus, this research aimed to identify the mental health problems and associated factors of the selected people with mobility disabilities (PWMDs) in the three provinces. The research adopted a descriptive cross-sectional study design. 334 PWMDs in Thua Thien Hue, Quang Nam and Binh Dinh were interviewed. Survey tools included WHO 12-item Disability Assessment Schedule to measure functional level of activities and participation; and the Depression, Anxiety and Stress Scales developed by The University of New South Wales, and approved by Ministry of Health of Vietnam to be used for screening and measuring level of depression, anxiety and stress. The research showed that there was a high proportion of PWMDs with symptoms of depression (38.4%), anxiety (43.1%) and stress (23.4%). Of PWMDs displaying severe and very severe symptoms, 12.0% were found to experience depression, 9.9% for anxiety, and 5.4% for stress. PWMDs who are not working, who are poor or near poor, who need help from the others, who have functioning difficulties, are more likely to have mental health problems than those who are working, non-poor, can live independently, have less functioning difficulties. With high rates of PWMDs having symptoms of common mental disorders, specific mental health intervention programs for PWMD need to be developed and implemented with different levels of care to support those with different levels of severity. The factors associated with mental health problems will also need to be taken into consideration during development and implementation of the intervention.

Keywords: Mental health problems, people with mobility disabilities, associated factors, Central provinces, Vietnam.

INTRODUCTION

There are over one billion people with disabilities in the world, accounting for more than 15 percent of the population (WHO, 2011). In Vietnam, the latest National Survey on Disabilities carried out by The General Statistics Office (GSO) in 2016 revealed that there are nearly 6.2 million PWDs in Vietnam, accounting for 7.06% of the total population. The most common types of disability are related to mobility in which 57.2% of PWDs have lower limb mobility disabilities and the percentage of persons with upper limb mobility disabilities is 34.6% (GSO, 2016).

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Vietnam has made strong commitments to support people with disability (PWD) by issuing the Law for PWD in 2010 as well as proposing and implementing decisions and circulars to support PWD. In 2014, Vietnam National Assembly also ratified the United National Convention on the Rights of Persons with Disabilities (CRPD) which aims to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity (UN, 2006). It is believed that ensuring good health is a basic human right. Thus, it is essential to promote equal access to all aspects of health care including mental health care.

A large number of research studies in the world conclude that depression is associated with physical impairments. One longitudinal study of people with physical impairments found that people with mobility disabilities (PWMDs) are at a dramatically elevated risk for depressive symptoms, and this high level of depression characterizes men and women of all ages (Turner & Noh, 1988). A study of students with a range of acquired and congenital impairments found they reported 'higher levels of psycho-social distress' than their non- PWMD peers (Hogan, Lyndall, & Adrian, 2000). The co-existence of physical impairments and mental health problems such as depression has made severe impact on social inclusion and quality of life of PWD.

The health and well-being outcomes for PWMDs cannot be achieved without mental health care support. Therefore, we conducted this research to learn about the mental health problems and associated factors of the selected PWMDs in three provinces of central regions including Thua Thien Hue, Quang Nam and Binh Dinh. The overall objective of the research is to have better knowledge for the development of appropriate mental health care services for PWMD in Vietnam. The specific research questions are: (i) what are the mental health problems of the selected PWMD in the three provinces of Thua Thien Hue, Quang Nam and Binh Dinh?; (ii) which factors are associated with the identified mental health problems?

METHOD

The research design was a cross-sectional study. The total of 334 PWMDs in the three selected districts of the three provinces in which 119 in Thua Thien Hue, 104 in Quang Nam and 111 in Binh Dinh were interviewed through a set of questionnaires to learn about mental health problems and the associated factors to their mental health issues. Some main features of the interviewed PWMDs are presented in the following tables 1&2.

Table 1: Some general characteristics of the interviewed PWMDs

Variable		% total (n=334)	% Hue (n=119)	% Quang Nam (n=104)	% Binh Dinh (n=111)
Sex (%)	Male	71.6	69.9	75.0	70.9
	Female	28.4	31.1	25.0	29.1
Age (mean)		58.5 ± 14.4	57.4 ± 15.6	62.0 ± 12.8	56.5 ± 14.1
Working status	Working	31.5	42.3	28.6	22.4
	Not working	68.5	57.7	71.4	77.6
Economic status	Poor and near-poor	30.4	36.2	26.2	28.2
	Non- poor	69.6	63.8	73.8	71.8

Variable		% total (n=334)	% Hue (n=119)	% Quang Nam (n=104)	% Binh Dinh (n=111)
Independent living	Live independently, do not need help	38.6	42.7	35.0	37.8
	Assisted living	61.4	57.3	65.0	62.2

In the research sample, the rate of female PWMDs was about 3 time less than those of male The interviewed PWMDs were at nearly old ages in which the mean of ages is 58.5 ± 14.4. The PWMDs who are not working were twice higher than those who are working at the interviewing time. Majority of PWMDs are not poor which accounted for 69.6%, two times higher than those being poor and near poor. The percentage of PWMDs who require support from relatives/family members is also twice more than those of PWMDs who live independently. Notably that it seems the rates of PWMDs at older ages and living dependently in Quang Nam were higher than those in Binh Dinh and Hue.

Table 2: Functioning characteristics of the interviewed PWMDs

Variable		% total (n=334)	% Hue (n=119)	% Quang Nam (n=104)	% Binh Dinh (n=111)
Cognition	Difficulty in concentrating on doing something for ten minutes	36.1	46.2	40.2	21.6
	Difficulty in learning a new task	34.0	33.3	52.9	10.9
Mobility	Difficulty in walking a long distance	86.9	80.4	89.4	91.0
	Difficulty in standing for long periods	86.9	78.8	80.4	91.9
Self-care	Difficulty in washing the whole body	48.3	40.7	51.9	53.2
	Difficulty in getting dressed	44.1	34.7	46.2	42.3
Getting along with people	Difficulty in dealing with people they do not know	18.7	19.8	14.4	13.0
	Difficulty in maintaining a friendship	15.7	16.0	16.7	14.4
Life activities	Difficulty in taking care of the household responsibilities	69.9	62.0	75.6	72.7
	Difficulty in day-to-day work	84.7	72.9	86.1	95.5

Variable		% total (n=334)	% Hue (n=119)	% Quang Nam (n=104)	% Binh Dinh (n=111)
Participation in society	Problem of joining in community activities	65.6	49.4	74.0	75.3
	Problem of having been emotionally affected by health problems	63.1	67.0	74.5	48.6

Among six domains of functions, PWMDs who have difficulties in mobility function account for the highest percentages, followed by those experience difficulties with life activities, and with participation in society. PWMDs experiencing difficulties with social interactions account for the lesser proportion.

A set of questionnaires were developed, and categorized into three parts: (i) General characteristics of interviewed PWMD such as sex, age, marital status, economic situation, educational level, main occupation, level of disability severity, social welfare support, independent living status; (ii) assessment of PWMD's functions using the World Health Organization's tool called WHO DAS 12. This instrument, the 12-item Disability Assessment Schedule, was designed to measure the functioning level in six domains: understanding and communicating, getting around, self-care, getting along with people, life activities, and participation in society; (iii) measurement of common mental health problems using an instrument called DASS 21, Depression, Anxiety and Stress Scales, developed by The University of New South Wales in Australia. This screener has been widely used in the world to measure the level of distress of people suffering from traumatic events. This tool was piloted in Vietnam and approved by Ministry of Health of Vietnam following Decision 331 dated January 2nd 2016, to be used for screening and providing support for people after traumatic events. DASS 21 was validated as a screening instrument for depression and anxiety in a rural community based cohort of northern Vietnamese women (Tran, Tran & Fisher, 2013).

The questionnaires were sent to experienced professionals from National Mental Health Institute, Da Nang Psychiatric Hospital and Hanoi National University for their comments. The instrument was also then piloted for fine-tuning before the official data collection occurred. PWD selected for interviews were at the age of 16 years old and above, with a mobility disability identified by commune health station staff following the screening tool developed by the provincial rehabilitation hospital; were able to answer the questions; and were also able to travel to selected commune health stations following the invitation of the research team. Two research team members as well as two other interviewers, who were trained by the research team, conducted the interview.

FINDINGS AND DISCUSSION

Some common mental health problems of the interviewed PWMD

The research adopted the use of the DASS 21 measure for identifying common mental health disorders. The interviewees answered 21 questions representing depression, anxiety and stress. The severity level of each mental health problem was classified into 5 levels including none, mild,

moderate, severe and extremely severe by calculating total scores of them, which was based on the measures of DASS 21.

Depression

Table 3: Percentage of people having symptoms of depression

Valid	Total (n=334)		Hue (n=119)		Quang Nam (n=104)		Binh Dinh (n=111)	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
None	186	61.6	66	61.1	43	47.2	77	74.8
Mild	41	13.6	16	14.8	9	9.9	16	15.5
Moderate	39	12.8	16	14.8	17	18.7	6	5.8
Severe	18	6.0	4	3.7	11	12.1	3	2.9
Extremely severe	18	6.0	6	5.6	11	12.1	1	1.0

38.4% of PWMDs experienced depression, of which 12.0% is reported to have a severe and extremely severe status. PWMDs in Binh Dinh were more likely to have the lowest rates of PWMDs reporting depression symptoms as compared to the other provinces.

Several studies have demonstrated that persons with chronic physical disabilities have greater prevalence of depression than the general population. Turner & Wood (1985) found that 34% of adults with physical disabilities reported depression, which was almost twice the rate of general population. Shen et al. (2017) found similar results, with the incidence of depression among adults with physical disabilities reportedly 3.7-fold higher than that of the general population.

Anxiety

Table 4: Percentage of people having symptoms of anxiety

Valid	Total (n=334)		Hue (n=119)		Quang Nam (n=104)		Binh Dinh (n=111)	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
None	178	56.9	63	59.4	45	45.0	70	65.4
Mild	62	19.8	19	17.9	18	18.0	25	23.4
Moderate	42	13.4	13	12.3	21	21.0	8	7.5
Severe	16	5.1	6	5.7	7	7.0	3	2.8
Extremely severe	15	4.8	5	4.7	9	9.0	1	0.9

Forty-three point one percent of PWMDs reported experiencing anxiety, of which 9.9% had a severe or extremely severe status. The percentage of PWMDs without anxiety problems was highest in Binh Dinh at 65.4% and lowest in Quang Nam at 45.0%. Notably, Quang Nam has the highest percentage of PWMDs with moderate, severe and extremely severe status of anxiety among the 3 provinces.

In a cross-sectional survey among US adults, the rates of PWMDs and persons without mobility difficulties reporting anxiety are 30.6% and 3.8% respectively (Iezzoni et al., 2001).

Stress

Table 5: Percentage of people having symptoms of stress

Valid	Total (n=334)		Hue (n=119)		Quang Nam (n=104)		Binh Dinh (n=111)	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
None	229	76.6	82	73.9	65	70.7	82	85.4
Mild	32	10.7	14	12.6	10	10.9	8	8.3
Moderate	22	7.3	10	9.0	7	7.5	5	5.2
Severe	14	4.7	5	4.5	8	8.7	1	1.0
Extremely severe	2	0.7	0	0	2	2.2	0	0.0

Twenty three point four percent of PWMDs reported experiencing stress, with those of a mild status at 10.8%, and those reporting severe and extremely severe stress at 5.4%. The percentage of PWMDs without stress was highest in Binh Dinh at 85.4% and lowest in Quang Nam at 70.7%. Only a few had severe or extremely severe status in Thua Thien Hue and Binh Dinh, but PWMDs with a severe or extremely severe status accounted for more than 10% of the interviewees in Quang Nam.

Factors associated with the identified mental health problems

Table 6: Association between household economic status and mental health problems

	p (95% confidence interval)		
	Depression	Anxiety	Stress
The poor and near poor in total	0.038 (<0.05)	0.073	0.082
The poor and near poor in Hue	0.092	0.127	0.308
The poor and near poor in Quang Nam	0.389	0.193	0.056
The poor and near poor in Binh Dinh	0.093	0.648	0.771

Depression: The mean depression scores of the poor and near-poor were higher than those of the non-poor in total samples, and in each province. There was statistically significant difference in total. It would be safe to say that the poor and near-poor are more likely to have depression than the non-poor in total. The significant difference was not observed in each province, but this may be attributable to a lack of power due to the limited number of samples.

Anxiety and stress: The mean anxiety and stress scores of the poor and near-poor were higher than those of the non-poor in total and in each province. However, there was no statistically significant difference.

According to a nationwide population-based study in Taiwan among physical disabilities in 2002-2008, there was association between depression and monthly salary. Adults who receive

lower salary at a NT$22,801–28 were at higher risk for depression (Shen et al., 2017). The Korean studies also show that low income is associated with depression (Noh et al., 2016; Park et al., 2012).

Table 7: Association between working status and mental health problems

	p (95% confidence interval)		
	Depression	**Anxiety**	**Stress**
The PWMDs not working in total	0.001 (<0.05)	0.107	0.003 (<0.05)
The PWMDs not working in Hue	0.013 (<0.05)	0.81	0.381
The PWMDs not working in Quang Nam	0.029 (<0.05)	0.054	0.00 (<0.05)
The PWMDs not working in Binh Dinh	0.014 (<0.05)	0.04 (<0.05)	0.573

Depression: The mean depression scores of those who are not working were higher than those of PWMDs who are working in total, and in each province. In addition, the difference was statistically significant in total and in each province. Therefore, it can be interpreted that PWMDs who are not working are more likely to have depression than those who are working.

Anxiety: The mean anxiety scores of those who are not working were higher than those of PWMDs who are working in total and in each province. However, there was a statistically significant difference only in Binh Dinh. Therefore, it could be said that PWMDs who are not working are more likely to have anxiety than those who are working in Binh Dinh.

Stress: The mean stress scores of those who are not working were higher than those of PWMDs who are working in total and in each province. However, there was statistically a significant difference only in total and Quang Nam. It would be safe to say that PWMDs who are not working are more likely to experience tress than those who are working in total sample and in Quang Nam. In addition, the significant difference was not observed in Thua Thien Hue and Binh Dinh, but this may be attributable to a lack of power due to the limited number of samples.

The study in Korea reported that unemployment is risk factor for depression (Noh et al., 2016). In a study among women with spinal cord injury, their unemployment status correlates with perceived stress (Rosemary et al., 2001).

Table 8: Association between independence status and mental health problems

	p (95% confidence interval)		
	Depression	Anxiety	Stress
Dependent PWMDs in total	0.00 (<0.05)	0.069	0.032 (<0.05)
Dependent PWMDs in Hue	0.095 (<0.05)	0.252	0.521
Dependent PWMDs in Quang Nam	0.009 (<0.05)	0.022 (<0.05)	0.418
Dependent PWMDs in Binh Dinh	0.00 (<0.05)	0.013 (<0.05)	0.005 (<0.05)

Depression: The mean depression scores of those who require assistance were higher than those who independent in total and in each province. There was a statistically significant difference in Quang Nam and Binh Dinh except for Thua Thien Hue, which also approached significance (0.095). It would be safe to say that PWMDs who need help are more likely to have depression than PWMDs who are independent.

Anxiety: The mean anxiety scores of those requiring assistance were statistically higher than those who are independent in Quang Nam and Binh Dinh. It is can be said that PWMDs who require assistance are more likely to have anxiety than PWMDs who are independent in Quang Nam and Binh Dinh.

Stress: The mean stress scores of those requiring assistance were higher than those who are independent in total and in each province, with a statistically significant difference in total sample and in Binh Dinh. It can be interpreted that PWMDs who require assistance are more likely to experience stress than PWMDs who are independent in Binh Dinh. The significant difference was not statistically observed in Thua Thien Hue and Quang Nam, but this may be attributable to a lack of power due to the limited number of samples.

A study among residents of assisted living in Jordan reported that 60% of the participants experienced depression (Alomomani & Bani-Issa, 2017).

Table 9: Association between difficulties in functional activities and mental health problems

	Variables		**p (95% confidence interval)**			
			Total	**Hue**	**Quang Nam**	**Binh Dinh**
Cognition	Difficulty in concentrating on doing something for ten minutes	Depression	0.00	0.00	0.00	0.033
		Anxiety	0.00	0.167	0.00	0.915
		Stress	0.00	0.011	0.00	0.658
	Difficulty in learning a new task, for example, learning how to get to a new place	Depression	0.00	0.00	0.004	0.00
		Anxiety	0.004	0.239	0.091	0.643
		Stress	0.001	0.008	0.318	0.102
Mobility	Difficulty in standing for long periods such as 30 minutes	Depression	0.00	0.002	0.022	0.034
		Anxiety	0.00	0.021	0.001	0.042
		Stress	0.001	0.002	0.027	0.859
	Difficulty in walking a long distance such as a kilometer	Depression	0.00	0.00	0.044	0.033
		Anxiety	0.00	0.076	0.005	0.101
		Stress	0.004	0.004	0.108	0.902
Self-care	Difficulty in washing their whole body	Depression	0.00	0.005	0.001	0.001
		Anxiety	0.014	0.981	0.005	0.049
		Stress	0.00	0.047	0.001	0.179
	Difficulty in getting dressed	Depression	0.00	0.001	0.00	0.00
		Anxiety	0.002	0.306	0.001	0.072
		Stress	0.00	0.007	0.001	0.272

	Variables		p (95% confidence interval)			
			Total	Hue	Quang Nam	Binh Dinh
Getting along with people	Difficulty in dealing with people they do not know	Depression	0.00	0.002	0.005	0.009
		Anxiety	0.006	0.747	0.003	0.625
		Stress	0.00	0.044	0.002	0.005
	Difficulty in maintaining a friendship	Depression	0.00	0.004	0.00	0.029
		Anxiety	0.009	0.826	0.00	0.802
		Stress	0.00	0.034	0.00	0.017
Life activities	Difficulty in taking care of their household responsibilities	Depression	0.00	0.00	0.00	0.00
		Anxiety	0.00	0.067	0.001	0.03
		Stress	0.00	0.00	0.00	0.13
	Difficulty in day-to-day work/school	Depression	0.00	0.001	0.00	0.001
		Anxiety	0.041	0.325	0.091	0.096
		Stress	0.001	0.028	0.037	0.036
Participation in society	A problem of joining in community activities in the same way as anyone else can	Depression	0.00	0.002	0.00	0.00
		Anxiety	0.00	0.04	0.026	0.001
		Stress	0.00	0.015	0.01	0.033
	A problem of having been emotionally affected by health problems	Depression	0.00	0.00	0.00	0.00
		Anxiety	0.00	0.002	0.00	0.00
		Stress	0.00	0.00	0.00	0.00

Difficulty in cognition function

Depression: Within all the provinces, there was a strong positive statistically significant correlation between difficulties in cognition factors, and depression.

Anxiety: In Hue and Binh Dinh, there was no a statistically significant correlation between 'difficulties in doing something for ten minutes', and anxiety, with results from Quang Nam reporting a moderate positive correlation.

Stress: There was a statistically significant correlation between 'difficulty in doing something for ten minutes' and stress amongst all subject, and in Thua Thien Hue and Quang Nam, but not for Binh Dinh. There was a statistically significant correlation between the 'difficulty in learning a new task, for example, learning how to get to a new place and stress in total and in Thua Thien Hue, which was a weak positive correlation.

Difficulty in mobility functions

Depression: There were statistically significant correlations between all mobility factors and depression in all the provinces.

Anxiety: There were statistically significant correlations between the difficulty in 'standing for long periods such as 30 minutes' and anxiety in all the provinces. However, these were weak

positive correlations. There was a statistically significant correlation between 'difficulties in walking a long distance' and anxiety in and Quang Nam only.

Stress: There was a statistically significant correlation between 'difficulty in standing for long periods such as 30 minutes' and stress in total samples, and in Thua Thien Hue and Quang Nam. There was a statistically significant correlation between 'difficulty in walking a long distance such as a kilometer' and stress in total sample and in Thua Thien Hue, but not in Quang Nam and Binh Dinh.

Difficulty in self-care function

Depression: There was a statistically significant correlation between difficulty self care domains and depression in all the provinces.

Anxiety: There was a statistically significant correlation between 'difficulty in washing the whole body' and anxiety within all subjects and in Binh Dinh and Quang Nam. There was a statistically significant correlation between 'difficulty in getting dressed' and anxiety in all subject and in Quang Nam, but not for Hue and Binh Dinh.

Stress: There was a statistically significant correlation between self care domains and stress in all subjects and in Quang Nam and Hue.

Difficulty in getting along with other people function

There were statistically significant correlations between the difficulty in 'dealing with people they do not know' and depression, anxiety and stress reported in all subjects and within all the provinces. However, these were weak positive correlations. There were statistically significant correlations between 'difficulty in maintaining a friendship' and depression and stress in all subjects and within all the provinces. There was a statistically significant correlation between the 'difficulty in maintaining a friendship' and anxiety in all subjects, and in Quang Nam.

Difficulty in life activities function

Depression: There was a statistically significant correlation between the life activity factors and depression within all participants and within all the provinces.

Anxiety: There was a statistically significant correlation between 'difficulty taking care of their household responsibilities' and anxiety in all subjects and in Binh Dinh and Quang Nam. There was a statistically significant correlation between the difficulty in day-to-day work/school and anxiety. However this was a very weak positive correlation.

Stress: There was a statistically significant correlation between the 'difficulty taking care of their household responsibilities' and stress in total sample and in Quang Nam and Hue. There were statistically significant correlations between the difficulty in day-to-day work/school and stress in all the provinces,

Difficult in participation in society function

There were statistically significant correlations between the difficulty in joining in community activities in the same way as anyone else can, in having been emotionally affected by health problems and depression, anxiety and stress in total and all the provinces.

CONCLUSION AND RECOMMENDATIONS

The research results on current mental health status of PWMDs in the three provinces of Thua Thien Hue, Quang Nam and Binh Dinh through interviewing 334 PWMDs showed remarkable rates of PWMDs experiencing symptoms of depression, anxiety and stress, with anxiety affecting 43.1% of subjects, depression affecting 38.4%, and stress 23.4%. The percentages of PWMDs with mental health problems were highest in Quang Nam and lowest in Binh Dinh at 52.7% and 25.2% for depression, 55.0% and 34.6% for anxiety, 29.3% and 14.6 for stress respectively. It was noted that PWMDs experiencing severe and very severe symptoms were at 12.0% for depression, 9.9% for anxiety, and 5.4% for stress. Quang Nam had the highest percentage of PWMDs with severe and very severe symptoms of mental health problems, 24.2% for depression, 16% for anxiety and 10.9% for stress. PWMDs having severe and very severe mental symptoms of depression, anxiety and stress were the lowest in Binh Dinh.

Factors associated statistically with identified mental health problems include employment, economic conditions, independent living status, and the difficulties in functioning on cognition, mobility, self-care, getting along with others, life activities and social participations.

As for depression, the mean depression scores of PWMDs who are not working, who are poor and near poor, and who cannot care for themselves were higher than those who are working, who are non-poor, and who can care for themselves. There was a strongly statistically significant positive correlation between the difficulties in the six domains of functions and depression in total and all the provinces in which the more difficulties on cognition, mobility, self-care, getting along with others, life activities, and social participation PWMDs face, the more depressed PWMDs could become.

Function difficulties were found to be associated statistically with anxiety. There was a moderately statistically significant positive correlation between the difficulties in the six domains of functions, and anxiety experienced by all subjects. Certain provinces also reported that the more difficulties PWMDs face, the more anxious the PWMDs could become.

Factors relating to employment, independent living and functioning difficulties were found to statistically associate with stress. The mean stress scores of those who are not working, and those who require assistance, were higher than those who are working, and those who are independent. Therefore, it can be said that the PWMDs who are not working or who need help from others are more likely to experience stress than those who are working, and those who are independent. There was a moderately statistically significant positive correlation between the difficulties in the six domains of function and stress in which the more difficulties PWMDs face, the more stress PWMDs could have.

More attention and investment in mental health support for PWMDs should also be prioritized given the high percentage of PWMDs experiencing mental health problems, and given the strong correlation between disability and mental health issues. Different mental health care services for PWMDs need to be carried out including specialized mental health care services by mental health specialists for those who present with symptoms, non-specialized services by non-specialists at community level for early detection and prevention, as well as mental health literacy programs for PWDs, their family members and community.

With high rates of PWMDs having symptoms of common mental disorders, the specific mental health intervention program for PWMD need to be developed and implemented in which different levels of care should be applied for those with different levels of severity. The factors associated to mental health problems need to be taken into consideration during development and implementation of the intervention as well.

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