

Meta-Analysis: The Effects of Depression and Anxiety on the Quality of Life of People with Disability

Iffah Nurhayati¹⁾, Bhisma Murti¹⁾, Hanung Prasetya²⁾

¹⁾Masters Program in Public Health, Universitas Sebelas Maret

²⁾Health Polytechnics, Ministry of Health, Surakarta

ABSTRACT

Background: A person with a disability is a person who has (suffers) a disability/ limitations in the structure and function of the body which can cause problems in their life. Environmental conditions (physical, biological and social) that are not disability-friendly will have an impact on mental problems and the most common are depression and anxiety. Depression and anxiety have an important influence on the health conditions and quality of life of persons with disabilities. The purpose of this study was to analyze the effect of depression on the quality of life of persons with disabilities and to analyze the effect of anxiety on the quality of life of persons with disabilities.

Subjects and Method: The meta-analysis was carried out by systematically reviewing the same number of articles from PubMed, Science Direct, and Google Scholar. This is done using the search keywords “anxiety” AND “depression” AND “quality of life” AND “disability” AND “multivariate analysis”. The population in this study were persons with disabilities. The interventions given were anxiety and depression, while the comparison was not anxious and not depressed. The outcome of the study was quality of life. The article used is a full text article with an observational study design that reports the value of the Adjusted Odds Ratio (aOR). Articles were collected using PRISMA

flowcharts and analyzed using the Review Manager 5.3 application with random effect models.

Results: Meta-analysis in 8 cross-sectional studies of depression can reduce 0.79 times the quality of life of persons with disabilities (aOR= 0.79; 95% CI= 0.69-0.92; p= 0.002) and in 3 cohort studies depression decreased 0.61 times the quality of life of persons with disabilities (aOR= 0.61; 95% CI= 0.30-1.22; p= 0.16). Meta-analysis in 8 cross-sectional studies, anxiety decreased 0.70 times the quality of life of persons with disabilities (aOR= 0.70; 95% CI= 0.60; p<0.001) and in 5 cohort studies anxiety decreased 0.84 times (aOR= 0.84; 95% CI= 0.68-1.04; p= 0.12).

Conclusion: Depression and anxiety have an effect on decreasing the quality of life of persons with disabilities.

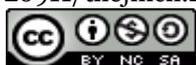
Keywords: Anxiety, depression, quality of life, disability, multivariate analysis

Correspondence:

Iffah Nurhayati, Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta 57126, Central Java. Email: iffahn16@gmail.com. Mobile-phone: 085742202990.

Cite this as:

Nurhayati I, Murti B, Prasetya H (2021). Meta-Analysis: The Effects of Depression and Anxiety on the Quality of Life of People with Disability. J Matern Child Health. 06(03): 267-284. <https://doi.org/10.26911/thejmch.2021.06.03.02>.



Journal of Maternal and Child Health is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

BACKGROUND

Disability is part of the human condition. Disability is a complex, dynamic and multi-dimensional topic. Almost every individual will experience a temporary or permanent

disability at some point in life. Individuals who can survive life with disabilities will experience difficulties in carrying out their life functions (World Health Organization, 2011).

Disabilities can occur due to certain health problems or environmental factors. Certain health problems can be congenital or acquired. Congenital health problems are health problems that an individual carries from birth, can be temporary or permanent. Meanwhile, acquired health problems are health problems that are obtained during the individual's life. These problems can occur due to internal factors and external factors. Internal factors are caused by a decrease in the function of the body's systems. An unhealthy lifestyle, not paying attention to rest periods or exercising too hard will increase the risk of these health problems appearing. Meanwhile, external factors are closely related to environmental factors. The environment consists of the physical, biological and chemical environment. Natural disasters and traffic accidents can increase the risk of health problems from the physical environment. The biological environment, for example, is due to exposure to viruses or bacteria that cause certain health problems. As well as exposure to hazardous chemicals can increase the risk of health problems in individuals from the aspect of the chemical environment (WHO, 2011; Hanjarwati et al., 2019).

About 15 out of 100 people in the world have a disability. 2-4 out of 100 people have severe disabilities (World Report on Disability). The World Health Organization (WHO) in 2011 stated that there are more than 1 billion people or about 15 percent of the world's population with disabilities. This figure is much higher than the estimate made by the World Health Organization (WHO) in the 1970s, which was only 10 percent. The prevalence of persons with disabilities in Indonesia reaches 6,008,641. The prevalence consists of 2,911,189 men and 3,097,452 women (Economic and Social Commission for Asia

and The Pacific (ESCAP) United Nations, 2016). One of the factors that causes the high number of people with disabilities in Indonesia is because Indonesia is a vulnerable country with disability dynamics both in quality and quantity. Indonesia's geographic location, which is in a disaster-prone area will increase the number of victims of natural disasters which incidentally will also increase the number of disabilities. In addition, the Inclusive area declaration program has not been fully implemented in all regions of Indonesia (Hanjarwati et al., 2019).

The World Report on Disability found that disabilities have various types and can occur at various ages of life. The World Health Organization (WHO) divides disabilities into three types, namely physical disabilities, mental disabilities and multiple disabilities (experiencing physical and mental disabilities) (WHO, 2011). And the Law of the Republic of Indonesia Article 4 Number 8 of 2016 concerning Persons with Disabilities classifies disabilities into four, namely: physical disabilities, intellectual disabilities, mental disabilities and sensory disabilities.

Persons with disabilities have physical and mental health which tends to be poor due to disturbances in the body system, thus positioning persons with disabilities as the most vulnerable and disadvantaged group in society (Mehbub et al., 2019). This condition causes persons with disabilities to experience various problems, including: limitations, disabilities, helplessness and negative perceptions from society or even other family members. Most of the family and community members living with persons with disabilities do not all work together and are responsible for supporting and caring for relatives and friends with disabilities. In addition, exclusion, neglect, wrong behavior, injustice, exploitation, job

discrimination, service accessibility, communication and information technology, attitudes, community mindset, legislation and policies that are not fully pro-people with disabilities (Cahyono, 2017).

Not all disability-friendly areas in Indonesia also encourage people with disabilities to live a social life to experience difficulties in fighting for social functioning. For example, public facilities such as bus stops, public transportation and government offices that do not have ramps will make it difficult for persons with physical disabilities to move (impaired lower limbs). The absence of a guiding block on the pedestrian path will result in visually impaired persons having difficulties in mobility. In addition, discrimination in access to information also occurs. Most of the information that is disseminated through the media can only be grasped by one body sense. For example, announcing the departure of a mode of public transportation using only loudspeakers. This will make it difficult for people with hearing disabilities to get access to this information. Discrimination in access, discrimination of the rights of persons with disabilities and the existence of social barriers can cause the majority of persons with disabilities to be marginalized in various aspects of life, unable to play a role in the real social environment and have an impact on mental health problems (Cahyono, 2017; Zakie et al., 2018; Effendi and Yudianto, 2017; Cahyono, 2017; Davillas and Pudney, 2019).

Global Burden of Disease notes that the most common mental problems experienced by persons with disabilities are anxiety and depression (Lenze et al., 2001; Wittenberg and Wedegaertner, 2020). Anxiety can arise from fear and feelings of being threatened in life. Anxiety is defined as a signal that alerts and reminds us of the dangers that threaten to do something. To

do something requires preparation. Persons with disabilities who in fact experience limited bodily functions and other problems due to their condition will have difficulty preparing themselves (Wittenberg & Wedegaertner, 2020).

Anxiety disorders can take the form of panic and stress disorders (Lenze et al., 2001). Poor handling of stress can become more serious in the form of depression. So that anxiety has a positive relationship with depression. Depression usually arises from not being able to accept and develop yourself and failing to form positive relationships with other people. Persons with disabilities who experience disorders and limitations in imperfect bodily functions due to congenital health problems or which may result in persons with disabilities being unable to accept themselves, have an attitude of criticizing or reviling themselves, rejecting their own condition or even destroying themselves. These mental problems which are a result of chronic disorders / diseases will have an impact on reducing life expectancy and lowering quality of life (Nguyen et al., 2014).

Anxiety and depression have an important influence on the health conditions and quality of life of persons with disabilities (Nas et al., 2011; Ulusoy and Bolatturk, 2020). Nas et al. (2011) in their study found that people with Rheumatoid Arthritis with a higher risk of depression and anxiety showed a worse quality of life than people with Rheumatoid Arthritis who did not experience depression and anxiety (aOR= 1.06, 95% CI= 1.03 to 1.09; and aOR= 1.06, 95% CI= 1.03 to 1.09); $p < 0.01$). Raju et al. (2010) conducted a study and reported that stroke patients with anxiety had a decreased quality of life (aOR= 0.20, 95% CI= 0.51 to 0.80, $p < 0.01$). Stroke patients who experienced depression had a

decreased quality of life (aOR= 0.38, 95% CI= 0.18 to 0.78, $p < 0.09$).

Many studies have shown that there is an effect of anxiety and depression on decreasing the quality of life of persons with disabilities. This underlies researchers to identify and analyze based on a meta-analysis design the effect of depression and anxiety on the quality of life of persons with disabilities.

SUBJECTS AND METHOD

1. Study Design

This was a meta-analysis. The articles used in this study were obtained from several electronic databases of research journals, including: PubMed (Medline), Science-Direct, Google Scholar. The keywords used in the search for the article were: "anxiety" AND "depression" AND "quality of life" AND "disability" AND "multivariate analysis".

2. Inclusion Criteria

The inclusion criteria in this study were: full-text articles, articles using observational study designs, articles published in English, in 2000-2020, with a population of people with disabilities, research articles using anxiety and depression interventions. With no anxiety and no depression, the outcome of the study was quality of life, the analysis used was multivariate adjusted Odd Ratio (AOR).

3. Exclusion Criteria

The articles published in this study are articles published before 2000 and articles that do not use multivariate analysis.

4. Operational Definition of Variables

The article search was carried out by considering the eligibility criteria defined using the PICO model. The study population was persons with disabilities, intervention in the form of anxiety and depression, the comparison was not anxious and not depressed and the outcome was quality of life.

Quality of life is a subjective assessment of individual well-being which includes both health and non-health aspects. Research instrument: WHOQOL-Bref.

Depression is a psychological problem that has a negative impact on thoughts, actions, feelings and health so that you feel hopeless, no help, full of rejection or feelings of worthlessness. Research instrument: BDI.

Anxiety is a feeling that arises in an individual's personality due to a situation or condition that is threatening/afraid/ worried/ anxious. Research instrument: HADS-A.

5. Data Analysis

Data processing was carried out using the Review Manager (RevMan 5.3) by calculating the adjusted odds ratio (aOR) on articles that were feasible research and forming the final meta-analysis results.

RESULTS

The process of searching for articles is carried out by searching the database with the PRISMA flow diagram, which can be seen in Figure 1.

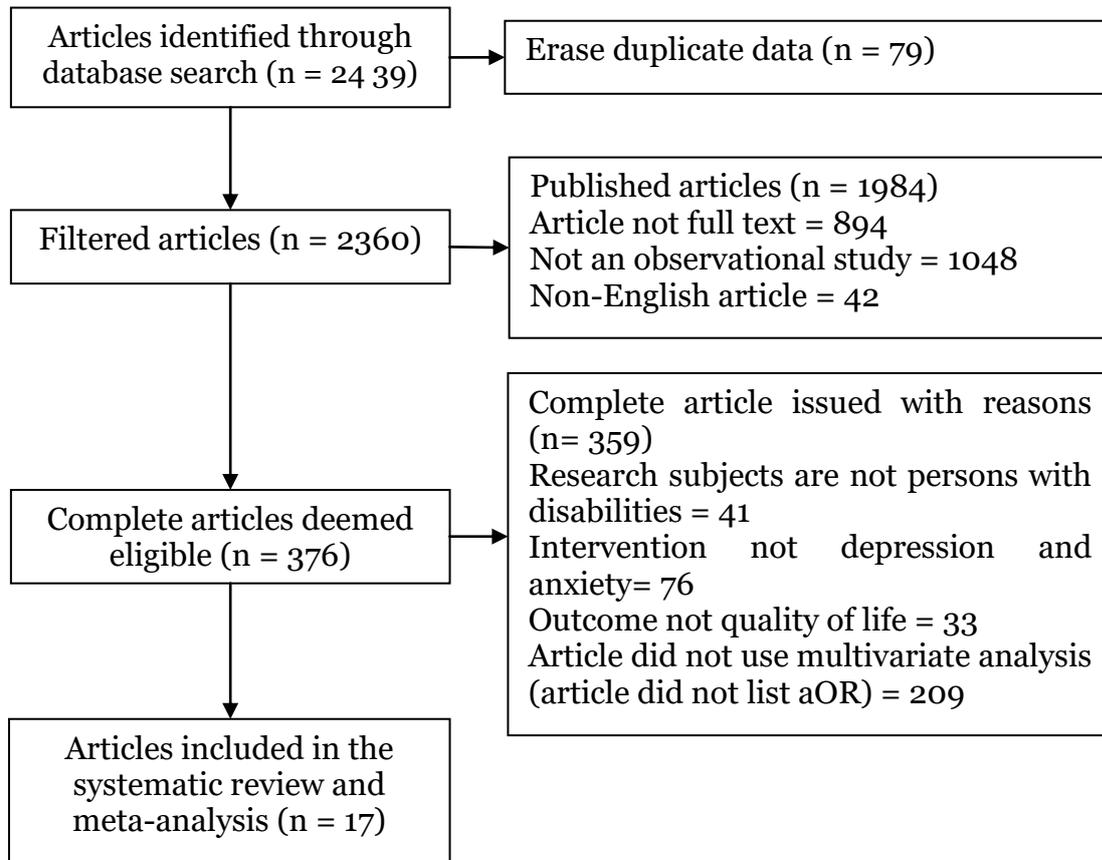


Figure 1 PRISMA flow diagram

Table 1 Summary Source of cross sectional articles on the effect of depression and anxiety on the quality of life of persons with disabilities

Author	Title	Country	Study Design	Samples	P (Population)	I (Intervention)	C (Comparison)	O (Outcome)
Raju et al (2010)	Psychosocial problems, quality of life, and functional independence among Indian stroke survivors	India	Cross sectional	162	Stroke patients	anxiety, functional independence problems	Not anxious, independent functional	Quality of life
Woon et al. (2020)	Depression, anxiety, and associated factors in patients with diabetes: evidence from the anxiety, depression, and personality traits in diabetes mellitus (ADAPT-DM) study	Malaysia	Cross Sectional	300	Diabetes patient	Depression, anxiety	Not depressed, not anxious	Quality of life, personality
Lim et al (2016)	Psychosocial problems, quality of life, and functional independence among indian stroke survivors	Singapore	Cross sectional	100	Glaucoma patients	Depression, anxiety	Not depressed, not anxious	Quality of life
Halimi et al (2018)	Impact of psychological factors on the health-related quality of life of patients treated for pulmonary arterial hypertension	France	Cross sectional	105	Pulmonary arterial hypertension	Depression, anxiety	Not depressed, not anxious	Quality of life
Scalone et al (2006)	Quality of life is associated to the orthopedic status in hemophilic patients with inhibitors	Italy	Cross sectional	102	Hemophilia patients	Depression, anxiety, orthopedic status	Not depressed, not anxious	Quality of life
Moon et al (2004)	Correlates of quality of life after stroke	South Korea	Cross sectional	109	Stroke patients	Depression, anxiety, functional independence, MRI data	Not depressed, not anxious	Quality of life
Faugere et al (2017)	Quality of life is associated with chronic inflammation in depression: a cross-sectional study	France	Cross sectional	181	Chronic inflammatory patients	Depression, chronic inflammation severity	Not depressed	Quality of life
Marthoenis et al (2020)	Quality of life, anxiety of patients undergoing hemodialysis: Significant role of acceptance of the illness	Indo nesia	Cross sectional	213	Kidney disorders	Anxiety, acceptance of disease	Don't worry	Quality of life
Risal et al (2016)	Anxiety and depression in Nepal: prevalence, comorbidity and associations	Nepal	Cross sectional	2100	The patient's mental assumptions	Depression, anxiety	Not depressed, not anxious	Quality of life, lifestyle

Nguyen et al (2014)	Clinical, functional and health-related quality of life correlates of clinically significant symptoms of anxiety and depression in patients with systemic sclerosis: A cross-sectional survey	France	Cross sectional	381	Systemic sclerosis patients	Anxiety, depression	Not anxious, not depressed	quality of life, functional ability
Shaboya et al (2010)	Association between anxiety or depressive symptoms and arterial hypertension, and their impact on the quality of life	Brazil	Cross sectional	302	Hypertensive patients	Depression, anxiety	Not depressed, not anxious	Quality of life

Table 2 Assessment of the quality of cross-sectional articles on the effect of depression and anxiety on the quality of life for persons with disabilities

Checklist Question	Author (Year)										
	Raju et al. (2010)	Woon et al. (2020)	Lim et al. (2016)	Halimi et al. (2018)	Scalone et al. (2006)	Moon et al. (2004)	Faugere et al. (2017)	Marthoenis et al. (2020)	Risal et al. (2016)	Nguyen et al. (2014)	Shaboya et al. (2010)
Does this objective clearly address the research focus / problem?	1	1	1	1	1	1	1	1	1	1	1
Is the cross-sectional research method suitable for answering research questions?	1	1	1	1	1	1	1	1	1	1	1
Is the method of selecting research subjects clearly written?	1	1	1	1	0	1	0	1	1	0	0
Does the sampling method lead to bias (selection)?	1	1	1	0	1	1	1	1	1	1	1
Does the research sample taken represent the designated population?	1	1	1	1	1	1	1	1	1	1	1
Was the sample size based on pre-study considerations?	1	1	1	1	1	1	1	1	1	1	1
Was a satisfactory response achieved?	1	1	1	1	1	0	1	1	1	1	1
Are the research instruments valid and reliable?	1	1	1	1	1	1	1	1	1	1	1
Is statistical significance assessed?	1	1	1	1	1	0	1	1	1	1	1
Are confidence intervals given for the main outcome?	1	1	1	1	1	1	0	1	1	0	0

Are there any confounding factors that have not been taken into account?	1	1	1	1	1	1	1	1	1	1	1
Are the results applicable to your research?	1	1	1	1	1	1	1	1	1	1	1
Total	12	12	12	11	11	10	10	12	12	10	10

Note: Yes = 1, No= 0

Table 3 Summary Source of the cohort article on the effect of depression and anxiety on the quality of life of persons with disabilities

Author (year)	Title	Country	Study Design	Sample	P Population	I Intervention	C Comparison	O Outcome
Nas et al. (2011)	Psychological status is associated with health-related quality of life in patients with rheumatoid arthritis	Turkey	Cohort	421	Rheumatoid arthritis patients	Psychological status (anxiety and depression)	Not anxious, not depressed	Quality of life
Solomon et al. (2010)	Trajectories of quality of life in older persons with advanced illness	New York	Cohort	185	Chronic disease patients (cancer, heart failure, or chronic obstructive pulmonary disease)	Depression, anxiety, problems with activities of daily life, poor health status	Not depressed, not anxious	Quality of life
Pan et al. (2008)	Longitudinal analysis of quality of life for stroke survivors using latent curve models	Hong Kong	Cohort	303	Stroke patients	Depression, activities of daily life, handicap	Not depressed	Quality of life
Lee et al. (2016)	Disability and quality of life in community-dwelling elderly cancer survivors: Case-control study in the Korean population	South Korea	Cohort	1776	Cancer patients	Anxiety, age, gender, marital status, education level, income, employment status	Not worry	Quality of life
Bagshaw et al. (2015)	Long-term association between frailty and health-related quality of life among survivors of critical illness: A prospective multicenter cohort study	Canada	Cohort	421	Post critical patient in ICU	Anxiety, mobility problems, self-care, and activity	Not worry	Quality of life
O'Donell et al. (2010)	Does access to compensation have an impact on recovery outcomes after injury?	Australia	Cohort	391	Post traumatic patient	Health status, anxiety, other health problems that arise due to trauma	Not worry	Quality of life

Table 4 Assessment of the quality of the cohort articles on the effects of depression and anxiety on the quality of life for persons with disabilities

Checklist Questions	Author (Year)					
	Nas et al. (2011)	Solomon et al. (2010)	Pan et al. (2008)	Lee et al. (2016)	Bagshaw et al. (2015)	O'Donnell et al. (2010)
Does this research address clearly focused issues?	1	1	1	1	1	1
Was the group included in an acceptable way?	1	1	1	1	1	1
Is exposure measured accurately to minimize bias?	1	1	1	1	1	1
Are the results measured accurately to minimize bias?	1	1	1	1	1	1
Have the authors identified all the important confounding factors?	1	1	1	0	0	0
Was the subject follow-up of the study complete?	1	1	1	1	0	1
What are the results of this study?	1	1	1	1	1	1
How precise is the result?	1	1	1	1	1	1
Do you believe the results?	1	1	1	1	1	1
Can the results be applied to the local population?	1	1	1	1	1	1
Are the results of this study consistent with other available evidence?	1	1	1	1	1	1
What are the implications of this study for practice?	1	1	1	1	1	1
Total	12	12	12	11	10	11

Note: Yes = 1, No= 0

Table 5 Results of a meta-analysis of the effect of depression on the quality of life of persons with disabilities

Author (Year)	Country	Study Design	Sample size	AOR score	95% CI
Raju et al. (2010)	India	Cross sectional	162	0.22	0.10 - 0.47
Woon et al. (2020)	Malaysia	Cross sectional	300	0.47	0.29-0.75
Lim et al. (2016)	Singapore	Cross sectional	100	0.92	0.88-0.96
Halimi et al (2018)	France	Cross sectional	105	0.76	0.64-0.90
Scalone et al (2006)	Italy	Cross sectional	102	0.97	0.88-1.07
Moon et al. (2004)	South Korea	Cross sectional	109	0.80	0.19-3.33
Faugere et al. (2017)	France	Cross sectional	181	0.77	0.64-0.93
Nas et al. (2011)	Turkey	Cohort	421	0.972	0.96–0.98
Solomon et al. (2010)	New York	Cohort	185	0.42	0.27-0.66
Pan et al. (2008)	Hong Kong	Cohort	392	0.445	0.15-1.28

a.

b. Forest plot

1. Cross sectional

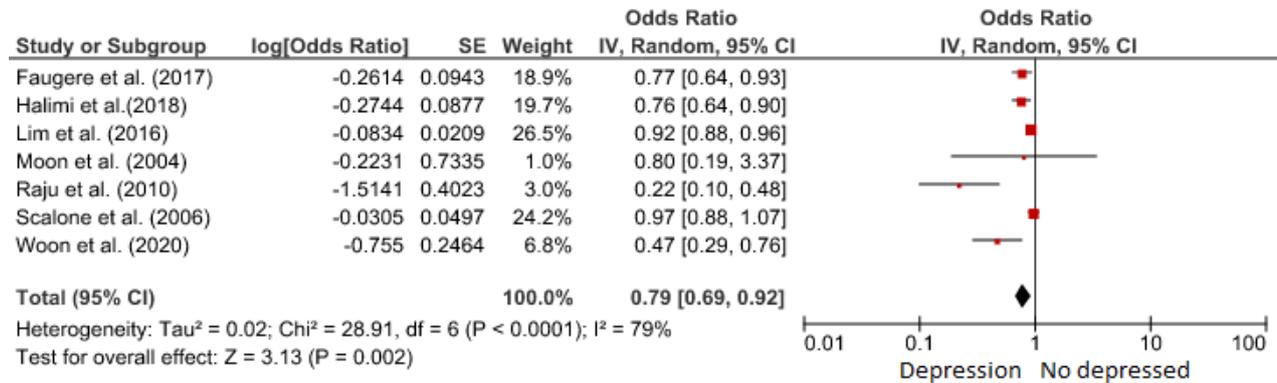


Figure 2. Forest plot of the effect of depression on the quality of life of persons with disabilities (cross sectional study)

2. Cohort

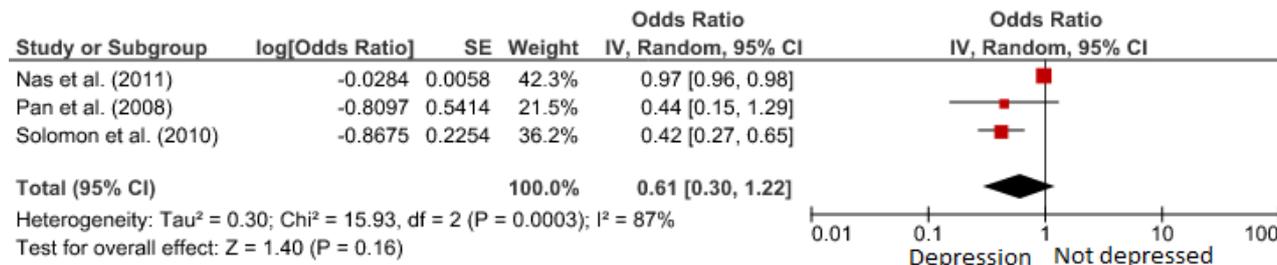


Figure 3. Forest plot of the influence of depression on the quality of life of persons with disabilities (cohort study)

Figure 2 shows that in a cross-sectional study depression resulted in a significant decrease in the quality of life of persons with disabilities (aOR= 0.79; 95% CI= 0.69 - 0.92) (p= 0.002). The amount of heterogeneity is I²= 79%, the data shows the amount of variation in the study so that it uses a random effects analysis model. The

same was true of the cohort study. Figure 3 shows that depression results in a significant decrease in the quality of life of persons with disabilities (aOR= 0.61; 95% CI= 0.30-1.22; p= 0.16). There is a large heterogeneity variation with I²= 87%, so the study uses random effects analysis.

c. Funnel Plot

1. Cross sectional

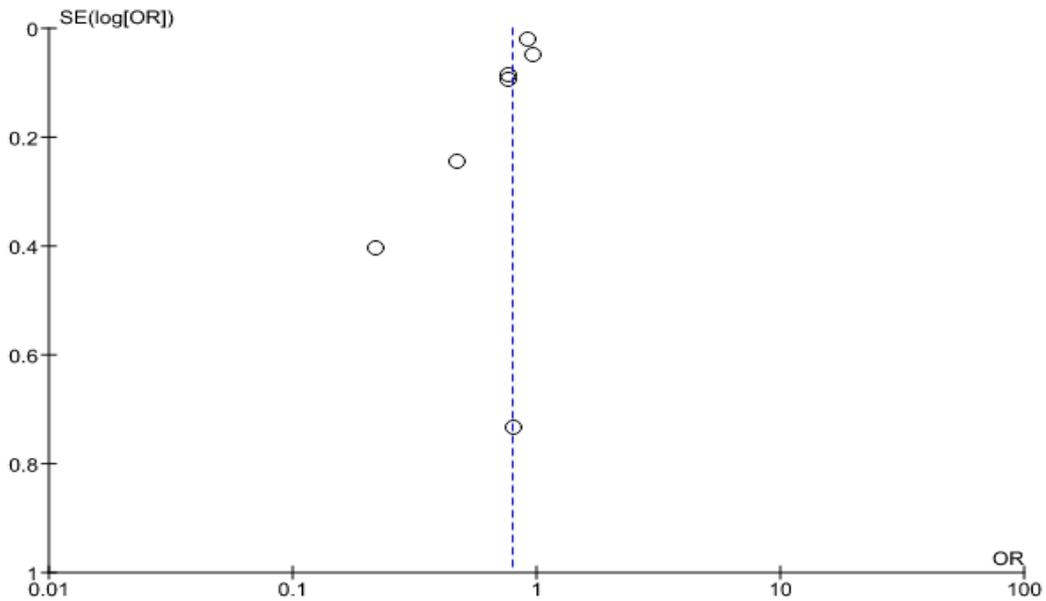


Figure 4. Funnel plot of the effect of depression on the quality of life of persons with disabilities (cross sectional study)

2. Cohort

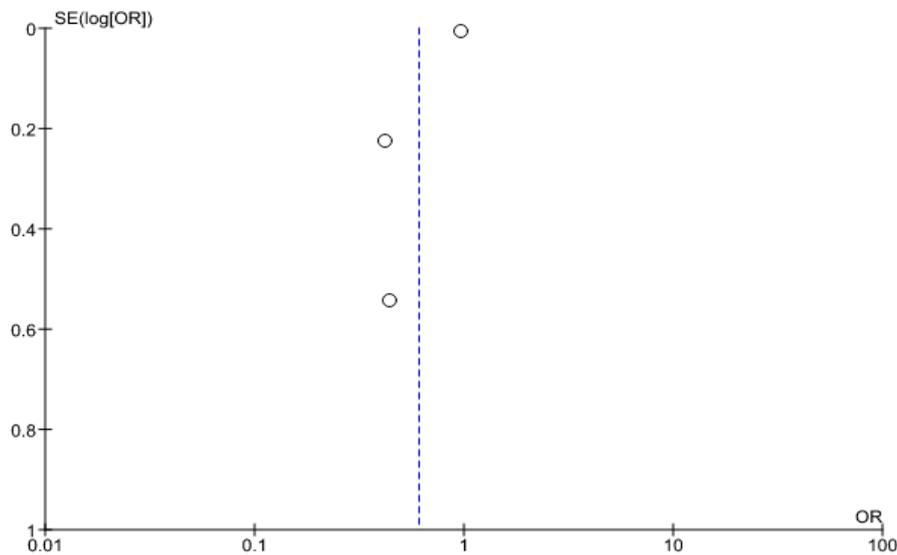


Figure 5. Funnel plot of the effect of depression on the quality of life of persons with disabilities (cohort study)

The funnel plot in Figure 4 shows a publication bias in the cross sectional study which is characterized by asymmetry of the

left and right plots. The left plot has a standard error value of $0.2 < 0.6$, while on the right plot the standard error value is

<0.2. The existence of bias can also be seen from the imbalance of distances on the left and right plots. The left plot has a farther distance than the right plot. The funnel plot of the cohort study shown in Figure 5 also

indicates that there is publication bias due to the asymmetry between the left and right plots. The standard error value in the left plot between one study and another is quite wide, 0.2 and > 0.4.

Table 6 Results of a meta-analysis of the effect of anxiety on the quality of life of persons with disabilities

Author (Year)	Country	Study Design	Sample Size	AOR	95% CI
Raju et al. (2010)	India	Cross sectional	162	0.20	0.16-0.25
Marthoenis et al. (2020)	Indonesia	Cross sectional	213	0.971	0.97-0.99
Woon et al. (2020)	Malaysia	Cross sectional	300	0.69	0.58-0.83
Halimi et al (2018)	France	Cross sectional	105	0.86	0.80-0.93
Risal et al. (2016)	Nepal	Cross sectional	2100	0.8	0.75-0.84
Moon et al. (2004)	South Korea	Cross sectional	109	0.93	0.35-2.46
Nguyen et al. (2014)	France	Cross sectional	381	0.91	0.84-0.98
Shaboya et al. (2010)	Brazil	Cross sectional	302	0.77	0.66-0.91
Nas et al. (2011)	Turkey	Cohort	421	0.966	0.95-0.98
Solomon et al. (2010)	New York	Cohort	185	0.95	0.62-1.44
Lee et al. (2016)	South Korea	Cohort	1776	0.68	0.67-0.69
Bagshaw et al. I (2015)	Canada	Cohort	421	0.74	0.63-0.88
O'Donnell et al. (2010)	Australia	Cohort	391	0.97	0.94-1.03

a. Forest plot

1. Cross sectional

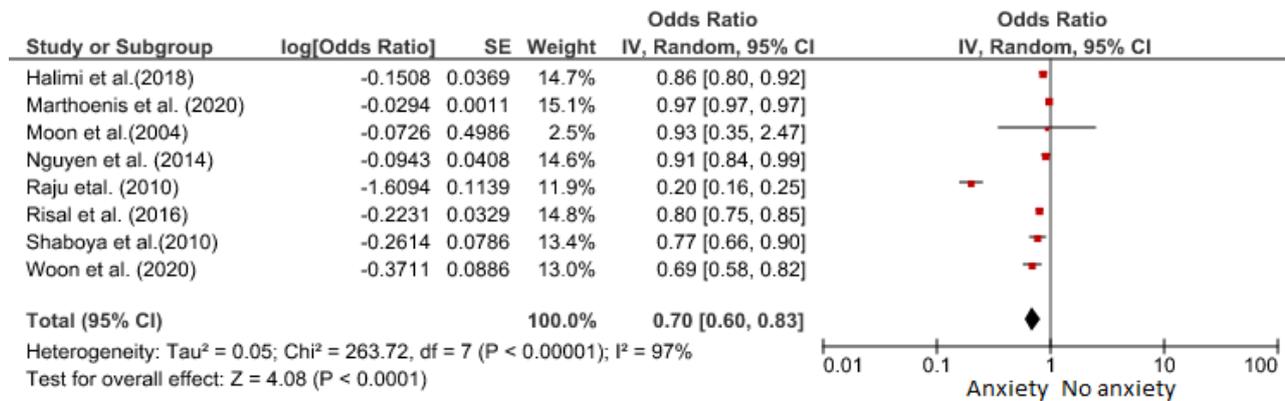


Figure 6 Forest plot of the effect of anxiety on the quality of life of persons with disabilities (cross sectional study)

2. Cohort

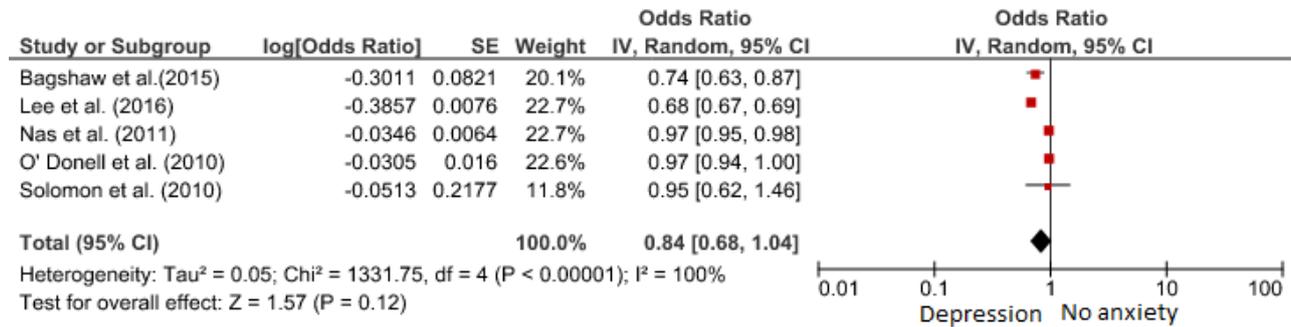


Figure 7 Forest plot of the effect of anxiety on the quality of life of persons with disabilities (cohort study)

Based on Figure 6, the results of the forest plot in the cross sectional study show that depression has an effect on decreasing the quality of life of persons with disabilities 0.7 times (OR= 0.70; 95% CI= 0.60-0.83) and is statistically significant with a p <0.001. The heterogeneity in the study was very large with a value of I²= 97% so that the random effect was used in analyzing the study.

The forest plot cohort study (Figure 7) also shows a decrease in the quality of life due to depression experienced by persons with disabilities by 0.84 times (OR= 0.84; 95% CI 0.68-1.04) with p= 0.12. The study was analyzed using the random effect because the variation (heterogeneity) showed a very large value (I²= 100%).

b. Funnel Plot

1. Cross sectional

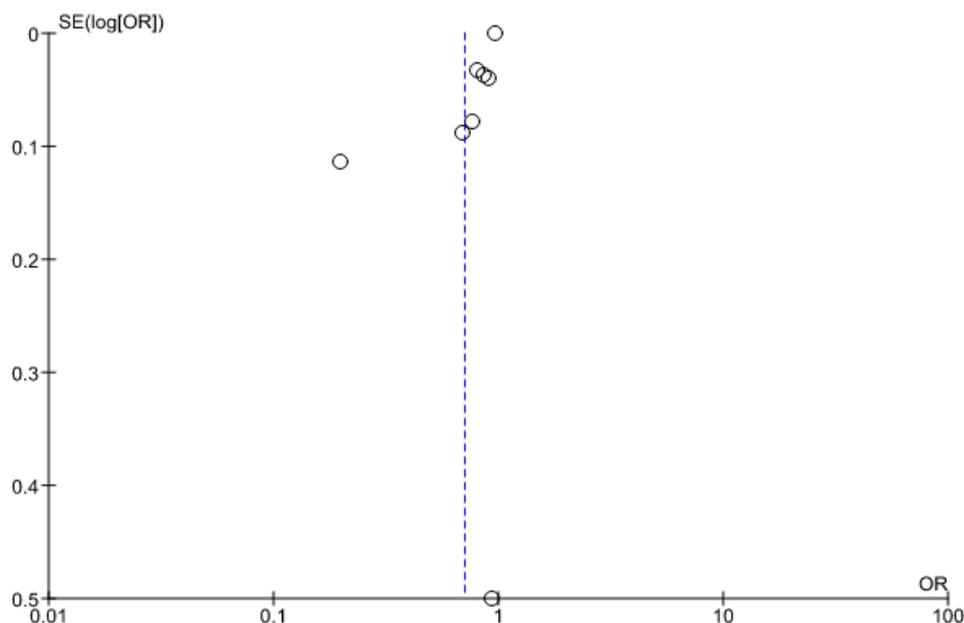


Figure 8. Funnel plot of the effect of anxiety on the quality of life of persons with disabilities (cross sectional study)

2. Cohort

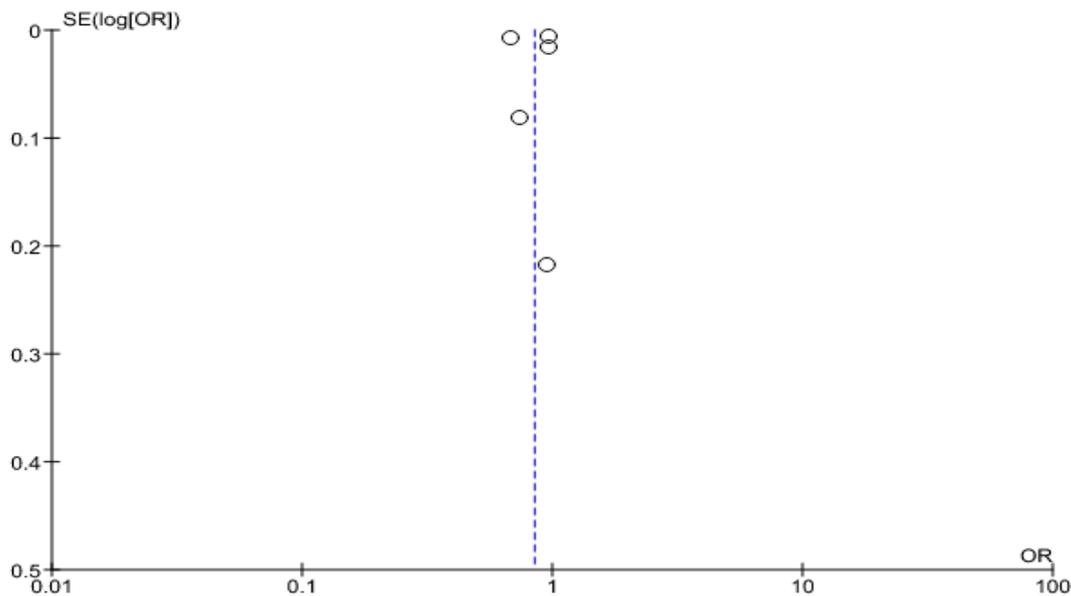


Figure 9 Funnel plot of the effect of anxiety on the quality of life of persons with disabilities (cohort study)

The results of the funnel plot in a cross-sectional study (Figure 8), indicate a publication bias. This is indicated by the asymmetrical plot of the left and the right plot. In the right plot, the distance of the standard error value is very wide ranging from $0 < 0.5$, while the left plot is the distance of the standard error value is very small, $0 < 0.1$. An imbalance also occurs, where the distance between the studies, both on the left and right side of the funnel plot. So that the funnel plot image does not form a symmetrical funnel-shaped graph.

Figure 9 (funnel plot cohort study) also shows a publication bias. It is indicated by the asymmetry between the left plot and the right plot. The standard error value on the left plot is $0 < 0.1$, while the right plot has a very wide distance of $0 < 0.3$. The funnel plot also shows an imbalance in the distance between studies, both in the left plot and the right plot.

SUBJECTS AND METHOD

A. The effect of depression on the quality of life of persons with disabilities

Depression is an emotional condition that is usually characterized by extreme sadness, feelings of meaninglessness and guilt (withdrawal, sleeplessness, loss of appetite, interest in daily activities (Davidson, 2004). Depression is a form of mental disorder in nature. feelings (affective, mood) which are characterized by sadness, depression, loss of passion, lethargy, lack of enthusiasm and hopelessness Depression can occur in normal people and in people who have disorders/ limitations/ disabilities. Melancholy (sadness and discouragement), characterized by pessimism and decreased activity, while for people with disabilities, depression appears in the form of extreme unwillingness to react or respond to stimuli, usually accompanied by decreased self-worth, delusions, inability and hopelessness. has an important influence on health conditions and quality of life of pe

having a disability (Nas et al., 2011; Ulusoy & Bolatturk, 2020).

Based on the results of the meta-analysis in this study, it was found that depression had a weak relationship with the quality of life of people with disabilities in the cross sectional study of 0.79 times (aOR= 0.69-0.92; 95% CI= 0.69-0.92; p= 0.002). Meanwhile, in the cohort study, depression had a moderate relationship with quality of life, namely 0.61 times (aOR= 0.61; 95% CI= 0.30-1.22; p= 0.16).

These results are consistent with Woon et al. (2020) who reported that people with disabilities (diabetes) who experienced depression had an impact on decreasing quality of life by 0.69 times (aOR= 0.69; 95% CI= 0.58-0.83). Other studies have also reported that depression experienced by persons with disabilities (stroke) has an effect on decreasing quality of life by 0.44 times (aOR= 0.445; 95% CI= 0.15-1.28) (Pan et al. 2018). Goyal et al. (2018) also reported the results of their study which showed that the symptoms of depression experienced by people with breast cancer had a significant impact on quality of life (p < 0.001).

B. The effect of anxiety on the quality of life of persons with disabilities

Anxiety according to the Big Indonesian Dictionary (KBBI) (2016) comes from the word anxious /ce.mas/ which means not peaceful (because of worry, fear); restless. Meanwhile anxiety is (1) about anxiety; (2) worry too much. Anxiety is one of the most common mental, emotional and behavioral disorders (Kessler & Wang, 2008). Anxieties disorder is characterized by excessive and unrealistic anxiety about something (Soodan & Arya, 2015). 80% of study subjects Nguyen et al. (2014) who is a patient with systemic sclerosis experiencing anxiety. Anxiety has an important influence on the health conditions and quality of life

of persons with disabilities (Nas et al., 2011; Ulusoy & Bolatturk, 2020).

The results of the meta-analysis of this study indicate a weak relationship between anxiety and the quality of life of persons with disabilities in both cross-sectional and cohort studies. The effect of anxiety on quality of life in the cross sectional study was 0.7 times (aOR= 0.70; 95% CI 0.60 to 0.83; p < 0.0001) while the cohort study was 0.84 times (aOR = 0.84; 95% CI 0.68-1.04).

Risal et al. (2016) reported the same results. Persons with disabilities who experience anxiety will have an impact on decreasing quality of life by 0.8 times (aOR= 0.8; 95% CI = 0.75-0.84). Solomon et al. (2010) in his research on the effect of anxiety on quality of life reported that the results showed a negative relationship (weak strength) between anxiety and quality of life in persons with disabilities of 0.95 times (aOR = 0.95; 95% CI 0.62-1.44)

AUTHOR CONTRIBUTION

Iffah Nurhayati is the main researcher who selects topics, explores and collects research data. Bhisma Murti and Hanung Prasetya played a role in analyzing data and reviewing research documents.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGEMENT

We are very grateful to the database providers PubMed, Science Direct, and Google Scholar.

REFERENCE

Bagshaw SM, Stelfox T, Johnson JA, McDermid RC, Rolfson DB, PhamD T,

- Ibrahim Q, Majumdar SR (2015). Long-term association between frailty and health-related quality of life among survivors of critical illness: a prospective multicenter cohort study. *Crit Care Med*, 43 (5): 973-983. DOI: 10.1097/CCM.0000000000000860.
- Cahyono SAT (2017). Penyandang disabilitas: menelisik layanan rehabilitasi sosial difabel pada keluarga miskin (Persons with disabilities: researching disabled social rehabilitation services for poor families). *Media Informasi Penelitian Kesejahteraan Sosial*, 41 (3): 239–254. DOI: 10.31105/mipks.-v4i13.2257.
- Davillas A, Pudney S (2019). Biomarkers as precursors of disability. *Econ Hum Biol*, 36: 10. DOI: 10.1016/j.ehb.2019.100814.
- Economic and Social Commission for Asia and the Pacific (ESCAP) United Nations Building (2016). Disability at a glance 2015 strengthening employment prospects for persons with disabilities in Asia and the Pacific. ESCAP United Nations Publication. Thailand.
- Effendi AB, Yuniarto R (2017). Implementasi diversity program bagi tenaga kerja penyandang disabilitas pada PT. Wangta Agung Kota Surabaya (Implementation of the diversity program for workers with disabilities at PT. Wangta Agung City of Surabaya). *Indones J Disabil Stud*, 4(2): 6–103. DOI: 10.21776/ub.ijds.2017.004.02.2.
- Halimi L, Marin G, Molinari N, Gamez AS, Boissin C, Suehs CM, Vachier I, Bourdin A (2018). *J Psychosom Res*, 105: 45-51. DOI: 10.1016/j.jpsychores.2017.12.003.
- Hanjarwati A, Suprihatiningrum J, Aminah S (2019). Persepsi penyandang disabilitas dan stakeholder untuk mempromosikan dan mengembangkan komunitas inklusif di DIY Dan Asia Tenggara (Perceptions of persons with disabilities and stakeholders to promote and develop inclusive communities in DIY And Southeast Asia). *J Sos Ref*, 13(2): 379. DOI: 10.14421/jsr.v13i12-1625.
- Lee MK (2016). Disability and quality of life in community-dwelling elderly cancer survivors: Case-control study in the Korean population. *Eur J Oncol Nurs*, 24, 22-28. DOI: 10.1016/j.ejon.2016.08.003.
- Lenze EJ, Rogers JC, Martire LM, Mulsant BH, Rollman BL, Dew MA, Schulz R, Reynolds CF (2001). The association of late-life depression and anxiety with physical disability: A review of the literature and prospectus for future research. *Am J Geriatr Psychiatry*, 9(2): 113–135. DOI: 10.1097/00019442-200105000-00004
- Lim NCS, Fan CHJ, Yong MKH, Wong EPY, Yip LWY (2016). Assessment of depression, anxiety, and quality of life in Singaporean patients with glaucoma. *J Glaucoma*, 25(7): 605-612. DOI: 10.1097/IJG.0000000000000393.
- Marthoenis, Syukri M, Abdullah, Tandi TMR, Putra N, Laura H, Setiawan A, Sofyam H, Schouler-Ocak M (2021). Quality of life, depression, and anxiety of patients undergoing hemodialysis: Significant role of acceptance of the illness. *Int J Psychiatr Med*, 56(1): 40-50. DOI: 10.1177/0091217420913382.
- Mehbub AAHM, Astell-Burt T, Feng X (2019). Does social capital and a healthier lifestyle increase mental health resilience to disability acquisition? Group-based discrete trajectory mixture models of pre-post longitu-

- dinal data. *Soc Sci Med*, 235. DOI: 10.1016/j.socscimed.2019.01.045
- Moon YS, Kim SJ, Kim HC, Won MH, Kim DH. (2004). Correlates of quality of life after stroke. *J Neurosci*, 224 (1-2): 37-41. DOI: 10.1016/j.jns.2004.05.018.
- Murti B (2020). Prinsip Meta-Analisis. Workshop Online Program Magister Ilmu Kesehatan Masyarakat, Program Pascasarjana, Universitas Sebelas Maret (Principles of Meta-Analysis. Online Workshop for Masters Program in Public Health Sciences, Postgraduate Program, Universitas Sebelas Maret).
- Nas K, Sarac AJ, Gur A, Cevik R, Altay Z, Erdal A, Ersoy Y, et al. (2011). Psychological status is associated with health-related quality of life in patients with rheumatoid arthritis. *J Back and Musculoskelet Rehabil*, 24 (2): 95–100. DOI: 10.3233/BMR-2011-02-81.
- Nguyen C, Ranque B, Baubet T, Bérezné A, Mestre-Stanislas C, Rannou F, Pape-lard A, et al. (2014). Clinical, functional and health-related quality of life correlates of clinically significant symptoms of anxiety and depression in patients with systemic sclerosis: A cross-sectional survey. *PLoS ONE*, 9(2). DOI: 10.1371/journal.pone.009-0484.
- O'Donnell ML, Creamer MC, Mc Farlane M, Silove D, Bryant R (2010). Does access to compensation have an impact on recovery outcomes after injury?. *Med J Aust*, 192 (6): 328-333. DOI: 10.5694/j.1326-5377.2010.tb0-3532.x.
- Pan JH, Song XY, Lee SY, Kwok T. (2008). Longitudinal analysis of quality of life for stroke survivors using latent curve models. *J Stroke*, 39 (10): 2795-2802. DOI: 10.1161/STROKEAHA.108.515-460.
- Raju RS, Sarma PS, Pandian JD (2010). Psychosocial problems, quality of life, and functional independence among Indian stroke survivors. *J Stroke*, 41 (12): 2932–2937. DOI: 10.1161/STR-OKEAHA.110.596817
- Risal A, Manandhar K, Linde M, Steiner TJ, Holen A (2016). Anxiety and depression in Nepal: Prevalence, comorbidity and associations. *BMC Psychiatry*, 16 (1): 1-9. DOI: 0.1186/s12888-016-08-10-0.
- Saboya PMHP, Zimmermann PR, Bodanes LC (2010). Association between anxiety or depressive symptoms and arterial hypertension, and their impact on the quality of life. *Int J Psychiatr Med*, 40 (3): 307-320. DOI: 10.2190/PM.40.3.f.
- Scalone L, Mantovani LG, Mannucci PM, Gringeri A. (2006). Quality of life is associated to the orthopaedic status in haemophilic patients with inhibitors. *Haemophilia*, 12 (2), 154-162. DOI: 10.1111/j.1365-2516.2006.01204.x.
- Solomon R, Kirwin P, Van Ness PH, O'Leary J, Fried TR (2010). Trajectories of quality of life in older persons with advanced illness. *J Am Geriatr Soc*, 58 (5): 837-843. DOI: 10.1111/j.1532-5415.2010.02817.x.
- Ulusoy EK, Bolattürk ÖF (2020). The effect of greater occipital nerve blockade on the quality of life, disability and comorbid depression, anxiety, and sleep disturbance in patients with chronic migraine. *Neurol Sci*, 41 (7): 1829–1835. DOI: 10.1007/s10072-020-042-86-9.
- Woon LSC, Sidi HB, Ravindran A, Gosse PJ, Mainland RL, Kaunisman ES, Hatta NH, Zulkifli AY, Mustafa N (2020). Depression, anxiety, and

associated factors in patients with diabetes: Evidence from the anxiety, depression, and personality traits in diabetes mellitus (ADAPT-DM) study. *BMC Psychiatry*, 20(1): 1-14. DOI: 10.1186/s12888-020-02615-y.

World Health Organization (2011). *World Report on Disability*. DOI: <https://doi.org/10.3109/09638->

288.2011.590392, accessed October 2020.

Zakiei A, Kiani N, Morovati F, Komasi S (2018). Classification of various types of disability and determining their predictive causes in western Iran. *Clin Epidemiol Glob Health*, S2213-3984 (18): 30276-8. DOI: 10.1016/j.cegh.-2018.11.003.